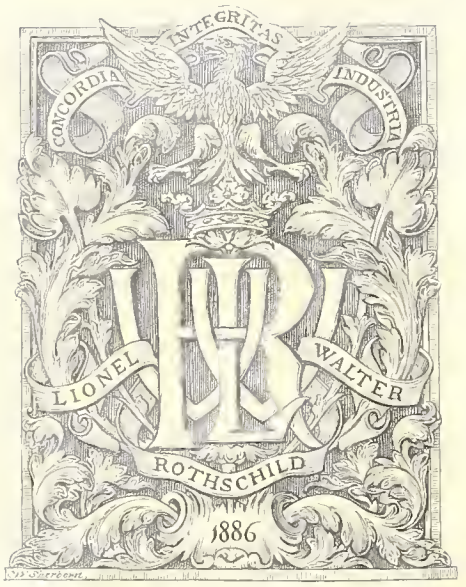

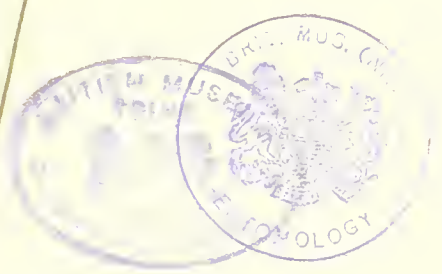

THE MACROLEPIDOPTERA OF THE WORLD

A SYSTEMATIC DESCHPTION OF THE HITHERTO KNOWN MACROLEPIDOPTERA

EDITED IN COLLABORATION WITH WELL-KNOWN SPECIALISTS

BY

DR. ADALBERT SEITZ, PROFESSOR

▽

DIVISION I: PALAEARCTIC FAUNA — VOL. 1—4
DIVISION II: EXOTIC FAUNA — VOL. 5—16

VOL. 9

ALFRED KERNEN, PUBLISHER, STUTTGART
1927

THE INDO-AUSTRALIAN RHOPALOCERA

WITH 177 PLATES

▽

TEXT

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ALFRED KERNEN, PUBLISHER STUTTGART

1927

Printed by H. Laupp jr, Tübingen.

Preface.

In completing the work of the 9th Volume of the „Macrolepidoptera of the World", I beg from the reader an indulgent and lenient criticism. The present time, in consequence of European troubles, is the most unsuitable for editing large and costly works, and this 6th volume has had to suffer from still further severe setbacks. The whole volume had been written, the first 800 pages edited, and all the plates prepared, when the war suddenly broke out; only the textual part of the *Lycaenidae* was incomplete. Many well-known authors had promised to undertake the work, but had never carried out their designs. Eventually the author of the greater part of this volume, H. Fruhstorfer, decided to take this chapter in hand. But after the plates had been prepared according to his instructions, he was compelled to make a pause of several years, and death overtook him before he was able to take the work up again.

It was quite impossible to furnish another production of the twenty-two very complicated plates of the *Lycaenidae* according to the proposals of other authors, and it can be easily understood that no collaborator could be found who would conform in every respect to the plates which were already published. Under these circumstances, I, as editor, was obliged to undertake the composition of this chapter myself.

In doing this I thought the correct thing would be to keep strictly to Fruhstorfer's plans, even where my views differed from his. On the one hand, I was forced to do so, by the plates having been executed according to Fruhstorfer's instructions and sketches, and from which the text could not deviate; on the other, I thought thereby to maintain the homogeneous character of the rest of the volume, all of which, excepting the chapter on the *Papilionidae*, is from the pen of Fruhstorfer. By the kind help of Dr. von Rosen of Munich, I was fortunately able to obtain a great deal of information with regard to the copies of the figures; some doubts. however, remained unsolved, since neither the manuscript nor any notes were obtainable from the property left by Fruhstorfer. It seems that he had the intention of inserting new descriptions where he deemed it necessary, and had sketched a few entirely unknown lepidopteral species, with which later authors could do absolutely nothing, as there were no identifications whatsoever.

It took several more years to clear up further doubts, and when all was finished, the edition of the *Lycaenidae* had taken 12 years to complete (from 1915 to 1927) whereas nearly 900 of the Indo-Australian *Rhopalocera* had been accomplished in a few years, and edited in the time suggested in the original programme.

The one hundred and seventy-seven plates of the work have been executed according to the method applied in other countries — nearly all from nature, and I feel infinitely indebted for the helpful assistance I have received in procuring and elaborating the vast number of drawings. It is above all to Lord Rothschild that I owe my gratitude, for having loaned all the *Papilionidae*, written up by Dr. Jordan of the Tring Museum. Moreover, the extensive collection of Semper of the Senckenberg Museum at Frankfort was at my disposal, so that nearly all the illustrations of the Philippine species could be made from the respective authentic specimens. My own collection, which is now also in the Senckenbergianum at Frankfort, and which altogether contained more than 70 000 specimens, had been enlarged to a considerable size by numerous voyages to India, China, and Australia. Fruhstorfer had taken nearly all of plates 51—162 from originals in his collection. and thus an approximate completeness of copies was achieved, in which one or a few forms obtainable to collectors were reproduced. The chief idea in doing this was to limit as much as possible those plates that would have rendered

the cost price of the work too high. Of the gigantic *Zeuxidia* only about 20 per cent. of the known forms were illustrated, but of the small *Lycaenidae* often as much as 60 per cent. of the denominated races appeared, because the former are easily recognized from the descriptions, whereas the subtile distinctions in the small lepidoptera necessitated a greater number of diagrams, and these did not take up too much room.

As the composition of the Hesperids, completed in 1914 after FRUHSTORFER's plans, had remained unprinted until 1927, waiting for the preceding Lycaenids, the question arose whether it should be remodelled and brought up to date by additional annotation, or whether it should be printed in its original form. The reason why I decided to have it printed almost as it stood is that a properly revised version would no longer have corresponded to the plates, which were finished long ago. Also, the increase of material since 1914 did not seem to be great, and if all the forms studied since that year had been appended without omission, the composition of the Hesperids would have been out of all proportion with the other part of the work. Moreover, the time has already come to begin a S u p p l e m e n t a for the whole work, so no appreciable delay is caused by recording these new discoveries in this supplementary volume. Only those larger publications which had come out before 1914 but which could not reach Germany owing to the blockade, such as WATERHOUSE and LYELL, and others, were used in the additional annotations.

The extraordinarily great number of Indo-Australian forms described — the index contains about 14 000 names — made it essential to shorten and condense the treatise as much as possible. On an average, only two or three lines were at our disposal for every form, and thus none of the textual explanations could exceed its scheduled length. Particularly the question whether single forms are entitled to be regarded as species could hardly anywhere be entered into any more than in the other volumes. Such decisions without argument on anatomical circumstances are but of little value, and detailed argument is here quite impracticable owing to the great lack of space. In many cases, the question whether a form is to be considered as a „local race" of its geographically neighbouring form or as a „vicarious species" will to a certain degree be a matter of opinion and cannot therefore be discussed here. We limit ourselves to collecting in paragraphs t h o s e f o r m s w h o s e d i f f e r e n c e s a d m i t o f a g e n e r a l r e v i e w; this rule will, in most cases, naturally assemble the different forms of one species (a so-called „total species") into one group, but this arrangement must not give the impression that all forms jointly dealt with are necessarily specifically related. Such criticisms, then, as this: — that certain forms being jointly quoted are „wrongly placed together", and so on, are to no purpose, excepting in those rare cases where this question is expressly mentioned by the author in the text.

This cursory way of dealing with the forms only made it possible to condense the extraordinarily voluminous material of the Indo-Australian *Rhopalocera* in one volume. In spite of this, the suggested extent of the volume, 1000 pages and 150 plates at the most, was surpassed by 100 pages and 27 plates. It was therefore impossible from the very first to comply with the request of English readers to circumstantiate (and especially to illustrate by drawings) once more in Vol. IX the palearctic forms also penetrating into the Indian region, instead of merely mentioning them by references to Vol. I. I could not bring myself to do this, thus giving the opportunity of acquiring single volumes, to oblige readers who are specialists; the work in its entirety is meant to represent a whole factor, and I do not consider myself entitled, for the sake of single specialists, to make arrangements that would raise the price of the total work by the repetition of the text and illustrations, although this raise, as some subscribers write, would only amount to one or two dozen plates or a few pages of text.

Ever since the work first came out, the question of nomenclature has always aroused the greatest interest in both specialists and laymen. When the work was just beginning, the discussion of the question resulted in a decision by the majority of zoologists to refuse to carry out the „International Rules of Nomenclature" as an o b l i g a t o r y c o d e x. The editor's opinion was, therefore, that owing to the scientific nature of the work, although it is dealing with exclusively entomological material, he should not deviate from the decisive standpoint of general zoology, by forgetting that entomology is only a branch of zoology. At the international congresses I was absolutely unconvinced that the „International Rules" would ever be carried out. Their inadequacy has been proved too clearly to allow any other opinion: not only have they failed to fulfil their principal task — of stabilising the nomenclature — but on the contrary they have increased the confusion by

different misconstructions to the utmost extent. At international congresses it has been suggested, as a way out of the maze, that reliable and comprehensive catalogues, as they come out, be appointed to regulate questions of nomenclature — then voices have been heard demanding courts of arbitration, commissioners to pronounce irrevocable decisions etc. etc. At that time, and still more so today, it was quite impossible to form any idea as to how the questions of nomenclature would find an agreement; today I think it is just as improbable as I did when I finished the earlier volumes that the hitherto existing „Rules of Nomenclature" will ever be universally accepted.

For these reasons I had to leave it to the authors of this work to carry out the rules as far as they wished. Any resistance on the part of the editor to the ideas of the authors with regard to nomenclature would have been useless: it would have spoilt their pleasure in working without leading to an agreement.

The habit favoured nowadays by many people, of noting every insignificant variation from the type, and slight differences in the colour and marking, was exhaustively considered by the authors. The editor thought it best not to interfere with eminent scientific specialists in this respect. The cancellation of any names already given would, in order to avoid its being regarded as an unjust arbitrary action, have caused circumstantial argument, whereby the disposable space would have been by far exceeded. It was therefore decided to leave the matter in the hands of the monographers.

The plates of the 9th volume, like those of the others, and particularly those of the Palearctic section, are not meant to be works of art, for the principal intention of the entire work is that it should be serviceable and cheap. The chromolithographic printing firm of Werner & Winter, where nearly all the plates were produced, has proved in other works (e. g. Saalmüller. „Lepidoptera of Madagascar") that, if few but costly plates are to be offered, it can supply the very best extant illustrations of insects. But to make purchase possible by libraries, universities and high-schools as well as those collectors who could otherwise not afford to buy the „Macrolepidoptera", cheaper methods had to be chosen, so that it was no more possible to bring into exact prominence an insignificant fineness such as of the hair or the scales etc. We had often to renounce the idea of attaining a record in the production of details that were not absolutely necessary for the clearness and utility of the illustrations, so as to be able to increase the number of figures to such an extent as has hitherto not been reached. We also claim a record in the cheapness of the 9th volume, since 5000 coloured illustrations, together with 1100 pages of text have probably never been supplied at a lower price.

Considering this great number of plates, nobody will be disappointed that they are not all of the best quality. The great number of letters addressed to the editor during the long period of composition of the work acknowledge its purpose, and their writers are in general satisfied; we have not aspired higher than this: the „Macrolepidoptera" is a work which is intended to be universally distributed and frequently used, and not one to be glorified as an expensive, splendid book, accessible only to the few.

In choosing specimens to be illustrated, we have preferred those that had not yet been figured in the larger works by Felder, Moore, Semper etc., but those who have not these works at hand can easily find their way about by the aid of the text which points out the various differences.

One great drawback must be mentioned here: the numerous disagreements between the names on the plates and the references to the illustrations in the text. This was chiefly caused by the fact that, after the plates had been completed, the forms here illustrated were detached by the author as new subordinate forms, from the originally annotated ones, under whose names they had been classed. It was then of course impossible to alter the original names of the figures on the plates, as the latter had been produced long before. Some of these differences might perhaps have been avoided if the names on the plates had been replaced by numbers. But in other works where this has been done, it has taken up so much time and given so much work to look up the names according to the numbers, that I thought it was more to the reader's interest to leave things as they stood, although later on several corrections should be necessary in the plates which are provided with exact description.

The insertion of the names in one of the chromo plates occasioned a naturally large number of misprints, since artistic plates cannot be corrected in the same way as set type in letters. We hope that these misprints

caused by this way of explaining the illustrations will be compensated by the much greater handiness of the work produced thereby.

A work that comprises such an immense material must naturally abstain as much as possible from every possible alteration: that is the duty of the critical monograph. Thus the 9th volume considers its chief task lies not in disagreeing on every occasion with older literature, but in appreciating the admirable works of former specialists, which are the foundations of this work.

The present 9th volume completes the second major division of the entire work, inasmuch as all the butterflies known on the earth have been dealt with. On 549 plates more than 20 000 figures of butterflies have been reproduced, and as the whole text enumerates about 30 000 denominated forms of the butterflies of the entire fauna, there is on an average one figure to every second form, so that at least those species which are in the possession of the private collector are nearly all represented.

Beside the numbers of *Rhopalocera*, 400 plates of *Heterocera* have been produced, so that, when the exotic *Saturnidae* and *Sphingidae* have been completely written up, all the larger moths will have been classified except the few genera of the *Cossidae* and *Noctuidae* — so the final manufacture of all the material is soon to be expected. In any case, a considerable part of the pause of nearly ten years, caused by war and revolution, and during which the work made but slow progress, can be made up. The noticeable recovery and strengthening brought about by my recent stay in Central Brazil will, I trust, make itself apparent, after my return to Europe, in the speedy completion of the work.

For the present, I beg to express my sincere thanks to all who have aided me in the accomplishment of my great task: particularly to Prof. Dr. Draudt of Darmstadt, who was kind enough to relieve me of the troublesome business of organization and editorial work during my present journey of convalescence.

Finally I must mention that the editor's responsibility refers only to the German text. Of the French edition which has entirely passed into the hands of the firm of Le Moult, I have no knowledge whatsoever.

Araraquara, March 24th 1927.

Dr. Adalbert Seitz
Darmstadt.

The
Macrolepidoptera
of the World

A systematic account
of all the known Macrolepidoptera

edited with the assistance of well-known specialists
by

Dr. Adalbert Seitz

Director of the Zoological Gardens at Frankfurt a/M., corresponding
and ordinary member of numerous scientific societies.

Translated into English
by
L. B. PROUT, LONDON.

STUTTGART
FRITZ LEHMANN VERLAG
1908

II. SECTION:

The Macrolepidoptera of the Exotic Fauna

IX. VOLUME:

THE RHOPALOCERA

OF THE

INDO-AUSTRALIAN FAUNAL REGION

Introduction.

Scientific zoologists as well as collectors who do not know East India from personal experience mostly connect with the name of this country the idea of an immense abundance of forms. In the picture which the layman draws for himself of an Indian landscape a luxurious growth of vegetation usually covers every spot of the ground, and lepidopterists who only know South Asia from the collections of dealers in "centuries", so rich in individuals, are easily misled into the belief that any locality of India harbours an inexhaustible multitude of still undiscovered treasures for the collector, that every energetic collecting expedition must bring an abundance of new discoveries and unprofitable day's excursions be an impossibility there.

But this is only very partially the case. Even the most popular tour through India, from Ceylon via Tuticorin to Madras — Bombay — Calcutta — Darjiling is enough to prove that East India is only here and there the luxurious dream-land which hovers before you when confined to our poor European soil, like a lost Paradise at an unattainable distance. For hours and days the way leads through regions which, planted in the most uniform manner with young cotton-plants and stripped of their primitive vegetation, resemble enormous potato-fields of the size of small kingdoms. Sometimes also on the Indian tableland the track goes through dry regions almost bare of plants, in crossing which you think yourself transplanted to the African deserts. The transition from these wastes into a magnificent valley, often a very Paradise of beauty, is at times quite unprepared for, and the suddenness of the change may tend to heighten the overwhelming impression which this new landscape makes upon you.

As locally so seasonally also we meet sometimes with sharp contrasts. A South Indian landscape which we saw for the first time in the rainy season, when everything was green and flourishing, we should not recognise in the dry season. Thick white or red dust covers the leathery, yellowed leaves of the once fresh and attractive shrubs and trees. The beds of the rivers and brooks lie dry and the hot, quivering atmosphere hangs leaden over the dead landscape. Only when the sun has set a part of the scanty animal world awakes to shy nocturnal life, to take refuge again in or on the ground as soon as the day-star rises in the cloudless blue sky.

So also from the lepidopterist's point of view India may be described as the land of contrasts. Locally we know of places where the fauna is exceedingly varied and rich in forms, and also of some where, at least during the greater part of the year, the butterfly world falls considerably behind the better European districts. Insignificant, pale-coloured, diminutive forms constitute the larger number of those which we meet with, as poor in beauty and colour as the joyless scenery which surrounds them. And so also the fauna of one and the same place is contrasted according to the time of year. India is the land of seasonal dimorphism, which occurs in a very large number of Lepidoptera in such a striking manner as is not found in any other region of the earth, with the exception of a few African districts. The wet-season forms are mostly larger, brighter, more deeply coloured, and often also more abundant than the corresponding dry-season forms. Also the dry-season forms mostly develop much more slowly than those of the wet-season, so that where the two seasons of the year are of equal length the wet-season produces more generations than the dry.

It has already been said in the general introduction in the first volume that the Indo-Australian fauna is composed of two very different faunistic types, which however have been completely blended. The first type of fauna is the specifically Indian, which extends over all India with the whole of the Malayan islands. It sends single offshoots into the Palaearctic Region, has its principal centre on the southern slopes of the Himalayas and in the Malayan islands, and coming from the north has spread far over Australia, forcibly driving the scanty Australian fauna, which forms the second type, towards the south. There remained then to this second type only the south and west of the Australian continent, Tasmania and (harbouring a last faunistic remnant) New Zealand. There in the extreme south, which is

rendered unsuitable for the Indian immigrants by the long, cold, and sometimes rainy winter, the type of the older Australian lepidopterous fauna is still preserved. The Australian *Synemon*, *Hepialus* and *Xyleutes*, *Charagia*, *Oxycanus*, *Pielus* and the remarkable *Zelotypia stacyi* are such original inhabitants of the land; primitive Bombycids, Microlepidoptera, and of the butterflies Satyrids of the genera *Heteronympha*, *Hypocysta* and *Xenica*.

It is not only the seasonal changes that make the Indian Lepidoptera dimorphic. Just the part of the Indo-Australian Region that is best adapted for the development of a rich lepidopterous fauna, namely the region of the equatorial forests, is broken up into numerous large and small islands and peninsulas by the formation of the Malay Sea. According to its position with regard to the trade-winds, in, at or beyond the limit of regular winds, almost every one of the Malayan islands has developed a character of its own, which can sometimes be sharply distinguished in islands lying close together. We find then that on almost every island or group of islands the Lepidoptera of the Indo-Australian Region have developed special forms diverging in a definite direction. These characteristics may be very slight and so little noticeable that the older authors never mentioned them at all; but they may also be so obvious as to be immediately noticed by everyone who works in one of these specialised districts. It was already mentioned by A. H. Wallace that most of the Lepidoptera from certain districts of Celebes have a similarly curved costal margin of the wings, differing from that of nearly allied species found elsewhere, and L. Kuhlmann, who compared the butterflies of Ceram with those of other islands, established the fact that of all the local forms of a species the largest almost always occurs on Ceram.

As a third cause which favourably influences the development of polymorphism, we have specially mentioned Mimicry in the general introduction. As almost every one of the often widely separated islands has a different model, the mimic was compelled to choose a different garb in the various districts. For instance, *Papilio polytes*, which mimics an Aristolochia-Papilio, occurs everywhere from East China to the extreme west of East India. But there is no Aristolochia-Papilio of like distribution; in the Himalayas occurs *P. aristolochiae*, on Ceylon *hector* and *ceylanicus*, on Borneo *antiphus*, etc. Consequently the mimetic ♀ of *P. polytes* could only wear its *polytes*-garb, copied from *P. aristolochiae*, in the localities of the latter, and was obliged on Ceylon as *romulus* to wear the *hector*-garb, on Borneo as *melanides* the *antiphus*-garb, etc. There is no more conclusive evidence for proving that mimetic imitation is intentional than an exact examination and geographical comparison of the various lepidopterous forms of the Indo-Australian fauna.

It is in the Malay Archipelago that the Indian Region produces the greatest variety of tropical lepidopterous forms. From there the number of Lepidoptera decreases most rapidly towards the South. The interior Australian desert was impassable for most of the Indian immigrants. Only the narrow strip of forest along the east coast of Australia offered to a limited number of the larger butterflies a way to advance further south. But on the whole the south of Australia is especially poor in butterflies, and in my wanderings over the profuse carpet of vegetation which one finds in New South Wales, so rich in flowers but almost completely without animal life, it often seemed to me inexplicable that a vegetation so rich and everywhere so favourable to butterfly life, could be so strangely devoid of it, and even in glorious summer weather live and die untasted.

Towards the East the ocean has permitted no wide distribution of the Malayan lepidopterous world. More and more dispersed, more irregular and smaller become the groups of islands, always more furious the seething of the sea at high tide, and always more powerful the storms which lash the coasts of the islands. It is precisely these sweeping hurricanes which check the distribution of the delicate-winged Lepidoptera and endanger their existence. In my work on the Lepidoptera of the Marshall Islands I have expressed the conjecture that the lepidopterous fauna of these remote islands is sometimes partly or almost entirely annihilated and has to be formed anew by accidental immigrants. Thus it happens that in some parts of the extreme east of the Indian Region there exists no fixed fauna, i. e. composed year in, year out of the same species of Lepidoptera, i. e. that a collector 40 years ago must have met with a different set of species on certain remote islands from what he would find to-day in the same localities.

Towards the West the southern limit of the region is in the Indian Ocean. The meagre fauna of the Laccadive Islands and the still more insignificant one of the Maldives consist only of scanty forms immigrated from India; the Seychelles and Maskarenes have along with many specific forms which however are all allied to the Ethiopian type, a thoroughly African fauna, so that the broad strip of sea lying between the 60. and 70. degrees of longitude is to be regarded as the faunistic boundary. In its northern part the Indian Region touches in South Arabia on the Ethiopian, in North-West India on the Palaearctic Region. Where the exact boundary lies in Inner Arabia, which has been as yet but little explored as regards Lepidoptera, we cannot at present determine. Maskat is entirely Indian, Aden thoroughly African in its lepidopterous fauna. Between these two districts extend deserts, which stretch from Nejd far towards the South-East, and reach the sea in the strip of coast, outwardly rocky and inwardly sandy, between Makalla and Mirbad. In this border-land there are probably only very few Lepidoptera, principally Noctuids of the genera *Anomis*, *Eurrhipia*, *Ophiusa*, and some butterflies common to both faunas, such as *Junonia oenone*, *Hypolimnas misippus*, *Lycaena baetica* and a few others.

The boundary of the Indo-Australian Region towards the North-West and North is more difficult to fix. The most southerly part of Persia, Beluchistan and the Punjab are still Indian, but form the borderlands, which join the districts of Kangra and Kulu in Southern Kashmir. But in Kashmir itself only the southern slopes of the Himalayas are still Indian; at the higher altitudes, and especially the localities which are more open towards the North, where the summer does not bring the terrible heat which in the neighbourhood of Lahore has turned the ground into a desert, Palaearctic forms occur in such numbers that the fauna is only connected with that of the adjoining district by a slight intermixture of Indian forms.

Eastwards of this great northerly sweep in the neighbourhood of Kashmir, the Indo-Palaearctic boundary line suddenly recedes southwards. No Indian fauna can endure the ice-cold snowy winters of Tibet. Anything that can enjoy the sultry valleys of the Lower Indus and Ganges must succomb to the cutting wind of high-lying Tibet. Not till we approach Nepal, Sikkim and Bhutan do we get the double chains of protecting mountain ridges which give to the southernmost part of Tibet the character of a faunistic boundary-land. Then in the east of Tibet, where a still unexplored district crossed by mighty chains of mountains stretching north and south forms the watershed between the Mekong and Yang-tse-kiang Rivers, the natural boundary of the two faunistic regions may be placed. Then it follows the changeable Yang-tse Valley. Only where this gigantic river takes a wide sweep in southern Se-chuen towards Yun-nan, the boundary runs north of it, in the south of Ta-tsien-lu; then it follows, through the Chinese plain, the 30. degree of N. latitude.

I have given considerable attention to the fixing of the Indo-Palaearctic boundary, which I have already set forth in detail in the introduction to the Palaearctic part. It is not a list of uncritically registered species of a district, or even the entirely valueless placing together of genera which depend on individual opinions, not being fixed entities, that gives us a definite clue as to the fauna to which a district belongs, but only the survey for faunistic purposes by trained eyes, preferably by personal observation. The casual appearance of a *Melanitis leda* does not prove that we are on Indo-Australian ground, but where it occurs commonly as a characteristic buttertly of the district, we can appeal to it as evidence that we are in the Indian faunistic Region.

By personal observation I was able to convince myself that the question as to which faunistic region a place belongs to is by no means specially difficult to settle. In Shanghai the 10 commonest butterflies, arranged according to the frequency of their occurrence, are the respective local forms of the following species:

Pieris napi, Colias hyale, Gonepteryx rhamni, Pyrameis cardui, Chrysophanus phlaeas, Papilio xuthus, Sericinus telamon, Lycaena baetica, Pieris melete, Parnara guttata.

On Hong-Kong, lying only 10 degrees further south, not a single one of these species is specially common at any time of the year, *Lycaena baetica* and *Pyrameis cardui* alone being found there. The 10 commonest Rhopalocera, likewise arranged according to their abundance (say about October), are the following:

Terias hecabe, Danais vulgaris, Euploea superba, Melanitis leda, Pieris canidia, Messaras erymanthis, Neptis eurynome, Mycalesis perseus, Catopsilia pomona, Hebomoia glaucippe.

A large proportion of these species we have made acquaintance with in the 1. part of our work as observed in the Palaearctic Region, but never as characteristic butterflies; every one of these 10 species is characteristic of their native places by their numerous, sometimes abundant occurrence. But only the commonest Lepidoptera of a district are of any use in settling disputed questions of zoogeography; as rarities they have, because exceptional appearances, sometimes only quite subordinate value, sometimes none at all.

As also on the southern Japanese island the commonest butterflies are *Lycaena argiolus, Chrysophanus phlaeas, Pieris napi, Ypthima argus, Pieris melete, Papilio machaon,* etc., etc., this island is still absolutely and thoroughly Palaearctic, however many otherwise Indian *Papilio* may appear there as transient summer visitors; and in like manner the Liu Kiu island Okinawa with its *Hestia, Danais, Hebomoia, Hypolimnas,* etc., is thoroughly Indo-Australian. Thus the 30. degree of latitude divides the islands of the two faunistic regions in the Chinese Sea.

In characterising the habitus of a fauna one has to consider the abundance in individuals much less than in the case of adducing geographical statistic differences. One gets a good idea of the habitus not only by observing the fauna in its native country, but also in examining a collection from there as complete as possible. It is the totality of the variations in form, colouring and pattern that admits of a survey and makes us acquainted with the most conspicuous peculiarities. We have already pointed out in the introduction to the American part of our work that in the Indian Region the gorgeous colouring of shining bands or spots, mostly yellow or metallic blue, on a deep black ground-colour, is far less common than in tropical America. The magnificent blue of *Morpho, Prepona, Myscelia, Callicore,* of many large *Thecla,* etc., occurs very rarely in the Indian Region; but the ochrous colours, which sometimes predominate in India through whole extensive genera (*Cynthia, Cirrhochroa, Messaras, Charaxes, Clerome,* etc., etc.,) are strongly developed. The hyaline species, so abundant in tropical America, such as the Ithomiids, *Haetera,*

the *Zeonia*, etc., are completely wanting. On the contrary the Indies are much richer in grotesque and exaggerated forms, which cause well-founded astonishment even to the layman, e. g. *Leptocircus*, *Butanitis*, *Himantopterus*, *Cyrestis*, etc.

As regards the various pecularities of the character of the different groups of Lepidoptera represented in the Indo-Australian Region we refer to the parts of this work dealing with them, and we only touch here on a few specially striking peculiarities of the families, or those specially characteristic of the region.

The **Papilionids** from the South-East of the Old World are widely known by a group which formerly enjoyed a very special attention from the amateur and collector as a single genus under the name of *Ornithoptera*. Equally noteworthy for their size and the gorgeousness of their colouring, they belong undoubtedly to the most imposing of the known forms of the animal world. However little satisfactory the biological explanations hitherto attempted may have been, it is clear that in the *Ornithoptera* we have before us developments of nature in which the attainment of a certain conspicuous beauty has undoubtedly been the aim of their creation; this aim may be the expression of the mood of a creator, or the final outcome of a series of biological necessities governed by selection. The males of the various *Ornithoptera* forms contrast with their unicolorous females by their brilliant colouring, sometimes of red-gold, sometimes of green, blue or yellow, and their agreement is so much the more remarkable in that morphologically the *Ornithoptera* do not form an exclusive group and the genus can scarcely be maintained on a strictly systematic basis. They are doubtless congeneric with the Aristolochia-Papilios, which are widely distributed in India, and closely allied groups are found among the Papilionids of the New World. — The Parnassiids scarcely show any independent forms in the Indian Region; on the contrary the representatives of the Apollo-Butterflies in the north of the region are all local forms of otherwise Palaearctic species. — We find another singular modification of the Papilionids in the specifically Indian *Leptocircus*, long-tailed, vitreous-winged little insects of Hesperid-like habitus, which boom about from flower to flower with buzzing flight, alternately raising and lowering the ribbon-like appendages of their wings.

The **Pierids** are chiefly remarkable for the gay-coloured under surfaces of very many species, which attain their highest development in *Delias* and here often show an altogether ideally beautiful arrangement of intensively coloured bands and spots, more gorgeous than are found either in America or in Africa or Europe, although a gay-coloured under surface occurs occasionally in certain Pierids of the New World *(Perhybris, Dismorphia, Archonias)* as a product of mimicry.

In the **Danaids** the development of the gigantic *Hestia* in the Indian Region is worthy of mention. The pattern and colouring of the Hestias is striking and unusual, but still more so is the flight, which causes everyone passing through the Indian woods to stop and wonder how it is possible to the insect with the wings apparently stationary and half erect to be carried first to one side, then to the other. The *Danais* themselves show an immense number of individuals in India, rivalling the *Euploea*, crowds of which sometimes cover the flowering trees like thick clouds or fly over the country in long-continued swarms.

In contrast with this abundance, the **Satyrids** are decidedly less prominent in the Indo-Australian Region. Especially in the tropical part of the region the true Satyrids are confined to small, unicolorous, dark forms, and only the subgroup *Elymniinae* develops, mainly by mimicry, a gay-coloured dress, borrowed from brilliant *Danais* and iridescent *Euploea*. In the north the Indian Region still partakes somewhat of the stateliness of the neighbouring Palaearctic Satyrids, and in South Australia the family again develops varied series of forms, which however are not comparable to those of analogous districts in the Northern Hemisphere.

The **Morphids** of the Indian Region neither form a homogenous group among themselves nor stand in direct relation to the American genus *Morpho*, on which the family name was founded. Analogies are found rather between them and the Neotropical *Brassolidae*. Viewed as a whole we find in the Morphids both of the Old and the New World modifications of the Satyrid characteristics, which harmonise with one another in similarities which are sometimes ancestral, sometimes due to convergence. Such characters are their nocturnal flight, the feeding of the larvae on Monocotyledons, and many others.

The **Nymphalids** occur in the Indo-Australian Region, as in all the others, uniformly, certainly and universally. As the Nymphalids, represented by certain forms of *Argynnis*, struggle in Greenland, Alaska and Nova Sembla against the inhospitality of nature, so we find *Pyrameis*, *Junonia* and *Hypolimnas* even wandering over the southern ice-sea and on the most advanced outposts in the open ocean, where the family sometimes still develops powerful, characteristic forms, such as *Pyrameis gonerilla* and *tammeamea*.

The **Erycinids** are but scantily represented in the large Indo-Australian Region. As small copies of the Nymphalids we meet with them almost everywhere, but nowhere in large numbers and without being able in any one place to develop such numerous forms as in the American Region.

The **Lycaenids** attain in the genus *Arhopala* a considerable size and have often a wonderful, shining blue gloss. But the smallest known species also occurs in the Indo-Australian Region, the

diminutive *Zizera,* the smallest forms of which can only be seen by stooping down and carefully examining the tufts of grass, and which in danger crawl away and hide between the blades like little midges. We also find among the Indo-Australian Lycaenids many biologically interesting species, which sometimes live for a time with ants, and even occasionally in the larval stage appear to feed on the early stages of the ants.

The Indian **Hesperids** occur in much less numerous forms than the American ones, but include many particularly large species. Several genera, as *Ismene, Rhopalocampta, Hasora,* etc., are partly nocturnal in their habits and remain concealed during the day.

As transitions from the large division of the Butterflies, especially from the *Grypocera* to the *Heterocera,* we may regard the Old World **Synemon,** just as the American Castniids. They form one genus confined to Australia and their especially numerous occurrence in its western and south-western parts proves that in them we are dealing with an old genus, driven to this remote corner of the earth by the immigrant Indian fauna of the North. Their close connection with the tropical Indian *Neocastnia* and the genuine New World *Castnia* would be difficult to prove.

The **Zygaenidae** are represented in the Indo-Australian Region especially by the group of the Chalcosiids and offer as such all imaginable grades of mimetic colouring. They have even borrowed the habits of their models and copy sometimes protected Butterflies, sometimes Syntomids or even other insects, not belonging to the Lepidoptera. Certain parallels with American moths are very note-worthy. Thus the moths of the genus *Amesia* in danger seek their safety at first in flight, but feign death when touched, lying perfectly still with the wings folded together behind. At the same time, with a hissing or chirping noise, they exude from the thorax shiny drops of froth, which gradually cover the whole insect with yellow spittle, just as do the members of the American genus *Anthomyza.* The Indian *Himantopterus,* like their African relatives, are believed to be associated with the Termites.

Apparently connected with some groups of the Zygaenid family are the **Epicopeia,** a nocturnal genus, mimetically altered to such an extent that it is impossible now to conjecture what habitus the insects possessed before their mimetic transformation. Perhaps they are descended from *Histia*-like Chalcosiids, perhaps it is more correct with Hampson to place them among the *Uraniidae.*

The **Syntomidae** all belong to proportionately few genera and cannot be compared in their variability and their mimetic disguises with the American members of this family. Although here and there brilliant metallic colours are developed in India, yet the larger number of the Old World Syntomids copy black-yellow wasps and their costume appears therefore from the biological standpoint more practical than brilliant as is that of the American Glaucopids, which veritably resemble flying precious stones and suggest a comparison with the American Humming-birds, just as a parallel has been drawn between the group of *Ornithoptera* and the New Guinea birds of Paradise.

From them the very remarkable Papuan **Cocytia** lead us to the **Lithosiids** and the true **Arctiidae.** The centre of development of this family lies in the Temperate Zone in as much as just the largest and most brilliant species do not live between the tropics. The *Lithosiids* and the *Nolids* are generally regarded as old, primitive groups, a few parallel branches of which have further advanced in evolution and become the ancestors of the more highly developed groups of Heterocera of modern times. Very noticeable is the constancy in size, habitus, and sometimes also colouring, which connects the Lithosiids of the most different countries together and in many cases even extends to the habits.

The **Liparids** attain their highest development in the Indo-Australian Region. As in the extreme north of the Arctic district, we find them also far in the south in on the whole similar development: and as they do not produce gigantic forms, so also as regards colouring and markings they are mostly confined to the same regular pattern: a light, often satiny yellow or white with dark central lunule and blackish serrated lines on the forewing. Even as regards their biological conditions they show a great uniformity. We see exactly the same circling flight in the South-East Asiatic *Pantara* as in the European *Orgyia,* and a female of *Epicoma melanosticta* beaten out in the Australian bush assumes exactly the same peculiat position, with rolled-up abdomen and wings erected, as a female of *Psilura monacha* taken in a North German pine forest.

The **Limacodids** play a prominent part in the Indo-Australian Region. The largest known forms of the family are found in the Indian *Scopelodes* and *Phocoderma,* and in Australia the occurrence of many Limacodid larvae on the indigenous Eucalyptus indicates a long and very close adaptation to this part of the world. The powerful urticating organs of the larva probably attain their highest development in the Australian *Doratifera vulnerans,* yet the larva of the Chinese *Parasa sinensis* can sting almost as strongly.

The **Psychids,** on account of a certain uniformity in their distribution, take a less prominent place in the Indo-Australian Region compared with the other Heterocera, although the largest known form of the family is found in the Australian *Metura elongata.* But while in the Indian Region they surpass those

of the American in number of species, in number of individuals they remain far behind their representatives in the New World, where certain species, e. g. *Oiketicus platensis,* have become regular enemies to horticulture.

The **Lasiocampids,** on the whole of pretty similar distribution over all non-polar lands, show remarkable peculiarities in many districts of the Indo-Australian Region. In the first place, certain sections of this family form a part of that typical Australian primitive fauna which, confined to the south of the continent, has there produced forms to which we find no parallel elsewhere. Everyone who has collected in Australia will remember the gigantic Zebra larvae, which produce *Chalepteryx collesi,* formerly included among the Saturniids; also the sharp-snouted *Opsirhina* and others. As in the Palaearctic Region the pine moth, *Dendrolimus pini,* sometimes increases to such an extent as to become a menace to the forests, so also in India we meet with many Lasiocampids among the commonest moths; thus in India and South China *Trabala vishnu,* whose bright-coloured larvae with pencil-bearing striped heads may be found on almost every bush and all the year round. *Suana concolor* is distinguished by powerfully developed females, which stand in much the same proportion to their only medium-sized males as the Liparid *Ocneria dispar.*

The **Saturniids** attain in the Indian *Attacus atlas* the largest wing area known in the Lepidoptera, although they are surpassed in expanse by some *Papilio* females and by the American Noctuid *Thysania agrippina.* On the whole the Indo-Australian Region has not so many Saturniids as America, but it possesses some very singular forms in the long-tailed *Coscinocera.*

The **Bombycidae** and **Eupterotidae** are families with very few forms, which come between the Saturniids and Lasiocampids. The former must be specially mentioned on account of the silkworm, *Bombyx mori,* an insect of enormous commercial and economic importance. As we have already noticed in the general introduction (vol. I), it may now be accepted with certainty that the silkworm comes originally from China, but whether from the Palaearctic North or the Indo-Australian South cannot now be determined on account of its general naturalisation and importation.

The **Sphingids** are represented in the Indo-Australian Region by very many species, but their larvae show less tendency towards those grotesque forms such as America possesses in the zebra-like *Pseudosphinx* and in the log-like *Philampelus anchemolus* and *Pachylia* larvae, under the weight of which large branches on the bushes are bent down to the ground. The largest Indo-Australian Sphingids have simple green *Smerinthus* larvae; they are *Langia zenzeroides* (which also encroaches on the Palaearctic Region), the expanse of which insect is 17 cm and whose larva might be taken for an enormous *Amorpha populi* larva whose lateral stripes are lost, as well as the still larger *Coequosa* and *Metamimas,* which belong to the old Southern Australian fauna. Their larvae, though green in colour and with the well-known oblique lateral streaks, are in form perhaps the most singular of all known Sphingid larvae. Whilst the horn on the tail is wanting, the head is produced into a long, somewhat curved point, so that it forms a true continuation of the anteriorly much diminished body. If we imagine the larva in its resting posture, namely very much erected, it forms a single long green horn. — Besides this the Indo-Australian Sphingid larvae often resemble snakes' heads, their two lateral eye-spots, by the extremely vivid glitter of the enamel-gloss on them, not only imitating the eye, but also the gleam of the snake; an appearance to which I have found no parallel in Palaearctic lands.

The **Notodontids** can scarcely be discussed as a whole on account of their heterogeneity, already mentioned in the introduction to the American part. It may be particularly mentioned that many specifically peculiar forms, such as *Cerura,* are found in the remotest parts of Australia. Many groups of which the Palaearctic fauna only possesses small, inconspicuous forms attain in the Indo-Australian fauna to a notable size.

The **Noctuids** of the Indo-Australian Region bear the same relation to those of the Palaearctic lands as those of South America to the North American fauna. In place of *Catocala* occurs *Ophideres,* in place of *Mania* and *Spinther ops* the bat-like *Patula* and *Nyctipao.* Singular modifications of the hindwing of the male are often found in the giant Noctuids of the Indo-Australian Region, and are perhaps connected with the peculiar rattling or cracking sounds which the males make in flying, and which reminded me forcibly of the rattling of the Neotropical *Ageronia.* Taken as a whole the Noctuids do not form in the Indo-Australian Region such an overwhelmingly large proportion of the Lepidoptera as was the case in the Palaearctic Region.

Finally, the Indo-Australian **Geometrids** are confined to similar limits in this as in the Palaearctic and American Regions. Species of *Elphos* and *Erebomorpha* are here, as in the Palaearctic Region, the largest Geometers. Their slenderness forms a noteworthy contrast to the heavy, stout-bodied *Oenochroma,* which are among the more remarkable of the Australian forms. It was erroneously believed for a long time that a gigantic Geometer had been found in *Nyctalemon,* but the larva is 16-legged, and its proper place is beside *Urania.*

To give further particulars about the enormous number of genera and species of the Indo-Australian Region is beyond the scope of this introduction. But even of the special part which follows, we must say that it is only a trifling fragment; only a preliminary study, serviceable for pointing out the place where the crowds of annually discovered species are to be arranged. The very districts of our region most rich in species — North-East India and the interior of the Malayan lands — have scarcely yet been geographically explored; and if in the beginning of this chapter we warned against the idea that every imaginable district of East India offers a quarry for daily new discoveries in the lepidopterological sphere, yet there are still enough islands and mountain regions which in this respect surpass the most daring hopes. The extreme south of China, the numerous tracts of mountains into which the eastern Himalayas are broken up, the interior of the larger, as yet little cultivated islands, such as Ceram, Borneo and New Guinea, must still offer much which awaits discovery; the most gorgeous giant butterflies of this region, among them the enormous Ornithoptera *Papilio alexandrae*, were not made known until quite recently.

DIURNA

OR

BUTTERFLIES

1. Family: **Papilionidae, Swallowtails.**

Proboscis always well developed. Palpi small and appressed to the head, rarely large and projecting (*Teinopalpus*). Three types of antennae occur: the fine sensory hairs beneath and laterally are almost equally distributed over the proximal part of each segment, or there is a cavity on each side which is covered with sensory hairs (recalling the Nymphalids), or there is only one row of such cavities present (recalling the Pierids); the upperside either scaled or naked. Mesothorax very powerful, the sternum completely fused with the episternum, the suture outwardly quite wanting as in the Pierids, which distinguishes these two families from all other Lepidoptera. Foreleg fully developed; foretibia with spur on the underside. Claws simple, very rarely cleft as in the Pierids (in one species of *Leptocircus*); paronychium and pulvillus wanting. The cell in both wings closed; in the forewing the 2. discocellular the longest (between the 1. and 2. radial), the 2. radial branching off from the lower angle of the cell, because the 3. transverse vein stands in or almost in the prolongation of the median, and therefore 4 veins arise from the hinderside of the cell (which misled the older authors into speaking of 4 median veins; all Lepidoptera however have only 2 median branches), the upper inner marginal vein (= 1. submedian) wanting, but its proximal part often present as a short transverse vein arising from the median near the base, which is mostly curved outwards at the tip, the 3. submedian vein running free into the hindmargin; hindwing with precostal vein and one submedian vein. — Egg round or flattened, without prominent sculpturing. — Larva before the first moult with rows of bristle-bearing tubercles, which in the later stages disappear, or are replaced by fleshy processes or hard spines; on the neck a reversible fleshy fork of a yellow or red colour, which secretes an odour and is stretched out in defence (the osmaterium); lives free, but some Papilios by bending over the edges of leaves make a sort of tunnel in which the larva conceals itself; many forms hide during the day, many also are gregarious. — Pupa fastened at the end of the abdomen and by a girth encircling the thorax and wing-cases, with the head upwards (older authors, and Rippon even quite recently, erroneously represent the pupa as having the head downwards; the error arose from the fact that the heavy larvae of the Aristolochia Papilios, for instance, fasten themselves on hanging leaves with the head towards the base of the leaf); in other forms (e. g. *Parnassius*) the pupa in a loose cocoon on the earth or just under its surface; three movable abdominal segments.

This cosmopolitan family occurs principally in the tropics, and only a few forms cross the polar circle; yet the northern temperate zone possesses in *Parnassius* a type which is wanting in the true tropics.

1. Genus: **Papilio L.**, *Swallowtails.*

Forewing always with median spur (= 1. submedian); at least one of the discocellulars placed longitudinally; hindwing with precostal cell. All the species have the pupa fastened by a girth. — The so-called genus *Papilio* is divided into three large divisions which are sharply separated from one another in the larva, pupa and imago. This natural classification was discovered by Horsfield as long ago as 1856, but not recognised by later authors (Erich Haase excepted). We begin with the Aristolochia Papilios. These strong smelling forms, so tenacious of life, are frequently mimicked by species of the other two groups, as well as by forms of other families, and even until quite recently models and mimics have often been regarded as closely allied.

A. **Aristolochia Papilios.**

Antenna without scales, except dorsally at the base, beneath on both sides with a sharply defined sensory cavity on each segment. The outer ventral row of spines of the tarsi not separated from the dorsal spines by a spineless longitudinal depression. — Larva on Aristolochia, rarely on allied plants; densely covered with very short hairs, which give the larva a velvety appearance; only the head, the prothoracic sclerite and the legs shiny; each segment with a belt of fleshy tubercles or processes which bear hairs, but no strong spines; the tubercles of the prothorax sometimes prolonged (in a number of American forms). — Pupa dorsally strongly incurved before the middle and posteriorly arched; wing-cases strongly projecting; the head truncate,

with distinct horns; on the abdomen dorsally a row of humps or lobes on each side. — Tropical insects; one species distributed northwards to Japan; 2 species in North America; not represented in Europe, Central Asia or Africa, on the other hand one very peculiar species in Madagascar. The African *Papilio zalmoxis* and *antimachus*, placed here by some authors on account of their size, belong to the second division, the Fluted Papilios.

In older works and in most collections we find a number of Aristolochia Papilios grouped together under the name of *Ornithoptera*. The term embraces the *priamus*, *brookiana* and *pompeus* groups, but is scientifically untenable, because not definable morphologically. Apart from the fact that the name *Troides* is older, all the *Ornithoptera* are true *Papilio*, as is proved even by the larva, which does not differ from the larvae of other Aristolochia Papilios in anything except perhaps its somewhat larger size. Apart from the size the characterisation of the group is only founded upon purely external peculiarities of form and colouring, some of which have broken down in the light of more recent discoveries. We therefore only mention the name *Ornithoptera* here on account of its having been adopted in older works and collections. With the single exception of *P. aeacus*, which is treated in vol. I (pl. 1), the whole of the Papilios which belong here are confined to the Indo-Australian Region.

The Aristolochia Papilios of the Oriental Region are essentially insects of the forests and thickets; they principally fly in open spaces in the woods and at their edges and are often taken on flowering trees and shrubs. They usually flutter slowly through the air, though often high above the ground; but the larger species are adroit and powerful fliers. To this division belong the most beautiful of all Lepidoptera; New Guinea especially is rich in large forms with glittering green and gold ♂♂. The ♀ of *P. alexandrae* with the forewing 135 mm. long is the largest of all known butterflies, if not the largest of all Lepidoptera.

P. victoriae is confined to the Solomon Islands, where this magnificent butterfly appears to occur on all the larger islands. The 3. subcostal of the forewing arises from the upper angle of the cell or distally to it, more rarely somewhat before the angle. Head and thorax entirely black; abdomen grey-yellow, stigma-spots and in the ♂ a row of subdorsal dots, as well as the base, black. Forewing of the ♂ narrow, with scent-patch; cell very broad; a large basal area as well as a subapical area golden green; hindwing green, distally more or less golden, all round the margin and often also a part of the disc black. ♀ variable in size and markings; black-brown with yellowish white or white spots; forewing with a large basal spot in the cell and a second spot in the middle of it, these spots often confluent; 2 rows of spots between cell and distal margin; hindwing with large costal area and 2 rows of spots between cell and distal margin. Larva black, the tubercles entirely red. Pupa on the upperside yellow between the only moderately projecting wing-cases. The butterfly is not rare on some of the islands; but the ♂♂ are only taken in small numbers, as they fly quickly and high

regis. and mostly remain in the tops of trees. The insect is not yet known from San Christoval. — **regis** *Rothsch.* is the most northerly form, discovered by Ribbe on Bougainville, where A. S. Meek afterwards captured a good series. The golden green subapical area of the ♂ long, especially the first spot longer than in the other subspecies; usually the area consists of only 2 spots, yet frequently a third is also developed and sometimes a fourth indicated. The spots of the ♀ are very variable, as in the other subspecies, but the submarginal spots

isabellae. in *regis* are very small. — **isabellae** *Rothsch.* occurs on Ysabel and probably also on Choiseul. Connects *regis* with *victoriae*. The golden green subapical area of the forewing of the ♂ is longer and narrower than in *victoriae*, and shorter and broader than in *regis*. ♀ similar to that of *regis*, but the submarginal spots

victoriae. larger. — **victoriae** *Gray* (6 a) we know from the islands of Guadalcanar, Tulagi and Florida. The subapical area of the forewing of the ♂ consists of 3 spots and is about as long as broad; sometimes the third spot is very small, whilst in the only ♂ from Tulagi known to me a small fourth spot is present; many specimens bear on the hindwing black spots between the cell and the yellow submarginal spots. In the ♀ the fifth submarginal spot

reginae. of the forewing is very small, sometimes entirely absent. — **reginae** *Salv.* inhabits Maleita. The subapical area of the forewing of the ♂ consists of 4 spots, of which the last is small; the third spot is larger than in the other subspecies; the hindwing is velvety black between the cell and the submarginal spots, as is also the hindmarginal area. In the ♀ the discal and submarginal spots of both wings are large, and both the proximal

rubianus. spots of the forewing and the discal spots of the hindwing are more or less strongly yellow. — **rubianus** *Rothsch.* (6 b), from Rubiana and Kulambangra, is noticeable in the ♂ for the great reduction of the subapical area of the forewing and the absence of the submarginal spots of the hindwing. In the ♀ the spot between the 2. median and the submedian of the forewing is placed transversely and is usually united with a longitudinal spot placed before the submedian; the posterior basal spot is extended basad as far as the hindmargin of the wing; the discal and submarginal spots of both wings are mostly very large; sometimes the white patches occupy the greater part of the wing.

alexandrae. **P. alexandrae** *Rothsch.* (5 a, b). A wonderful species from New Guinea only recently discovered by A. S. Meek, whose ♀ is the largest of all known butterflies. Body black; head small; breast red; abdomen very long, especially in the ♂, in the latter yellow, in the ♀ grey-yellow, the base black. Neuration similar

to that of *victoriae*, but the 3. subcostal of the forewing branching off proximally to the apex of the cell. Wings of the ♂ velvety black, on the forewing a broad costal stripe and a still broader hindmarginal stripe enclosing the black scent-spot, on the hindwing a broad submarginal band, which at the costal and hindmargins is continued to the base, and a broad cell-streak, green-blue, in bred specimens more green than blue; both wings ong, lower angle of the forewing completely rounded off, hindw ng elongate-ovate. Underside blue-green, the forewing yellowish, the veins, the greater part of the cell of the forewing and the margins black, as are also on the forewing some stripes between the veins. The ♀ brown-black; forewing up to 135 mm long, with 2 rows of grey-white spots in the distal half and 2 spots in the cell; hindwing elongate-ovate, with large yellow-grey, browned wedge-shaped spots; beneath with the spots yellowish. The full-grown larva when at rest measures over 12 cm according to S. MEEK; it is velvety black with straight, ruby-red spines, and bears in the middle of the body a broad cream-coloured transverse band. — In the north-east part of British New Guinea, in low situations. A number of specimens of both sexes were taken. The butterfly flies high in the air and is not easy to catch. The species was originally described from a ♀ killed by the collector with gun-shot.

P. priamus. Stalk of the subcostal fork of the forewing short, 3. subcostal branching off several mm. proximally to the upper angle of the cell. ♂ before the hinder angle of the forewing with a long brand, which consists of small scent-scales and larger dentate scales covering them; a broad costal stripe, a narrower stripe (sometimes wanting) running along the distal and hindmargins, as well as the hindwing, green, blue or orange; hindwing mostly with black discal spots and often with gold-yellow submarginal ones; beneath the forewing spotted; hindwing yellow, spotted with black at the sides. Wings of the ♀ brownish black, with very variable grey-white, sometimes yellowish spots; as original markings we have on the forewing a cell-spot and on both wings two rows of spots between cell and distal margin, the upper of these spots on the forewing and mostly all the spots of the hindwing united in pairs into long patches, sometimes the forewing without spots. Larva black, with one or two white oblique stripes, the spines red with black tips or black with yellow rings. Pupa grey-yellow, gold-yellow or green. The earlier stages, most commonly to be found during the rainy season, are especially abundant in the neighbourhood of the coast. The butterfly mostly remains in the tops of trees, round which it circles with a sailing flight; when the ♀ is in search of the low-growing food-plant of the larva, the ♂ mostly follows it; both sexes also visit flowering trees and shrubs. The butterfly is purely Papuan; it inhabits in a number of geographical forms the Moluccas, the Key and Aru Islands, New Guinea with the neighbouring islands, the Bismarck and Solomon Islands and Australia southwards as far as the northern part of New South Wales. — **lydius** *Fldr.* (3 c). ♂: markings of the forewing above and the hindwing orange, green in an obliquely reflected light, those of the underside green, the cell-spot of the forewing large; cell of the hindwing beneath only distinctly edged with black posteriorly. ♀ for the most part grey-white, the cell-spot occupies almost the whole cell on both wings. Halmahera, and Ternate (fide WALLACE). — **croesus** *Wall.* (3 b, c). ♂ as in the preceding subspecies, but on the underside the green cell-spot of the forewing and the gold-yellow area placed before the cell of the hindwing smaller and the cell of the hindwing entirely margined with black; newly emerged specimens are green as in *lydius;* the harpe of the claspers in *lydius* and *croesus* much shorter than in the other forms of *priamus*, dorsally to the base in *croesus* with a pointed tooth, which is only indicated in *lydius*. ♀ with much reduced grey-white spots on the forewing, the cell-spot often absent; the wedge-patches of the hindwing are separated by rather broad brown-black vein-stripes, and are more or less yellow on the under surface, but mostly not of such pure yellow as the submarginal spots, which mostly have also a yellow tone on the upper surface. Larva on an Aristolochia which grows in sago-palm swamps; it bears on each side two white oblique stripes. Probably the larva of *lydius* likewise lives in such inaccessible places, which would explain why the butterfly is comparatively rarely taken. *P. croesus* only occurs on Batjan; in WYTSMAN'S Gen. Ins. RIPPON erroneously gives Amboina also as locality. FRUHSTORFER designates as ab. **lydioides** a ♂ whose costal band has a fiery carmine-red tone of colour and on which the costal and discal spots of the forewing beneath are coppery. The specimen has probably been longer exposed to the influence of the weather; also old specimens in collections are more fiery than fresh ones. Under similar conditions the green forms of *priamus* often acquire a bluish tint. — **aesacus** *Ney* (= obiana *Rebel*) inhabits Obi (= Ombira). In the ♂ a broad costal stripe of the forewing and a narrow stripe running along the distal and hindmargins green-blue like the hindwing; the latter above with golden, beneath with golden and black spots before the distal margin, the cell not margined with black. Ground-colour of the ♀ deeper black than in most of the *priamus*-forms, also the upperside of the abdomen rather strongly suffused with black; cell-spot of the forewing large, deeply excised distally; the distal area of the hindwing extending nearly to the cell, the black spots of the latter mostly small, the veins only very narrowly black. The occurrence of this blue-green (♂) form on Obi, of the blue *caelestis* on the Louisiades and of the green-blue *miokensis* on Mioko is a sufficient proof that the green forms do not belong to one species and the blue to another, but that they are all geographical developments of a single species. — **priamus** *L.* (♀ = panthous *L.*), from Amboina, Saparoea and Ceram (no *priamus*-form is yet known from Buru and the Banda Islands). A large form. ♂: the two stripes of the forewing and the hindwing green; median vein of the forewing without green scaling; hindwing above always with two or more black submarginal spots, beneath with a complete row of these spots, the cell anteriorly and usually also distally margined with black, and more rarely also posteriorly; the number and size of the gold spots variable,

lydius.

croesus.

lydioides.

aesacus.

priamus.

but the subcostal gold spot always present. ♀ without white spot in the cell of the forewing, the discal and submarginal spots of both wings reduced; the latter on the hindwing more or less strongly shaded with black-brown, the margin of the wing broadly black-brown and the black-brown discal spots large; the grey-white wedge-spots
hecuba. do not reach the cell either above or beneath. — **hecuba** *Röb.*, from Koer, Tiandoe and Key. ♂: in addition to the sides of the mesothorax a lateral spot on the metasternum is also red; forewing above with green scaling on the median, often also on the radials; hindwing above always with black discal spots, usually 3; beneath the black discal line of the forewing broader than the green submarginal line, the cell of the hindwing anteriorly edged with black, the black discal spots emarginate, the posterior ones usually truncate, the golden subcostal spot never (?) absent, but sometimes only indicated. ♀ brownish black, the white markings very sparsely shaded with blackish, rarely as dark as in specimens from Aru; cell-spot of the forewing mostly large, as long as broad or longer, rarely broader than long; the first three wedge-spots of the hindwing above and beneath pointed, rarely reaching the apex of the cell, the cell only sometimes with a white dot; sides of the prothorax red. A ♀ taken by H. Kühn has on the upperside of the forewing only 2 small white spots; they are placed between the
arruana. subcostals. Larva usually with a white oblique stripe. — **arruana** *Fldr.* Not differing constantly from New Guinea specimens, the ♂ especially cannot be recognised with certainty. The black discal band of the forewing of the ♂ beneath is broad and generally connected with the black hindmargin of the wing; the black discal spots of the hindwing are never absent above and are mostly very large beneath, the 2. spot is usually broader than the green spot placed distally to it, the yellow anal area has mostly a black spot, the subcostal gold spot is wanting in most specimens. In the ♀ the white markings of the upper surface of both wings are strongly shaded with blackish, sometimes also beneath partly suffused with blackish. Bluish ♂♂, probably discoloured under
cumaeus. the influence of moisture, have received the name **eumaeus** *Rippon.* We have also similarly coloured ♂♂ from New Guinea and they are doubtless found everywhere among the green forms of *priamus.* A very strikingly
chrysospila. coloured small ♂, ♂-ab. **chrysospila** *Rothsch.*, is in the collection of the Tring Museum: upper surface of the hindwing without black spots, on the contrary with 4 brown submarginal spots, of which the 3 upper ones have a large golden dot, in addition a large golden subcostal spot is present. Beneath all these spots are larger than above, also the 4. submarginal spot has a yellow centre; on the forewing no black discal band, only a black spot in the subcostal fork; on the hindwing only 2 small black spots between the costa and the 1. radial, cell not margined with black. The specimen gives one quite the impression of a separate species; the genitalia are as in *arruana.* The larvae and pupae were found by Ribbe only in the vicinity of water-courses and at the sea-coast, but on dry
poseidon. ground. — **poseidon** *Dbl.* (= pegasus *Fldr.*) (2 a). In New Guinea and on the smaller islands off its coast it does not seem to have yet formed definable subspecies. No single character is even moderately constant in the individuals from any one of the different faunistic districts. It is true that in the ♂♂ from British New Guinea the green cell-area on the underside of the forewing is more frequently reduced to a rounded spot and the black markings of the underside of both wings are more often enlarged than in the ♂♂ from the northern and western parts of the island, and that among the ♀♀ from British New Guinea we find more commonly specimens with reduced white markings and among those from Waigeu a larger percentage have a white spot in the cell of the hindwing than is the case in other districts, yet these differences are so very uncertain that we regard all the specimens from Misol, Salawatti, Waigeu, Dutch, German and British New Guinea, the islands in Geelvink Bay, the D'Entrecasteaux Islands, Trobriand and the small islands in the Torres Straits as belonging to one very variable subspecies. According to Rippon (in Wytsman's Gen. Ins.) *poseidon* also occurs on the Tenimber Islands; the statement, like so many in Rippon's work, is founded on a mistake; no *priamus*-form occurs on the Tenimber Islands. The green median line in the forewing of the ♂ is apparently never entirely absent, but in one of our specimens it is only represented by 3 green scales; in contradistinction to the Aru and Key ♂♂ the black discal band of the hindwing beneath is mostly narrow, sometimes however it is broader than the green submarginal band, but in this case the last spot but one of this band is usually rounded; the discal spots of the hindwing are also mostly rounded, the cell is not usually distinctly edged with black anteriorly and most specimens have
cronius. no black spot in the yellow anal area. In ♂-ab. **cronius** *Fldr.* the black discal spots are wanting on the upper
triton. surface of the hindwing, and in ♂-ab. **triton** *Fldr.* the hindwing has some gold spots. In the ♀ many specimens have fully as much white as the Key ♀♀; in many the white spots are shaded with blackish; in one of our specimens from the mountains of British New Guinea with the colour of the wing evidently not yet fully developed the markings above and beneath are yellow, partly sprinkled with white; this specimen is even more yellow
kirschi. than ♀-ab. **kirschi** *Oberth.*, in which the cell-spot moreover is edged with metallic green. Not infrequently a cell-spot is wanting on the forewing and only a row of patches is present between cell and distal margin: ♀-ab.
boreas. **boreas** *Fruhst.* In contrast to this there are specimens in which the cell-spot and the discal spots between the median veins are developed, but the other spots of the forewing partly reduced and partly obsolete. The ♀♀ with
archideus. a spot in the cell of the hindwing, which are particularly common on Waigeu, are ♀-ab. **archideus** *Gray.* The
brunneus. specimens with slight traces of spots on the forewing or without spots are ♀-ab. **brunneus** *Rothsch.* (3 a); this form is especially common on Trobriand, the D'Entrecasteaux Islands and in British New Guinea; from the small Engineer Islands, lying in the prolongation of the south-east point of British New Guinea, we have 5 ♀♀, of which 4 belong to ab. *brunneus*, whilst in the fifth specimen the white spots are certainly present, but small
valentina. and strongly blackened. Dwarfed specimens of both sexes are ab. **valentina** *Vaill.* None of these forms are con-

fined to a fixed locality. The butterfly is very common in most districts. Tubercles of the larva red with black tips; a white oblique band on the 7. segment; fork on the neck red. Egg brown (KUBARY). — Whether **boisduvali** *Montr.* (= oceanus *Fldr.*), from Woodlark, is different from *poseidon* we cannot say, having seen no specimen of it. The description agrees with *poseidon;* the insect appears to be very rare or very local. A. S. MEEK, who has twice collected on Woodlark, saw only a single specimen, a ♀. — **pronomus** *Gray.* The ♂ with a green median line on the forewing; the cell-spot of the forewing beneath does not reach the base and in most specimens is confined to the distal half of the cell; the hindwing bears (always?) a subcostal gold spot; on the underside the cell is posteriorly and often also at the apex edged with black and the distal margin of the wing is somewhat more broadly black than in *poseidon.* In the ♀ the white markings of the forewing are usually only slightly dusted with black, the cell-spot is at least of medium size and the submarginal spots are always large. Cape York. The specimens from Thursday Island agree partly with *pronomus,* partly with *poseidon.* — **euphorion** *Gray* (= cassandra *Scott*) (1 b) inhabits northern Queensland with the exception of the most northern districts. ♂ without green median stripe on the forewing, the green submarginal band irregularly undulate, the green markings of the underside very much reduced, especially the cell-spot, the cell of the hindwing completely or almost completely surrounded with black, the black discal spots large, the black margin broad. In the ♀ the white markings smaller, on the upperside of the hindwing strongly shaded with black; abdomen above greyish black, prothorax laterally broadly red. Larva brown, without white oblique band, the tubercles black with a yellow ring, the dorsal tubercles of segment 7 yellow with black tip. Pupa as in the preceding forms above yellow, beneath brownish yellow. The ♂♂ are commonly found in pairs, one ♂ following the other. Both sexes visit by preference the flowers of wild melons in open spaces in the woods. — **richmondia** *Gray* (= richmondii *Schneid.*). A small form, which occurs in southern Queensland and northern New South Wales. ♂ similar to *euphorion*-♂, the posterior green band of the forewing not reaching the base of the wing, commonly reduced to a submarginal band, which is sometimes very short. In the ♀ the green median line of the thorax absent or only indicated; the prothorax less extended red than in *euphorion;* the patches reduced as in that subspecies, but the wedge-spots of the hindwing longer and the 2. submarginal spot produced into a line basad behind the subcostal, so that an outwardly thickened semicircle or a hammer-shaped patch is formed. Larva somewhat paler than in *pronomus,* with slightly greenish tinge, the fork on the neck (osmaterium) greenish yellow, the tubercles much as in the preceding form; on Aristolochia praevenosa. The freshly emerged larva has black spinose tubercles, only the dorsal tubercles of segment 7 are almost entirely yellow. Pupa vivid green. The egg laid on the underside of a leaf. — **caelestis** *Rothsch.* (3 a). Likewise small. ♂ blue, resembling small specimens of *urvillianus,* the distal margin of the hindwing above and beneath more broadly black, especially anteriorly, and strongly dentate; on the under surface the cell-spot of the forewing long, the hindwing with dense metallic scaling before the costa in the basal half, the cell only edged with black anteriorly and but very narrowly, the yellow anal area extended almost to the cell, the black spot in it, if present, smaller than the preceding spot. ♀: ground of the wings darker than in *urvillianus,* the two anterior black discal spots of the under surface of the hindwing consequently less distinctly brought out; the patches of the upper surface dusted over with blackish, the cell-spot of the forewing large, longer than broad, produced basad, distally once or twice excised or scalloped, between the 3. radial and the submedian fold 3 elongated discal patches, of which the middle one is the largest, the submarginal and the anterior discal spots similar to those of *urvillianus;* the brown-black marginal band of the forewing broader, especially the wedge-spot placed between the 1. and 2. radials distally more deeply scalloped. Pupa above between the wing-cases yellow. St. Aignan, Sudest and Rossel, Louisiades. The occurrence of a blue form on these islands lying in the direct prolongation of the south-east point of New Guinea is very striking. — **bornemanni** *Pagenst.* ♂ green; the band running along the hindmargin of the forewing only slightly developed; the hindwing in the basal half, especially in the cell, more or less sparsely scaled with green, the black submarginal spots small. ♀ very similar to *poseidon*-♀♀, with well developed white markings, but paler blackish brown, therefore the two anterior black discal spots of the hindwing beneath more distinct; the white markings of the upper surface, especially on the hindwing, dusted over with blackish, the wedge-spots of the latter proximally pointed and not reaching the cell. New Pomerania (= New Britain) and French Islands. — **miokensis** *Ribbe,* from Mioko, is green-blue (♂). We have only seen bred specimens, and draw attention to the fact that bred specimens of the next subspecies killed too soon have also a greenish tone. — **urvillianus** *Guér.* (2 b). ♂ blue; hindwing similarly as in *bornemanni* more or less black from the base to the middle or beyond, discal spots above and beneath large; the cell in the specimens from the Solomon Islands mostly strongly edged with black, which is rarely the case in the specimens from New Hanover, also in individuals from the Solomons the black spot placed in the yellow anal area almost always larger than the preceding one; specimens with a subcostal gold spot are ♂-ab. **flavomaculata** *Ribbe.* ♀ pale blackish brown, the white markings mostly small and strongly dusted over with blackish; the wedge-spots of the hindwing pointed and the vein-stripes separating them mostly broad, the patch placed in the 2. marginal cell commonly hatchet-shaped as in *richmondia.* New Hanover, New Mecklenburg (= New Ireland) and Solomon Islands. The larva black or grey-brown, with red tubercles, which are black at the tip, the tubercles of the prothorax without red, a white oblique band at the sides. Pupa above yellow. This widely distributed butterfly is no rarity; it is among the first butterflies which the traveller notices on the wooded shores in the tops of the trees.

boisduvali. *pronomus.* *euphorion.* *richmondia.* *caelestis.* *bornemanni.* *miokensis.* *urvillianus.* *flavomaculata.*

chimaera. **P. chimaera** *Rothsch.* (4 b). Most nearly allied to *P. tithonus.* The head in both sexes small. Forewing of the ♂ similarly marked to that of *tithonus;* the distribution of colours on the hindwing different, as the figures show; abdomen yellow, beneath with rather rough hairs, above with black spots laterally. The ♀ remarkable before all other Papilios in that the rough-haired abdomen is ringed with black; the white spots of the forewing are very variable in size and number. — This easily recognised species was discovered by A. S. Meek at the southern slopes of the Owen Stanley Range in British New Guinea, at the upper Aroa River. The butterfly was very rare there, but Meek captured a considerable number, partly with the help of natives. The greater number of the specimens were taken on a single flowering tree on which the butterfly settled one at a time. Meek afterwards caught some more specimens at the north-east side of the range, at the upper course of the Mambaré River.

tithonus. **P. tithonus.** Stalk of the subcostal of the forewing short, the 3. subcostal branching off proximally to the apex of the cell. Abdomen of the ♂ with black lateral spots, forewing without brand, with 3 gold-green longitudinal stripes, of which the 1. and 2. are distally widened; hindwing elongated, the anterior half and 2 spots at the anal angle silky golden, distally and posteriorly golden green, the abdominal margin broadly black and the distal margin narrowly black, 3 black discal spots; underside of the forewing for the most part golden green, with a large black area at the apex of the cell; the hairs placed on the abdominal fold very long. ♀ similar to *poseidon*-♀, but the hindwing with the abdominal margin longer, the costal and distal margins evenly rounded together, the lower median branching off much more distally from the cell, the black marginal band broad and not undulate, the black discal spots round. Earlier stages not known. 2 subspecies.
waigeuensis. — **waigeuensis** *Rothsch.* ♂: the part of the median band placed in the cell of the forewing narrow; cell of the hindwing for the most part golden. ♀: spots of the forewing large, cell-spot of the hindwing shorter than
tithonus. broad. Waigeu. — **tithonus** *Deh.* ♂: the median band of the forewing broader in the cell than in the preceding form; the 2. and 3. black discal spot of the hindwing larger; less than the half of the cell of the hindwing golden. ♀: spots of the forewing much reduced, on the other hand the white area of the hindwing enlarged, the cell-spot of the hindwing longer than broad. Onin Peninsula, Dutch South-West New Guinea. Doherty found a few specimens in the hills at Kapaur in December and January.

P. goliath. Forewing broader than in *P. priamus,* the lower angle less rounded, especially in the ♂; the 3. subcostal near the end of the cell; the stalk of the 4. and 5. subcostals longer than in *priamus.* Forewing of the ♂ without brand, velvety black; a broad costal stripe and also a large triangular area, which extends from the hindmargin costad but does not enter the cell, are green; hindwing rounded, gold-yellow, the veins and 3 black-centred submarginal spots green, the abdominal area and the distal margin black. Beneath the forewing is gold-green, the veins and margins as well as a row of discal spots black; hindwing gold-yellow, the abdominal area from the cell to the scent-organ and the distal margin with the exception of the extreme edge, green. The ♀ resembles in pattern certain *priamus*-♀♀; the eye as in the ♂ is conspicuously margined with white posteriorly; the forewing either only with traces of patches, or there are a large divided cell-patch, a row of submarginal spots and several discal spots present, the hindwing has a broad yellowish white discal area, in which is placed a row of rounded white discal spots; abdomen above grey-yellow, laterally and beneath pure yellow, the 1. segment as well as the base of the others laterally and beneath black. This insect, which is still very rare in collections, is distributed over the whole of New Guinea, but is apparently local. It has been bred more than once, but nothing appears to have been published as yet about the larva and pupa.
goliath. — **goliath** *Oberth.* (7 a) doubtless came from Waigeu; the specimen from which the species was described was found in a collection which was left without exact data as to locality. As the same collection contained a ♀ of *P. tithonus* which belongs to the Waigeu, not the mainland form, we may probably take it that the collection was made on Waigeu. In the ♀ of *goliath* the cell of the forewing has a trilobate spot and the discal area of the hindwing above is suffused with blackish. We place here provisionally a ♂ which comes either from Waigeu or the coast-districts of Geelvink Bay; it is smaller than the ♂♂ known to us from German and British New Guinea; the gold-yellow spot placed behind the 2. median of the hindwing is larger, the costal margin of the forewing beneath is more broadly black and the black patch placed in the subcostal fork is
atlas. larger. — **atlas** *Rothsch.*, from Kapaur, Dutch South-West New Guinea. Only 2 ♀♀ known, which were found by W. Doherty in January and February, 1899. Cell-patch of the forewing broken up into spots; behind the 2. median a discal spot, on the underside before the 2. median 2 discal spots, besides these a submarginal spot; the discal area of the hindwing above grey-white, thickly shaded with black, beneath distally yellow
supremus. and proximally white. — **supremus** *Röb.* (= schoenbergi *Röb.*, elisabethae-reginae *Horv. & Mocs.*, goliath *Horv. & Mocs.*) (7 a). The best known form. The ♂ varies somewhat in the extent of the green areas of the forewing and the size of the submarginal spots of the hindwing. The ♀ has on the forewing above and beneath only 2 spots between the 1. and 2. medians; the discal area of the hindwing above is mostly less shaded with black than in the preceding forms and more uniform yellow, especially beneath. German New Guinea. —
titan. **titan** *Grose-Smith* is the subspecies from British New Guinea. The ♂ differs from *supremus* by the somewhat narrower black distal margin of the hindwing; on the under surface of the forewing the black discal spot placed

behind the 2. median is only indicated; the hindwing bears above 3 submarginal spots like the other forms, beneath, however, the 2. spot is wanting in the only known specimen, whilst one is present in each of the 1., 3. and 4. marginal cells. In the ♀ the spots of the forewing are partly obsolete, partly very much reduced; the yellow-white area of the hindwing is similar to that of *supremus*, but is less yellow beneath. 1 ♂ in coll. H. Grose-Smith and 2 ♀♀ in the Tring Museum, from the south side of the Owen Stanley Range.

P. paradisea. The 3. subcostal of the forewing from the apex of the cell (or quite near to it), the stalk of the subcostal fork long. Forewing of the ♂ without brand, with 2 broad golden green longitudinal stripes and a narrow hindmarginal stripe; hindwing triangular, produced into a tail, golden, this area distally and posteriorly margined with green, abdominal margin broadly black; the hairs on the abdominal fold of the hindwing long, yellowish white. ♀: the 2. median of the hindwing branching off at the same height as the 1. radial; the spots of the forewing very variable, the cell-spot rarely as long as broad, often entirely absent; the black discal spots of the hindwing round, varying in size and number; sometimes a white spot in the cell of the hindwing. A reliable detailed description of the entire life-history is still wanting. Egg spherical, light yellowish, much larger than that of *poseidon*. Larva velvety black, without markings, the tubercles from the first stage onward fiery red, later partly black, those on the 4. and 5. segments always black; nuchal fork vivid yellow, the slit itself red. Full fed in 4 or 5 weeks. Pupa not on the food-plant, but on shrubs and trees at about 1 m above the ground; more slender than the *poseidon*-pupa, above lighter yellow, beneath and laterally darker brown. The butterfly emerges in 5 to 6 weeks. It flies at the sea-coast and in hilly country. — **paradisea** *Stgr.* (= schoenbergi *Pagenst.*) is the form from German New Guinea, which the last few years has come to Europe in considerable numbers. Strongly golden ♂♂ are ♂-ab. **auriflua** *Fruhst.* ♀♀ which have a white spot in the cell of the hindwing are ♀-ab. **punctata** *Hagen* (the specimen erroneously figured by Rippon in Icon. Ornith. as *punctata „Rothsch.“* is a cripple without this cell-spot), whilst ♀♀ with little or no white in the cell of the forewing are ♀-ab. **caliginosa** *Fruhst.* — **flavescens** *Rothsch.* Only 1 ♀ known, from Etna Bay, Dutch South-West New Guinea. Forewing above with 2 small discal spots, of which the spot behind the 2. median is larger than the one placed before this vein; in *paradisea* the anterior spot is always the larger, moreover this subspecies has usually another spot before the 1. median; the light area of the hindwing of *flavescens* is more yellow above and beneath. *paradisea. auriflua. punctata. caliginosa. flavescens.*

P. meridionalis *Rothsch.* (6 c). ♂ similarly marked to *paradisea;* hindwing much smaller, the hindmarginal area not projecting in a lobe, the narrow tail widened before the tip, the cell much narrower, the 3. radial and 1. median not stalked; the forewing distally to the middle with large black area (much as in *tithonus*). ♀: the discal markings purer white; the cell-spot of the forewing about as long as broad, always 3 discal spots present; the distal margin of the hindwing more broadly black, the white area in and behind the cell extended further towards the base, the inner margin of the area therefore more oblique than in *paradisea.* — British New Guinea: Milne Bay and Mailu. So far as we know, only 8 ♂♂ and a somewhat larger number of ♀♀ are known, of which the Tring Museum has selected a series of 4 ♂♂ and 7 ♀♀; the insect varies but little. *meridionalis*

P. brookiana. Pronotum and occiput red. Forewing long, cell truncate, the lower angle acute; in the ♂ a band consisting of 7 metallic green wedge-spots between cell and distal margin; hindwing small, the cell narrow, the band of the forewing continued over the hindwing, the abdominal margin bent over above, forming a scent-fold. ♀ paler than the ♂; the discal band of the forewing anteriorly more or less extended white; hindwing with white or grey submarginal spots, both sexes beneath with such spots, which however are larger in the ♀ than in the ♂. Malayan. Nothing is yet known about the earlier stages. The butterfly is a woodland species, which is generally not rare in the hills and mountains of Malacca, Sumatra and Borneo. The ♀ follows the ♂ and rests on its back during copulation. When the insect is feeding at flowers the wings have a buzzing motion as in a Sphingid (Skertchley). According to Martin on the contrary *brookiana* is never found at flowers in Sumatra, but often settles on moist places on the roads and on rubbish heaps (dung and kitchen refuse) near the houses, which the yellow species never do. — **albescens** *Rothsch.* (7 b). The ♂ has always white submarginal spots on the underside of the forewing. In the ♀ the white spots on the upperside of the forewing and the underside of both wings are very large. Perak. — **natunensis** *Rothsch.* ♀: a transition-form between *albescens* and *brookiana*, nearer to the latter, but the white markings larger. Bunguran, Natuna Islands. — **brookiana** *Wall.* (7 c). ♂: forewing beneath usually without submarginal spots. In the ♀ the white spots on the forewing beneath widely separated except the anterior ones, and *albescens. natunensis. brookiana.*

the spots of the hindwing not confluent although sometimes touching one another. Borneo; Balabac. —
trogon. **trogon** *Voll.* (♀ = eleanor *Walk.*) (7 c). ♂ not distinguishable with certainty. ♀ similar to the ♂, less white than in the other forms, above almost without white, and beneath the anterior spots of the forewing also reduced. East and West Sumatra, all the year round in the plain and the foot-hills.

trojana. **P. trojana** *Stgr.* (5 b). ♂: metallic spots of the forewing shorter than in *brookiana;* hindwing with a band placed outside the cell, beneath the submarginal spots, as also in the ♀, further removed from the margin than in *brookiana.* The blue-grey scaling on the upper surface of the hindwing of the ♀ only sparse in and behind the cell, on the other hand on the disc beyond the cell condensed into a band. — Palawan; still rare in collections. A sojourn on this island is very unpleasant and dangerous, especially on account of the many doubtful characters who have taken refuge there from the Philippines. So far no collector has succeeded in reaching the mountains.

P. hypolitus. Cell of the hindwing distally widened, especially in the ♂; forewing with white vein-stripes. ♂: abdomen above dark yellow and black; hindwing above black, with a row of yellow submarginal spots which are also present beneath, the under surface between these spots and at the margin black, otherwise silky grey-white or yellowish white. ♀ on the hindwing between distal margin and cell with large spots, the anterior ones yellow, the posterior grey, all except the first enclosing black discal spots, cell entirely black or with a small apical spot; beneath as above, but the cell of the hindwing always with a large grey-white spot and the forewing more strongly streaked. Earlier stages not known. According to Ribbe the butterfly occurs on Ceram at the coast wherever there is underwood. The Moluccas and Celebes; several
hypolitus. geographical forms. The insect is not yet known from Buru. — **hypolitus** *Cr.* (= panthous *L.* partim, pandarus *Houtt.*, remus *F.*, antenor *Well.*, hippolytus *Esp.*, hippolythus *Esp.*) (8 a). ♂ grey-white on the under surface of the hindwing. ♀: hindwing beneath with a large cell-spot, the three posterior marginal cells white,
antiope. only yellow between the black discal and submarginal spots. Ceram and Amboina. — **antiope** *Rothsch.* Only ♂♂ are known to us. On the whole smaller than *hypolitus;* the vein-stripes of the forewing above less distinct; on the underside of the hindwing the lower outer angle of the 2. yellow spot more produced, the interspace between the 2. and 3. spots consequently smaller, the black spot placed before the 3. radial larger, the white spot before the 2. radial always very small and the median nervure more narrowly black. Morty (= Morotai), a number of ♂♂ in the Tring Museum, collected by Dumas. According to Wallace *hypolitus* also occurs on Halmahera, and Pagenstecher records the insect from Halmahera and Ternate. As in the other
sulaensis. subspecies the ♀ of *antiope* is probably more strikingly different from *hyp. hypolitus* than the ♂. — **sulaensis** *Stgr.* Hindwing beneath in ♂ and ♀ and in the ♀ also above more extended yellow than in *hypolitus.* The
cellularis. cell-spot of the hindwing of the ♀ beneath small. Sula Islands: Mangola and Besi. — **cellularis** *Rothsch.* (= celebensis *Stgr.* nec *Wall.*). ♂ as in *hypolitus;* the semitransparent vein-stripes on the upper surface of the forewing only very sparsely scaled with white; the 2. yellow spot of the under surface of the forewing mostly broader than long. ♀ also above with cell-spot on the hindwing. South and North Celebes; Talaut. According to Piepers also on Saleyer (is this correct?).

darsius. **P. darsius** *Gray* (9 b, c). In ♂ and ♀ the abdomen above brownish black; the golden area of the hindwing cut off straight towards the base, the cell at least to the base of the 2. median black, the golden cell-spot sometimes dot-like; the last golden patch of the ♂ the largest, in the ♀ the black discal spots touching one another; the white stripes at the lower median of the forewing of the ♀ far removed from the cell.
cambyses. Sometimes the ♂ with several black discal spots in the yellow patches: ♂-ab. **cambyses** *Ehrm.* — Ceylon, almost everywhere in hilly country, but also in the plains in open and wooded districts; the butterfly is fond of feeding at heliotrope. Larva dark purple-brown, with blackish streaks; lateral band pale red. Thwaites often observed how a pair danced up and down in the air, the ♀ always remaining about 2—3 ft. above the ♂.

P. vandepolli. Breast without red; abdomen entirely or for the most part black. ♂: cell of the hindwing broad, the abdominal area and the base of the wing broadly black, the black distal margin likewise broad, the golden cell-spot obliquely truncate, its proximal margin nearly forming a prolongation of the 2. median vein. ♀: the posterior 2 or 3 pairs of white vein-stripes of the forewing placed at a distance from the cell; the golden area of the hindwing proximally straightly truncate or almost, not reaching to the middle of the cell. Egg pale
honrathiana yellow. Sumatra and Java. — **honrathiana** *Martin* (8 b) occurs in the hilly country of North-East Sumatra. Body entirely black apart from the thin red collar, rough hairy. In the ♀ cell of the forewing at the apex with
vandepolli. an M-shaped white mark, the vein-stripes thin, the last 3 pairs far removed from the cell. — **vandepolli** *Snell.* (8b).

Abdomen laterally and beneath grey-yellow and black, less rough, above in the middle brown in the ♂. The white vein-streaks of the ♀ broader than in the preceding subspecies, the anterior one of the third pair counted from behind near to the cell or reaching it, apex of the cell white. Mt. Gedé, Preanger, Java, 4—5500 ft.

P. criton. Collar and breast red; abdomen beneath and laterally much more extended yellow than in *plato* and the forms of *haliphron*. ♂: forewing above and beneath without vein-stripes or there are white vein-stripes present beneath; the golden area of the hindwing consists of a large cell-spot and 6 large discal spots, the last discal spot the longest, very much longer than the black marginal band is broad, the 1. spot longer than broad, all or at least the posterior ones distally emarginate, the cell-spot obliquely truncate, occupying the half of the cell or somewhat more, longer anteriorly than posteriorly. ♀ variable; the white streaks at the 2. median of the forewing, if present at all, far removed from the cell; the golden area of the hindwing almost straightly truncate, the spot placed behind the 2. median not prolonged basad beyond the point of origin of this vein, often absent; the black discal spots, especially the central ones, rounded, above rarely completely merged together, beneath always smaller; the black marginal band, which is deeply incised at the veins, narrower than the yellow central spots are long, measured from the cell to the black discal spots. Larva similar to that of *haliphron*, somewhat more brightly coloured. Pupa greenish. Northern Moluccas and Obi, rather common; rare on Celebes. — **criton** *Fldr.* (11 a, b), from Batjan, Ternate, Halmahera and Morty, rarely has in the ♂ white vein-streaks on the under surface of the forewing. The ♀ occurs in 3 principal forms: ♀-f. **androgyna** *form. nov.* has neither above nor beneath white vein-stripes or the stripes are only faintly indicated on the upperside and more strongly beneath; in ♀-f. **oberthueri** *Rothsch.* the apex of the cell and the vein-stripes are almost pure white above and beneath, the yellow area of the hindwing is golden as in the preceding ♀-form; ♀-f. **felderi** *Rothsch.* has faint vein-streaks above and the central area of the hindwing is not golden but pale cream-colour. — **critonides** *Fruhst.*, from Obi, is not constantly different from *criton*. ♂: forewing beneath often with white vein-stripes (in 4 of our 7 ♂♂), the cell-spot of the hindwing mostly less obliquely truncate than in *criton*. In the ♀ the spot placed before the 1. radial of the hindwing always small, no yellow or cream-coloured discal spot before the subcostal; the black discal spots completely merged together, so that above only quite small yellow submarginal spots are present. The 3 known principal forms of the ♀ are: ♀-f. **melas** *form. nov.*, forewing without distinct vein-stripes, or these at least above weakly developed, central area of the hindwing above yellow; in ♀-f. **cinna** *Fruhst.* 1/3 of the cell of the forewing and the broad, proximally united vein-stripes are almost pure white and the central area of the hindwing is golden above; ♀-f. **clara** *form. nov.* has even more white than *cinna* and the central area of the hindwing is cream-coloured above. — **celebensis** *Wall.* The type (a ♂ from „Macassar") of this form is in the collection of H. Grose-Smith. Dr. L. Martin received a second specimen from his collectors from Putannani, South Celebes, which he has handed over to the Tring Museum. These two specimens — the only ones which I have seen — are very similar to the *criton*-♂ from the northern Moluccas. The abdomen, however, is black, with narrowly yellow margins to the segments beneath; the claspers almost entirely grey-yellow. Forewing beneath with distinct whitish grey stripes, which extend to the cell; the yellow area of the hindwing distally more deeply scalloped than in the other *criton*-forms. The ♀ from the Minahassa in coll. Staudinger mentioned in Novitates Zoologicae 1896, p. 64, probably belongs to *P. helena hephaestus*.

criton. *androgyna.* *oberthueri.* *felderi.* *critonides.* *melas.* *einna.* *clara.* *celebensis.*

P. riedeli *Kirsch* (10 a). This apparently very constant species is one of the rarer forms. Body similar to that of *criton*, but the abdomen more sparsely yellow, especially at the sides; both wings more elongated than in the allied species. ♂: forewing beneath with distinct but thin white vein-stripes, the pairs placed at the two median veins removed from the cell; the gold area of the hindwing much as in *criton*, but proximally cut off straight, the cell-spot much smaller, the posterior discal spots much longer and almost all the spots more deeply emarginate, the black hindmargin at the apex of the golden area and the black distal margin before the subcostal much narrower than in *criton*. ♀: forewing at the apex of the cell and distally to it white, this area produced into stripes at the veins, at the 1. median a white double stripe, which is remote from the cell; hindwing with dot-like cell-spot or the cell entirely black, 4 golden discal spots and behind this area a whitish grey spot; the black discal spots not completely merged together, but the yellow spots separated by them strongly scaled with black on the upper surface. — Sjerra, Timor Laut Islands, perhaps also on the other islands of this group.

riedeli.

P. haliphron. Abdomen black, with but little yellow scaling laterally and beneath, or entirely without yellow, in the ♀ brown above. The golden area of the hindwing in the ♂ with oblique edge basally, the black basal and hindmarginal area extending at least to the lower median, sometimes the whole cell black; the gold patches not distinctly emarginate distally, the middle ones truncate or rounded off, the distal margin very broadly black. The gold area of the ♀ mostly cut off straight in the cell, the black discal spots long, especially the posterior ones, mostly all joined to the marginal band, often so completely merged together with the latter that there

are no gold spots left in the broad marginal area. A geographically variable species, whose habitat extends from Celebes and Sumbawa eastwards. It does not occur on Lombok, whilst on the neighbouring island of Sumbawa
haliphron. it is rather abundant. — **haliphron** *Bdv.* (9 a). Breast red, the last ventral segments narrowly edged with grey-yellow, in the ♀ a grey-yellow patch at the lateral margins of the posterior segments. ♂: gold spot of the cell of the hindwing small or absent. ♀: the stripes at the submedian of the forewing above indistinct, the posterior stripe of the penultimate pair not reaching the cell, the cell proximally surrounded with white almost to the point of origin of the 2. median. South Celebes. So far no *haliphron*-form is known from North Celebes; also no relative is known from the Sula Islands. Dr. MARTIN bred a gynandromorphic specimen of *haliphron* whose left side
pallens. is female and the right male. This is now in the Museum at Tring. — **pallens** *Oberth.* (= bauermanni *Röb.*). Vein-stripes in ♂ and ♀ more strongly developed than in *haliphron*, the cell-spot of the hindwing larger, in the ♀ moreover the body and wings paler. Saleyer, common; Kabia. The name *bauermanni Röb.* is founded on specimens
pistor. from the island of Kabia; there appear to be no tenable differences. — **pistor** *Rothsch.*, from Kalao and Djampea. The ♂ not constantly different from *pallens;* the cell of the forewing beneath is mostly less extended white and the yellow scaling of the under surface of the abdomen is usually even more sparse. The ♀ has less white in the cell of the forewing; the cell-spot of the hindwing occupies less than half the cell, the black discal spots are shorter than in *pallens;* on the underside the middle of the hindwing is more distinctly yellow, sometimes almost as
naias. yellow as above, and the yellowish grey area extended beyond the cell is smaller than in *pallens.* — **naias** *Doh.* inhabits Sumba, Sumbawa, Flores, Larentuka, Adonara, Lomblen and Alor. ♂: the white vein-stripes are well expressed also above; the first gold spot of the hindwing large and at least as long as the second spot, the cell-spot lies along the front margin of the cell and is often so much widened that it occupies at least half the cell; round the cell 4 or 5 gold patches, beneath sometimes also a sixth more or less distinct; the white edging of the cell of the forewing beneath mostly extended to the point of origin of the 2. median; this edging in the ♀ still more prolonged towards the base, also above more extended than in the preceding subspecies. The ♀ also distinguished by the presence of 7 gold spots around the cell, the 1. spot small, very rarely wanting (in one of our two Larentuka ♀♀), the last more or less grey, the cell-spot mostly occupying two-thirds of the cell. The yellow scaling of the abdomen in both sexes more extended than in the preceding forms. The percentage of ♂♂ which have a large cell-spot on the hindwing is larger on Sumba than on the other islands, also the Sumba specimens
sambavana. have more commonly a 5. discal gold spot. The designation ♂-ab. **sambavana** *Doh.* may be applied to the ♂♂ in which this spot is present. The butterfly is common on Sumba at the coast and in the interior, also it appears
socrates. to occur abundantly on the other islands. — **socrates** *Stgr.* (12 a, b). Breast and collar entirely black or with very few red hairs; abdomen less extended yellow than in *naias.* The ♀ without gold spot before the subcostal on the hindwing and with quite narrow yellow streak behind the lower median, the black discal spots broadly
iris. united with the marginal band and all or almost all touching one another. Wetter. — **iris** *Röb.* (12 c). ♂: vein-stripes of the forewing above weak, beneath the stripes placed at the 2. median remote from the cell, the cell itself without distinct white edging; hindwing with small cell-spot, which is often absent, as well as 4 discal spots, often a still smaller spot is present before the subcostal and a streak behind the 2. median; pronotum and breast without red hairs. ♀: pale brown, collar and breast very rarely red, the vein-streaks dirty white, those placed at the 2. median above and beneath remote from the cell; the gold area of the hindwing small, consisting of a small cell-spot and 4 discal spots, commonly another small spot before the 1. radial and yet another behind the 2. median; in the broad marginal area no gold spots or only slight traces of them. Letti and Moa, common. —
ariadne. **ariadne** *Rothsch.* ♂: collar and breast red, the margins of the posterior abdominal segments beneath narrowly but distinctly yellow; vein-stripes of the forewing beneath purer white. ♀ likewise with red collar and red sides to the breast; the cell-spot of the hindwing and also the spots placed before the 1. radial and behind the 2. median
staudingeri. larger than in *iris.* Roma. — **staudingeri** *Röb.* ♂: forewing similar to that of *iris*, beneath with purer white stripes; hindwing almost as in *naias*, but always with 6 gold discal spots round the cell and the cell-spot more transversely truncate; the harpe similar to that of *iris*, almost symmetrical, whilst in the other *haliphron*-forms it is almost hook-shaped. ♀ with broader vein-streaks on the forewing than in *iris;* on the hindwing in addition to the cell-spot 6 gold spots, of which the first and last are much larger than in *iris* and *ariadne;* the median veins at least beneath accompanied by yellow-grey stripes, similar stripes or small submarginal spots also often
ikarus. on the radials. Collar and breast in ♂ and ♀ red. Loeang, Dammer and Babber. — **ikarus** *Fruhst.* (12 a, b). The ♂ not different from *staudingeri*, the vein-stripes of the forewing beneath and also the edging of the cell, however, are longer and broader in some specimens. This grey-white scaling in the ♀ apparently always more extended than in *staudingeri.* Selaru, Timor Laut Islands. — Larva of *haliphron* brown, the tubercles pale red, the lateral band dark whitish yellow. Pupa yellow-green.

plato. **P. plato** *Wall.* (11 a, b). Distal margin of both wings more strongly scalloped than in *haliphron;* collar red, breast black. ♂: forewing from the base to the point of origin of the 1. median black, then somewhat lighter; hindwing with large cell-spot and 6 large discal spots, the latter usually more or less emarginate distally, the cell-spot obliquely truncate in the prolongation of the 2. median; beneath the vein-stripes of the forewing very broad and somewhat effaced, the two stripes placed at the 2. median remote from the cell. ♀ in two forms,

a light and a dark, as in *criton* and *helena*. In both forms the forewing from the base to beyond the origin of the 1. median is black or black-brown; this area rather sharply defined. In the dark form, ♀-f. **nychonia** *form. nov.*, the distal half of the forewing is similar to that of the ♂, only the apex of the cell is somewhat lighter; the yellow area of the hindwing consists of a rather small, obliquely truncate cell-spot and 6 large discal spots; the black discal spots are rather small and separated from one another, but broadly united with the black marginal band. In the second female form, ♀-f. **chitonia** *form. nov.*, the vein-streaks of the forewing are very broad and above also very distinct, towards the base they are grey-white, as is also the apical third of the cell; the yellow area of the hindwing is cut off straight (not obliquely) basally; no spot before the submedian, on the other hand a larger spot behind the 2. median, the black discal spots completely confluent with one another and with the marginal band, so that in the broad black area thus formed only quite small yellowish spots are present; beneath the discal area is not golden. — Dutch and Portuguese Timor; rare in collections, like many of the Timor species. The island, which possesses a vegetation recalling that of North-West Australia, is very unhealthy in the rainy season, and in the long and very arid dry season only very few insects are to be found. *nychonia.* *chitonia.*

P. helena. ♂: abdomen above brown, narrowly ringed with yellow, lighter in the middle, laterally and beneath entirely yellow; hindwing between the 1. radial and the 1. median truncate, except for the rather strong scalloping; the gold area correspondingly produced behind the 1. radial and at the 1. median; the upper angle of the spot placed before the 1. radial projecting more than the lower angle; behind the cell and the 2. median a long, narrow yellow triangle. The ♀ occurs in two principal forms, a light and a dark, which are connected by transitions; abdomen black-brown, at the sides a broad yellow stripe, the posterior ventral stripes partly yellow, or the whole underside yellow with black spots; hindwing usually without discal gold spot before the subcostal; the cell-spot small and irregular, or longer posteriorly than anteriorly. The most widely distributed „*Ornithoptera*"; it occurs in numerous subspecies from Hainan and North India to New Guinea. — **papuensis** *Wall.* (= melpomona *Rippon*, melpomena *id.*). Abdomen yellow beneath, in the ♀ paler than in the ♂ and spotted with black; cell-spot of the hindwing in ♂ and ♀ about of equal size, obliquely cut off, anteriorly reaching to the point of origin of the subcostal, sometimes somewhat more, sometimes somewhat less extended, the gold spot placed below the cell always extending nearly to the base. ♂ on the under surface of the forewing mostly without vein-stripes, but sometimes with a grey-white submarginal band composed of smears. The yellow area of the hindwing of the ♀ above very rarely grey-yellow. In ♂-ab. **irregularis** *Dannett*, founded on a single specimen, probably from New Guinea, the gold patches placed round the cell of the hindwing are so much reduced that the middle spots are scarcely a third as long at the veins as the black submarginal area is broad. The name ab. **carolus** *Fruhst.* is applied to specimens rarely occurring in both sexes in which the forewing is white above and beneath in the apex of the cell and at the veins on the disc; this white area is purer white in the ♀ than in the ♂ and extends almost to the hindmargin. Apart from such extreme individuals the ♀ occurs in two principal forms: ♀-f. **papuensis** *Wall.*, forewing at least above without stripes or only slightly lighter at the veins; this is the commonest form, to which also belongs ♀-ab. **biroi** *Horv. & Mocs.*, with yellow-brown instead of yellow area on the hindwing (discoloured?); in ♀-f. **papuana** *Oberth.* (= melpomona ♀ *Rippon*) the apex of the cell and the adjoining parts of the forewing above are grey-white. The butterfly occurs in the whole of New Guinea both in the plains and hills, but not in the higher mountains, and is very common in many places, e. g. Astrolabe Bay; it is also found on Salawatti. It is very singular that there is apparently no representative of these golden and black Aristolochia-Papilios on the Aru and Key Islands. — **hanno** *Fruhst.*, from Goram and the Matabela Islands, is smaller than *oblongomaculatus* from Ceram and Amboina. ♂ always without dark vein-stripes on the under surface of the forewing; hindwing before the subcostal always with a large golden spot, which basally, however, extends very little if at all beyond the point of origin of this vein, the cell-spot not so large as in *oblongomaculatus;* the cell rather strongly margined with black all round, the spot placed below the cell extending at least as far basad as the cell-spot. ♀: abdomen beneath at the base black, posteriorly grey-yellow with black spots; the central area of the hindwing grey-yellow as in *oblongomaculatus;* no discal spot before the 1. radial, the submarginal spots above and beneath small; no grey-yellow stripe at the submedian, or only a short one. Two forms: ♀-f. **lucina** *form. nov.* Cell of the forewing above only faintly edged with grey at the apex, the vein-stripes though distinct more or less shaded with black; ♀-f. **diana** *form. nov.* Apex of the cell and vein-stripes on the upper surface of the forewing grey-white. — **asartia** *Rothsch.* ♂: cell-spot of the hindwing extending nearly to the base, the subcostal spot either as large as in *oblongomaculatus* or smaller; on the underside the long spot placed below the cell reaching almost as far distally as the preceding golden area; cell more thinly edged with black than in *hanno*, the tips of the projections of the black marginal band covered with grey-yellow scales, the proximal portion of the last projection reduced to an isolated black dot (which is wanting in one of our three specimens). Ceram Laut, collected by H. Kühn in December 1898. — **oblongomaculatus** *Goeze* (= helena *Clerck* nec *Linné*, amphimedon *Cr.*, hellen *Godt.*), from Ceram, Saparoea and Amboina, is the largest subspecies of this species. ♂: cell-spot of the hindwing extending nearly to the base, the subcostal spot produced basad to beyond the point of origin of the subcostal. ♀: the central area of the hindwing above grey-yellow or cream-colour, a small discal spot before the 1. radial very rarely absent, the spot placed below the cell mostly large, *papuensis.* *irregularis.* *biroi.* *papuana.* *hanno.* *lucina.* *diana.* *asartia.* *oblongomaculatus.*

amaura. the black discal spots beneath more or less margined with grey; two forms: ♀-f. **amaura** *form. nov.*, apex of the cell of the forewing above only faintly edged with dark grey; ♀-f. **oblongomaculatus** *Goeze*, the apex of the cell broadly grey-white. Sometimes in the ♂ small, irregular black spots are sprinkled over the gold area. Ribbe found the butterfly in Ceram, „everywhere in the forest and on the coast where there are shrubby woods." Larva of *oblongomaculatus* similar to that of *haliphron*, grey-brown, with blackish lines on the back, two oblique bands laterally; on Aristolochia momandul. Pupa yellow-green, much shorter than that of *P. priamus*, the wing-cases project more strongly, the 2. and 3. pair of protuberances on the abdomen are much larger, and the 4. pair absent, also the last segments are more flattened above and laterally. Egg (according to Kubaly) small,
bouruensis. green, with thick shell. — **bouruensis** *Wall.* (10 b). ♂: the cell-spot and the subcostal spot of the hindwing mostly very much reduced, the latter usually placed at a distance from the point of origin of the subcostal, the cell-spot sometimes not larger than in the ♀ of the preceding subspecies, also the gold streak placed below the cell mostly small, above sometimes quite wanting. ♀: central area of the hindwing above and beneath deeper yel-
capnodia. low than in the previous subspecies; in the ♀-f. **capnodia** *form. nov.* the apex of the cell of the forewing on the upper-side is only slightly dark grey at the apex and the vein-stripes are effaced or indistinct; beneath, as in the prece-
argidia. ding subspecies, these stripes are grey-white and in one of our specimens very broad; in ♀-f. **argidia** *form. nov.* the apex of the cell of the forewing and the vein-stripes are grey-white also above, but the stripes placed at the
bandensis. 2. median and the submedian are short or diffuse. Buru, apparently common. — **bandensis** *Rothsch.* Smaller than *oblongomaculatus*, abdomen above deeper black-brown; hindwing somewhat more rounded, the cell-spot large, sinuate basally and therefore less obliquely truncate than in *oblongomaculatus*, the upper tooth of the 3. gold spot little if at all more produced than the lower one, on the contrary the teeth of the 5. and 6. spots placed at the 1. median vein long; the white fringe-spots are only just indicated. ♀: cell of the forewing above with rather sharp grey-white M-mark in the apex; the vein-stripes sharp and grey-white, but the subcostal spots beyond the fork of the 4. and 5. vein strongly shaded with black, the other stripes also less light distally and not extending so near the margin as in light-striped *oblongomaculatus;* the stripes of the 2. median and the submedian much darkened. Also beneath the apex of the cell is sharply surrounded with grey-white; central area of the hindwing above deeper yellow than in *oblongomaculatus*, but beneath quite as pale as in that subspecies; before the 1. radial always a discal spot, which often reaches to the subcostal; the spot placed below the cell large, the fringe-spots above and beneath very narrow. Only this one, comparatively constant ♀-form known. Great Banda,
thestius. collected by H. Kühn in November and December 1898. — **thestius** *Stgr.* (= leda *Stgr.* nec *Wall.*, celebensis *Rothsch.* [partim]). The smallest local form of this species. The ♂ very variable, forewing above at least with indications of vein-stripes, sometimes strongly striped with white, beneath always striped as far as the cell, and the latter at the median often margined with white down to the base. Veins of the
bernhardus. hindwing mostly very strongly black, the first discal spot and the cell-spot either very large: ♂-ab. **bernhardus** *Fruhst.*, or both more or less reduced: ♂-ab. **thestius** *Stgr.* In the ♀ on the upper surface of the forewing the edging of the apex of the cell and the vein-stripes distinct or indistinct, beneath very light and broad, the stripe placed before the 2. median reaching the cell, also the submedian stripes longer than in the forms from the Moluccas; central area of the hindwing yellow, the cell-spot occupies about half or $^2/_5$ of the cell; before the 1. radial a discal gold spot, the black discal spots large, confluent, the yellow spots between them very small, above often entirely absent; the marginal spots large, especially beneath. Saleyer.

In the following forms of *P. helena* the hindwing has a narrower black distal margin than in any
neoris. of the preceding subspecies. — **neoris** *Rothsch.* Abdomen above much paler than in *hephaestus*, yellowish brown, laterally and beneath grey, not yellow, only yellow towards the base in the ♂, the dorsal median spot of the ♂ scarcely lighter than the rest of the upperside, the black ventral spots of the ♀ small. ♂: forewing with extremely slight traces of vein-stripes; beneath the distal margin somewhat more incurved than even in *hephaestus;* hindwing as in that form, the marginal band as broad as in broad-margined *hephaestus*. ♀: forewing at all the veins, even the submedian, with broad grey-white stripes, which are even broader beneath than above, the stripes placed at the 2. median remote from the cell, the black basal area of the forewing rather sharply defined, the apical third of the cell grey-white, above with 2 black stripes shaded with white, beneath almost pure white; hindwing above as in *hephaestus*, somewhat less deeply scalloped, the white marginal spots larger, the black marginal band broader, the black abdominal margin rather strongly scaled with grey, especially at the anal angle; the black discal spots isolated as in many *hephaestus*, the 1. submarginal spot grey; no discal gold spot before the subcostal; the cell-spot cut off almost straight; beneath the central area yellowish grey, only in the middle more distinctly yellow. A pair from Binongka, Toekan Bessi Islands,
mopa. south-east of Celebes, taken by H. Kühn in December 1901. — **mopa** *Rothsch.* A transition form between *neoris* and *hephaestus*, from Buton, south-east of Celebes, only 1 ♀ known, captured by H. Kühn in December 1901. The vein-stripes and cell-pattern of the forewing as in strongly striped *hephaestus*-♀♀, but the black margin of the hindwing broader, the yellow area on the under surface anteriorly, posteriorly and proximally
neoris. as pale as in **neoris,** but a larger part of the area distinctly golden. Abdomen somewhat more distinctly yellow
hephaestus. than in **neoris,** the black ventral spots small. — **hephaestus** *Fldr.* (= leda *Wall.*) (13 a, b). A rather common

butterfly throughout Celebes in suitable localities, occurring both in low country and in the hills. Forewing long, above rarely with slight indications of vein-stripes, these stripes sometimes very distinct beneath; hindwing always with a large, long gold spot before the subcostal, which distally extends to the costa, the black marginal band broader than in the following subspecies and less deeply incised. ♀: forewing beneath with a broad white stripe at the submedian even when the wing has no other stripes; cell-spot of the hindwing obliquely truncate, anteriorly extending to the point of origin of the subcostal vein or even shorter; marginal band as in the ♂ comparatively broad at the veins; two principal forms: ♀-f. **lygaea** *form. nov.*, *lygaea.* forewing above without distinct vein-stripes; ♀-f. **lucinda** *form. nov.*, forewing above and beneath with grey- *lucinda.* white vein-stripes and the apex of the cell of the same colour. PIEPERS says that the insect also occurs on Saleyer, which probably rests on a confusion with *thestius Stgr.* — **propinquus** *Rothsch.* (14 a). Abdomen above *propinquus.* as dark as in *hephaestus.* ♂: forewing beneath with distinct or faint vein-streaks; gold spot long, reaching the costa distally, 4 black discal spots, the last so united with the marginal and abdominal band that no yellow submarginal spot is left, distal part of the gold spot placed below the cell about 1/3 as long as the proximal part. ♀: the vein stripes of the forewing and the apex of the cell grey-white also above; hindwing with gold discal spot before the subcostal, the black marginal band more deeply incised than in *helena;* only the white-striped form known. Sumbawa, apparently very rare; the varions collectors who have been on the island (DOHERTY, EVERETT, FRUHSTORFER, etc.) have only captured very few specimens. — **sagittatus** *Fruhst.* The ♂ *sagittatus.* not constantly different from *propinquus;* forewing rarely with vein-stripes, but these sometimes very distinct; the gold spot placed before the subcostal of the hindwing mostly narrow, sometimes very small, rarely absent, but sometimes as large as in *propinquus,* the yellow streak-spot placed below the cell longer than in that subspecies; most specimens with 2 black discal spots, often only the anal one present, sometimes 3 or 4, always a submarginal gold spot at the anal angle. ♀: hindwing without discal gold spot before the subcostal, commonly also the gold spot placed below this vein much reduced; the black discal spots always large, not very variable, at least the posterior ones united with the marginal band; two forms: ♀-f. **sciara** *form. nov.*, forewing above *sciara.* without distinct vein-stripes, and ♀-f. **nympha** *form. nov.*, forewing also above with strong vein-stripes and *nympha.* grey-white apex to the cell, the extent of the white in the cell variable. Lombok, rather common. — **nereides** *nereides.* *Fruhst.* ♂ very similar to that of the Javan form; hindwing with a row of black discal spots. In the ♀ the cell and disc more extended grey-white. Bawean. — **antileuca** *Rothsch.* Abdomen above as dark as in *antileuca.* *sagittatus,* not so distinctly lighter in the middle as in *helena* from Java. ♂: forewing above and beneath entirely without vein-stripes; hindwing similar to that of *helena,* without discal gold spot before the subcostal. ♀ above without vein-stripes and with the apex of the cell not margined with grey, beneath with quite indistinct traces of vein-stripes; hindwing with a discal and a submarginal gold spot before the 1. radial, both very small, the gold spot placed below the cell almost reaches the base; the black discal spots moderately large, the last 3 united with the marginal band, the cell-spot cut off in the prolongation ef the 1. radial. A pair from the Kangean Islands (PRILLWITZ), in the Tring Museum. — **helena** *L.* (= astenous *F.*, heliacon *F.*, *helena.* nymphalides *Swains.*) (11 c). ♂: forewing also above at least with traces of vein-stripes, these beneath mostly broad, sometimes reduced to faint submarginal patches, the upper ones often reaching the cell; the apex of the cell commonly grey-white, no white or yellowish streak behind the cell between the 2. median and the base; hindwing usually without gold spot before the subcostal, sometimes with one or two small spots or with a long narrow streak before that vein; on the disc 0—5 black spots. ♀: forewing above always at least with faint submarginal vein-stripes, these beneath always distinct and in the middle between cell and distal margin broader than the brown-black interspaces, the stripes placed at the 2. median vein not extending to the cell, usually also the preceding pair shortened; no stripe behind the cell between the 2. median and the base, sometimes the distal half of the wing almost entirely white-grey; the cell-spot of the hindwing very variable, sometimes only occupying 1/4 of the cell; no yellow discal spot before the subcostal; the black discal spots very variable, often large and joined together, and just as often small, but very rarely quite absent; we differentiate 2 forms: ♀-f. **penetia** *form. nov.*, forewing above without grey-white apex to the cell and without *penetia.* distinct, long grey-white vein-stripes and ♀-f. **pompeus** *Cr.*, forewing also above with grey-white apex to the *pompeus.* cell and grey-white vein-stripes; these cell-patches mostly longer than broad and produced anteriorly towards the base, not M-shaped. The specimens of both sexes in which the black discal spots are wanting on the hindwing are ab. **jupiter** *Oberth.*, whilst those with yellowish red hindwing are ab. **rutilans** *Oberth.* *jupiter.* *rutilans.* (= holzi *Pagenst.*). In ab. **pluto** *Fldr.* the yellow area of the hindwing is likewise yellowish red anteriorly, *pluto.* the vein-stripes of the forewing are indistinct above, but beneath as broad as in Javan specimens; the specimen (♀) is without indication of locality and probably does not come from Java, as it has on the under surface of the forewing behind the cell basally from the 2. median a strong white streak, which is commonly found in ♂ and ♀ from localities further west, but never seems to occur in Javan specimens. Java and South-West Sumatra. — **nereis** *Doh.* ♂: forewing above with distinct vein-stripes, which on the under surface *nereis.* are narrower than in *helena;* hindwing before the subcostal with long gold spot, which does not reach the costa; sometimes a complete row of black discal spots. ♀: apical third of the cell of the forewing and the sharply defined vein-stripes almost pure white, the stripes placed at the 2. median not reaching the cell; hindwing above pale yellow, beneath cream-coloured, the black discal spots large, joined together. Engano.

isara. — **isara** *Rothsch.* The ♂ not constantly differing from Sumatra specimens; vein-stripes of the forewing above usually indistinct, beneath always very distinct; the gold spot placed before the subcostal of the hindwing, as well as the one below the cell, always large. The ♀ approaches *nereis:* the apex of the cell of the forewing above white-grey at least to the 1. median, enclosing two black longitudinal spots, the vein-stripes as sharp as in Sumatran specimens, but the submedian stripes larger and purer white-grey, also a couple of thin stripes on the submedian fold; hindwing in one of the two ♀♀ before me with discal gold spot before the subcostal, in the other on the contrary with large, wedge-shaped yellow submarginal spot; beneath the yellow *typhaon.* area paler than in the Sumatra form, but deeper yellow than in *nereis.* Nias. — **typhaon** *Rothsch.* ♂: forewing above without vein-stripes, these beneath distinct or only very ill-defined, in the first case also a subbasal streak present below the cell; the gold spot placed before the subcostal always large, distally touching the costa. ♀: cell of the forewing above margined with white at the apex, the edging much broader anteriorly than posteriorly, much less M-shaped than in the Indian *cerberus,* the vein-stripes above and beneath mostly well developed, narrower than in *helena,* mostly a subbasal streak below the cell, the stripes placed at the discal and subcostal veins reaching the cell even when they are only weakly developed; the cell beneath with broad grey-white apical patch or the bordering narrow and posteriorly only rarely extending beyond the third radial, the black discal spots of the hindwing often large and joined together. The form in which *aplotia.* the upper surface of the forewing bears only weak vein-stripes I call ♀-f. **aplotia** *form. nov.*, and the form *phycia.* with strong vein-stripes and cell-spot ♀-f. **phycia** *form. nov.*, North-East Sumatra, in the plains and the foot-*heliconoides.* hills, the whole year through, but less common than *P. amphrisus ruficollis.* — **heliconoides** *Moore* (= heliaconoides *Wood-Mas. & Nicév.*). Smaller than *cerberus.* ♂: the gold spot placed before the subcostal always large, distally rather suddenly widened to the costa and here mostly enclosing a black spot, the tooth of the gold area placed before the 3. radial shorter than the one below this vein; the black marginal band beneath before the anal angle with short yellow longitudinal stripes on the black. ♀: forewing above almost pure black, or with very sharp, narrow, almost pure white vein-stripes, which do not extend so near to the margin as in *cerberus,* the stripe placed below the 2. median short or absent; the cell in striped specimens with sharp white M, beneath no white stripe below the cell basally to the 2. median, but in otherwise only weakly striped specimens a double stripe at the submedian; the black discal spots of the hindwing separated from one another, the 1. at most twice as large as the 2., the last spot of this row (placed below the 2. median) stands in or distally to the middle of the 2. median vein and at least beneath very little if at all proximally to the preceding black discal spot, the posterior teeth of the gold area mostly continued to the fringe-spots *rhyparia.* by yellow-grey scaling; two forms: ♀-f. **rhyparia** *form. nov.*, upper surface of the forewing almost pure black, *aphnea.* and ♀-f. **aphnea** *form. nov.*, with sharp white vein-stripes on the upper surface of the forewing. Andamans. *cerberus.* — No representative of this group of Papilios is yet known from the Nicobars. — **cerberus** *Fldr.* In North India and Burma this subspecies is much more variable than in Tonkin, Malacca and Borneo, which is probably connected with the fact that in those districts there is a pronounced cold, dry season (winter). The ♂ occurs in North India and Burma in two forms: ♂-f. **cerberus** *Fldr.*, forewing beneath below the cell with a white or yellowish stripe towards the base, the vein-stripes mostly distinct, though short, often present also above, *eumagos.* on the hindwing a large, long gold spot before the subcostal; in the 2. form: ♂-f. **eumagos** *form. nov.*, the forewing has no distinct vein-stripes or these are submarginal, and the subbasal stripe behind the cell is absent, the golden subcostal patch of the hindwing is reduced to a submarginal spot. With these two ♂-forms fly two principal forms of the ♀: a dark form, in which the vein-stripes are weak or almost entirely absent, ♀-f. *azelia* **azelia** *form. nov.*, and a form strongly striped with grey-white, ♀-f. **gypsothelia** *form. nov.*, in which the stripes *gypsothelia.* placed at the two median veins reach the cell, and the white margining of the apex of the cell extends nearly or quite to the point of origin of the 1. median; specimens which connect these two forms also frequently occur. In the Malay Peninsula and on Borneo as well as on the Natuna Islands, the ♂ has always a large, long golden subcostal patch on the hindwing, whether the forewing bears vein-stripes or not. The dark form of the ♀ from these countries is apparently not distinguishable from the before mentioned North Indian intergrades of the ♀, on the other hand in the striped form the white margining of the cell-apex does not extend basad beyond the 1. median and the stripes placed at the median veins do not usually reach the cell, commonly also the two stripes of the 3. radial are proximally effaced. A Borneo ♀ in the Tring Museum, taken by Wallace, has instead of the M-marking a short, broad grey-white apical patch in the cell of the forewing. A ♀ from Banguey in coll. Staudinger (Museum Berlin) has more gold on the hindwing than usual. Also in Tonkin, whence the Tring Museum has 2 ♂♂ and 3 ♀♀, the butterfly is apparently more constant than in North India and Burma; the ♂♂ have vein-stripes on the forewing and the golden subcostal patch of the hindwing is very large, but the black marginal band of the hindwing bears on the under surface before the anal angle only traces of yellow scaling, in distinction from *cerberus;* the ♀♀ are strongly striped with white and agree with the ♀-f. *gypsothelia* of *cerberus,* except that the teeth of the gold patch placed between the 1. and 2. median are not connected with the fringe-spot by yellow-grey scaling. In North India (Sikkim, Bhutan, Assam) and Burma *cerberus* is a common butterfly, occurring up to a height of 3000 ft. from the spring till the autumn; the light striped specimens appear mostly to come from hibernated pupae; in Borneo the insect is not common. — *spilotia.* **spilotia** *Rothsch.* ♂: the vein-stripes also above very distinct, especially those placed at the median veins,

beneath all very strongly developed, before the submedian a long, broad stripe, as well as weak stripes at the subcostals, the stripe placed behind the 2. median continued basad along the cell, as in *cerberus;* hindwing before the subcostal with a long gold patch, which does not reach the costal vein, a complete row of black discal spots (6 above, 7 beneath), the 2. the largest, 9 mm long, at the tip of the 3 posterior projections of the black marginal band somewhat black scaling on the gold area (recalling *aeacus*), the gold streak placed behind the cell prolonged beyond the middle of the 6. black discal spot. ♀: forewing above with very dark narrow vein-stripes, these strongly developed beneath, in the apex of the cell an M-mark; hindwing without discal gold spot before the subcostal, the black discal spots large, only at the 3. radial and 1. median very narrowly separated, the black spot behind the 2. median long, only 5 mm from the cell, beneath the yellow area very pale, distally and posteriorly whitish. 1 ♂, 2 ♀♀ from Hainan in the Tring Museum.

P. minos *Cr.* (= astenous *F.* partim) (9 a, b). The collar as well as the sides of the breast and of *minos.* the 1. abdominal segment red. ♂: abdomen grey-yellow, with black lateral spots; the 3. radial and the two median veins distinctly edged with whitish, these stripes continued to the cell and here united together; hindwing golden, the abdominal area as far as the cell and the broad marginal band black. ♀ on the forewing with very distinct vein-stripes, which extend to the cell and are here united, the distal half of the cell surrounded with white also on the inside; hindwing golden, the abdominal area black, and also a row of large discal spots, some of which rarely touch one another, and the broad marginal band (strongly convex between the veins), abdominal area grey in the centre and at the margin. Egg reddish. Larva dark brown, with blackish markings, the tubercles with pale red tips, the oblique lateral band and the whole dorsal tubercle of the 7. segment likewise pale red. Pupa usually light brown and dorsally golden; sometimes greenish and dorsally light yellow. South India, from the coast upwards to over 2000 m. In North Kanara common during the rainy season (from June onwards), also no rarity in other districts of the peninsula: Travancore, Cochin, Nilghiri Hills, Koonoor, etc. The butterfly has a slow flight, but flies commonly high above the trees, and often remains fluttering before flowers. The pupa when touched makes a distinct, somewhat hissing sound, which is probably caused by the friction of the abdominal segments against each other.

P. aeacus. ♂: abdomen above ringed with yellow; forewing narrow, semitransparent at the veins; hindwing golden, the last 3 projections of the black marginal band surrounded with black scaling placed on the golden area, sometimes a black discal spot behind the 2. median, rarely a second one also before this vein. ♀: abdomen above black, beneath margined with yellow, or yellow with black spots; hindwing with sharp white-grey vein-stripes, which extend to the cell; the cell inside margined with white-grey at least to the half, commonly almost the whole cell of this colour, only the base and 2 longitudinal streaks remaining black; hindwing with large black wedge-shaped spots and deeply incised marginal band, the anal third of the wing more or less strongly shaded with black. Distributed from the southern slopes of the Himalayas and West China to Malacca and Formosa; in many districts common from about 800 to 3500 ft. — **thomsoni** *Bates* *thomsoni.* (= malaiianus *Fruhst.*). ♂: small, the distal margin of the forewing strongly concave. ♀: cell of the forewing towards the base surrounded with white-grey scarcely to the 2. median, the bordering as well as the vein-stripes narrow; the black discal spots of the hindwing on the whole smaller than in Indian specimens, the wing anally less dusted with black. Malay Peninsula. — **aeacus** *Fldr.* (= rhadamanthus *Bdv.* partim, nec *aeacus.* *Lucas*) (vol. I, 1 a, b). ♂: larger, yet many specimens from the Shan States as small as *thomsoni;* the distal margin of the wing mostly less incurved, and the vein-stripes somewhat broader. ♀: the white-grey margining of the cell of the forewing as well as the vein-stripes broad, often the cell for the most part white-grey; in specimens from West China the abdomen beneath is on the whole more extended black than in those from India. North-West and North India, Burma including Tenasserim and the Shan States, and West China; from Siam proper, as well as from Assam, Tonkin, South China and Hainan, the butterfly is apparently not yet known; on the other hand it occurs in Formosa in a somewhat different form (*formosanus*). In North India, especially in the Mussorie district and Sikkim, the butterfly is very common in hot valleys. It sails slowly round flowering trees, but also visits flowering shrubs, and can sometimes be caught with the hand when it is hovering before a flower. — **formosanus** *Rothsch.* The vein-stripes of the forewing in ♂ and ♀ *formosanus.* narrower than in *aeacus,* especially in the ♀ strikingly thin. The abdomen beneath at the base with red hairs; in the ♀ the head before the antennae is red, also in the ♂ there are some red hairs here. The black discal spots of the hindwing of the ♀ are large and wedge-shaped, and the two black marginal spots placed before and behind the 1. median of the hindwing are not distally surrounded with yellow on the underside. South and Central Formosa, in the Tring Museum.

P. rhadamantus. Similar to the preceding species, but the 2. median of the hindwing branching off much more distally; the abdomen of the ♂ above entirely black; in the ♀ the forewing from the base to the point of origin of the 2. median brown-black, this area sharply defined, the double stripe placed at the 2. median short, the submedian double stripe at least above absent or merely indicated and the black distal spots of the hindwing so completely united with the marginal band that no yellow submarginal spots or only very small ones remain. Sometimes all the yellow is suppressed on the upper surface of the hindwing. Larva chocolate-brown, the tips of the fleshy spines red, on the 6. and 7. segments (not counting the head)

a reddish white lateral band as in the allied species. Pupa greenish yellow. Philippines, Palawan and Talaut Islands; three subspecies. — **rhadamantus** *Lucas* (= amphrisius *Lucas* nec *F.*, rhadamanthus *Bdv.* partim, nephereus *Gray*, basilanicus *Fruhst.*) (12 c) inhabits the Philippines and appears to be common on all the islands of the group. ♂: the black dusting on the anal part of the gold area of the hindwing usually only reaches half-way to the cell, sometimes it extends into the cell, but the underscales always remain yellow. The ♀ always with a large gold spot behind the cell of the hindwing, whilst the spot placed before the subcostal is always smaller than the patch between the two median veins and is often entirely absent. — **plateni** *Stgr.* (10 c). ♂: hindwing on the upperside from the anal angle at least nearly to the anterior margin of the cell entirely black, sometimes only one gold patch is left, beneath on the contrary the gold area in many specimens is almost as large as in the preceding subspecies, whilst in others it is more or less strongly reduced. In the ♀ the gold spot placed behind the cell of the hindwing is small or absent, rarely as large as in *rhadamantus*, the spot before the cell on the contrary is mostly larger than the one between the two median veins; beneath the golden area is more dusted with grey than in *rhadamantus*. Palawan. — **dohertyi** *Rippon* (= vordermani *Snell.*) (13 a, b). ♂ above on both wings black, sometimes anteriorly on the hindwing a vestige of the gold area present; beneath the hindwing has always a golden discal band; this, however, varies in width. ♀ paler than in the preceding forms, the gold area of the hindwing above much reduced, often suppressed altogether. Specimens of both sexes in which the vein-stripes of the forewing beneath are merged together are found together with normal specimens: ab. **fasciculatus** *Lathy.* Talaut Islands, probably especially on the principal island Talaut (= Talaur = Salibaboe); apparently not rare.

rhadamantus. *plateni.* *dohertyi.* *fasciculatus.*

P. magellanus *Fldr.* This magnificent species is widely distributed in the Philippines, but is much rarer than *P. rhadamantus*. It is known so far from the Babuyanes, Luzon, Polillo and Mindanao. Most probably it is also represented on Mindoro. Abdomen above and beneath grey-yellow, in the ♂ above laterally more or less blackened; the forewing with light vein-stripes extending to the cell; the hindwing golden, in the ♂ above and beneath with strong, brilliant opaline gloss, which is also indicated in the ♀, the distal margin of the ♂ narrowly black, in the ♀ merged together with the discal spots into a broad band, which bears a row of strongly curved yellow crescents. The vein-stripes of the forewing in the ♀ are rather variable in width and sometimes the cell of the forewing inside is margined with white-grey. According to Semper the ♂ when flying is one of the most gorgeous sights among the fauna of the Philippines, on account of the opalescent gloss. The butterfly apparently occurs all the year round and on the eastern islands of the group is no great rarity (but still always very rare in collections).

magellanus.

In the 3 following species the subcostal of the hindwing is more distally placed than in the preceding yellow species; the breast has very rarely a trace of red hairs on the underside and the genitalia are of another type than in all the other species.

P. miranda. Collar yellow or entirely black. ♂: abdomen yellow, above browned along the middle and the 1. segment black; forewing with blue shimmer and white or yellowish vein-stripes; hindwing golden, the black distal margin broad, measuring at the 2. median at least 5 mm and before this vein at least 10 mm. ♀; abdomen above black-brown like the forewing, beneath and laterally greenish yellow; forewing with sometimes weak vein-stripes, as in the ♂ only the posterior ones prolonged basad; the black discal spots of the hindwing very large and more or less strongly joined to the broad marginal band, the gold spots variable, often very much reduced. Borneo and Sumatra. — **miranda** *Btlr.* (14 b, c) is no rarity in the hilly country of North Borneo. Collar yellow, more rarely quite black; the vein-stripes of the forewing are submarginal, with the exception of the subcostal stripes, which often extend nearly or quite to the cell, no grey scaling inside the cell. Forewing of the ♂ above and beneath with rather strong blue sheen.*) — **neomiranda** *Fruhst.* (= zacheri *Suff.*). ♂: forewing less blue than in the Borneo form, the vein-stripes longer and yellower, the anterior ones extending to or into the cell. ♀: darker brown, the anterior vein-stripes of the forewing reaching to the cell, the hindwing more extended golden. In the mountains of Sumatra; 2 ♂♂ in the Tring Museum, 2 ♀♀ in coll. H. J. Adams (Enfield).

miranda. *neomiranda.*

P. andromache. A small species with red collar. ♂: forewing obtuse, on the underside with a band of large yellowish grey discal wedge-shaped patches; hindwing longest in the middle, the 2. and 3. projections of the marginal band produced at least as far as the 5.; abdomen above black-brown. ♀: abdomen black-brown, the margins of some at least of the segments beneath greenish yellow. Forewing with the exception of the broad marginal band and the costal margin grey or brownish grey; cell of the hindwing entirely golden, on the other hand the gold discal spots placed at the apex of the cell small, beneath the yellow spot behind the cell, and usually also the one before the cell, reaching to the base of the wing. Only known from the mountains of North Borneo; 2 subspecies. — **marapokensis** *Fruhst.* was taken by J. Waterstradt in considerable numbers on Mt. Marapok in the province of Dent in British North Borneo. The ♂ cannot be distinguished from that of the following form; however, the forewing of the ♀ is much more brown-grey than white-grey. — **andromache** *Stgr.* (13 c) comes from Kina Balu in British North Borneo. The forewing of the ♂ above

marapokensis. *andromache.*

*) This sheen, which only shows in certain lights, is unfortunately not perceptible in the figure.

sometimes shows traces of yellowish grey scaling. The forewing of the ♀ is white-grey and midway between the cell and the marginal band more or less extended brownish. The butterfly occurs up to a height of 1500 m.

P. amphrysus. ♂: abdomen yellow, the 1. segment above black, often the upperside also blackened laterally and at the tip; forewing with yellow or grey-yellow vein-stripes, the posterior ones submarginal, the anterior ones extending to the cell, the apex of the cell at least beneath with a grey-yellow spot; the black distal margin of the golden hindwing very narrow at the veins. ♀: abdomen above black-brown or grey-yellow; forewing with vein-stripes, of which the posterior ones are submarginal and are only sometimes prolonged to the cell when the latter is entirely filled in with white-grey, cell always with a white-grey apical spot, which is normally trapezoidal, but in Borneo is often very much enlarged and then not sharply cut off; the black discal spots of the hindwing always large. The butterfly is purely Malayan and occurs from Banguey in the north to Malacca. Sumatra, Java and the islands off the west coast of Sumatra in the south. The species is found in the lowlands and in the mountains and consists of a series of subspecies, of which three are mountain forms. The butterfly belongs to the commoner Lepidoptera of the large Sunda Islands and is more abundant there than *P. helena*. The egg is yellow. The full-grown larva is coffee-brown, the fleshy processes of the prothorax and the next 3 segments are thickened at the tip and curved posteriorly, whilst the processes of the other segments are inclined forwards. The yellow pupa makes a loud noise by rubbing the abdominal segments together when it is disturbed; the pupal stage lasts 26—29 days (Martin). Unfortunately it is not stated how the larva and pupa are distinguished from those of the allied species. The transparent yellow hindwings give the insect a gorgeous appearance when it circles high in the air in the sunshine. — **amphrysus** *Cr.* (= *amphrisius F.*) (14 a). ♂: vein-stripes and cell-spot of the forewing yellow, the stripes placed between the 2. and 3. radials proximally mostly broadly merged together; the black distal margin of the hindwing about 1½ mm broad at the tips of the veins; ♂-ab. **palabuana** *Fruhst.* has according to the author darker, almost reddish brown vein-stripes, our Palabuan ♂♂ do not show this, yet the vein-stripes in two worn specimens from there are paler and more dirty yellow. ♀: the yellow area of the hindwing above towards the base and the abdominal margin mostly very pale yellowish grey; abdomen beneath at the base usually blackened. Common on Java at lower elevations. Like the allied species *amphrysus* flies early in the morning and again towards evening, yet after heavy rain the butterfly is also to be found during the midday heat at flowers on open places covered with undergrowth, where it comes from the tree-tops in the edges of the neighbouring woods. — The mountains of Java are inhabited by a mountain form: **cuneifera** *Oberth.* (= ritsemae *Snell.*, cuneatus *Rippon*) (14 a, c), which flies at a height of about 1200 to nearly 2000 m. It occurs on Gedé and Ardjoena, but is especially common in the Chinchona plantations of the plateau of Pengalengan. ♂: abdomen above with an oval black spot on the 4. and the 5. segment; the hindwing has usually several diffuse obsolescent black discal wedge-spots, which are rarely all wanting; the vein-stripes of the forewing are thin, more grey than in *amphrysus* and the anterior ones only distinct at and near the cell. The ♀ not constantly distinguishable from *amphrysus*, the yellow area of the hindwing basally and abdominally less grey and especially beneath on the whole purer greenish yellow. — **vistara** *Fruhst.*, from the Batu Islands. ♂: vein-stripes of the forewing thinner and much less yellow than in *amphr. amphrysus*, the stripes placed at the 2. median above only indicated or absent; the projections of the black marginal band of the hindwing longer than in *amphrysus*. ♀: vein-stripes of the forewing somewhat broader than in *amphrysus*, especially the submarginal ones, the cell-spot somewhat larger, anteriorly almost as long as it is broad; marginal band of the hindwing broad, the yellow submarginal spots consequently further removed from the margin than in *amphrysus*, the central area above and beneath yellow, the yellow spot placed before the subcostal larger than the 4. spot, the 5. and 6. spots deeply incised, the respective black discal patches very long; abdomen beneath not blackened at the base. 2 ♂♂ and 1 ♀ in the Tring Museum, a few specimens also in other collections. — **niasicus** *Fruhst.* ♂ quite similar to the *vistara*-♂, but the vein-stripes of the forewing and the cell-spot somewhat more yellowish; on the under surface the cell has at the apex a large anterior and a small linear posterior spot, which is also the case in *vistara* and the next subspecies. The ♀ likewise as *vistara*, the cell-spot of the forewing posteriorly shorter, consequently strongly trapezoidal; the discal yellow spot placed before the subcostal of the hindwing is small, and the 2. yellow discal spot and also the grey-yellow submarginal spots are on the whole smaller than in *vistara*. Nias. — **sumatranus** *Hagen* is the mountain form from Sumatra. Similar to *cuneifera*. In the ♂ the vein-stripes of the forewing still more reduced, and the abdomen above without black central spots; the black discal spots of the hindwing only partly indicated, often all absent. The ♀ is distinguished from all the other *amphrysus*-forms especially by the gold area of the hindwing being cut off almost straight at the point of origin of the subcostal vein; the abdomen beneath blackened at the base as in *cuneifera*. — A further form with black discal spots on the hindwing of the ♂ is **tantalus** *Ehrm.*, described from a ♂ which is said to have been found by Waterstradt in North Borneo (— the author says „in the German possessions in North Borneo, . . Kala Bula Mountain"). The specimen differs from *cuneifera* according to the author by the absence of the red collar and by stronger yellowish vein-stripes. We would point out, however, that in *cuneifera* (= ritsemae) the collar is also sometimes entirely black and the vein-stripes vary. Did the specimen really come from North Borneo? — **ruficollis** *Btlr.* ♂: the vein-stripes of the forewing and the black distal margin of the

amphrysus. *palabuana.* *cuneifera.* *vistara.* *niasicus.* *sumatranus.* *tantalus.* *ruficollis.*

hindwing thinner than in *amphrysus*, the cell of the forewing beneath with a larger anterior and a linear posterior spot as in *vistara* and *niasicus;* the harpe of the anal clasper as in these two forms with a proximal tooth, which is only indicated in Javan specimens of *amphrysus*. In the ♀ the white-grey cell-spot extends to the point of origin of the 2. subcostal, the vein-stripes are narrower than in *amphr. amphrysus;* the yellow submarginal spots of the hindwing are placed nearer to the margin than in *niasicus* and *vistara* and in specimens from Malacca are rather frequently, in those from Sumatra rarely, joined together. We have found no characteristic by which the specimens from Malacca and Sumatra can be distinguished from one another. It is true that in general the ♂♂ from Malacca are small and the black discal spots of the hindwing of the ♀ in a large percentage of specimens are partly separated from one another and the anterior ones rounded, but the same characters likewise occur in Sumatra although rarely, so that it is so far impossible without indication of locality to say with certainty of any specimen whether it comes from Sumatra or Malacca. It is quite otherwise with the specimens from Borneo. In Sumatra, where *ruficollis* occurs in the plain and on the spurs of the mountains, it is commoner than the local form of *helena*. It flies all the year round, according to HAGEN most commonly in March, and is especially fond of visiting the flowers of Poinciana pulcherrima.

flavicollis. — **flavicollis** *Druce.* Whilst the preceding subspecies are comparatively constant, the species is very variable in Borneo, and there are distinguishing marks which are not found elsewhere, so that at least 4/5 of the specimens can be recognised as coming from Borneo. The collar is commonly yellow, which unfortunately has procured for the subspecies a name which is only suitable for a part of the individuals. ♂: abdomen above mostly with distinct brown central spots; cell of the forewing above often entirely without yellow scaling, the yellow spot sometimes found as in *ruficollis*, but often much enlarged anteriorly, beneath the anterior cell-spot is often so extended that half the cell is yellow, but even in this case the small linear posterior spot remains separate. ♀ occurring in two forms, a dark and a light, connected by transitions. The dark form, apart from the yellow collar which rarely occurs in this form, is very similar to the *ruficollis*-♀, but the cell-

actinotia. spot of the forewing is anteriorly mostly somewhat larger: ♀-f. **actinotia** *form. nov.* The light form, ♀-f.

olympia. **olympia** *Honr.*, has mostly a yellow collar, the cell of the forewing is entirely or for the most part white-grey, the vein-stripes are broad and long and those of the two median veins likewise extend to the cell, the black discal spots of the hindwing mostly and the gold spot placed before the subcostal always very large.

gardineri. FRUHSTORFER has introduced the following additional diesgnations according to the colouring of the collar:

bruneicollis. ♂-ab. **gardineri,** collar red, ♀-ab. **bruneicollis** (!) (= birmeicollis *Fruhst.*), collar brownish, and ♂♀-ab. **nigri-**

nigricollis. **collis,** collar black. *P. amphrysus flavicollis* is known from North and South Borneo as well as Banguey; the light ♀♀ possibly occur only in the north. The butterfly is common in the lowlands as well as the mountains of North Borneo and much more numerous than any of the allied species. Possibly a form of *amphrysus* also occurs on Palawan.

Nox-Group.

Entirely without tails, or the tail short and pointed, not spatulate. Hindwing of the ♂ with very broad, rolled-up abdominal fold, in which there is always a strongly developed scent-organ; the anal claspers normal, with short tooth at the tip as in the preceding group.

The species fall into two natural subgroups:

1. Scent-fold of the ♂ (when fully expanded) without long hairs at the edge; *semperi*, *dixoni*, *kuehni*, *priapus*, *sycorax*, *hageni* and *aidoneus*.
2. Scent-fold of the ♂ with long hairs at the edge: *varuna*, *zaleucus* and *nox*.

P. semperi. Body for the most part red. Anal claspers of the ♂ red with black ventral spot; the abdominal fold of the hindwing very large, with yellowish grey scaling, except at the base; upper surface of both wings in the ♂ pure velvety black, in the ♀ slightly lighter, the hindwing above with the markings of the underside only indicated or distinct, but whitish; in one form the forewing of the ♀ with large white spots; beneath the hindwing with 2 rows of red spots, the anterior spots of the discal row often absent. The butterfly, concerning whose habits practically nothing is known, is found only on the Philippines (including Palawan), where it apparently occurs on all the islands. It flies all the year round, but nevertheless is only

melanotus. taken singly. — **melanotus** *Stgr.* (18 a) is the most primitive form as regards the colouring of the body. It flies on Palawan. The thorax and abdomen are black above. In the ♀ the hindwing has only slight indications of markings above. So far as we know, only 2 ♂♂ (Museum Tring) and 1 ♀ (coll. STAUDINGER) are known. Palawan is thickly wooded and only accessible in a few places; collecting is also rendered much more

albofasciata. difficult to the traveller by the hostile attitude of the inhabitants. — **albofasciata** *Semp.* Thorax and abdomen red also above, in the ♀ pale. The ♂♂ of this and all the following forms do not appear to be distinguishable, whilst the ♀♀ exhibit striking differences. ♀: forewing with a row of very large white patches; hindwing with the markings of the under surface sharply developed above also, but the discal spots white, the

semperi. submarginal ones reddish white, shaded with black. Mindoro and (according to SEMPER) Panay. — **semperi** *Fldr.* (= erythrosoma *Reak.*) (17 b, c). ♂ as the preceding. ♀: forewing black, slightly paler on disc;

hindwing above black, with grey-black discal and submarginal spots. Luzon and Polillo. — **baglantis** *Rothsch.* ♂ as the preceding. ♀: hindwing above with sharply expressed reddish white markings, which however are much smaller than the red markings on the under surface; the anterior spots of the discal row are wanting; distal margin between tail and anal angle not edged with grey. Negros. — **supernotatus** *Rothsch.* ♂ and ♀ as the preceding, but the hindwing of the ♀ from the 2. radial edged with dirty reddish white. Samar and Bohol. — **aphthonia** *Rothsch.* ♂ as the preceding. ♀: the markings of the upperside of the hindwing much larger than in the preceding forms, almost as large as beneath, the anterior spots of the discal row present above and beneath; the distal margin posteriorly sometimes grey. On Mindanao and the small neighbouring islands. *baglantis. supernotatus aphthonia.*

P. dixoni *Gr.-Sm.* Similar to *P. kuehni.* Body and wings black-brown, the tip of the abdomen and a lateral spot at its base red. The middle of the wings much lighter; hindwing beneath with 4 crescents far away from the margin and a narrow straight red band, placed halfway between the crescents and the cell and extending from the 2. radial to somewhat beyond the 2. median; these spots weakly indicated above. — Buwool, North Celebes, 1 ♀ in coll. H. Grose-Smith. *dixoni.*

P. kuehni. Body black, a lateral spot on the prothorax, another at the base of the abdomen and the tip of the abdomen red. ♂ above almost pure black, the fold of the hindwing white inside. ♀ black-brown, the middle of the forewing much lighter; hindwing beneath in both sexes with large band-like red patches on the disc. East and North Celebes. — In **kuehni** *Honr.* the hindwing of the ♂ above is only very little paler in the middle than at the base and the distal margin. Tombugu, East Celebes. — In **mesolamprus** *Rothsch.*, from Toli Toli, North Celebes, of which we only know 1 ♀, the upper surface of the hindwing is broadly reddish grey distally to the cell. *kuehni. mesolamprus.*

P. priapus. Head, collar and sides of the breast yellowish white, abdomen beneath more or less extended white-yellow. Hindwing with broad yellowish white band, in which a row of black spots is placed; scent-fold of the ♂ white, edged with pale salmon-colour, towards the base black. In two subspecies on Java. The butterfly occurs in the highlands up to about 6000 ft. and is especially common in the Cinchona plantations of the table-land of Pengalengan, where Fruhstorfer found large numbers feeding at the flowers of Lantana. — In East Java, on the Arjoena, occurs **dilutus** *Fruhst.* The band of the hindwing is above more or less distinctly shaded with black and the whole upper surface of the ♀ is very pale. — The West Javan subspecies is **priapus** *Bdv.* (17 a). In this the abdomen is more extended yellow and white and the band of the hindwing above is less shaded with black, also the basal half of the hindwing is almost as black as the distal margin. *dilutus. priapus.*

P. sycorax *Gr.-Sm.* (= egertoni *Dist.*) (17 a, b). Head and collar white; abdomen above bluish grey with a row of black dots at each side, beneath yellow. Upper surface of the ♂ velvety black, of the ♀ much paler and more metallic; hindwing from near the apex of the cell to the black marginal band blue-grey, with a row of black discal spots; beneath this area is much lighter and extends to the margin, the posterior black marginal spots being separated from one another and from the margin. — West and East Sumatra and Malay Peninsula, in hilly country. The butterfly flies high and quickly, and is especially often taken at flowering trees in the woods. *sycorax.*

P. hageni *Rogenh.* (17 a). Similar to the preceding species. Abdomen above black, beneath red and black. Forewing of the ♀ very pale black-brown, the light stripes semitransparent. Hindwing in both sexes with large white discal area which encloses black discal spots, the cell broader than in *sycorax.* — Confined to Sumatra, where it is found only on the high plateau and like *sycorax* occurs all the year round. Hagen found it feeding at the flowers of Pavetta. Martin's collectors gave to these two butterflies the distinguishing name of Kapala Putih, White Head. *hageni.*

P. aidoneus *Dbl.* (= erioleuca *Oberth.*) (17 b, c). Head red, the long hairs often almost all black; the sides of the breast and abdomen red, and the sides of the latter mostly white-red. Wings blue-black, in the ♀ often brownish, the forewing lighter, with the usual black stripes at the veins and folds. Scent-fold of the ♂ as in the preceding species with white area, posteriorly edged with pale salmon-colour. — North-West India, Sikkim, Bhutan, Khassia Hills (very rare), Burma, Shan States, Tonkin and Hainan; in Sikkim not rare up to about 5000 ft. from April to November; according to Manders the butterfly flies by preference in the deep shadow of forest-trees which overhang rivers. Its flight is slow and graceful. *aidoneus.*

P. varuna. Very similar to *P. aidoneus.* The forewing of the ♂ beneath from the base to the 2. median or the apex of the cell bluish black; scent-fold black-brown, with a small white-grey or grey spot on the underside and long fringes. ♀: forewing before the hindmargin much lighter, usually with a large white area with indistinct margins; hindwing above almost uniformly blue-black, not brownish, above and beneath more strongly metallic blue than in *aidoneus.* Sikkim, Assam, Burma, Tonkin, Tenasserim and Malay Peninsula. The insect is commoner than *P. aidoneus* and in Sikkim is found up to 7000 ft. In North India it

flies from March to December, whilst in the more southern districts, which have no winter, it occurs all the year round. — **astorion** *Westw.* (♀ = chara *Westw.*) (19 a). ♂: forewing without white stripes on the under surface before the distal margin. ♀: the light area of the forewing on the upper surface almost pure white (spring specimens?) or rather strongly shaded with black-blue (summer specimens?). Sikkim to Tenasserim and Tonkin. Sometimes the hindwing of the ♀ has grey discal lunules, which are specially distinct beneath. — **varuna** *White*, from Penang and the Malay Peninsula, has in the ♂ white stripes before the distal margin on the underside of the forewing; sometimes the posterior stripes are also indicated above. In the ♀ the light part of the forewing above and beneath and the vein-stripes beneath (especially at the end of the cell) are purer white than in *astorion*.

astorion. *varuna.*

P. zaleucus *Hew.* (17 c). This species has a rather limited distribution; it occurs in Burma (including Upper Tenasserim), the Shan States and Tonkin. Head, sides of the breast and underside of the abdomen red, the last as in the allied species with black markings. Wings of the ♂ blue-black; hindwing before the distal margin with 3 white patches, which sometimes enclose small black spots. ♀ much paler than the ♂; hindwing with large white discal area, which usually extends from the 1. radial to the hindmargin and is dentate at the veins.

zaleucus.

P. nox. A purely Malayan butterfly, which is known from the 3 large Sunda Islands Borneo, Sumatra and Java, the Malay Peninsula, and also from Nias and Bali. In Borneo and Sumatra both sexes occur in 2 forms, which have hitherto been regarded as specifically different. Head and prothorax with the exception of the upperside red, and also the sides of the breast and the tip of the abdomen, the latter in the ♂ often without red spot. Wings of the ♂ black, above mostly with blue gloss, the veins of the forewing and sometimes also of the hindwing distally striped with grey on the under surface; the scent-scales in the fold of the hindwing light grey, somewhat yellowish. ♀ brown, with or without bluish metallic gloss; either only the forewing or both wings with yellowish grey vein-stripes. Larva marbled with black and brown, the tubercles pale red, on the 6. and 7. segments a white belt, the tubercles in which are also white. Pupa: margin of the head dentate; lateral lobes of the thorax with three teeth, the lobes of the abdomen produced into a point, also the 7. and 8. abdominal segments above with a narrow pointed process at each side, the 5.—8. segments with a small pointed hump beneath at the sides. In the lowlands and hills. The butterfly is a true forest species, which according to HAGEN is fond of visiting the flower-umbels of a species of Pavetta which often blooms in the midst of the darkest primeval forests. MARTIN sometimes found the ♂♂ at the edges of woods on the sweet-smelling, Veronica-like blue flowers of a small tree. The flight is slow, but so irregular that the butterfly cannot be caught in the undergrowth. — **noctis** *Hew.* (18 c), from North Borneo, is distinctly dimorphic especially in the ♀. ♂: wings mostly with rather strong blue gloss, the distal margin of the forewing usually convex before the middle, the apex therefore very obtuse, beneath the wing bears in the apical third yellowish grey vein-stripes, which are sometimes indicated also above. This form is f. **noctula** *Westw.* (18 b). Its corresponding ♀-form is that described as **strix** *Westw.*, in which the veins of the forewing (except in the basal third of the wing) and the distal third of the veins of the hindwing are striped with yellowish grey. The ♂ of the second form is less blue above and the forewing has also beneath no yellowish grey vein-stripes. Such specimens have hitherto been regarded as the true ♂♂ of *noctis Hew.* The ♀ placed with it, described by HEWITSON as *noctis*, is striped with yellowish grey in the apical third of the forewing, and the stripes of the hindwing are merged together into a broad marginal band, which encloses one or two rows of black spots. Some specimens of the ♀ of f. *noctula* approximate to the ♀ of *noctis*. — In South Borneo flies **banjermasinus** *Fruhst.* Forewing of the ♂ narrower than in most *noctis*-♂♂, without yellowish grey vein-stripes. ♀: forewing in the apical third with white vein-stripes and with blue gloss before the hinder angle; hindwing above blue, above and beneath at most with slight indications of grey vein-stripes. — **erebus** *Wall.* (18 c), from the Malay Peninsula and Penang, agrees very nearly with *banjermasinus*, but the ♀ appears to be always different, though only a little. The subcostal veins of the forewing of the ♀ and the 1. and 2. radials are broadly striped with white, beneath the 3. radial and 1. median are also accompanied by white stripes; the upper surface has usually some blue gloss before the hindmargin, but less than in *banjermasinus;* the hindwing is above blue, distally black between the veins, beneath the veins are mostly very distinctly striped with grey before the margin, but sometimes the stripes are only indicated; the fringes of both wings white. — The ♂ of **henricus** *Fruhst.* (= erebus *auct. pt.*), from North-East Sumatra, resembles the ♂ of *erebus*, except that the forewing is on the whole somewhat more blue; sometimes distinct grey vein-stripes are present on the underside of the forewing. The ♀ occurs in two forms connected by transitions, in both the fringes of the wings are usually darker than in *erebus*. One form resembles the *erebus*-♀: forewing above only striped with white between cell and apex, the stripes placed at the 1. and 2. radials do not reach the cell, sometimes all the stripes are remote from the cell, the other veins are more or less blue; the hindwing strongly blue, the black marginal areas smaller than in *erebus*, the veins above without white-grey stripes at the distal margin, these sometimes present beneath: ♀-f. **glenia** *form. nov.* The second form, ♀-f. **henricus** *Fruhst.*, is less blue, sometimes almost without blue gloss, the vein-stripes of the forewing are thinner, those placed at the upper radials reach the cell and the two median veins are also accompanied by more

noctis. *noctula.* *strix.* *banjermasinus.* *erebus.* *henricus.* *glenia.*

or less distinct grey stripes; hindwing above and beneath with white-grey vein-stripes at the distal margin. The two forms occur together; of the first we also possess a series from the neighbourhood of Siboga and Padang Sidempoean. — In South-West Sumatra, in the district of Padang and probably further to the south, occurs **solokanus** *Fruhst.* The ♂ is much less vivid blue than *henricus*. The forewing of the ♀ is more brown-black than in *henricus* and bears very narrow vein-stripes, above only at times somewhat whitish; the hindwing is moderately blue and has beneath before the distal margin grey stripes, which are sometimes indicated above also. — **petronius** *Fruhst.*, from Nias. ♂ similar to the *solokanus*-♂, but the black-brown stripes in the apical half of the underside of the forewing are broader, the black stripes placed between the veins are distally quite narrow. ♀ very pale, the grey stripes placed at the subcostals on the forewing very broad, the others narrower, beneath almost the whole cell grey; hindwing before the distal margin with grey stripes, which are mostly also distinct above. — **nox** *Swains.* (= neesius *Zink.*, ♀ = memercus *Godt.*) (18 b). ♂ black, with slight blue gloss, above the apical third and beneath about half of the forewing striped with brown; apex of the abdomen usually with distinct red spot. ♀ brown, forewing with light stripes between cell and apex. East and West Java. — **nyx** *Nicév.* flies on Bali; only 2 ♀♀ known (one in coll. Elwes; the other in coll. Nicéville, which is now in the Museum at Calcutta). The light stripes of the forewing between cell and apex even broader than in the ♀ of *nox*, often almost merged together.

solokanus. *petronius.* *nox.* *nyx.*

Latreillei-Group.

Hindwing elongated, with spatulate tail. Scent-fold of the ♂ and the scent-wool in it strongly developed; the anal claspers normal, without distinct tooth at the tip.

Whilst the preceding group is predominantly Malayan, the species of the *latreillei*-group only occur on the continent and the Chinese and Japanese islands; a single species (*philoxenus*) is said to have reached southwards to the Malay Peninsula.

P. latreillei. Head, prothorax, sides of the breast, and abdomen red, the underside of the latter red with black spots. Wings blackish brown, above and beneath pale. Hindwing with broad white discal band; 4, more rarely 5, submarginal spots, the posterior 3 red, the others more or less white, a spot in the tip of the tail red. Scent-wool of the ♂ white. North-West India, North India, Upper Burma and Shan States, from March to August; flies high over the tops of the trees in the thickest forest, but is sometimes taken resting on the forest-paths. — **latreillei** *Don.* (= minereus *Gray*) (19 b) occurs in North-West India (especially common in Mussorie), Nepal and Sikkim at a height of 7—9000 ft. The discal patch placed between the 3. radial and 1. median of the hindwing larger than the other patches. — **polla** *Nicév.* is found in the Shan States and Upper Burma at elevations of 3500 to 5000 ft. The discal patch placed between the 2. and 3. radials of the hindwing is larger than the others.

latreillei. *polla.*

P. adamsoni *Grose-Smith* (= mineroides *Elw. & Nicév.*) (19 c). Very suggestive of *P. aristolochiae.* Smaller than *P. latreillei;* the tail without red spot, the hindwing from the costa to the 1. radial much broader, the white discal band in the ♂ narrower; very commonly the submarginal spot placed before the 2. radial is connected with the corresponding discal spot. The ♀ much paler than the ♂. — Shan States and Tenasserim; January to March, rare.

adamsoni.

P. crassipes *Oberth.* (18 a). Forewing less triangular than in *latreillei;* hindwing in contour much like *latreillei,* without white discal band, and above without distinct submarginal and marginal spots, the spot at the tip of the short, broad tail small; beneath the red spots all large, inclusive of the tail-spot there are 6 present. — Tonkin and Shan States, at elevations of 1000 and 2500 ft.; only a few specimens known.

crassipes.

P. nevilli *Wood-Mas.* (= chentsong *Oberth.*) (vol. I, 1 c). The sexes almost alike. Hindwing proximally broader than in *P. latreillei* and the marginal teeth placed before and behind the tail less produced; tail without spot; two large white, sometimes slightly reddish spots between the subcostal and the 2. radial, the 2. spot reaching almost or quite to the cell, on the upper surface the 1. spot is sometimes very small or entirely absent, between the 2. radial and the 3. median 3 red or reddish submarginal lunules, which are larger beneath than above. Scent-wool yellowish white. — A very common species in West China, which also occurs in Cachar (Assam).

nevilli.

P. philoxenus. An individually and geographically variable butterfly, which is distributed from West China, Kashmir and North-West India to Annam and Tonkin, and also occurs on Formosa; it is not yet known from East and South China; a specimen in the Tring Museum is said to be from Taiping in Perak, which seems to us very questionable. Body as in the preceding species red and black; hindwing *latreillei*-like in contour, but broader, with 3 submarginal spots between the 2. radial and the 2. median and a double spot in the tail, as well as a sometimes very small admarginal spot at the end of the 1. median red, before the

2. radial mostly a large white spot, which is formed by the union of a discal and a submarginal spot, this patch sometimes constricted, in the Chinese subspecies usually only the submarginal spot present; behind this patch very often a second smaller one, very rarely a spot before the 2. radial; commonly the red anal spot in the ♀, especially on the under surface, prolonged in band-shape to the apex of the cell. Scent-wool of the ♂ grey-black; anal hook of the ♂ above with a second, short hook, the harpe feebly dentate. Larva purple-brown, with black spots, head and legs shiny black, the protuberances red at the tip, the 6. and 7. segment each with a short, oblique lateral band; found on Nepenthes. Pupa insufficiently described, reddish ocre-colour; makes a squeaking sound when touched. The butterfly is in places very common; in North India it is found in wooded districts at elevations of 1000 to 8000 ft. all through the summer. — The form occurring in China and North Cashmir is *lama Oberth.* (vol. I, pl. 2 a), whose wings, especially in the ♀, are paler than in the other subspecies; the folds of the cell on the underside of the hindwing stand out prominently. — *philoxenus.* **philoxenus** *Gray* (= letincius *Fruhst.*) (19 a). South Cashmir, North-West India and Nepal. The abdomen is beneath as black as in *lama*, also the hairs on the frons are much mixed with black, especially in the ♂. The hindwing has always before the 2. radial a large, undivided white spot, behind which at least beneath is placed a second, small spot. — In Sikkim, Assam, Burma, North Siam, Assam and Tonkin (also doubtfully in Malacca) occurs *polyeuctes.* **polyeuctes** *Dbl.* (= hostilius *Fruhst.*), which is among the commonest Papilios of this region. The frons and the underside of the abdomen less black than in the preceding subspecies; the under surface of the hindwing darker; the second white spot of the hindwing is wanting on the upperside in many ♂♂, but appears to be always present beneath; in one of our ♂♂ almost all the spots are very strongly blackened above. — *termessus.* **termessus** *Fruhst.* The specimens from Formosa are broad-winged and have rather large red spots on the hindwing; but the differences are not constant.

P. dasarada. Body beneath more woolly than in *P. philoxenus.* commonly at the sides of the abdomen pale red instead of vivid red. The anal hook of the ♂ simple; the harpe more strongly dentate than in *P. philoxenus,* distinctly different in the 4 geographical forms. Hindwing narrow, the cell narrower than in *philoxenus,* a large white spot before the 2. radial as in *philoxenus,* many specimens with a small spot before this patch, rarely also a spot behind it (in *philoxenus* the smaller spot is placed behind the larger), the submarginal spot placed before the tail white or whitish, in the ♀ often a complete macular band on the disc. Distributed from North-West India to the Shan States, Tonkin and Hainan; not quite so common as *philoxenus,* with which *dasarada* occurs at the same time in the same places. The butterfly is a forest species, which is usually taken at open spaces in the woods and at flowering trees, round which the butterfly sails with a slow, graceful flight. It has a very strong, offensive smell. The earlier stages are not known. Unfortunately this is the case with numerous common North Indian species. — *ravana.* **ravana** *Moore* (19 c); vol. I, 1 b) is the form from North-West India and Nepal. The hindwing beneath in the basal half is almost as pale as the forewing; the spot placed before the large white patch is very rarely wanting. — *dasarada.* **dasarada** *Moore* (19 b). The underside of the hindwing much darker than the forewing; the spot placed before the large patch is very commonly absent on both sides. In a ♂ from Sikkim in the Tring collection all the spots are strongly shaded with black and the spot at the tip of the tail is absent. The Tring Museum also possesses a similar melanotic specimen of *ravana.* Sikkim, Bhutan and Assam, common; very variable in size. — *barata.* **barata** *Rothsch.* has somewhat narrower wings than *dasarada* and the under surface of the hindwing is paler from the costal margin to the cell; the spot placed before the large patch is always (?) absent above and mostly beneath. The harpe of the ♂ has numerous teeth and is bent just behind the proximal process; in *dasarada* the harpe is straight and the teeth are large; in *ravana* it is slightly widened distally to the basal process and the teeth are smaller than in *dasarada,* also the basal process is commonly short and broad. Shan States and Tenasserim; Tonkin. — *melanurus.* **melanurus** *Rothsch.* All the spots of the hindwing small, above shaded with black, no spot in the tail and none at the end of the 1. median; under surface of the hindwing black. Hainan, 3 ♂♂ in the Tring Museum, taken in May.

P. daemonius. Head and sides of the breast and abdomen red, strongly mixed with black. ♂ above brownish black, beneath pale brown, the distal margin of the hindwing above and beneath black, with pale red submarginal spots. The ♀ above very pale grey-brown, beneath grey-brown, the distal margin black. The hindwing in ♂ and ♀ much more shortly lobed than in *plutonius,* the cell much broader and more rounded. The genitalia quite different from those of the similarly coloured species. The scent-wool of the ♂ white. West China and Yunnan. — *yunnana.* *daemonius Alph.* (= fatuus *Rothsch.*) flies in West China (vol. I, p. 9). — **yunnana** *Oberth.,* from Topintze in Yunnan, has paler submarginal spots than *daemonius.*

plutonius. **P. plutonius.** Head, collar, sides of the breast and abdomen as well as the black-spotted underside of the latter red mixed with black hairs. Hindwing before and behind the tail very strongly lobed, above 4 or 5 red or reddish submarginal spots and on the under surface 6 or 7 spots. Ground-colour of both wings above in the ♂ brownish black, in the ♀ blackish brown, the distal margin of the hindwing black; beneath both sexes blackish brown, the hindwing almost as pale as the forewing. Scent-wool of the ♂ black-brown. A species of the highlands of West China and of the eastern Himalayas. — In West China flies *plutonius Oberth.* (vol. I, 2 c). — The form which is known in a few specimens from the higher elevations of Sikkim

and Bhutan is **pembertoni** *Moore*. Paler than *plutonius*, the submarginal spots of the hindwing larger and very pale reddish. *pembertoni.*

P. mencius *Fldr.* (vol. I, 2 b) flies in Central and South-East China. Head, collar, sides of the breast and abdomen and the underside of the latter red mixed with black. The wings in both sexes brown-black, the forewing paler than the hindwing and the ♀ somewhat paler than the ♂. The hindwing is mostly shorter in spring specimens than in summer ones. Scent-fold of the ♂ shorter than in *P. alcinous*, the wool whitish grey. The harpe of the ♂ with 2 proximal processes. The butterfly is common. *mencius.*

P. impediens *Rothsch.* (vol. I, 3 a) resembles the preceding species. In the ♂ the wings are darker, the hindwing is narrower and proportionately more strongly widened before the tail (recalling *P. latreillei*), the scent-fold is shorter and the wool contained in it somewhat darker; the harpe is quite different: it is dentate and terminates distally in a semicircular fold, curved upwards. The ♀ according to Oberthür is greyish ochre-colour. — West China, only a few specimens known. The species doubtless occurs also in South-Eastern China, as the following species from Formosa is a very near ally of *impediens*. *impediens.*

P. febanus *Fruhst.* (= jonasi *Rothsch.*, koannania *Mats.*). Agreeing with *P. impediens* in the structure of the genitalia and the colour of the scent-wool. Body more extended red than in *P. impediens*, *mencius* and the forms of *P. alcinous*. Wings similar to those of small *mencius*, but the submarginal spots of the hindwing pale red and very much enlarged above and beneath, almost as long as broad, the large anal spot of the under surface represented above by a distinct pale red transverse streak. — Formosa, in the mountains. *febanus.*

P. alcinous is distributed from Japan to West China and Tonkin. The scent-wool of the ♂ in all the forms is almost black. The harpe has proximally a simple or dentate process and ends distally in a point or a tooth. Larva olive-brown, with numerous dark, light-edged spots; on the 6. and 7. segments a very broad red-white oblique girth, which is dorsally interrupted or strongly constricted; the tips of the tubercles reddish, the upper lateral projections of the prothorax pale red with dark tips. According to Pryer in Japan on Cocculus thunbergi. The butterfly very common, and easy to catch on account of its slow flight; spring to autumn. — In South Yesso, Nippon and Kiushiu occurs the black-headed subspecies *alcinous Klug* (= spathatus *Btlr.*, haematostictus *Btlr.*, nagasakii *Fruhst.*) (vol. I, 2 a). — **loochooanus** *Rothsch.* (19 c ♂, vol. I, 1 c ♀) inhabits the Loo Choo (Riukiu) Islands. Head red. Harpe of the ♂ strongly dentate, as in the Japanese form. — **mansonensis** *Fruhst.* (= mausonensis *Fruhst.*) is a name which may be applied to all the specimens from Formosa, East and Central China (westwards to Chang Yang) and Tonkin. The ♂ not distinguishable from the West Chinese subspecies *confusus Rothsch.*, but the ♀ as pale as in *loochooanus*. Perhaps we should also place here the specimens from the Sannan Islands (Ishigaki-sima), which Oberthür without a description records as *intermedia* and Fruhstorfer later describes as **bradanus;** the wings in the ♀ are said to be narrower and paler and the submarginal spots smaller than in *loochooanus*. — In *confusus Rothsch.*, from West China, the ♀ is darker than in the other subspecies; Oberthür mentions as ab. **decora** an aberrant ♀ which bears two red lines on the underside of the tail. *loochooanus.* *mansonensis* *bradanus.* *decora.*

Coon-Group.

Tail spatulate, with very thin base. Scent-fold of the ♂ only weakly developed; the anal claspers not touching each other above.

Three Malayan species, of which one extends to Burma.

P. neptunus. Breast red at the sides, abdomen greyish yellow from the middle. Forewing black, with a broad light patch before the middle and another one distally to the cell obliquely across the wing; hindwing with very thin tail, much widened at the end, and 2—4 red or pale red spots, placed at a distance from the cell between the median and radial veins and sometimes almost entirely absent in the subspecies from Nias. The butterfly flies slowly and high in the air. — **doris** *Rothsch.* The black basal area of the forewing does not quite reach the base of the 2. median, the black transverse band is very deep black, the grey area very light, before and often also behind the 2. median at least beneath almost pure white, the black fold-streak placed before this vein is far removed from the cell and the one placed behind it only very rarely reaches the black basal area. The hindwing above always with 3 small spots, beneath with 3 or 4, besides the one placed behind the 2. median, which is often whitish above, the anterior spot in many specimens very small. North Borneo, in the plains and hills. — **neptunus** *Guer.* (= thetys *Guen.*) is the transitional form from Malacca, which connects *doris* with *sumatrana*. The light parts of the forewing are similar to those of the preceding subspecies, but the black oblique band is mostly distinctly lighter on the disc, so that the black stripes are visible in it as well as the light ones. — **sumatrana** *Hag.* (16 c). The light parts of the forewing more strongly shaded with black than in the preceding forms, the black fold-stripe placed before the 2. median extending nearly to the cell, the black transverse area almost always lighter and narrower on the disc, so that the light and dark stripes become visible; beneath the *doris.* *neptunus.* *sumatrana.*

two light areas somewhat larger than in the form from Borneo. Hindwing above usually with 2, more rarely
padanganus. 3 spots, beneath mostly with 3, more rarely 2. North-East Sumatra. — **padanganus** *Rothsch.* The black transverse area of the forewing almost as deep black as in the Borneo form, both the proximal and distal light areas narrower than in *sumatrana*, the proximal one narrower than the black transverse area, the black basal area extending to the 2. median, the grey stripe placed behind the 2. median does not reach the cell, the black stripes before and behind this vein as long as in *sumatrana*. Hindwing above in the ♂ with 2 spots, in the ♀ with 3, beneath in the ♂ with 2 large spots and 1 small, and in the ♀ with 3 large and 2 small, besides the dot placed
fehri. behind the 2. median. West Sumatra: Padang Bovenlanden and Padang Sidempoean. — **fehri** *Honr.* (16 c). The forewing very smoky, the dark oblique band much less black than in the other subspecies; hindwing with 2 pale red spots, which above are sometimes only indicated, in a few specimens a small anterior 3. spot is also present in addition, either only beneath or also above. Nias.

P. coon. Black; the head and the sides of the breast red or yellow, the abdomen beneath, laterally and at the tip of the same colour. Forewing narrow, smoky, the margins, veins and folds smoky black; hindwing with spatulate tail, a spot in the cell, which sometimes entirely fills it, but often is reduced to 2 small streak-spots, as well as a row of spots round the cell and a row of submarginal spots white, at the extremity of each of the two median veins a red or yellow marginal spot. Malayan. The butterfly flies in the plains and in hilly country. It is a woodland species and is often taken at the flowers of tall trees. Its flight is fluttering
coon. but rapid. — **coon** *F.* (= hypenor *Godt.*) (16 b). Body and marginal spots of the hindwing yellow; the cell of the hindwing usually entirely or almost entirely filled up with white. Java. — In the most northern part of Java,
patianus. in the Djapara residency, occurs **patianus** *Fruhst.* Forewing of the ♂ broader than in the preceding subspecies, the cell-spot of the hindwing is reduced and sometimes even entirely absent, and the other white spots are strongly
palembanganus. shaded with black. — **palembanganus** *Rothsch.*, from the south of Sumatra. Similar to *coon*, but the submarginal spots of the hindwing smaller, the first and last spots especially being reduced. — Specimens of *coon* from the
delianus. island of Bawean agree with *palembanganus* in the reduction of the submarginal spots. — **delianus** *Fruhst.* (16 b). Body and marginal spots of the hindwing red or yellow-red; cell of the hindwing with 2 white streak-spots. North-
doubledayi. East Sumatra. — **doubledayi** *Wall.* (16 b), from Malacca to Cachar. Spots of the hindwing larger than in *delianus*, the cell-spot very rarely divided. Specimens with reduced spots are ab. **cacharensis** *Btlr.* In the specimens
cacharensis. of *doubledayi* from Lower Burma and Tenasserim both the cell-spot and the first spot (placed before the cell)
sambilanga. are larger on an average than in those from Malacca and Penang. — **sambilanga** *Doh.* occurs on Great Nicobar; according to DOHERTY rather common. The spot placed behind the cell on the hindwing short, both the anterior and the posterior red marginal spot united with the corresponding submarginal spot, as in *P. rhodifer.*

rhodifer. **P. rhodifer** *Btlr.* (16 c). Costal and distal margins of the forewing almost parallel; the wing even in the ♀ considerably narrower than in *P. coon;* the white spots in and at the cell of the hindwing purer white; the two red marginal spots large, united with the submarginal spots, the tip of the tail red. — Andaman Islands; common.

Hector-Group.

With or without tail. Cell of the hindwing about three times as long as broad, much less elongated than in the preceding group. The scent-fold of the ♂ weakly developed or absent, without scent-wool, but sometimes with narrow scent-scales; the anal claspers aborted, but the harpe present.

In the species without scent-fold (*hector*, *jophon*, *pandiyana*, *oreon* and *liris*) the hindmargin of the hindwing is curved downwards in the ♂ as in the ♀.

hector. **P. hector** *L.* (= heroicus *Fruhst.*) (15 a). Head, collar, sides of the breast and the abdomen with the exception of the dorsal plates of the anterior segments red; forewing with two white macular bands, a central one running from the costa to the anal angle and a short apical one; hindwing with two rows of red spots. The ♀ paler than the ♂, especially the red parts of the body and the spots of the hindwing. The full-grown larva brown-black with red tubercles, without oblique band at the sides but with four small reddish white spots on the 6. and 7. segments; on Aristolochia indica. Pupa greyish yellow, the wing-cases strongly projecting. — From Ceylon to Bengal; also recorded from Chittagong on the north-east side of the Bay of Bengal. The butterfly is very common and is often found on low flowering bushes and plants. EUTON states that in autumn, at the beginning of the cold season, the butterfly betakes itself at sunset to trees where it spends the night in hundreds together on the underside of hanging twigs towards their tip, as do many Danaids. *hector* is commonest in low places, but is found singly even at elevations of over 5000 ft.

jophon. **P. jophon** *Gray* (15 a). This species is confined to Ceylon; it is local, but not rare where it occurs, in hilly country from 2000 to 4000 ft. Most easily caught early in the morning; after sunrise it flies high above

the trees. Palpi, sides of the breast and tip of the abdomen red; forewing black, the disc from the point of origin of the 2. median white-grey, semitransparent, this area encroaching on the cell and broken up into spots by the black veins and internervular folds; hindwing with large grey-white area, which is cut off straight proximally and consists of a large cell-spot and 7 spots placed round the cell, a row of red submarginal spots, which are darkened above and rose-red beneath. The ♀ with broader wings than the ♂, otherwise very similar to it. Larva purple-black, with red tubercles, on the 6. segment a yellowish white oblique band, both the tubercles placed in the band also yellowish white. Egg yellow-brown.

P. pandiyana *Moore* (15 a). Similar to the preceding species, much paler, the black distal margin of the forewing narrower, also the black stripes between the radial and median veins extending nearly to the cell. The ♀ has broader wings than the ♂, also the subcostal white spot of the hindwing is reduced and sometimes entirely absent. — A South Indian species, common in the hilly country of Travancore and in the Nilgiris at a height of 1—3000 ft. It flies in the neighbourhood of the evergreen jungle and appears early in the morning in order to drink at flowers, before which it hovers with a fanning motion of the wings, like the allied species. *pandiyana.*

P. oreon. Head, the posterior abdominal segments and the margins of the preceding segments, as well as the sides of the breast at the base of the wings red, the head often pale red. Wings more elongated than in *pandiyana*, especially the hindwing, and its cell much narrower, the tail very feebly spatulate, the grey-white central area of the hindwing, which is shaded with black above, somewhat obliquely cut off basad, the submarginal spots beneath purer red, the black basal area of the forewing does not reach the 2. median, and the cell is almost entirely transparent, with 4 black lines. The butterfly is hitherto only known from Sumba and Alor, but probably also occurs on the neighbouring islands or at least on Flores. — **oreon** *Doh.* (15 b). The black basal area of the forewing extends below the cell about to $^2/_3$ of the distance from the base to the 2. median and the central area of the hindwing is distally rather strongly shaded with black and also of a dull colour otherwise. Sumba. — **godmani** *Röb.* flies on Alor. The base of the forewing is less extended black and the central area of the hindwing is less darkened and more sharply defined, also the 6. submarginal spot above is mostly less strongly blackened and the cell-spot often larger. *oreon.* *godmani.*

P. liris. The black basal area of both wings cut off straight and reaching to the base of the 2. median; distal margin of the forewing more broadly blackened than in *oreon*, the median band of the hindwing distally almost straight, its distal margin somewhat curved outwards in the middle; the hindwing without black discal spot before the subcostal, also the corresponding red or grey-yellow submarginal spot merged together with the median band, rarely separated, and the posterior submarginal spots placed further from the distal margin than in *oreon*. In many forms the red of the body and hindwing is replaced by greyish yellow; the form from Kisser is the transition between the forms with red and those with dirty yellow markings. On all the islands between Timor and Timourlaut, including Wetter and Savu. The butterfly appears to occur all the year round. — **liris** *Godt.* (15 b). Abdomen red and black; the submarginal spots of the hindwing red, the median band above and beneath grey-yellow. Timor, the specimens in the Tring Museum caught in May, July, and November to December. — **gaetus** *Fruhst.* (= savuanus *Rothsch.*). Median band of the upperside of the hindwing thickly shaded with black, with the exception of very few specimens; the band beneath in all specimens somewhat paler grey than in *liris*. The specimens in which the band is not blackened are ab. **pseudoliris** *Fruhst.* Savu Island, our series taken in August. — **wetterensis** *Rothsch.* (15 b). Deeper black than *liris*, the median band of the hindwing much narrower and above shaded with black, the red spot placed before the abdominal margin very long. Wetter, the specimens in the Tring Museum taken in May. — **senescens** *Röb.* Similar to *liris*, but the abdomen and the submarginal spots of the hindwing paler red. Kisser. — **pallidus** *Rothsch.* A pale form; the body and the submarginal spots of the hindwing greyish yellow instead of red; wings above paler than in the preceding subspecies, the median band of the hindwing above strongly shaded with blackish. Letti and Moa, apparently very common. — **aberrans** *Btlr.* (= navigator *Fruhst.*, damaricus *Fruhst.*, velificatus *Fruhst.*). Much less smoky than *pallidus*, the semitransparent central part of the forewing and the median band of the hindwing less blackened, also the submarginal spots of the hindwing stand out more distinctly than the veins and have on the under surface mostly a slightly reddish tone, as has also the tip of the abdomen. Tenimber, Dammer, Roma and Babber; common on Tenimber. The differences mentioned by FRUHSTORFER between the specimens from the various islands are not confirmed by the specimens before us. *liris.* *gaetus.* *pseudoliris.* *wetterensis.* *senescens.* *pallidus.* *aberrans.*

P. polyphontes. Head, the tip of the abdomen and beneath and laterally also the margins of the other abdominal segments red. Forewing in the middle broadly white, this area not reaching the hindmargin and intersected by black veins and folds. Hindwing with broad tail; a white or reddish white central area composed of a cell-spot (cut off straight towards the base) and 5—7 spots placed round the cell, the veins intersecting it rather broadly black; submarginal spots above shaded with black, beneath vivid red, the anterior one entirely white and the others at least edged with white. As in all the allied species the ♀ paler than the ♂. The latter

has the hindtibia thickened, and bears on the hindwing a distinct abdominal fold with a scent-organ; in the ♂♂ of the preceding species of this group the scent-organ is wanting and the hindtibia is not swollen. *P. polyphontes* is the representative of the Indo-Malayan *P. aristolochiae* and the Papuan *P. polydorus;* and has evidently spread again from Celebes to the Sulla Islands and North Moluccas. The butterfly is rather common in flat and *rosea.* in hilly country. — **rosea** *Oberth.* (= extensus *Fruhst.*) is the most southern form known; it inhabits Saleyer Island. The central area of the hindwing has always a distinctly reddish tone above and is somewhat larger than in specimens from Celebes; on the under surface there is always a white spot behind the subcostal of the hind- *polyphontes.* wing, commonly also one before this vein. — **polyphontes** *Bdv.* (= lingonus *Fruhst.*, phanocles *Fruhst.*) (15 a). The ♂ on the upperside mostly more dingy than the ♀; the veins in the light area on both wings broadly black; the black distal margin of the forewing always narrower than the light discal area. SNELLEN mentions an aberration which has yellow instead of red submarginal spots on the hindwing. *P. polyphontes polyphontes* occurs *aipytos.* throughout Celebes and on the Talaut Islands. — In **aipytos** *Fruhst.* (= pedias *Rothsch.*) the light area of the forewing is narrower than in the two preceding subspecies, being in the ♀ pure white, in the cell usually only 2 light stripes, the discal spot placed before the lower angle of the cell much darkened also in the ♀, the black stripes between the veins shorter than in *polyphontes;* on the hindwing the posterior submarginal spots on the upper surface are very little if at all shaded with black. Sulla Islands: Mongola and Besi, a number taken by *sejanus.* DOHERTY in October. — **sejanus** *Fruhst.* (= ithacus *Rothsch.*). The light spots of the forewing smaller than in *polyphontes,* also in the ♀ shaded with blackish, the spot placed before the lower angle of the cell at least partly effaced as in the preceding form; the veins of the hindwing in the white area broadly black. North Moluccas: Halmahera, Morty, Ternate and Batjan.

P. polydorus. A common Papuan butterfly, which is distributed, in many subspecies, from the Moluccas to the Bismarck and Solomon Islands and North Australia. Similar to *polyphontes,* but the hindwing shorter, broader and not tailed, the forewing without white area or this only reaching to the base of the 2. median, the spot placed below this vein longer anteriorly than posteriorly, being obliquely cut off basally. The scent-fold of the ♂ larger than in *polyphontes* and the scales placed in it differently shaped. The larva brownish black, the tubercles red, with the exception of the dorsal tubercles of the 4., 5., 8. and 9. segments, which are brown, on the 6., 7. and 10. segments the dorsal tubercles stand in a pale red spot. Lives on a low Aristolochia and is full-fed in about 14 days. Pupa pale brown, with 4 pairs of dorsal lobes on the abdomen; pupal stage lasts 3 weeks. The butterfly flies in the open shrubby woods low and slowly from flower to flower. The forms from the North Moluccas, New Guinea except the mountains of British New Guinea, and the Bismarck and Solomon Islands have black heads, whilst the South Moluccas, Tenimber, Key, Aru, North Queensland, the Louisiades *septentrionatis.* and the mountains of British New Guinea produce red-headed forms. — **septentrionalis** *Rothsch.* Head and collar entirely black; the light stripes on the upperside of the forewing always shaded with black; the white spots *kajelanus.* of the hindwing distally rounded off. Northern Moluccas: Halmahera, Batjan. — **kajelanus** *Fruhst.* Head and sides of the collar and breast red. Forewing with large white spot behind the 2. median, which as well as the light fork placed before this vein is dusted with black; the anterior white discal spots on the upper surface of the hindwing small, sometimes wanting, the cell-spot in the ♂ mostly dusted with black. Buru, common. *potydorus.* Not constantly different from the following form. — **polydorus** *L.* (= polydotus *Müll.*, leobotes *Deh.*) (15 b). From the South Moluccas (Amboina, Saparoea, Ceram) and Obi, as well as the small islands Goram Laut and Kissoei. The light parts of the upper surface of the forewing on the whole somewhat purer white and more extended than in *kajelanus* and the white spots of the hindwing larger, the 1. discal spot transverse and rhomboidal as in *thessatia.* *kajelanus.* — **thessalia** *Swinh.* Body as in the preceding; forewing purer white; the cell-spot of the hindwing small, in the ♀ often absent; the discal spots on the other hand longer than in *polydorus,* the one placed before the 1. median especially long, the red submarginal spots large, the posterior ones above mostly only slightly *varus.* blackened. On Little and Great Key, very common. — **varus** *Fruhst.* Not distinguishable with certainty from the Key form. The posterior white spot of the forewing mostly somewhat smaller than in *thessalia,* the part of this patch placed behind the submedian fold sometimes wanting, the light stripes on the whole less sharp, the *tenimberensis.* central ones more strongly darkened. Aru Islands. — **tenimberensis** *Rothsch.* Head black, mixed with red; the stripes of the forewing and the large patches placed between the 1. median and the 2. submedian pure white; the white area of the hindwing large, the veins intersecting it very narrowly black at least on the cell; the posterior ones mostly distally reddish, the 1. white spot smaller than the 2., the 4. the largest. Tenimber Islands. — *queenslandicus.* **queenslandicus** *Rothsch.* Similar to small specimens of *polydorus,* the white markings of the forewing shorter, the spot placed behind the 2. median beneath very strongly pointed posteriorly; the hindwing almost always with 6 white spots outside the cell, most specimens in addition with a linear spot on the proximal side of the 1. *aignanus.* submarginal spot. North Queensland and the islands in the Torres Straits. — **aignanus** *Rothsch.* Likewise a small form. The white spots of the forewing larger than in *queenslandicus;* the cell-spot of the hindwing small; 5 spots at the cell, the 1. small, sometimes wanting, the 2. about twice as long as broad, the 4. the largest, but not reaching the base of the 2. median and only a little larger than the 3. spot. Louisiade Islands: St. Aignan *orinomus.* and Sudest. — **orinomus** *Rothsch.* In the hilly country of British New Guinea occurs a form very similar to the preceding. The cell-spot of the hindwing much larger than the 2. white discal spot, and the 4. discal spot larger

than the 3., also the 5. submarginal spot is smaller than in *aignanus*, sometimes even smaller than the 4.; the 4. discal spot usually reaches the base of the 2. median. From the higher elevations of British New Guinea; in lower parts of the same district occurs a black-headed form (*naissus Fruhst.*). — In the following forms the head and thorax are entirely black, very rarely with some red hairs behind the eyes. — **leodamas** *Wall.* The black basal part of the forewing is not sharply divided from the striped discal part, and the light stripes are also beneath very indistinct; the cell-spot of the hindwing and the 1. white discal spot likewise very small, narrow, the latter above sometimes absent, the other 4 spots long, the last two not quite reaching the base of the 2. median, the diameter of the 6. red submarginal spot on the underside longer than the distance of the spot from the white area. *leodamas.*
Misol. — **godartianus** *Luc.* (= papuana *Oberth.*). The grey stripes on the under surface of the forewing indistinct, also the posterior black vein-stripes and interneural stripes extending nearly to the cell, the black basal half of the wing is however sharply separated from the distal half. Hindwing similar to that of *leodamus*, above sometimes only 4 white spots present, as the cell-spot and the 1. discal spot are not always developed. Arfak and Onin Peninsulas; Salawatti and Etna Bay. — **asinius** *Fruhst.* Forewing in the ♀ with large white patch before and behind the 2. median, in the ♂ the spots as well as the light stripes above rather strongly darkened, beneath on the contrary white; the white area of the hindwing large, distally rounded, the cell-spot mostly smaller and the other spots longer than in the form *plagiatus*, from German New Guinea, which also bears a white patch, the 1. discal spot longer than broad, the 4. the largest. The red of the abdomen in the ♀ somewhat more extended than in *plagiatus*. Waigeu. — **meforanus** *Rothsch.* Forewing above in the ♂ with narrow dark grey stripes, in the ♀ with thin white ones, before and behind the 2. median, beneath on the contrary in both sexes these stripes are widened into white spots, also the other stripes are more distinct than above. The white area of the hindwing is much smaller than in *asinius*, the cell-spot being about three times as large as the 1. discal spot, which is small, the 4. spot anteriorly (at the 1. median) less than twice as long as it is broad distally. Mefor in Geelvink Bay. — We have a single ♀ from Jobi in Geelvink Bay, which has much white on the forewing above and beneath, and in which also the white area of the hindwing, especially the 1. discal spot, is large. But according to Kirsch's description of 3 specimens from Jobi (evidently ♂ ♀) these characters do not hold for all specimens. — **humboldti** *Rothsch.*, from Humbold Bay at the boundary of Dutch and German New Guinea, forms the transition to the following subspecies. The grey stripes on the under surface of the forewing are narrow and dark, the black vein-stripes are broad and extend to the cell and the fold-stripes almost touch them; beneath on the other hand the pale stripes are very light, the posterior ones white and before and behind the 2. median united into patches, yet the black stripe of the 2. median and the fold-stripe placed before it remain long. The cell-spot of the hindwing often very small, smaller than the 1. discal spot, the latter on the upper surface anteriorly mostly incised, beneath always rhomboidal, which is often also the case above. — **plagiatus** *Rothsch.* Forewing in both sexes beneath always, above often bearing much white; the 2. median inside the white area only very narrowly black, the fold-stripes placed before and behind this vein short. Cell-spot of the hindwing larger than the 1. discal spot, the 4. and 5. discal spots reach to the base of the 2. median, the 5. often extends still further basad and is also somewhat prolonged distally; the white area distally less rounded than in *asinius*. German New Guinea: Astrolabe Bay and Huon Gulf. — **naissus** *Fruhst.* (= albosignatus *Fruhst.*, phalces *Rothsch.*). Forewing as in *plagiatus;* the white area of the hindwing mostly more rounded, the cell-spot smaller, the 1. discal spot usually oblong, the 4. and 5. spots not quite reaching the base of the 2. median, all the spots mostly rounded off distally. Trobriand and Fergusson, d'Entrecasteaux Islands; British New Guinea. Some of the specimens from the latter district cannot be distinguished from *plagiatus*. — **dampierensis** *Hag.*, from Dampier Island on the north coast of German New Guinea. Forewing above dark, beneath with white. The white area of the hindwing above narrowed to a band, the small cell-spot and the 1. discal spot strongly and the 2. and 3. discal spots slightly shaded with black; the white area beneath only a little narrower than in *plagiatus*, the 4. and 5. discal spots not quite reaching the base of the 2. median. the submarginal spots large, also the one united with the last discal spot. — **novobritannicus** *Rothsch.* Forewing lighter than in *plagiatus;* the cell-spot of the hindwing large, the discal spots on the contrary small, especially the 2. and 3., which are often wanting in the ♂. Abdomen laterally more extended red, also the 2. and 3. segments laterally edged with red, on the other hand the 7. segment above with a black spot. New Pomerania (= New Britain). — **utuanensis** *Ribbe.* Forewing much darker than in the preceding subspecies; the white area of the hindwing more rounded, the cell-spot smaller and the discal spots longer. New Lauenburg and New Mecklenburg (= Duke of York and New Ireland). Not constantly different from the next form. — **polydaemon** *Math.* (16 a). In the specimens from the northern Solomon Islands Bougainville, Alu and Treasury the grey stripes of the forewing above are dark and beneath rarely united into grey-white patches before and behind the 2. median, also the cell-spot of the hindwing is mostly small (ab. **polypemon** *Math.*). The specimens taken on the islands more to the south on the contrary are mostly lighter, especially in the ♀ and particularly on the under surface, also the white spots of the hindwing are larger in many specimens. The anterior submarginal sports of the hindwing beneath are often very pale in *polydaemon*, and the 1. is commonly partly edged with white, which occurs especially often in northern specimens; in some specimens in the Tring Museum (also in one *utuanensis*) the 2. and 3. submarginal spots are united either on both wings or only on one. So far no specimens are known from the most southerly Solomon Islands (San Christoval and Rennel).

humboldti. *plagiatus.* *naissus.* *dampierensis.* *novobritannicus.* *utuanensis.* *polydaemon.* *polypemon.*

P. aristolochiae. The tip and sides of the abdomen and the margins of the ventral segments red, and also the sides of the breast and the head. Forewing from the base to about the 2. median and at the margins black, the disc usually more or less lighter, with black fold-stripes. Hindwing with spatulate tail, which is sometimes reduced to a tooth, and red submarginal spots, which above are more or less strongly shaded with black; in the middle often a white area. The ♀ paler and with broader wings than the ♂. Larva black, with red fleshy tubercles; on the 6. segment, which bears the 1. pair of prolegs, a white girth; the tubercles in this likewise white; according to MARTIN the milk-white girth is sometimes wanting in Sumatra; on Aristolochia indica and bracteata (according to HAGEN also on Piperaceae). Pupa with 4 pairs of rounded lobes on the abdomen, the lateral lobes of the thorax likewise rounded. A common butterfly, which flies especially in the plains and hills and seldom ascends above 4000 ft. It occurs from the Loo Choo Islands, West China and Ceylon eastwards and southwards to the Lesser Sunda Islands, in wooded districts and in gardens, but not in thick forests. Its flight is slow and heavy. The butterfly visits flowers and is sometimes taken in crowds on flowering trees, especially in the early morning. The peculiar distribution of the two principal types in which the butterfly occurs,

camorta. the black and the white-spotted type, is very interssting. — **camorta** *Moore* (16 a), from the Nicobars. Hindwing with a white spot at the cell between the two median veins and a red one behind it; on the under surface

ceylonicus. in addition two smaller spots at the apex of the cell and a third in the cell. — **ceylonicus** *Moore.* Forewing at least beneath very light, the black stripe placed behind the 2. median almost always shortened; the white spots of the hindwing close to the cell, the middle ones distally rounded off, the cell usually with a white spot. Ab-

aristolochiae domen of the ♀ with the exception of the last segment mostly entirely black above. Ceylon. — **aristolochiae** *F.* (= polidorus *Cr.*, polydorus *Godt.* nec *L.*) (16 a). Forewing from the base to beyond the point of origin of the 2. median black, the stripes placed between the 2. median and the hindmargin rarely shortened; hindwing always with white spots but always without cell-spot; the spot placed behind the 2. median on the under surface not

diphilus. emarginate on the side nearest this vein. In f. **diphilus** *Esp.* the white spots are placed near to the cell, whilst in f. **aristolochiae** *F.* they are reduced from the basal side and therefore remote from the cell. The small-spotted specimens fly at the same time with the large-spotted ones, but appear to be the commoner form during the hot rainy season (summer). MOORE erroneously regarded the large-spotted specimens as „wet form." South, North-West and North-East India. The butterfly is called in Calcutta Rose Butterfly on account of its strong scent. —

adaeus. In West, Central and East China southwards to about Fu-chow flies **adaeus** *Rothsch.* Very similar to the preceding subspecies, but the ♀ paler, the hindwing in both sexes longer and the white spots differently developed. These spots usually small, but placed near the cell, the spot before the 1. median usually $^1/_3$ to $^1/_2$ and never more

interpositus. than $^2/_3$ as long as its distance from the corresponding submarginal spot. — **interpositus** *Fruhst.* is the usual form on Formosa. It has large submarginal spots on the hindwing; the white band is placed near to the cell without entering it, and the spot placed before the 1. median is about as long as its distance from the corresponding submarginal spot, or somewhat shorter. On the forewing the dark basal area extends beyond the base of the 2. median;

formosensis. the ♀ is mostly very pale above. According to Dr. REBEL a black form also occurs on Formosa: **formosensis** *Reb.* Similar to *lombockensis*, forewing in the distal part not pale, the red submarginal spots on the underside of the hindwing thin, some of them also developed above; tail long, spatulate. Whether *formosensis* and *interpositus*

rhodopis. fly in the same districts or are geographically separated, is not known to us. — **rhodopis** *Rothsch.*, from the Liu Kiu Islands (= Loo Choo), is very similar to *interpositus*, but on the under surface of the hindwing the 1. white spot anteriorly and the 2. and 3. are shaded with red in the centre between the veins at least at the margins. —

goniopeltis. **goniopeltis** *Rothsch.* From Hong-Kong southwards to Siam, Burma and Tenasserim flies a form which recalls the Philippine subspecies *philippus*. On the forewing the black basal area extends to the point of origin of the 2. median; between this area and the black distal margin the wing is very pale beneath; the white spots of the hindwing are always placed at the cell and very rarely reduced, the one before the 1. median is usually pointed and mostly very long, many specimens have a small cell-spot; on the underside the last spot is usually entirely red, also the veins separating the spots are frequently reddish, as well as the spots themselves. The tip of the

asteris. abdomen is on the whole more extended red than in *ceylonicus.* — **asteris** *Rothsch.*, from the Malay Peninsula and the island of Penang. On the whole smaller than the preceding subspecies, the abdomen fully as red, the upper surface of the wings deeper black, the ♀ almost as dark as the ♂; the white spots of the hindwing close to the cell, usually narrow, the spot placed before the 1. median always shorter than its distance from the corresponding submarginal spot; the 1. discal spot often absent, always linear if present and placed close to the cell; the 2. and 3. spots likewise often linear, the cell above often and beneath usually with small spot; the submarginal

antiphus. spots small. — **antiphus** *F.* Hindwing without white spots, tail spatulate. Sumatra, Nias, Natuna Islands, Borneo and Djampea (south of Celebes). On the Natuna Islands single specimens also occur which are very similar to the subspecies of *aristolochiae* from Siam, Burma, Tonkin, etc., but the hairs on the frons are strongly mixed with black, the hindwing bears three long white spots and one of our two specimens (♂♂) has also another small white dot before the 2. radial; in this specimen the tail is spatulate, in the other short and narrow, which is also the case in some black specimens from the Natunas. The white-spotted form is probably

atavus. a reversion: ab. **atavus** *ab. nov.* In the Tring Museum there are also a number of specimens from Bunguran (Natuna Islands) in which the white markings are only indicated. In ab. *atavus* the red submarginal spots are larger than in most specimens of *antiphus*, also the spot placed behind the white markings is large. Black specimens

with narrow tail are ab. **acuta** *Druce* and specimens with quite short tail ab. **periphus** *Oberth.* (= brevicauda *Stgr.*); both forms occur singly among normal *antiphus* on the Natuna Islands and on Borneo, but are not known from Sumatra; on the other hand on Palawan no specimens with spatulate tail seem to occur. — **antiphulus** *Fruhst.*, from the Sulu Islands, is a large race, which recalls *kotzebuea*. The forewing is rather pale, the posterior black stripes of the under surface are narrow, there are no red spots between the 7. red spot of the hindwing and the apex of the cell beneath. — **kotzebuea** *Eschsch.* (= polybius *Godt.*) (16 a) inhabits the western Philippines: Mindoro, Luzon, Polillo, Bohol and Cebu. Almost all specimens have on the hindwing a red band, sometimes white in parts, extending from the apex of the cell to the abdominal margin. The specimens of the rainy season are dark, those of the dry season lighter. — The south-eastern Philippines are inhabited by **philippus** *Semp.* A broad-tailed form with 3—5 white discal spots on the hindwing. — **adamas** *Zink.* (= thoas *Swains.*; mamilius *Fruhst.*). Flies on Java, Bawean and Engano. The long hairs of the frons are black; the median white spots of the hindwing are placed close to the cell, there are always (?) 5 spots present including the one placed behind the 2. median; the cell apparently never has a spot. Single specimens of *antiphus* also occur on Java. — **balinus** *Fruhst.*, from Bali. The median white spots of the hindwing a very little shorter than in *adamas*, otherwise not different from *adamas*. — **antissa** *subsp. nov.* Forewing beneath somewhat more broadly black at the distal margin than in *adamas*. The submarginal spots of the hindwing large, the posterior ones reniform; the white band consists of 4 spots including the double spot placed behind the 2. median, which is red in the ♂, red-white in the ♀. A pair from Kangean, collected by PRILLWITZ in August—September. — On Lombok occurs again a dark form, in which only now and again small white spots are present, which at least on the upper surface are shaded with black: this is **lombockensis** *Rothsch.* (= lombokensis *Fruhst.*). The forewing above is not so light as in *antiphus* and beneath is more broadly black at the distal and hindmargins. — Sumbawa on the contrary is inhabited by a white-spotted form, which is very constant: **austrosundanus** *Rothsch.* In this there are always only 3 discal spots on the hindwing in addition to the red spot placed before the hindmargin; the 1. and 3. spots are small, the 2. is twice or three times as long as broad and at most $^3/_5$ as long as its distance from the corresponding submarginal spot. — The most easterly locality for a form of *P. aristolochiae* is Flores. Here is found **floresianus** *Rothsch.* In the Tring Museum there are 3 specimens taken in the dry season, resembling large specimens from Java. The white area of the hindwing consists of 5 spots, of which the 1. is small and streak-shaped, whilst the others are large; the third of these spots is almost as long as its distance from the corresponding submarginal spot, the 1. to 4. spots are pure white, the 5., which is placed before the hindmargin, is red or reddish and not incised behind the 2. median; the submarginal spots are paler red above and beneath than in *austrosundanus*.

acuta. periphus. *antiphulus.* *kotzebuea.* *philippus.* *adamas.* *balinus.* *antissa.* *tombockensis.* *austrosundanus.* *floresianus.*

P. annae. Head, sides of the thorax and the greater part of the abdomen grey-yellow or red. Forewing from the base to the 2. median and at all the margins black, otherwise semitransparent; with black stripes at the veins and folds; hindwing with spatulate tail, the white area intersected by black veins, more than half the cell white; the submarginal spots grey-yellow or the posterior ones red, above shaded with black. Mindanao and Mindoro. — **annae** *Fldr.* (15 c), from Mindoro, is the larger form, in which the white area of the hindwing has a yellowish tone. Red-bodied specimens may be distinguished as ab. **erythrus** *ab. nov.* — **phlegon** *Fldr.*, from Mindanao and Guiamaras, is smaller than *annae*, the white area of the hindwing has a bluish (milk-white) tint, and the spots are smaller. The abdomen appears always to be reddish. Both subspecies are very rare in collections.

annae. *erythrus.* *phlegon.*

P. mariae. Frons black, sides of the breast and tip of the abdomen red, the latter especially at the sides. Forewing similar to that of *P. annae*, the dark margin less sharp and the black basal area posteriorly much broader. The white cell-spot of the hindwing does not quite reach the point of origin of the 2. median; 4 or 5 white spots round the cell, of which the 3 middle ones are larger than the cell-spot; tail strongly spatulate; some of the submarginal spots on the under surface edged with white. Philippines; rare. — **mariae** *Semp.* (15 c) has 5 white spots on the hindwing besides the cell-spot. Bohol, Cebu and Mindanao. — In **almae** *Semp.* there are only 4 spots at the cell of the hindwing, as the last spot, which in *mariae* is placed behind the 2. median, is wanting. Polillo; 2 specimens in SEMPER's collection in the Frankfort Museum Senckenberg, taken in October and November.

mariae. *almae.*

P. phegeus *Hopff.* (15 c). Head, sides of the breast and the greater part of the sides of the abdomen red. Forewing as in *mariae*, but the distal $^2/_3$ darker. Hindwing without cell-spot, 3 white spots at the cell and further a white dot behind the 2. median; above 3 or 4 red submarginal spots besides the very small red spot placed behind the white area, the posterior spot very large; beneath 5 or 6 submarginal spots. — Described from „Luzon", but only found by SEMPER on Samar, Panaon and Mindanao.

phegeus.

P. schadenbergi. Body similar to that of the preceding species. Forewing lighter; hindwing only with submarginal spots. In North Luzon and on the Babuyanes. — In **schadenbergi** *Semp.* (15 c), from North-West Luzon and the Babuyanes, the anterior submarginal spots are white and the posterior ones red; the forewing

schadenbergi.

micholilzi. is very light, being yellowish white behind. — **micholitzi** *Semp.* is much more smoky, and the submarginal spots of the hindwing are all or almost all white or whitish. North-East Luzon. — Like most of the Philippine butterflies except the very common species, *schadenbergi* is still rare in collections. Nothing is yet known as to the habits and the earlier stages of this Papilio. Probably it inhabits shrubby woods like *P. polydorus*.

atropos. **P. atropos** *Stgr.* (16 b). Body as the preceding. Both wings smoky black; forewing semitransparent almost to the base; hindwing not transparent, with slight indications of paler submarginal spots. — Palawan.

B. Fluted Papilios.

Antennae without scales; the segments somewhat thinner towards their bases; the fine sensory hairs either pretty equally distributed over the ventral surface of the segment or concentrated on two large, lateral, non-impressed areas. The tarsi likewise without scales, the dorsal spines separated from the rows of the under surface by a lateral, impressed, spineless longitudinal stripe. The abdominal margin of the hindwing in both sexes is simply curved downwards and forms a groove beneath. The hindwing of the ♂♂ has no scent-organ, as in almost all the Aristolochia Papilios and Kite Swallowtails, on the other hand there are scent-scales on the forewing of many species of the Old World (in no American forms). In the Indo-Australian forms the wings of both sexes are always thickly scaled, also almost all the species have at least a few metallic (grey, green or blue) scales. The head and breast are mostly spotted with white, sometimes almost entirely black, more rarely with red or yellow markings, but the red always dull, never so glaring as in Aristolochia Papilios. — The young larvae resemble bird-droppings and bear on each segment more or less distinct humps or spines, which in most species disappear later. According to the markings we have 2 principal types of larvae: the spotted larvae (*P. machaon*, *elylia*, *anaelus*, *laglaizei*, etc.) and the oblique-banded larvae (*P. xuthus*, *polytes*, *memnon*, *aegeus*, *bianor*, etc.). This 2. type is the normal one. Very many larvae live on species of Citrus, and Xanthoxylon is also a favourite food-tree. The pupa rough and leathery, usually resembling a piece of wood, the head mostly prolonged into 2 horns, which are rough on the innerside; the thoracic horn usually short, in some forms nevertheless very long and curved backwards (*P. demolion*); the wing-cases not so strongly dilated as in the Aristolochia Papilios, commonly scarcely projecting laterally; the dorsal protuberances of the abdomen are absent or very small.

The Fluted Papilios have a wider distribution than the other Papilios and are also richer in species. One species extends to the arctic zone and ascends in the high mountains to beyond the tree-limit (*P. machaon*; in the Andes of South America the nearly allied *P. polyxenes americus*). The butterflies are much less tenacious of life than the Aristolochia Papilios; the thorax is brittle. A great number of the species are mimetic in the ♀ or in both sexes, and it is worthy of note in this respect that one group of nearly allied species appear only in the garb of Danaids, whilst a second large group show only imitations of Aristolochia-Papilios and *Tenaris*. In addition there are a few forms which resemble *Aeraea* and *Nyctalemon*. A large series of black forms with white or yellow markings are not mimetic, and a further large group is dark on the under surface like bark or dried leaves, above on the contrary adorned with the most glittering blue or green.

We begin with the Danaid-mimics, place the forms less specialized in their markings in the middle, and leave the metallic species (*P. ulysses*, etc.) to the last, in which way it will best be possible to place the species which unite these principal groups together with their allies.

1. Mimics of Danaids.

Body spotted with white, the mesothorax above at least with a couple of white dots, the abdomen beneath with 3 rows and at the sides with 2 rows of these dots, the uppermost row sometimes obsolete, in other cases with the lower lateral dots so merged together that the abdomen is ringed with black and white; hindwing at the base with a white dot or spot, usually also a spot of the same colour at the base of the forewing. Markings like Euploeids and Danaids, with the exception of the ♂ of *P. eastor*. Larva almost cylindrical, with reddish dots, larger light longitudinal patches and 2 or 3 rows of spines; the larvae of the *eastor* group on the contrary are oblique-banded larvae, similar to that of *P. polytes*. Pupa likewise almost cylindrical, similar to a broken-off twig; the wing-cases scarcely projecting at all laterally; head truncate, not produced into horns, the thoracic horn low, directed forwards; thorax and abdomen above with 4 rows of small round tubercles, the abdomen flattened beneath and hollowed out, lying close to the twig on which the pupa is fastened, the pad for the cremaster very strong.

Agestor-Group.

The subcostal of the hindwing branches off from the cell further distally than the lower median.

P. agestor. A copy of *Danaus tytia*. Abdomen with large light transverse spots. Forewing for the most part whitish grey, the veins, an oblique band in the apex of the cell and the distal margin black; hindwing brownish yellow, more vivid in the living insect; the veins and the distal margin often black, the cell, a stripe before and

beneath it as well as 2 or 3 rows of spots between cell and distal margin white-grey. Beneath almost as above. The ♀ similar to the ♂, but the wings somewhat broader. Larva with 4 rows of spines; above blackish brown, beneath pale yellowish, with 3 pairs of large pale yellowish longitudinal patches edged with black, of which the 2. and also the 3. pair are joined above; red and black dots between the patches; the young larva rests on the upperside of a leaf and is marked like bird-droppings; on Machilus odoratissimus and perhaps on other Laurineae. The butterfly in shrubby woods; it skims lightly over the tops of the bushes without flapping the wings, and always returns again to the resting-place it has once chosen, on a projecting twig, even when it has been more than once disturbed. North-West India to Malacca, Central and South China, up to 6—7000 ft.; only in the spring; the pupa hibernates. — In Central and South China flies **restricta** *Leech* (= tahmourath *Ehrm.*, agestorides *Fruhst.*) (see vol. I, p. 13, pl. 7 b). The cells of both wings with black stripes; veins and distal margin of the hindwing black, an area on the hindwing extending from the abdominal margin to the cell brownish yellow. The ♀ quite similar to the ♂. — **matsumurae** *Fruhst.* Strongly darkened throughout, hindwing black instead of red-brown from the margin to the cell. Formosa. Not known to me in nature. — **govindra** *Moore* (= gopala *Moore*) (vol. I, pl. 7 b). Hindwing with broad black stripes between the veins from the distal margin towards the disc, sometimes in the ♂ almost the whole wing black except for the grey markings, in the ♀ on the contrary the black sometimes almost all suppressed. North-West India. — **agestor** *Gray* (= senchalus *Fruhst.*, cresconius *Fruhst.*) (20 a). With the exception of the grey markings the hindwing is entirely brownish yellow, but often rather dark on the disc. Mostly larger than *govindra*. Nepaul, Sikkim, Assam, Burma, Tenasserim, Upper Tonkin, and Perak (?). I doubt whether a ♀ in the Tring Museum, taken by Doherty, which bears the label Perak, really comes from there; the collection in question did not reach the Museum direct from the collector.

restricta. *matsumurae.* *govindra.* *agestor.*

P. epycides. Wings white-grey, with black vein-stripes and black distal margin, in the latter on the forewing one row, and on the hindwing two rows of grey-white spots; a round anal spot on the hindwing yellow. The ♀ purer and more extended grey-white than the ♂, the forewing broader. West China, Sikkim, Assam, Burma and Tenasserim. In the spring; only one brood; the butterfly in sandy river-beds. — **horatius** *Blanch.* (see Vol. I, 8 b) is the darkest form; from West China and (the same form?) Formosa. — **epycides** *Hew.* (29 c). ♂: all the whitish spots on the forewing placed distally to the grey discal stripes sharply outlined; the width of the black vein-stripes very variable, in some specimens almost twice as broad as in others from the same locality. In the ♀ the black stripes are narrower than in the ♂ and the grey markings lighter. Sikkim, Bhutan and Assam; a series of both sexes in the Tring Museum. — **curiatius** *Fruhst.* (= curatius *Fruhst.*, curiatus *Moore*), from Upper Burma, which is not known to me in nature, has according to the description broader black vein-stripes than *epycides*, also the grey discal stripes are darker. — **hypochra** *subsp. nov.* The ♂ as light as light ♀♀ from Assam and Sikkim, the 3 grey discal stripes on the forewing above, which are placed between the lower angle of the cell and the 2. median, distally twice as broad as the black vein-stripes; the costal margin of the forewing, especially beneath, more narrowly black than in *epycides*-♂♂, and the under surface of the hindwing before the cell with a long, broad white-grey stripe, which extends almost to the submarginal spot, the costal margin from the base to the middle likewise white-grey. One ♂ from the Shan States and another from the Karen Mountains (Salwin River) in the Tring Museum.

horatius. *epycides.* *curiatius.* *hypochra.*

P. slateri. Body black, abdomen beneath with 3 and at each side with 2 rows of separated white dots. Wings dark brown, margins entire, without a trace of fringe-spots; upper surface of the forewing with or without blue or white discal stripes; hindwing always with a yellow marginal spot at the anal angle, as in *epycides*, and commonly with white discal stripes. The ♀ quite similar to the ♂. Distributed from North India to Sumatra and Borneo. Like the two preceding species in North India and Burma a spring butterfly, which only flies in one brood. The butterfly has quite the slow flight of the Euploeids whose garb it wears, and occurs principally in low situations. Nothing is yet known about the early stages. — **slateri** *Hew.* (20 a). Forewing with whitish blue discal stripes between all the veins, which are sharply defined distally, and a cell-spot of the same colour; hindwing without white stripes before the distal margin, or these beneath or on both sides distinct. These white-striped specimens are ab. **jaintinus** *Fruhst.* The butterfly is rather rare in Sikkim, commoner in Assam. Sikkim; Assam (Khasia, Jaintia and Naga Hills); Upper Tonkin (Van-bu, in the Tring Museum); not yet recorded from Upper Burma, where it doubtless occurs. — **marginata** *Oberth.* Stripes of the forewing as distinct as in the preceding form, but shorter and narrower; hindwing above and beneath with a band of white streak-spots. In one of the two ♂♂ from the southern Shan States in the Tring Museum these white patches are entirely absent above, and beneath there are only slight indications of some of them: ab. **cnephas** *ab. nov.* South Tonkin, Central Siam and Shan States. — **tavoyanus** *Btlr.* (= clarae *Marsh.*). The blue patches of the forewing much more reduced than in *marginata*, indistinct, sometimes only traces of the stripes present; hindwing with a band of white stripes as in *marginata*. Tenasserim. — **perses** *Nicév.* (= sumatrana *Hagen*, persoides *Fruhst.*). Forewing without blue markings, but beneath before the hinder angle with slight traces of white patches; hindwing always with white streak-spots, which vary individually in length and breadth. The ♀ unknown, probably very similar to the ♂ as in the other forms. Two aberrant specimens of the ♂ are known, which differ somewhat from one another and have been described as two separate species: ab. **petra** *Nicév.*, forewing with white discal stripes; North-West Sumatra; the genitalia of the specimen do not differ from those of the usual Sumatra form *perses*.

stateri. *jaintinus.* *marginata.* *cnephas.* *tavoyanus.* *perses.* *petra.*

sticheli. In ab. **sticheli** *Tetens*, from Perak, the white stripes are longer and there is a bluish white spot in the cell of the
hewitsoni. forewing. Malacca and North-East and West Sumatra. — **hewitsoni** *Westw.* (20 b) is very similar to the preceding subspecies; the forewing has beneath before the hinder angle no trace of white spots and the hindwing is at least above without white streak-spots or these are much obscured; specimens with such white stripes on the hindwing
persides. are ab. **persides** *Fruhst.* (= persoides *Fruhst.*). North Borneo, principally in the hills.

Clytia Group.

The subcostal vein of the hindwing branches off about in the basal third of the cell and is therefore placed nearer to the base than is the lower median branch; the cell of the hindwing narrow and as in the similarly marked Kite Swallowtails (*P. macareus*, *megarus*, etc.), somewhat incurved between the subcostal and 1. radial.

Some of the species which belong here are very strikingly dimorphic in both sexes.

P. clytia. ♂ and ♀ quite similar. Frons always with 2 white spots; both wings with light marginal spots; the hindwing always sinuous between the veins. The white spots of the abdomen in the light forms merged together into longitudinal lines, in the dark forms usually separated and those of the subdorsal row small and partly suppressed. In most districts two principal forms, one resembling *Euploea* and the other *Danaus*, both variable in themselves, especially the dark one, which is modelled on various Euploeids. In other districts on the contrary only a single form. Whilst on the Andamans and Timor with the neighbouring islands only mimics of *Danaus* occur, on Palawan and the Philippines on the other hand there are only Euploeid-mimics. From the large Sunda Islands (Sumatra, Borneo and Java) this species is not known; it is there represented by *P. paradoxa*, which occurs together with *P. clytia* from Malacca to Assam. These butterflies are not only deceptively like their Danaid models in form and colouring, but have also the same slow flight; when pursued, however, they fly with greater swiftness. The two principal forms are about equally common in all places where both occur. The butterfly is principally found in the plains and only ascends in the hills to 3000 or 4000 ft. It is taken in large numbers at puddles and on the sandy banks of brooks and rivers and also at flowers. The young larva deep black, a large patch on the two last segments, a saddle-spot in the middle of the body and from this to the 1. segment a lateral stripe composed of spots milk-white, a lateral line above the legs yellowish, on the 1.—4. segments at each side two rows of club-shaped spines, on the other segments one row, at each side 2 rows of round spots; the full-grown larva likewise deep black, without distinct line above the legs, the dots bright red, the spines sharp, the fork on the neck pale coloured; on various Laurineae, as Tetranthera, Alseodaphne, Cinnamomeum, etc. The pupa similar to a broken, dry twig. The butterfly all the year round, except during the winter in the
clytia. northern districts. — **clytia** *L.* (see vol. I, pl. 7 a). Dimorphic and each of the two principal forms again very variable within itself. The different forms were formerly regarded as species, but there is not the least doubt that they all belong to one species: the *Euploea*-like form has been found in copula with the one similar to *Danaus*, the larvae of the two are alike and occur together, and there are no structural differences at all to be found in the butterflies. We even treat all the examples from Ceylon, India, China, Formosa, Hainan, Tonkin, Siam, Malacca and Singapore as belonging to one geographical race, there being no tenable differences between the specimens from the different districts. On the other hand the degree of variability and the character of the variations are by no means the same everywhere; on Ceylon, for instance, both forms are comparatively very constant, in North India, Burma, Siam, etc., very variable; some varieties are only known from one country,
dissimilis. others only from another. We have to do here with the beginning of a separation into geographical races. f. **dissimilis** *L.* (20 d), wings black, from the base with yellowish white stripes and before the distal margin with spots of the same colour; the ♀ on the whole lighter than the ♂. The width of the stripes varies considerably and they are commonly dusted with black. Very common in the whole area of distribution; the specimens from
commixtus. the different districts not distinguishable. f. **commixtus** *Rothsch.* (31 d) we only know from Sikkim and Assam; forewing brown-black, with very faint stripes on the disc and smaller spots before the distal margin; hindwing
casyapa. striped almost as in *dissimilis*, but the cell for the most part pure brown-black. In f. **casyapa** *Moore* the forewing is brown-black and has besides the marginal spots 2 rows of patches, of which the proximal ones are usually diffuse; hindwing from the base to beyond the apex of the cell black-brown, in the distal half with discal arrow-spots, submarginal angular spots and mostly yellowish marginal spots; North India. The upper surface of f. **clytia** *L.*
saturata. (20 c) almost black; the forewing with a row of spots before the distal margin; South China, Siam. f. **saturata** *Moore* resembles *clytia*, but the discal spots of the hindwing are very short and diffuse; from South China and
papone. Hainan. In f. **papone** *Westw.*, which is black-brown above, the forewing has no patches; from Tenasserim and
janus. Siam. On the contrary in the otherwise quite similar form f. **janus** *Fruhst.*, from Tenasserim and Siam, the submarginal spots of the forewing are black, commonly with white centres. The somewhat paler brown
panope. specimens with a row of spots before the distal margin of the forewing are f. **panope** *L.*; from China, Tonkin,
onpape. Siam, Tenasserim, North, North-West and South India. In f. **onpape** *Moore*, which is usually still paler, one or several spots at the apex of the forewing are prolonged to the distal margin; commonest in Tenasserim, but
lankeswara. also occurring in Burma, Siam, Tonkin and Formosa. An equally pale brown form is f. **lankeswara** *Moore* (= cly-

tioides *Moore*) (20 b), in which all the submarginal spots of the forewing are small; Ceylon, South India, Tenasserim, Singapore; this is the only variety occurring in Ceylon except f. *dissimilis*. **P. lacedemon** *F.*, described from Malabar, which is not known to me in nature, probably also belongs here; it is above entirely blackish brown with white marginal spots and bears on the underside of the hindwing a row of black submarginal lunules. *lacedemon.* Besides the before-mentioned varieties, which are principally based upon differences in the ground-colour and the patches of the forewing, there are also naturally many individual forms which are distinguished in addition in the marking of the hindwing; the most striking of these aberrant forms are those in which the light marginal spots of the hindwing above and beneath are suppressed or very strongly enlarged. — The following geographical races are all monomorphic. On the Andamans flies **flavolimbatus** *Oberth.* (20 d). Similar to f. *dissimilis*, but the yellow submarginal spots of the hindwing larger; the genitalia are also somewhat different. — **panopinus** *Stgr.* (20 c), from Palawan, resembles f. *papone*; forewing above with 2 rows of white spots besides the marginal spots; beneath there is a long white streak in the cell of the forewing and another behind the costal of the hindwing, also the median of the hindwing is sparsely margined with white to the base. — In **palephates** *Westw.* (20 c) the white scaling beneath is even more extended than in *panopinus*, especially on the hindwing; the forewing above has 3 large subapical white patches. Philippines: Luzon, Mindoro, Mindanao. — **echidna** *Bdv.* (20 d). On the islands of the Timor Group occur again *dissimilis*-like forms, which are principally distinguished from *dissimilis* by the marginal spots of the hindwing, inclusive of the anal spot, being white on both sides; also on the under surface of the hindwing the costal margin is not pure white and the white stripes surrounding the cell are narrower and shorter. In the Tring Museum 17 ♂♂, 2 ♀♀ from Timor, Wetter, Alor and Adonara. The genitalia differ somewhat from those of the preceding forms. — **echidnides** *Fruhst.* is distinguished from *echidna* by a slight shortening of the patches placed distally from the apex of the cell of the forewing. Moa; 3 ♂♂ in the Tring Museum.

flavolimbatus. *panopinus.* *palephates.* *echidna.* *echidnides.*

P. veiovis *Hew.* (= samanganus *Fruhst.*) (20 d). The lateral spots of the abdomen united into transverse bands, which are interrupted above. Markings of the wings *dissimilis*-like; ground-colour white, often yellowish, especially on the under surface of the hindwing, the veins, the cell-stripes and a broad marginal area which encloses light double stripes black; the forewing elongated, with incurved distal margin; the hindwing at the abdominal margin much longer than in *clytia*, with distinctly projecting tooth at the 3. radial and yellow anal spot. The ♀ has broader wings than the ♂. — North and South Celebes; the differences given by Fruhstorfer between northern and southern specimens are not confirmed by the 16 examples before me. The butterfly according to Fruhstorfer drinks at puddles and at the edges of brooks, the wings being kept closed.

veiovis.

P. paradoxa. Another extraordinarily variable species. Nearly allied to *clytia*, but the cell of the hindwing still narrower, especially towards the base; both wings with very small white marginal and small white submarginal spots; the latter stand in a quite regular row, which is anteriorly curved costad; the forewing has no separate subapical spot in addition to this row, as in all the forms of *P. clytia*; the hindwing slightly notched between the veins, not emarginate as in *clytia*, the lobes placed between the notches feebly projecting and broadly rounded. The genitalia are very different from those of *P. clytia*. The butterfly occurs in a number of geographical races, which all possess two principal forms. Of these two principal forms, the *paradoxa*- and the *caunus*-form, the latter in every district is fair y constant, though distinctly dimorphic sexually, whilst the *paradoxa*-form is not only everywhere strikingly different in the sexes, but in many districts exhibits a large number of individual variations both in ♂ and ♀, some of which are very dissimilar. We unite the *caunus*- and *paradoxa*-forms, which hitherto have always been regarded as 2 species, into one, on the following grounds. Whilst all the rest of the allied species are structurally different, *caunus* and *paradoxa* are identical in this respect. This has so much the more weight, because even the geographical races of *P. clytia* and also of *P. paradoxa* (inclusive of *caunus*) differ somewhat in the genitalia. Further this geographical variation in the genitalia in *caunus* and *paradoxa* is exactly the same, i. e. the *caunus* coming from a certain locality shows in the genitalia the same difference from the other geographical races as the *paradoxa* from the same district. Now as a similar strong dimorphism is known of *P. clytia*, we entertain no further doubt that *caunus* and *paradoxa* are one and the same species. A *proof* can naturally only be obtained by breeding. The larva of the *paradoxa*-form is known, but quite insufficiently described: it is velvety black or green, with fleshy spines and round red lateral spots; the large light patches of the *clytia*-larva do not seem to be present in *paradoxa*. Pupa as in the allied species resembling a broken-off twig, green or brown according to the colour of the twig on which it is fastened. The butterfly is rare, especially the *caunus*-forms; the ♂♂ are taken in woods at puddles on roads. The butterflies so closely resemble the Euploeids which they mimic that when flying they are not recognised as Papilios until on scenting danger they abandon the slow Euploeid flight and hasten away with great speed like a true Swallowtail. Distributed from North India to Palawan and Java; commonest on Borneo. The species represents on the large Sunda Islands the missing *P. clytia*, of which it was apparently a geographical race, which has now developed into an independent species. — The largest race occurs in Assam, Tonkin, Borneo and Tenasserim: **telearchus** *Hew.* Forewing above in the ♂ of f. **telearchus** *Hew.* (32 a) glossy blue, a spot in the apex of the cell, a row of elongate discal spots and the submarginal spots white-blue, the latter almost white; the dark brown upper surface of the hindwing and the paler brown under surface of both wings with white submarginal spots.

telearchus.

In the ♀ both wings with white-grey stripes in addition to the spots of the ♂, the distal half of the forewing
danisepa. purple-blue, the patches less blue than in the ♂. The *caunus*-form is f. **danisepa** *Btlr.* (32 b); the forewing of the ♂ above glossy blue, with a large white patch in the apex of the cell and smaller patches on the disc; hindwing from the base to beyond the apex of the cell white, this area divided by the black veins and distally suffused
aenigma. with blue. The ♀ is very similar to the ♂, larger. — **aenigma** *Wall.*, from the Malay Peninsula, Penang, Singapore, East and West Sumatra and Banka. The ♂ of the *paradoxa*-form occurs in two variaties: ♂-f. **aenigma** *Wall.* (= distanti *Rothsch.*, butleri *Dist.* not *Jans.*) has on the forewing light blue discal stripes on a glossy blue ground and a row of white submarginal spots, often shaded with blue, and a light blue spot in the cell. Of
butleri. the second form, ♂-f. **butleri** *Jans.*, only the type (in the Tring Museum) is known to me. The specimen bears the locality-label „E. Indies (? Malacca)", its origin is therefore doubtful. The forewing is velvety black, without blue gloss, a spot in the cell and a row of narrow discal stripes dark blue, the distal ends of the stripes slightly whitish, corresponding to the white submarginal spots of the under surface. The ♀ of the *paradoxa*-form in three
penomimus. varieties: ♀-f. **penomimus** *Mart.* (= fuscus *Hag.* not *Goeze*). Forewing dark brown, without blue gloss, posteriorly on the disc usually somewhat lighter, the submarginal spots weakly developed, the anterior ones above and beneath effaced; the hindwing without or with long, light discal arrow-spots, always with rather large, strongly
nepticula. curved submarginal spots. ♀-f. **nepticula** *Rothsch.* has likewise no blue gloss on the forewing, the latter bears between the apex of the cell and the distal margin 5 or 6 white stripes and in the cell a white spot; the hindwing
haasei. brown, with white submarginal spots. In ♀-f. **haasei** *Rothsch.* both wings are striped with white from the base above and beneath; the forewing more or less broadly glossy blue between the large white submarginal dots and
aegialus. the apex of the cell, a white dot in the cell. The *caunus*-form of the same districts is f. **aegialus** *Dist.* (= velutinus *Bllr.*): only the ♂ known; smaller than f. *danisepa*, the two white stripes placed before the cell of the hindwing are more indistinct and sometimes entirely absent. This form is considerably rarer than *aenigma*. — On
telesicles. Borneo the species varies quite in the same way as on Sumatra and Malacca: **telesicles** *Fldr.* The ♂ of the *paradoxa*-form is found in two principal types: the commoner is ♂-f. **telesicles** *Fldr.* (= kerosa *Btlr.*, juda *Btlr.*, zanoa *Btlr.*) (20 b), with light blue discal stripes on the forewing; not constantly different from *aenigma*, the light blue stripes in general thinner and less numerous. In the second form of the ♂ the forewing with the exception of the base is also glossy blue, but the light blue stripes are entirely absent, and the submarginal
eucyana. spots of the forewing above are wanting or only the anterior ones are present: ♂-f. **eucyana** *form. nov.* (from
leucothoides. South-East and North Borneo, in the Tring Museum). The ♀ in 4 principal varieties: ♀-f. **leucothoides** *Honr.* (= schoenbergianus *Honr.* ♀ not ♂) (32 b); both wings brown, between the veins more or less pale brown, without blue gloss, the submarginal spots of the hindwing smaller and placed further from the distal margin than in ♀-f.
russus. *penominus* from Sumatra. ♀-f. **russus** *Rothsch.* (32 b) is likewise brown; the forewing has large white subapical stripes and sometimes glossy blue scales at the apex of the cell, the submarginal spots are smaller than in ♀-f.
daja. *nepticula* from Sumatra and Malacca. ♀-f. **daja** *Rothsch.* corresponds to ♀-f. *haasei*, but the white stripes of the hindwing are shorter and, at least on the upper surface, not forked distally; the forewing is more extended blue. A fourth form, which is not yet known from the preceding localities, has no blue gloss on the forewing and both
albostriatus. wings bear a complete row of white discal stripes: ♀-f. **albostriatus** *Rothsch.* (32 c); the cell of both wings is striped with white, especially beneath, and that of the forewing has a white apical spot. The *caunus*-form of these
mendax. districts is f. **mendax** *Rothsch.* (= typhrestus *Fruhst.*). The ♂ is very similar to f. *aegialus*, but the white of the hindwing is more strongly reduced. The ♀ of *mendax* differs from its ♂ much more than the *danisepa*-♀ ab; much paler than the ♂ and the white basal area of the hindwing larger, the stripes placed before the cell being present. We know *mendax* from North and South-East Borneo, *albostriatus* and *russus* from North Borneo
melanostoma. and *daja* as well as *leucothoides* from North and South-East Borneo and the Natuna Islands. — **melanostoma** *subsp. nov.*; 1 ♂ from Palawan (J. Waterstradt coll.) in the Tring Museum. Forewing broad, with the exception of the base glossy blue, with very slight traces of light blue discal stripes; no spot in the cell, the submarginal spots blue-white, not sharply prominent, the anterior 4 almost effaced, the posterior 4 somewhat more distinct; hindwing with whitish blue submarginal spots, which are placed in purple wedge-shaped patches. Under surface distally paler than in Borneo specimens, the submarginal spots brownish, consequently less prominent
niasicus. than in *telesicles* and *aenigma*. Palpi black, with scattered white scales. — **niasicus** *Rothsch.* ♂: forewing with white submarginal spots, of which the anterior ones are larger than in the other races, without distinct pale blue discal stripes. Only one ♀-form known: without blue gloss, on the forewing a cell-spot, a row of discal stripes and submarginal spots white; hindwing only with submarginal spots. Nias. A *caunus*-form is not known from
mesades. there. — From the Batu Islands Lathy figures as *aegialus* the ♀ of a *caunus*-form which Fruhstorfer calls **mesades**; as no ♀ is yet known of *aegialus* it remains to be proved whether *mesades* really differs from *aegialus*. According to the figure the forewing is without blue sheen and the white markings of both wings are larger than in Borneo
paradoxa. specimens. — **paradoxa** *Zink.* (20 b) flies on Java. In f. *paradoxa* the forewing is glossy blue and has a complete row of pale blue discal stripes, some of which are white in the centre; the bluish white cell-spot and the submarginal spots large, beneath there are always white discal diffuse spots on the forewing, sometimes a complete row. The ♀ is lighter or darker brown; the hindwing above and beneath with white discal arrow-spots, which are placed at a distance from the cell, and white submarginal spots; the arrow-shaped markings are indistinct
caunus. in dark specimens. Striped ♀♀ are not known to me from Java. There also occurs on Java f. **caunus** *Westw.*

which, however, is much rarer than *paradoxa*; only the ♂ known: the submarginal spots of both wings larger than in *aegialus* and *mendax*; the white stripes of the hindwing narrow, recalling the ♀ of *mendax*, two of these stripes before the cell.

Castor Group.

Forewing on the 2. discocellular with a white dot, which is sometimes only developed beneath. Both sexes or only the ♀ Euploea-like, entirely without blue gloss. Tailless, but often with a distinctly projecting tooth at the 3. radial; the upper surface of both wings, and beneath the apex of the cell of the forewing and the whole of the hindwing more or less thickly dusted with yellowish scales; ground-colour black or blackish brown, all the markings white, at most the anal part of the hindwing distinctly yellow; the white subdorsal dots of the abdomen always present; the marginal spots of the hindwing thinner than those of the forewing. The larva as in *P. polytes* with oblique bands, when full-grown entirely without the rows of spines of the *clytia* and *agestor* groups; the pupa also not almost cylindrical as in these, but broad in the middle, with the anterior part rather strongly curved upwards. A connecting link between *clytia* on the one side and *canopus*, *helenus*, *polytes*, *pitmani*, etc., on the other.

P. dravidarum *Wood-Mas.* (= abrisa *Kirby*) (31 d). Forewing with a row of large, yellowish white submarginal spots. Hindwing with a complete row of discal and submarginal spots; the discal patches remote from the cell, proximally pointed, distally emarginate, the submarginal spots lunular. The ♀ quite similar to the ♂. The larva with a pair of small humps on each of the last two segments, the segment-incisions blue, with the exception of the 4. and 5. segments, where they are black; thorax with a spectacle-like band, all the segments except the first with 2 blue dots at each side, abdomen with 2 oblique green bands, which are only slightly prominent, above the legs a white longitudinal stripe. Horns on the head of the pupa strongly produced, the wing-cases projecting. Food-plant: Glycosmis pentaphylla. — South-India: Travancore, Mysore, Nilghiri Hills, etc. At lower elevations in the hills, the ♂ rather common. At the end of the rainy season near the evergreen jungle; during the cold season the butterfly is often met with in the beds of rivers, where it flies up and down and quite gives the impression of a *Euploea*. *dravidarum.*

P. castor. Forewing in the ♂ without submarginal spots or these quite small. The ♀ paler than the ♂, the submarginal spots of the forewing likewise small, or the anterior ones much larger than the posterior. — **polias** *subsp. nov.* differs from the nymotypical form from Assam only in the ♀. The forewing of the ♀ bears beneath and often also on the upper surface diffuse grey spots from the lower angle of the cell to the hindmargin; the hindwing is for the most part occupied by broad, diffuse grey streaks, which above extend almost, and beneath quite to the base, so that also the cell at least beneath is entirely filled up with grey. The ♂ brownish black with 4 large yellowish white discal patches on the hindwing above, the marginal tooth of the 3. radial distinctly projecting. Sikkim, all through the summer in lower elevations, up to about 3000 ft.; Burma. — **castor** *Westw.* (♀ = pollux *Westw.*) (29 c). The ♂ appears not to differ from specimens from Sikkim. Examples occur, among normal ♂♂, in which the hindwing has a complete row of white submarginal spots on both surfaces, and sometimes in such specimens there are 5 discal spots and traces of a 6. and 7. spot on the upperside. The Tring Museum possesses 2 such ♂♂ from Cherrapunji (Assam); they connect *castor* with *mehala*: ♂-ab. **mesites** *ab. nov.* In the ♀ the hindwing is much less extended grey than in the Sikkim form; the cell is either entirely brown or only indistinctly grey at the apex; on the disc a broad band of large grey or yellowish white patches, which mostly are also rather sharply defined proximally. Assam. — **dioscurus** *subsp. nov.* Only 4 ♂♂ known to me: The band of the hindwing above and beneath consists of three or four patches, which are smaller than in the two preceding forms; the 2. and 3. patches only as long as, or shorter than their distance from the distal margin. Than Moi, Tonkin (H. Fruhstorfer). — **mehala** *Grose-Smith.* ♂ without distinctly projecting tooth at the 3. radial of the hindwing; the submarginal spots of this wing well developed also above; the 2.—4. discal patches larger than the following ones, the latter often absent. ♀ on the forewing with a complete row of submarginal spots, of which the anterior ones are the largest; on the hindwing a row of grey, somewhat diffuse discal patches and a row of large white submarginal lunules. Lower Burma and the adjoining districts of Tenasserim. — **mahadeva** *Moore* (= maheswara *Fruhst.*) (31 d). ♂: the hindwing always with a complete row of discal patches, of which the anterior ones are less enlarged than in *mehala* and *castor*, the submarginal spots likewise all developed. The ♀ marked similarly to the ♂, on the forewing the discocellular spot and the submarginal spots larger, on the hindwing the discal spots shaded with brown. Upper Tenasserim, Shan States, Siam and the east side of the Malay Peninsula. Very similar to *P. dravidarum*, but easy to distinguish by the small submarginal spots of the forewing. — Fruhstorfer has described as **phanrangensis** a specimen (♀) from South Annam, which is „sufficiently characterised by the more rounded wings, the small size and the reduced macular bands of the hindwing". The discal band of the hindwing almost effaced. Unknown to me in nature. — In the Museum at Singapore are 2 specimens from Selangore which have no submarginal spots *polias.* *castor.* *mesites.* *dioscurus.* *mehala.* *mahadeva.* *phanrangensis.*

selangoranus. on the upperside of the hindwing and have been named **selangoranus** by FRUHSTORFER. — **hamela** *Crowl.*, *hamela.* from Hainan, has in the ♂ no submarginal spots on the hindwing above, the discal band is formed as in *mahadeva*, but the distal margin has a distinctly projecting tooth at the 3. radial. The brown ♀, of which there is a specimen in the Tring Museum, has on the forewing as in *mehala* a row of submarginal spots, of which the anterior ones are the largest; on the hindwing the discal spots are almost entirely absent above *formosanus.* and beneath and the submarginal spots are small. — In **formosanus** *Rothsch.* (= gotonis *Mats.*) the sexes are similar. The ♂ agrees to a great extent with the *castor*-♂; on the upper surface of the hindwing are 4 yellowish white patches, which are smaller than in *castor*, the submarginal spots are wanting above, and only the anterior ones are developed beneath. In the paler ♀ the hindwing usually has small submarginal spots and between the large discal patches and the abdominal margin 3 more spots are indicated. Both sexes have a distinctly projecting tooth at the 3. radial. Formosa, in the hills. — The larva of *P. castor* is not yet known. The butterflies drink on moist sand and come after the refuse from the houses of the settlers. When frightened away they soon come back again. Their flight is low and feeble.

If a linear arrangement according to relationship were possible we should continue with *P. canopus*.

We insert here some Papuan forms which are mimics of Uranids and Acracids.

Laglaizei Group.

Upper surface of the wings blue-black, with grey-blue median band and on the forewing in addition a narrow grey-blue subapical band, the bands not metallic; the short-tailed hindwing beneath with orange-coloured patch behind the base of the lower median. The subcostal and lower median of the hindwing branching off far from the base, much as in the *agestor* group; antennae short as in that group; the genitalia likewise recall the *agestor* group.

laglaizei. **P. laglaizei** *Depuis.* (= alcidinus *Btlr.*) (38 c). ♂♀: the median band of both wings broad, the tail and usually also the adjoining part of the distal margin grey-blue; the under surface for the most part blue-grey, the hindwing in fresh specimens bluish grey with a faint yellowish tone. The individual markings very variable in specimens from the same district; the black spots on the disc of the hindwing beneath often much enlarged and the proximal patches confluent with the corresponding distal ones. A ♂ from Astrolabe Bay with narrow blue instead of blue-grey median band and blue under surface was described *wahnesi.* by RÖBER as a distinct species; I consider the specimen an aberration: ab. **wahnesi** *Röb.* — The area of distribution of *laglaizei* embraces the Aru Islands, Waigeu and the whole of New Guinea. The butterfly is in general rare, yet the Tring Museum once obtained a collection from Dutch New Guinea, made by natives or Malays, which contained about 100 specimens of this species. According to A. S. MEEK *laglaizei* is also no rarity at the south-east extremity of British New Guinea, not even at the coast. The resemblance to *Alcidis agathyrsus* is surprisingly faithful on the upper surface; the under surface differs considerably from that of the model, but bears a usually very conspicuous orange spot which corresponds to the orange-coloured underside of the abdomen of *Alcidis*. The two butterflies fly together round the tops of trees, but the Uranid is much commoner than the Papilio. C. WAHNES has bred the butterfly more than once and has sent several blown larvae to the Tring Museum. These are black; on each segment a broad yellowish red girth, in which as well as in the black belts light yellow dots are placed; at each side of the back a row of short black spines, which are placed on large round black dots, at the dorsal side of which is a yellow dot; the last segment for the most part black; head black; scent-fork (in the inflated specimens) yellowish grey. Foodplant not recorded, probably Citrus. Herr RIBBE, without giving any characterisation (!), has proposed the names *mukaensis* for specimens from Waigeu and *maraganus* for the „New Guinea form"; such *nomina nuda* have naturally no right of priority, should the specimens from the localities mentioned really be different and therefore have to be named.

toboroi. **P. toboroi** *Ribbe* (38 c). Whilst in *laglaizei* almost the whole upper surface of the body and also the sides of the abdomen are blue-grey, *toboroi* has an entirely black body without any markings. Upper surface of the wings dark blue, with a slight oily gloss; the median band of both wings narrow, the part placed in the cell of the forewing is commonly diffuse and is always at a distance from the apex of the cell; on the hindwing a pale yellow anal spot, the tail entirely black-blue. The under surface in contrast to *laglaizei* for the most part black; in the forewing a submarginal band, which is anteriorly broad and greyish yellow, posteriorly narrow and bluish, and before the middle a more or less indistinct narrow blue band; on the hindwing a large basal area and a broad submarginal band are grey-yellow, and the black central area is more or less broken up into large patches, the orange-coloured spot before the hindmargin paler than in *laglaizei*. The ♀ as in *laglaizei* quite similar to the ♂; on the upper surface of the hindwing it has from the 3. radial backwards an irregular narrow grey-blue submarginal band, which in the ♂ is only indicated. — Bougainville,

Solomon Islands; in the interior of the island, a few miles from the coast, the butterfly is rather common in low situations. An *Alcidis* similar to *toboroi* does not appear to occur on Bougainville, on the other hand MEEK sent a series of a species of *Dysphania* which, in spite of its smaller size, bears quite the same aspect as the *Papilio. toboroi* differs from *laglaizei* in neuration and in the genitalia as well as in the markings.

Anactus Group.

Palpi and forecoxae orange, the posterior segments of the abdomen (except the anal claspers) pale yellow; cell of the forewing with grey-white apical spot and larger patch in the middle. — A mimetic offshoot from the next group.

P. anactus *Mac Leay* (24 c). Body black, with pale yellow spots, the last segments of the abdomen *anactus.*
almost entirely pale yellow. Forewing elongated, with very long cell, brown-black, a large patch in the middle of the cell, a smaller one at its apex and a band of large discal patches white, dusted with blackish, a row of rounded submarginal spots white. The hindwing darker than the forewing, with large white central area, which extends from the costal margin to the hindmargin and encloses a black discocellular lunule; the submarginal spots red, distally to the white area some blue spots. Under surface as upper. The ♀ quite similar to the ♂. The larva on Citrus, in the earlier stages resembling bird-droppings, with 2 rows of long processes bearing spines, on the thorax in addition 2 shorter humps. When full-grown black, with 3 rows of pale yellow patches, one on the back and one at each side, the lateral patches of the 4. segment small; 2 rows of black spikes, laterally from which on the meso- and metathorax another black hump is placed; scent-fork orange. Pupa almost cylindrical, with scarcely projecting wing-cases, the horns of the head strongly produced, on the innerside with two tubercles, the thoracic horn short, on the back 2 rows of small humps. The butterfly resembles *Acraea andromache* on the wing; in cultivated districts, where Citrus grows in the gardens, in several broods from October to March; the larva is also sometimes found on Ruta, but prefers the imported species of Citrus to all the indigenous plants. — North Queensland to New South Wales.

2. Non-mimetic Forms and Mimics of Aristolochia Papilios.[1])

Apart from the upperside of the head and prothorax and the palpi, the body in the Indo-Australian forms has no white dots, and there are no small white spots present at the base of the wings beneath. The ♂♂ are only mimetic in a few cases (*canopus*, *booles*, *janaka*); the ♀♀ of a number of species are polymorphic (*memnon*, *polytes*, *aegeus*, etc.).

Demoleus Group.

Body beneath entirely yellow, or at most with black lines; the base of the cell of the forewing beneath striped with pale yellow; the greater part of the hindwing or at least a large central area pale yellow. — The species of this group show close affinities in various directions. Whilst *machaon* has a series of allied species in America and *demoleus* in Africa, *cuchenor* is doubtless closely related to *gigon.*

P. machaon occurs in the Indian region in three geographical forms. In the north-west of the region, from Kashmir to Nepal, occurs **asiatica** *Mén.* (vol. I, 6 b). This form has always very broad black bands *asiatica.*
and differs from dark South European *machaon*, which are *sphyrus Hbn.*, principally in that the yellow-dusted discal band of the hindwing beneath is much narrower at the 3. radial (which supports the tail) than in the European form. Very common everywhere in the north-west Himalayas, in the valleys from February to October, in the mountains not until March or April, from 2000 to 14,000 ft. The short-tailed specimens from Kashmir, which occur especially at higher elevations, are *ladakensis Moore.* The larva feeds on Umbelliferae (Daucus, Foeniculum, etc.) and is not distinguishable from European larvae. At lower and medium altitudes at least two broods. The summer butterflies are larger than those which emerge from the hibernated pupae in the spring. The name *pendjabensis Eimer* refers to small specimens of *asiatica.* — **sikki-** *sikkimensis.*
mensis *Moore* occurs at elevations in Sikkim and Bhotan, and is especially common in the adjoining districts of Tibet, i. e. on the Palaearctic territory. The black bands in both sexes very broad; the blue crescent on the anal eyespot of the hindwing is separated from the red spot by a curved black mark. The larva on Umbelliferae, still undescribed. — **verityi** *Fruhst.* (= archias *Fruhst.*, birmanicus *Rothsch.*) (32 c) flies *verityi.*
in Upper Burma, the Shan States, West Yunnan and the adjoining parts of East Tibet, and differs from *sikkimensis* chiefly in the much narrower discal band of both wings. The tail is long; the abdominal margin

[1]) Only a few forms of *P. canopus*, which leads over to the *castor* group, are mimics of Euploeids.

of the hindwing is only narrowly black, so that the area behind the cell and the 2. median remains yellow for the most part.

xuthus. **P. xuthus** *L.* (= xanthus *L.*) (vol. I, 6 a). The veins broadly black; the cell of the forewing striped with pale yellow from the base to $^2/_3$, the pale yellow stripe placed behind the cell on both wings extending to the base. This mainly Palaearctic species (for whose habits, etc., see vol. I, p. 11) extends southwards to Upper Burma and also occurs on Formosa, the Bonin Islands and Guam. The ♀♀ from Guam are very dull, the light markings being more or less distinctly dirty yellowish. — FRUHSTORFER has based upon a single *koxinga.* ♂ from Formosa the subspecies **koxinga;** the specimen is distinguished by lemon-yellow colour (discoloured?). — In the Palaearctic Region the species is very strongly horodimorphic, and this is the only case known to me where the ♂♂ genitalia of the spring form differ distinctly, though not quite constantly, from those of the summer form.

P. demoleus. The underside of the body, the sides of the head and a stripe at each side on the thorax pale yellow. Forewing above at the base dotted with pale yellow, these dots united into transverse lines; in the cell a large patch, commonly broken up into 2 spots, at the upper angle of the cell 2 or 3 spots, on the disc a macular band, the upper spots small and placed far apart, the posterior ones large and usually contiguous; this band on the hindwing not interrupted; both wings with a row of submarginal spots and small marginal lunules; all these markings pale yellow; on the hindwing between the upper submarginal spot and the median band a rounded black patch, which is ornamented with a blue crescent, at the anal angle a red spot. Beneath more extended pale yellow; forewing at the base with pale yellow longitudinal stripes, hindwing with narrow black transverse band near the base, and on the disc with 2 rows of black spots, between which the wing is more or less deep ochreous. The egg pale yellow. The young larva of the Indo-Chinese form blackish, a large V-spot in the middle, a lateral stripe from the prothorax backwards and a second stripe running from the anal segment forwards milky white; several rows of setiferous processes; the full-grown larva green, the protuberances only persisting on the 1. and last segment, on the thorax and at the base of the abdomen a yellow, black-edged belt, and behind the middle an oblique lateral band of the same colour; the nuchal fork saffron-yellow. Pupa grey or green, the horns on the head longer than they are broad at the base, the thoracic horn short, the abdominal tubercles small. Food-plants: various species of Citrus, Glycosmis, Murrayia, etc., also on herbs, e. g. Ruta angustifolia. The butterfly is very common in tropical Asia and extends westward to Muscat and Persia. Its distribution in the Indo-Australian Archipelago is very peculiar: the butterfly is still common in the Malay Peninsula, but wanting on the large Sunda Islands, the Philippines, Celebes and the Moluccas, but occurs again on the small Sunda Islands, in North Australia and Southern New Guinea. It is true that single specimens have been recorded by WALLACE from Goram, by REAKIRT from the Philippines and by FRUHSTORFER from Java, but these are evidently stray or accidentally imported specimens. From Timor no specimen is as yet known. The large gap in the region of distribution of the species is intelligible if we take into consideration the nearly allied species, *P. demolion*, *gigon* and *antonio*, which occur on the large Sunda Islands (*demolion*), Celebes (*gigon*) and the Philippines (*antonio*), where *demoleus* is wanting. Another allied species (*euchenor*) inhabits New Guinea and the Bismarck Islands. *P. demoleus* flies in the lowlands all the year round; it is found more in open country, especially in gardens, than in woods, and visits by preference the flowers of citron trees and Raphanus; also the insects commonly congregate at puddles, where they drink with closed wings. The butterfly flies *demoleus.* slowly when it thinks itself safe, but hurries off in swift, irregular flight when it scents danger. — **demoleus** *L.* (= erithonius *Cr*, epius *F.*) (vol. I, 6 d), from China, Hainan, Tonkin, North and South India, Ceylon, Persia and Muscat, is extraordinarily common in many districts. The cell of the forewing has near the apex two separated patches, the spot placed at the hindmargin of the discal band of the forewing is mostly only as long as broad, and the penultimate and antepenultimate spot of this band are usually distinctly separated. The red spot of the hindwing is sometimes also in he ♂ reduced proximally and *demoleinus.* therefore separated from the blue lunule by a black spot: ab. **demoleinus** *Oberth.* Many specimens have on the forewing above a small discal spot before the 2. radial; sometimes (especially often in specimens from Ceylon) there are two small spots on the hindwing above distally to the cell between the 1. and *malayanus.* 3. radial. — **malayanus** *Wall.* inhabits Burma, Annam, Siam and the Malay Peninsula and is distributed southwards to Singapore. The posterior 3 patches of the median band of the forewing above *annamiticus.* are broader than in the preceding form. Specimens with specially broad patches are ab. **annamiticus** *Fruhst.* Only some of the specimens obtained by FRUHSTORFER in Annam have this character. It is not a dry season form, as FRUHSTORFER surmised. Seasonal dimorphism in tropical Asia is principally observed in the butterflies of North India; but our spring and summer specimens of *demoleus* from Sikkim (MÖLLER *sthenelinus.* coll.) exhibit no differences. — **sthenelinus** *Rothsch.* (21a). The cell of the forewing has above instead of the 2 spots only a single large patch, which is broader anteriorly than posteriorly and bears a thin process directed towards the lower angle of the cell; the discal spots of the forewing smaller than in all the other subspecies. On the Lesser Sunda Islands, from Flores to Alor. Sumbawa and Lombok do

not appear to have been reached by this butterfly. — **sthenelus** *Mc. L.* (= pictus *Fruhst.*). The cell of the forewing above with a large constricted transverse patch, which is as broad posteriorly as anteriorly. The posterior discal spots of the forewing and the band of the hindwing broader than in *sthenelinus*. The young larva black, without saddle-spot; the later stages lighter; the full-grown larva green, with rows of orange dots and above the legs a white longitudinal stripe, the abdominal legs whitish. On Citrus and other plants. The butterfly in open country, especially in lucerne and clover fields; North-West Australia, Queensland, southwards to Sydney; the specimens from the islands in the Torres Straits probably belong here. This form is also common on Sumba Island, to the south of Flores; specimens from there cannot be distinguished from Australian ones. Fruhstorfer gave them a name, erroneously comparing them with *sthenelinus* instead of *sthenelus*. The Sumba Lepidoptera are usually very specialised; it may therefore be assumed that *sthenelus* has only recently immigrated there. — **novoguineensis** *Rothsch.* Very similar to the preceding form; the cell-patch of the forewing more deeply incised, the posterior discal spots smaller, the penultimate more deeply incised distally and anteriorly very distinctly sinuous; the black markings on the underside of the hindwing larger and the basal area shaded with yellow at the black transverse band. Mathew found egg and larva on Salvia, both similar to those of *sthenelus*, the nuchal fork of the larva salmon-coloured. The butterfly on bare slopes on the south coast of British New Guinea: Port Moresby, Redscar Bay, lower course of the Aroa River.

sthenelus.

novoguineensis.

P. euchenor. Body beneath pale yellow. ♂: forewing above with a large spot at the apex of the cell, to which is joined a discal band consisting of 5 large spots, often a few small spots distally to the end of the cell, a subapical band of at least three small spots; hindwing with very large central area which extends from the costal almost to the hindmargin, is cut off straight basally and irregularly rounded off distally and incised at the veins; all these markings pale yellow. Under surface as upper, but the subapical band of the forewing consisting of more spots, the central area of the hindwing extended to the base, and distally to it a row of submarginal lunules, of which the posterior ones and mostly also the costal one are ochreous yellow. In the ♀ the markings are paler and the discal spots of the forewing are reduced, the last but one commonly entirely absent. The larva, which was found by Wahnes on Citrus, rests on the upperside of a leaf; similar to that of *P. gigon*; green, with broad black lateral stripe above the legs from the prothorax to the 1. or 2. proleg, a broad belt on the 3. and 4. segment, which is broadly united with the lateral stripe, from the middle of the body onwards the brown lateral stripe replaced by an almost white one, from which three other brown, oblique belts project upwards; on the pronotum two long, feebly clubbed processes, resembling the horns of a slug, in each of the three abdominal belts a couple of long pointed processes. The pupa green, head and breast very strongly curved upwards, the thoracic horn very short. The genitalia of the butterfly recall those of *P. demolion*. The butterfly is found in light, sunny woods, especially at watercourses, and has a swift and agile flight. A true Papuan species, whose area of distribution embraces the Key and Aru Islands, the whole of New Guinea together with the small neighbouring islands, and the Bismarck Archipelago. From Australia, the Solomon Islands and the Moluccas the butterfly is not known. It is true Pagenstecher reports it from the North Moluccas, but the collection of Lepidoptera in question was bought there and the locality is therefore not authentic. — **naucles** *Rothsch.*, from the Key Islands. ♂: the cell-spot of the forewing above reaches to the base of the 1. median or still further basad, there is no black spot before the base of that vein. ♀: the 1. and 2. discal spots of the forewing are not separated, as the vein placed between them is not black, the 3. discal spot widely separated from the 2., the 4. scarcely indicated, the 5, (placed at the hindmargin) elongate-triangular; the 1. and 2. projections of the central area of the hindwing above only feebly constricted. — **obsolescens** *Rothsch.* ♂: the cell-spot of the forewing above does not reach the point of origin of the 1. median, the 2. and 3. discal spots strongly rounded off basally. ♀: as *naucles*, the cell-spot of the forewing posteriorly somewhat shorter, the 1. and 2. discal spots separated by a usually very distinct vein-streak; the two anterior projections of the central area of the hindwing above more or less strongly constricted, commonly so strongly that two spots are separated from the central area; the penultimate discal spot of the forewing not indicated either beneath or above. Aru Islands. Not rare, principally in half-dry brooks. — **misolensis** *Rothsch.* Small, the blue spots wanting on the underside of the hindwing, only the last spot is always (?) indicated by a few blue scales. Misol, 4 ♂♂ in the Tring Museum, taken by H. Kühn in January 1898. — **euchenor** *Guér.* (= axion *Bdv.*, lasos *Fruhst.*, scribonius *Fruhst.*, hippotas *Fruhst.*) (26 a). ♂: the subapical spots of the forewing smaller on both sides than in *naucles* and *obsolescens*, the 2. discal spot not rounded off basally; the submarginal spots of the forewing beneath small or not present, the hindwing always with blue spots. ♀: the 3. discal spot of the forewing above a ways placed near to the 2., mostly touching it, the 4. spot always present, the interspace between the 4. and 5. spots not broader than the latter; the yellow submarginal spots of the hindwing beneath very variable, the posterior ones commonly united into rings with the marginal spots, which is also sometimes the case in the ♂. The subapical spots of the forewing in both sexes from German and British New Guinea mostly larger than in the specimens from the Arfak Peninsula, but also sometimes smaller. In specimens from Waigeu the marginal spots of the hindwing are rather small and the inner margin of the pale yellow area of the hindwing above usually crosses the cell at the point of origin of the 2. median, which, however, often occurs

naucles.

obsolescens.

misolensis.

euchenor.

also in specimens from other districts. Distributed over the whole of New Guinea; Waigeu, Salawatti (1 specimen in coll. FELDER, is the locality correct?), Dampier. — **eutropius** *Jans.*, from Jobi. The cell-spot of the forewing in ♂ and ♀ smaller than in New Guinea specimens, the 3 subapical spots enlarged, the 3. in the type (♂) united with a spot placed distally to the cell into a hatchet-shaped patch, in normal ♂♂ (ab. **mago** *Fruhst.*) on the contrary these spots not united; in the ♀ the 2. subapical spot triangular and the 3. linear, both much enlarged on the under surface, the 4. discal spot of the ♀ smaller than in *euchenor*, above not as broad as the interspace which separates it from the 3. spot, the latter not connected with the 2. The differences are probably not constant; only 1 ♂ (the type) and 1 ♀ are known to me in nature. — **godarti** *Montr.* (= intercastellanus *Rothsch.*, euchenides *Fruhst.*). The subapical spots of the forewing above large, beneath touching one another, the submarginal spots following them also mostly larger than in *cuchenor*. In the ♀ in addition the three anterior discal spots of the forewing separated, or the 1. and 2. touching for a short distance, the base of the 3. radial remaining black. D'Entrecasteaux Islands (Fergusson, Goodenough, Trobriand) and Woodlark. — **rosselanus** *Rothsch.* ♂: the forewing above with 1 or 2 submarginal spots below the subapical row of 3 spots, the 3. subapical spot broadest posteriorly, hook-shaped, the 2. large discal spot about twice as long as its distance from the margin; on the upperside of the hindwing before the subcostal, distally to the pale yellow area, is placed an oblique pale yellow streak, which corresponds to the yellow submarginal patch on the underside; this latter mark very oblique, shaped almost like the figure 3, posteriorly at the subcostal united with the yellow area or at least very close to it. The ♀ not known. 6 ♂♂ from Rossel, Louisiade Islands, in the Tring Museum. — **sudestensis** *Rothsch.* Very similar to the preceding subspecies, the 1. subapical spot of the forewing broader, the oblique subcostal streak placed distally to the yellow area of the hindwing above only indicated, removed further from the yellow area, the corresponding spot on the under surface less oblique than in *rosselanus*, before the subcostal separated from the yellow area by a black interspace at least 2 mm broad. The 3. subapical spot of the forewing above broadest posteriorly, but mostly not hook-shaped; beneath it there is usually a small submarginal spot. The ♀ not known. Sudest, Louisiades; 4 ♂♂ in the Tring Museum. — **misimanus** *Rothsch.* occurs on St. Aignan, Louisiades. ♂: the 1. subapical spot of the forewing above only a little longer than broad, the 3. as long as broad, sometimes somewhat broader than long or again somewhat longer than broad, at the innerside more or less emarginate, beneath this spot a submarginal spot, the veins between the discal patches black, the 2. discal patch not quite reaching the cell before the 1. median, the last discal patch not produced further distally than the 4., on the hindwing usually a very small subcostal streak distally to the yellow area. On the forewing beneath the subapical spots usually touching one another and forming with the two large submarginal spots which follow them an almost uniformly curved macular band; the rounded black subcostal spot of the hindwing much broader at the subcostal than in the two preceding forms. The ♀ further distinguished by the strong reduction of the discal spots of the forewing, the 1. and 2. spot separated, the 3. small, far removed from the 2., sometimes only indicated, the 4. absent or dot-like, the 5. narrow, not touching the submedian vein. All the preceding forms of *P. euchenor* possess in the ♂ scent-scales on the veins of the forewing above, the genitalia are also very similar, although differences can be made out in the various subspecies.[1]) The three following geographical races on the contrary have no scent-stripes and the genitalia, although of the same type as in the other forms, are strikingly different from those of these races. — **depilis** *Rothsch.* The discal band of both wings in the ♂ broader than in the preceding forms, the 4. and 5. discal spots extending nearer to the margin, the veins inside the band not black; the part of the yellow area of the hindwing placed behind the subcostal not constricted; on the under surface the margins of the cell-patch and of the discal patches of the forewing more or less diffuse, the black subcostal spot of the hindwing transverse. ♀: forewing with five discal spots, contiguous or only separated by narrow black veins, the yellow area of the hindwing above not extending basad to the points of origin of the subcostal and 2. median veins, the black subcostal patch of the hindwing beneath transverse as in the ♂, and the discal spots of the forewing beneath broadly contiguous with one another and with the cell-spot New Pomerania (= New Britain); New Lauenburg (= Duke of York). — **novohibernicus** *Rothsch.* Before the apex of the cell of the forewing above in ♂ and ♀ there is a small yellow spot, the yellow area of the hindwing is more deeply incised at the veins than in *depilis*, on the under surface of the hindwing the black subcostal spot is rounded off proximally and distally, and the submarginal lunule placed behind the 2. radial is further removed from the yellow area than in *depilis*. In the ♀ all the discal spots of the forewing are broadly contiguous also above. New Mecklenburg (= New Ireland). — **neohannoveranus** *Rothsch.* The three subapical spots of the forewing in ♂ and ♀ more rounded and the marginal spots of both wings larger above and beneath than in the two preceding forms, moreover the 2. section of the yellow area of the hindwing distally cut off straight or only feebly emarginate, the 3. section rather strongly constricted, the last section of the band of the forewing little if at all more produced distally than the one before it; the yellow area of the forewing still more strongly notched than in *novohibernicus*; the black subcostal spot of the hindwing beneath somewhat less rounded than in that subspecies. In the ♀ all the discal spots of the forewing above separated by the brown-black veins, the 4. spot rounded. New Hanover.

cutropius. *mago.* *godarti.* *rosselanus.* *sudestensis.* *misimanus.* *depilis.* *novohibernicus.* *neohannoveranus.*

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[1]) See JORDAN, Mechanical Selection, in Nov. Zool. III, p. 469 (1896).

Helenus Group.

Almost always tailed. The sexes similar. Body black, with white dots on head and pronotum and thin white lines on the underside of the abdomen, these white markings often absent, in the ♀ the abdomen sometimes yellow above and black beneath. Forewing of the ♂ black, usually with white transverse or oblique band, hindwing likewise black, with white, rarely greyish blue discal area or band.

These species are not mimetic, with the exception of the forms of *P. eanopus*, which resemble Euploeids of the same districts.

P. liomedon *Moore* (21 a). Very similar to the following species, but the genitalia so different that we are undoubtedly dealing with two forms which have already become independent of one another, hence species. The patches of the band of the forewing all more or less separated; the band of the hindwing placed so far distad that it contains the apex of the cell. The ♀ similar to the ♂, less deep black, the anal ring of the hindwing reddish. Eggs laid in small clusters. Larva resting gregariously on the upperside of a leaf; the young larva oily green, with short spines, which later disappear; the full-grown larva immediately after the last moult bluish, gradually assuming a green colour; on the prothorax and the 8. and 11. segments a pair of tubercles; markings almost as in the *demoleus*-larva: four white, brownish-spotted belts run from the longitudinal stripe of the same colour, which is placed above the legs, transversely across the body, in addition on the thorax a laterally shortened belt of like colour; on Rutaceae (Acronychia laurifolia and Evodia roxburghiana). The pupa has a very long thoracic horn, curved backwards. The butterfly is not rare, but local; it flies in the wooded hills, but also in the plains. South India. — FELDER mentions *P. demolion* from Ceylon, which is probably due to an error. *liomedon.*

P. demolion. The posterior spots of the band of the forewing always contiguous; the apex of the cell of the hindwing black, placed outside the band. The ♀, as in *liomedon*, very similar to the ♂, the anal ring of the hindwing more red. The harpe of the ♂ is almost linear and bears towards the base and at the tip a long spine-like process; in *liomedon* on the contrary the harpe is broad and flat, dentate at the margin, without pointed processes. The genital armature of the ♀ consists principally of two dentate, pointed, triangular chitinous lobes, each of which is placed laterally behind the vaginal opening; in *liomedon*, although these processes are dentate, they are not sharply pointed but rounded off. Larva and pupa quite similar to those of *liomedon*; food-plant: Citrus. The butterfly, whose flight is swift and restless, visits flowers, before which it hovers with a fluttering motion of the wings as it sucks the honey; in wooded country. Occurs from Burma to Lombok and Palawan. — **delostenus** *Rothsch.*, from Palawan. Less deep black than the other subspecies. The bands of both wings narrow, on the hindwing somewhat narrower than the cell is broad, on the forewing the posterior spots contiguous, but the incisions between them deeper than in the following subspecies. Beneath the veins of the hindwing between the black discal spots yellow. — **energetes** *Fruhst.* The band of the hindwing, especially in the ♀, a little narrower than in *demolion*, not otherwise different from the latter. Nias. — **demolion** *Cr.* (= cresphontes *F.*, messius *Fruhst.*) (21 a). The band of the hindwing broader than the cell is wide. Distributed from Tenasserim and Siam over Malacca, Sumatra, Java, Banka to Lombok and North Borneo. *delostenus.* *energetes.* *demolion.*

P. gigon. Sexes similar, the ♀ paler than the ♂. Much larger than *P. demolion*, the costal margin of the forewing as in many Celebes butterflies strongly curved, the cell correspondingly strongly widened; also the cell of the hindwing differently formed from that of *demolion*, the subcostal arising much further distally than in that species, the band of the hindwing placed basally to the subcostal, cell of the hindwing beneath margined with yellow at the apex; in the genitalia nearest to *P. liomedon*. The young larva olive-green, prothorax and anal segment each with a pair of long tubercles, above the legs from the head to the anus a white stripe at each side, in the middle of the body a broad, dentate, white transverse band, which is joined to the lateral stripes. The full-grown larva blue-green, on the 3. segment a black transverse band, at the hindmargin of the 4. segment a transverse band which is light brown above, a third transverse band on the 7. and 8. segments, and a triangular lateral spot on the 9. segment; the first band in a larva observed by KÜHN on the island of Bangkai spectacle-shaped, dark brown. Pupa light grass-green, with long, curved thoracic horn; a lateral stripe from the horn to the anal extremity brown, a central stripe of the same colour on the back. Food-plant: „a wild, bush-like Aurantiaceae, probably Limonia angulosa W. & A.“; on Bangkai the larva was „found on a narrow-leaved forest tree“ (H. KÜHN). Celebes and the Siao, Talaut and Sulla Islands; not known from Salayer. — **gigon** *Fldr.* (= cresphontes *Bdv.* nec *Cr.*) (21 a). On the under surface of the hindwing the first black distal mark is about as broad at the costa as the yellowish white band, and the yellow margining of the apex of the cell is usually narrow and always produced in points at the veins. The whole of Celebes; whether the specimens from Siao and Bangkai agree with those from Celebes is not known to me. Common; its flight very rapid. — **neriotes** *Rothsch.*, from Talaut and Sangir. The submarginal spots of the forewing beneath confluent, which sometimes also occurs *gigon.* *neriotes.*

in *gigon*, in which case, however, the veins of this band are more broadly dusted with white-yellow towards
mangolinus. the base than in *neriodes*; the marginal spots of the hindwing beneath larger in both sexes than in *gigon*. — **mangolinus** *Fruhst.* On the under surface of the hindwing the yellow margining of the cell always broad and the first black discal patch smaller than in *gigon* and *neriotes*; Sulla Islands: Mangola and Besi.

antonio. **P. antonio** *Hew.* (21 b) is only known from Mindanao, and the butterfly seems to be rarely observed. Forewing above at the hindmargin with triangular white area, which forms the continuation of a large white area of the hindwing; both areas also present beneath. The hindwing beneath with a continuous row of pale yellow submarginal spots, the posterior spots more ochreous. The ♀ quite similar to the ♂, the white areas somewhat larger. — Nothing is known as to the habits and the earlier stages.

noblei. **P. noblei** *Nicév.* (= henricus *Oberth.*) (21 b). Very similar to the preceding species, but the genitalia quite different. The white spot at the hindmargin of the forewing small, the white area of the hindwing likewise smaller than in *P. antonio*, only reaching the 2. radial, the costal part of the area especially much narrower than in *antonio*. The submarginal spots of the hindwing beneath lunular, dark ochre-colour. The body beneath more extended pale yellowish than in *antonio*. — Upper and Lower Burma, Upper Tenasserim, Central Tonkin. The ♂♂ rest on the moist sand of the shady banks of rivers; they are very shy and fly up at the least noise, disappearing high above the tree-tops, whence they only return after half an hour or an hour. The ♀♀ were only taken on Lantana-bushes.

P. nephelus. Similar to *chaon* and *helenus*. Palpi laterally quite white. Forewing with white marginal dots, of which the one placed at the apex is the largest; the ♂ without scent-stripes; distally to the apex of the cell an oblique band of white spots, which is sometimes entirely absent above, but in that case is still indicated beneath; hindwing with a chalky white area, which consists of at least 5 patches of which the 4. is the longest (in *helenus, chaon, iswara* and *iswaroides* the 3. is the longest), above no submarginal spots, but beneath a nearly always complete row of white submarginal lunules, of which the 4. and 5. as in *P. chaon* are usually joined to the marginal spots, the white discal area prolonged to the abdominal margin, but the last spot often very small. ♀ much paler than the ♂, the white markings larger and mostly somewhat yellowish above. Malacca to Java and Borneo. Flies in the same localities as *P. helenus*, but does not ascend so high and is not so common. It is a restless and very swift flier, which is fond of visiting flowers, at which, however, it never feeds for more than a short time. The larva resembles that of *helenus* and lives on Citrus; the pupal stage lasts about 14 days
saturnus. (Martin). — **saturnus** *Guér.* (= neptunus *Guér.* in tab.) (22 a). Forewing on both sides with white subapical band, the last spot of the band long and narrow; the white area of the hindwing on the upper surface consists
albolineatus. in ♂ and ♀ of 5 patches. Malay Peninsula, Penang. — **albolineatus** *Forbes.* The spots of the subapical band and the 5. patch of the area of the hindwing on the whole somewhat larger than in *saturnus*; in the ♀ the area of the hindwing also above extended to the abdominal margin; the two last spots sometimes indicated
siporanus. also in the ♂. Sumatra and Borneo. — **siporanus** *Hagen*, from Pora, Mentawei Islands (west of Sumatra); only 1 ♀ known. The white markings larger than in the preceding forms, the yellow-white spot placed before the hindmargin of the forewing above anteriorly continued so far that it joins the broad subapical band; the
tellonus. white area of the hindwing extended to the abdominal margin, the apex of the cell in both wings white. — **tellonus** *Fruhst.*, from the Batu Islands. Probably not different from *siporanus*, but as only ♂♂ are known, the question cannot as yet be settled. The subapical spots of the forewing larger than in the other forms with the exception of *siporanus*, before the hindmargin of the forewing also above a white spot; the white area
uranus. of the hindwing above consists of 6 patches and there are usually also traces of a 7. spot present. — **uranus** *Weym.* (22 b), from Nias. The subapical band is wanting on the upper surface (♂) or is only weakly indicated (♀).
nephelus. Apparently common. — **nephelus** *Bdv.* (22 b) occurs on Java; the statement of earlier authors that it also flies on Celebes is certainly incorrect. The subapical spots sharply developed, but smaller than in *saturnus* and *albolineatus*, more widely separated, before the hindmargin of the forewing above also in the ♀ no distinct yellow spot, the white area of the hindwing above consists in ♂ and ♀ of 5 patches. Beneath the forewing before the apex and the hindwing from the base to the white area are more thickly scaled with yellowish than in *saturnus* and *albolineatus*.

P. nubilus. Similar to *P. nephelus*; small, the subapical spots of the forewing not sharply defined either above or beneath, more or less dusted with black, the 3. and 4. spots placed much nearer to the cell than in *P. nephelus*, the 4. far removed from the distal margin; hindwing above with white discal band consisting of 7 patches, of which the 3. and 4. are the longest, no submarginal spots above, beneath a complete row, all white,
nubilus smaller than in *P. nephelus*, especially the 4., 5. and 6. The ♀ not known. Borneo and Sumatra. — **nubilus** *Stgr.*,

from Brunei, North Borneo, 1 ♂ in coll STAUDINGER. Forewing above with 2 oblong subapical spots, below which a third is indicated, beneath before the hinder angle a patch consisting of 3 white spots; all the submarginal lunules on the underside of the hindwing distinct. — **musianus** *Rothsch.* (39 d), from South-East Sumatra. Forewing above with 3 subapical spots, below which a fourth is indicated, beneath with an anal spot, before which a second, very small one is placed; the 4. and 5. submarginal spots of the hindwing beneath extremely small. 1 ♂ in the Tring Museum, from the hills west of Palembang. *musianus.*

P. chaon. Very nearly allied to *P. helenus.* Palpi laterally entirely white. Forewing in the ♂ without pilose stripes on the upper surface, beneath with a white spot or a white patch consisting of 2 or 3 spots before the hinder angle; on the upper surface of the hindwing a chalky white area consisting of 4 patches, commonly a small 5. spot behind it, beneath nearly always with 3 spots between the white area and the abdominal margin, the submarginal spots not developed above, beneath on the contrary almost always present, grey-yellow. The ♀ paler than the ♂, especially on the disc of the forewing; the white patch before the hinder angle of the forewing beneath, the submarginal spots of the hindwing and the spots placed between the white area and the abdominal margin larger than in the ♂, the two submarginal spots placed before and behind the tail usually joined to the marginal spots placed at its base, which also often occurs in the ♂. The earlier stages unknown, probably very similar to those of *P. helenus.* The butterfly is a forest species which flies together with *P. helenus,* but does not appear to ascend so high in the mountains; it is commonest in the wooded hills. Its area of distribution extends from Central China and Formosa southwards to Cochinchina, Siam and Tenasserim and westwards to Nepal. On Malacca and the Sunda Islands the butterfly is represented by the very nearly allied and perhaps not specifically different *P. nephelus.* — **chaon** *Westw.* (= duketius *Fruhst.*, dispensator *Fruhst.*) (22 b, c). *chaon.* The 4. patch of the hindwing above shorter than the 3.; the yellowish stripes on the upper surface of the forewing and the cell-stripes on the under surface of both wings very distinct. The size of the white patches on the hindwing and of the submarginal spots, as well as the length of the wings, is very variable; in some of the specimens before me from Assam and Sikkim the submarginal spots are only indicated. A ♀ from Sikkim, in which the cell of the „forewing is covered with white scales almost to the middle", was described by FRUHSTORFER as ♀-ab. **leucacantha.** In a ♂ in the Tring Museum, from Cherra Punji, Assam, the yellow submarginal spots of *leucacantha.* the hindwing are extraordinarily enlarged, the 1. and the 7. spot are almost as large as the 2. white discal patch: ab. **paryphanta** *ab. nov.* (32 b). The characters given by FRUHSTORFER for specimens from Tonkin and Siam are *paryphanta.* not constant. Nepal, Sikkim, Assam, Burma, Tonkin, Siam, Cochinchina; common in river-beds in wooded hills. — **ducenarius** *Fruhst.* ♂: the white area of the hindwing larger than in the preceding form, the 4. patch *ducenarius.* anteriorly produced into a long point which projects beyond the 3. patch. Tenasserim. — **chaonulus** *Fruhst.* *chaonulus.* (= durius *Fruhst.*). Smaller on an average than the preceding forms, but many specimens larger than the smallest examples of the subspecies *chaon.* The stripes on both sides of the forewing and in the cell of both wings beneath less distinct. Hainan, China, Formosa.

P. helenus. Body black, occiput, pronotum, palpi and breast with white dots. Wings brown-black, the forewing above in the ♂ thickly hairy on the disc, without markings except 4 faintly visible stripes in the cell, beneath with two whitish stripes on the disc between each pair of veins. Hindwing with white discal area, which in the ♀ is usually more prolonged anally than in the ♂, and in both sexes consists of 3 or 4 spots, of which the 3. is the largest. The submarginal lunules of the hindwing red, above usually only the last distinct, beneath a small red discal spot before the anal spot. The ♀ paler than the ♂, the disc of the forewing above slightly lighter, the submarginal spots of the hindwing above more distinct. The larva on Zanthoxylum and Citrus, when full-grown bluish green, the thorax much swollen, above the legs a lateral stripe, brown anteriorly and white posteriorly, from which projects upwards on the 4. segment a brown belt, on the 7. an oblique white one and on the 9. a second white one, last segment white, on the thorax in addition a transverse band, which terminates at each side in a black spot. Pupa very strongly curved. The butterfly is a forest species, which occurs especially in high jungle. The flight is very swift and irregular, the butterfly is consequently not easy to catch in spite of its abundance. It is most plentiful at low elevations, but ascends to about 6000 ft.; it often settles at puddles on shady forest-paths and also visits flowers. In the northern districts the specimens of the spring brood are smaller than the summer ones and have usually larger red submarginal spots on both sides of the hindwing. Area of distribution: from South Japan (Kiushiu), West China and North-West India southwards and eastwards to Timor. Not known from Celebes. — **nicconicolens** *Btlr.* (= ? semnus *Fruhst.*), from *nicconicolens.* Kiushiu and the Loo Choo Islands Oshima and Okinawa. The summer specimens, f. **nicconicolens** (vol. I, pl. 5 c), large, the white area of the hindwing narrow, the yellow-red spots of the hindwing at least in the ♂ above usually only very weakly developed. The spring form, f. **orosius** *Fruhst.* (= ? semnus *Fruhst.*), is smaller, the white *orosius.* area of the hindwing is mostly broader, and the yellow-red spots of the hindwing beneath are larger. The differences given by FRUHSTORFER between specimens from Kiushiu and Oshima are not confirmed by our examples. It therefore appears to me best to regard the *helenus* from Kiushiu and the Loo Choo Islands as belonging to a

single subspecies until differences in some measure constant are established. — **fortunius** *Fruhst.*, from Formosa. According to FRUHSTORFER the ♂ differs „from *helenus* from Hong-Kong and especially *nicconicolens Btlr.* from Kiushiu by the narrow red submarginal crescents and still more by the strongly reduced white markings of the hindwing beneath, which recalls *palawanicus Stgr.*" A pair in the Tring Museum, belonging to the spring form (taken in March and April), and 4 other ♂♂ without date of capture have the red submarginal spots well developed, and so closely approach specimens from Hong-Kong that scarcely any differences can be seen; the grey-white discal stripes of the forewing beneath seem to be somewhat longer in the Formosa specimens. — **helenus** *L.* (= aulus *Fruhst.*) (21 b, from Hong-Kong). As in the preceding forms the red submarginal spots of the hindwing beneath are all developed; the 2. and 3. patches of the white area of the hindwing are longer and the 1. patch is in proportion smaller than in *nicconicolens*; neither in the ♂ nor the ♀ is a 4. distinct discal patch present. The Hainan specimens, which FRUHSTORFER calls *aulus*, are said to be distinguished from *helenus* by their smallness; I can find no difference at all. The smallest spring specimens are connected with the largest summer ones by all the intermediate grades (length of the forewing in our series 43—70 mm). In ab. **rufatus** *Rothsch.* (32 b) the white area of the hindwing is very strongly reduced, the first patch of the area is beneath very small or entirely absent; on the other hand the marginal cell placed between the two median veins is beneath filled up with red from the discal to the submarginal spots; 2 ♂♂ from Sikkim, in the Tring Museum. In a third ♂, from the Naga Hills, this red area is developed also above. In western China and North-West India *helenus* is rare, in South China, Tonkin, North India and Burma on the contrary rather common; this typical *helenus* occurs southwards to Siam and the Malay Peninsula. — **daksha** *Moore* is the largest *helenus*-form, and has a wing-expanse of 48 to 75 mm; most specimens are large. The white area of the hindwing is large, it touches the cell or extends somewhat into it, the first patch of the area is especially broad; the red submarginal spots are all present beneath; the white-grey discal stripes of the forewing beneath are short. In wooded districts of South India, from Poona (near Bombay) southwards. — **mooreanus** *Rothsch.* (21 c). On an average much smaller than *daksha*; the white-grey discal stripes of the forewing beneath short; the hindwing beneath with a complete row of red submarginal and blue discal lunules. Ceylon. — **hystaspes** *Fldr.* (= varasi *Reak.*) occurs on the Philippines, apparently on all the islands of the group. The white area of the hindwing consists of 4 large patches, which in ♂ and ♀ are almost as large beneath as above. The red submarginal patches are either all present or some of them absent, sometimes only the two posterior ones are developed. — **palawanicus** *Stgr.*, from Domaran, Palawan and Balabac, probably also occurs on Banguey. The white area of the hindwing consists of 3 patches, to which is added in the ♀ beneath a small dirty white 4. spot, the patches much larger above than beneath, the 1. in the ♀ almost square, the 3. placed close to the cell or entering it, not longer (mostly even shorter) than its distance from the margin. On the under surface of the hindwing in the ♂ at least the submarginal lunule behind the tail is wanting. — **enganius** *Doh.* (= helenus *auct.* pt., palawanicus *Rothsch.* pt.). The white area of the hindwing almost as in the true *helenus*, the 1. patch smaller than in *palawanicus*, the 2. and 3. on the other hand larger, the 3. longer than its distance from the margin. Beneath are added in the ♀ 1 or 2 smaller spots, also the ♂ has commonly a small white dot behind the white area; the two submarginal lunules placed before and behind the 3. radial are absent or small. On Borneo, Sumatra and the neighbouring islands, as well as on Java and Lombok. — **tambora** *Rothsch.* Similar to the preceding form, but both the anal red spot on the underside of the hindwing and the red discal spot placed near to it much enlarged. Sumbawa; only a number of ♂♂ known to me. — **mangarinus** *Rothsch.* The white-grey discal stripes on the forewing beneath longer than in the two preceding forms, the red anal spot on the under surface of the hindwing and the discal spot placed near to it larger than in *enganius*, but smaller than in *tambora*; the 4. and 5. marginal spots of the hindwing long and very thin. Flores, a number of ♂♂ in the Tring Museum. — **jindanus** *Rothsch.*, from Sumba. Large, the forewing in ♂ and ♀ strongly curved, the hindwing longer and posteriorly narrower than in the other subspecies of *P. helenus*, the white area of the hindwing large, the 3. patch above almost twice as long as its distance from the end of the 1. radial; the anal and discal red spots on the underside of the hindwing as large as in *mangarinus*, also the 1. submarginal spot large. The disc of the forewing on the upper surface decidedly lighter in the ♀. — **biseriatus** *Rothsch.*, from Timor, only 3 ♀♀ known, which DOHERTY caught at Dili (in Portuguese Timor) and Oinanisa (in Dutch Timor). The disc of the forewing above with a kind of light band, the distal margin less incurved than in *jindanus*, the white area of the hindwing somewhat broader than even in the preceding form and posteriorly prolonged in a point to beyond the 3. radial; the hindwing above with 5 red submarginal spots, the marginal spots larger than in *jindanus*, the posterior ones reddish proximally, the wing broader between the anal angle and the end of the 2. radial than in the preceding form. Beneath the white-grey stripes of the forewing are sharply cut off proximally and their ends (distinctly lighter in 2 out of the 3 specimens) form an interrupted white line, which is widened costad; on the hindwing the white area is continued by 2 spots; distally to each of these two spots is sometimes placed a red lunule (these two lunules are sometimes also developed in *tambora*), the red submarginal spots all present, the spots placed at the anal angle about as large as in *jindanus*.

fortunius. *helenus.* *rufatus.* *daksha.* *mooreanus.* *hystaspes.* *palawanicus.* *enganius.* *tambora.* *mangarinus.* *jindanus.* *biseriatus.*

P. iswaroides. ♂ confusingly similar to *P. helenus*. Forewing above with yellowish discal stripes, beneath the posterior discal stripes are broader and purer white than in *helenus*; hindwing beneath with larger marginal

spots than in *helenus* and with only 2 red submarginal lunules, as the 5 anterior lunules are wanting. Genitalia: the two infra-anal processes of the last (= 10.) segment pointed, but obtuse; the harpe, which in *helenus* is twisted somewhat like a corkscrew, is placed in *iswaroides* before the middle of the anal clasper, is much narrower than in *helenus* and its free part is simply curved inwards away from the clasper, without being twisted half round. The ♀ not known. Sumatra and Malacca, probably more widely distributed, but mistaken for *helenus*. — **curtisi** *subsp. nov.*, from Selangore, Malay Peninsula; only 1 ♂ known to me. The discal stripes placed between the 3. radial and the 2. median on the under surface of the forewing only as long as the black marginal area is broad; the white area of the hindwing narrower than in the next form. — **iswaroides** *Fruhst.* (21 c) flies all the year round in the mountains of Sumatra, where Dr. MARTIN's collectors captured a rather large number. All the discal stripes of the forewing beneath at least twice as long as the black distal margin is broad; the 2. white patch of the hindwing about twice as long as its distance from the distal margin. *curtisi.* *iswaroides.*

P. iswara. Very similar to *P. helenus*. Palpi entirely white; the white area of the hindwing consists of 4 patches, of which the 3. is the largest; the area in the ♂ smaller beneath than above, with the exception of the 4. spot, which is larger beneath, between it and the red anal eye-spot in the ♀ two more white spots, of which at least the upper one is also distinct in the ♂, mostly only 2 red submarginal spots present, both large, usually forming a ring-spot with the marginal spots, before the anal submarginal spot no red discal spot as in *P. helenus*, but always 3 blue lunules. The disc of the upper surface of the forewing in the ♂ with pilose hairs. The ♀ paler than the ♂, the red submarginal spots larger on both surfaces. The genitalia similar to those of *P. helenus*, the harpe of the ♂ more spoon-shaped and the infra-anal processes shorter. Like *P. helenus* occurring in wooded districts, principally in the hills. The early stages not known. Distributed from South Tenasserim to Sumatra and Borneo; only locally plentiful. — **iswara** *White* (21 c). The white area of the hindwing posteriorly broad; the yellow-red spots of the underside of the hindwing large, the anterior ring-spot also in the ♂ always entire, the black pupils of both the eye-spots in the ♀ small. Lower Tenasserim, Malay Peninsula, Penang, Sumatra, Banka. The specimens from the last two islands approximate to the next form. — **araspes** *Fldr.* On an average smaller than *iswara*, but the largest specimens much larger than the smallest *iswara*. The white area of the hindwing mostly not so broad as in *iswara*, posteriorly more pointed; the red spots of the hindwing beneath and the 4. white discal patch smaller. One of the two ♀♀ in the Tring Museum from Lawas, North Borneo, bears on the underside of the hindwing anteriorly 3 thin red submarginal lunules, before the 1. median a fine red longitudinal curved mark and before the tail traces of another submarginal spot, so that the complete row of submarginal lunules is at least indicated. Borneo and Natuna Islands; our two specimens from Bungaran, Natuna, approximate a little to *iswara*. *iswara.* *araspes.*

P. sataspes. Similar to *P. iswara*, but the 2. segment of the palpus black, the white area of the hindwing smaller, in two of the three *sataspes*-forms very much reduced above and entirely or almost entirely absent beneath; the submarginal spots of the hindwing yellow, the 5. rarely indicated, commonly also the 3. and 4. suppressed. Celebes, Bangkai and Sulla Islands, not rare in the hills. — **sataspes** *Fldr.* (22 a) is distributed over the whole of Celebes. The white area of the hindwing above and beneath consists of 3 large patches, to which in the ♀ is added a 4. spot, which is especially distinct beneath. — **artaphernes** *Honr.* The very much reduced white area of the hindwing only extends above to the 2. radial and is almost suppressed beneath. Bangkai; not known to me in nature. — **ahasverus** *Stgr.* (22 a), which is perhaps identical with the preceding, flies on the Sulla Islands, where the ♂ is not rare; the area of the hindwing even smaller than in *artaphernes*, never reaching the 2. radial, beneath only the 2. spot indicated by a very thin line. In the ♀ the area of the hindwing above is still narrower than in the ♂ and beneath there are 2 thin lunules in its place. Only known to me from Sulla-Mangoli. *sataspes.* *artaphernes.* *ahasverus.*

P. diophantus *Smith* (= diaphantus, *Hagen*) (22 c). Distinguished from all other Papilios by 2 narrow red longitudinal stripes which are placed on the under surface of the hindwing, one at the base of the costal margin and the other behind the costal vein. The whitish discal stripes of the forewing beneath condensed posteriorly into a narrow band. Hindwing with a cream-coloured area, which is strongly dentate distally at the veins and beneath is prolonged as a band to the abdominal margin; neither above nor beneath with submarginal spots, the marginal lunules long, the extreme tip of the tail cream-coloured. The ♀ paler than the ♂, the discal band of the forewing, which consists of short stripes, is also present above and disappears costally; the band of the hindwing distinct also above to the abdominal margin, but the posterior 3 spots brownish. This peculiar species is so far only known from Sumatra, where it flies in the mountains from 1000 m upwards all the year round; the ♀ is seldom taken. *diophantus.*

P. fuscus. Body similar to that of *P. nephelus*, palpi laterally entirely white. Forewing in the ♂ without scent-stripes, hindwing with white discal band, which is always broader above than beneath and either extends

to the abdominal margin or is shortened, being beneath sometimes entirely absent; distally to this band above almost always indistinct spots of scattered scales, beneath always at least some blue discal spots present; the submarginal spots yellowish red; the stripes in the cell of both wings somewhat indistinct, the cell of the hindwing beneath mostly strewed with light scales similarly to the base of the subcostal area. The forewing commonly with a white, not sharply defined discal band, which is sometimes widened anteriorly into a broad area, which occasionally is alone developed. The ♀ similar to the ♂, but paler, the markings mostly larger. The eggs laid singly upon Citrus leaves near their tips on the upper or under surface, light green or pale yellow. Larva when young dirty green, anteriorly and posteriorly whitish, with black V-spot in the middle of the back; at each end of the back a row of small white spines; head glossy black. The full-grown larva very variable in colour, usually brown-red mixed with yellow and olive-green, the underside pale greenish or whitish, posteriorly at the thorax begins an oblique lateral band, smaller oblique lateral spots also on some other segments, the pronotum and the 11. segment with a pair of tubercles. The pupa glossy green, beneath in the middle strongly convex, dorsally only very feebly incurved, with short thoracic horn, the wing-cases uniformly projecting, the contour of the pupa viewed from above forming almost a parallelogram, the head truncate and produced into a point at each side. The butterflies in open forests with undergrowth. Distributed from the Andamans to the Solomon

andamanicus. Islands, but wanting on Sumatra, Java and the small Sunda Islands, and also on the Philippines, — **andamanicus** *Rothsch.* (22 b). Until recently united with *prexaspes*. The forewing on the upper surface and beneath on the disc, as well as the basal half of the hindwing beneath, more thickly dusted with yellowish; the 4. patch of the yellowish white area of the hindwing shorter than in the two next forms; above no orange-coloured anal spot; under surface of the hindwing with a blue spot at the distal side of each discal patch. In the ♀ the fore-

dayacus. wing has beneath a white band, which is indistinct behind the middle. Andamans. — **dayacus** *Rothsch.* ♂: the hindwing above with distinct 4. discal spot, beneath the 3. and 4. patches do not reach the cell, the 3 lowest patches of the white band large. ♀: forewing above with narrow diffuse white band, which reaches the hindmargin and is very much widened distally to the apex of the cell; beneath the band purer white and the cell with a white spot in the apex; the yellow-white band of the hindwing is broad, prolonged to the abdominal margin, and enters the cell; the marginal and submarginal spots of the under surface large. North and South Borneo. —

prexaspes. **prexaspes** *Fldr.* occurs in the Malay Peninsula. On the under surface of the hindwing the 6 anterior blue discal spots, if present at all, are very small, the 5. and 6. white discal spots are smaller than the 1., and the 1. does

pertinax. not extend beyond the lower extremity of the 3. The ♀ not known to me. — **pertinax** *Wall.* (= metagenes *Fruhst.*). Costal margin of the forewing strongly curved; on the forewing a yellowish white discal band which at least beneath is distinct before the hindmargin, gradually disappears anteriorly and varies very much both in length and breadth; the white area of the hindwing above does not reach the cell, it consists of 3 patches, to which often a 4., diffuse, patch is added, sometimes the area is connected with the abdominal margin by sparse grey scaling. In small specimens the costal margin of the forewing is generally less strongly curved than in large

minor. ones. The name ab. **minor** *Oberth.* refers to small specimens. In all the localities *pertinax* varies considerably in the markings, especially on the under surface. Sangir and Talaut Islands, the whole of Celebes, Salayer,

porrothenus. Toekan Bessi and Sulla Islands. — **porrothenus** *subsp. nov.* Shape of the wings similar to that of *pertinax*; forewing 38 to 52 mm long; the yellowish white area of the hindwing above posteriorly produced into a thin band, which usually reaches the abdominal margin, the 3. patch much longer than its distance from the distal margin (usually twice or even three times as long); the submarginal spots of the hindwing beneath small and pale, also in the ♀, often almost all wanting, the 7. small or not developed at all. Kalao and Dyampea (= Djampea),

lapathus. south of Celebes; a number of ♂♂ and 1 ♀ collected by A. Everett in December 1895. — **lapathus** *Fruhst.*, from the North Moluccas: Morty, Halmaheira, Ternate and Batjan. Forewing beneath, sometimes also above, before the hindmargin with a narrow discal band, which disappears anteriorly or widens distally to the apex of the cell into a broad but indistinctly defined light patch, distally at the apex of the cell no distinct white spots are present; both wings, but especially the hindwing, shorter than in the race from the South Moluccas; the yellowish white area of the hindwing varies in length and breadth, and the yellowish grey or blue scaling placed distally to it is not condensed into such distinct spots as is usually the case in the subspecies from the South Moluccas.

ombiranus. Sometimes the tail is reduced to a short stump. — **ombiranus** *Rothsch.* (23 a) flies on the various islands of the Obi Group. Forewing with large, triangular, white area distally to the apex of the cell, this area, which is very seldom absent, usually produced posteriorly into a narrow, indistinct band, which mostly reaches the hindmargin; the white area of the hindwing large, reaching to the hindmargin or at least the 2. median, the anterior veins which intersect it not black, the yellowish grey or bluish dusting distally to the band only weakly developed.

fuscus. — **fuscus** *Goeze* (= madanus *Fruhst.*) (22 c). Forewing without discal band, or, if one is present, with white patches distally to the apex of the cell, the costal margin less strongly curved than in *pertinax*; the band of the hindwing consists of at least 4 patches, it is usually produced into a point posteriorly and very frequently enters

cinereomaculatus. the cell. Three principal forms, which are connected by transitions: f. **cinereomaculatus** *Goeze*: forewing with white spots distally to the apex of the cell, sometimes with a band extending to the hindmargin; f. **fuscus** *Goeze* (= severus *Cram.*): forewing without white spots distally to the apex of the cell, the band of the hind-

castaneus. wing posteriorly running to a point, often entering the cell; f. **castaneus** *Goeze*: forewing without white spots; the band of the hindwing shortened, narrow, consisting of 4 spots. We formerly referred the name

castaneus erroneously to the Celebes form. Southern Moluccas: Buru, Amboina and the neighbouring islands, Ceram, Ceram Laut and Goram Laut. The white patches of the hindwing beneath are commonly so thickly dusted with black-brown that they scarcely stand out from the dark ground, which also very commonly occurs in *ombiranus* and occasionally in *lapathus*. — **thomsoni** *Btlr.* (= langeni *Druce*). Both wings shorter and broader than in the preceding forms, the hindwing more rounded. Forewing above and beneath usually with discal spots distally to the apex of the cell, but never with a white spot or light band before the hindmargin. The white area of the hindwing above always reaches to the 2. median or the abdominal margin, and distally to it there are only traces of blue or grey dusting; on the under surface the white discal spots are entirely absent or very strongly dusted with black, the submarginal spots, which also are frequently absent, are placed somewhat further from the distal margin than in the Moluccan races. Very common on the Key Islands. A remarkably aberrant specimen (♀) has been described as ab. **mordingtoni** *Rothsch.* (30 c): hindwing above with 4 white spots, of which the one placed in the cell is large and diffuse; before the anal angle there are 2 large red spots, which beneath are even larger than above; from Key Toeal. — **rotalita** *Swinh.* (= septimius *Stgr.*). Although SWINHOE gave Key as habitat, there is no longer the slightest doubt that this form only occurs on the Aru Islands. Forewing with 2 to 4 small subapical spots, which above are sometimes only indicated, the 1. the largest, the 2. in the subcostal fork, the distal margin beyond these spots paler than the rest of the wing; the yellowish white band of the hindwing does not enter the cell, the 1. spot is always small, and the band is suddenly much narrowed behind the 4. spot; the red anal spot is always present. Beneath the first white discal spot of the hindwing is very thin, the 2. and 4. are small, the 3. is at most about half as long again as it is broad, but usually almost circular, all these spots remote from the cell. — **offakus** *Fruhst.*, from Waigeu, is not known to me in nature. The description agrees so well with specimens from the Northern Moluccas that an error as to the locality might be suspected. ♀: the wings above copiously scaled with grey-green, the forewing beneath in the distal part with a whitish grey band which is not so light costally as in the following races; the blue spots on the underside of the hindwing much more distinct than in *lapathus* and *beccarii*. — **beccarii** *Oberth.* (27 c). ♂: forewing above before the distal margin with yellowish stripes which become shorter posteriorly and the proximal ends of which are often condensed into a thin macular band; between the subcostals beneath usually a few small white spots, which are sometimes indicated also above, the yellowish white band of the hindwing reaches the abdominal margin and only occasionally enters the cell; beneath there are always at least 4 white discal spots present, of which the 3. and 4. are rarely shorter than their distance from the cell. In the ♀ the band of the forewing beneath is usually somewhat more distinct than in the ♂, but there are never sharply defined white subapical spots as in *rotalita*. Dutch and German New Guinea; very rare in the German district. — **indicatus** *Btlr.* (= yorkeanus *Fruhst.*). ♂: forewing above and beneath with a narrow band, which is broadest anteriorly and often does not reach the hindmargin, the anterior spots of the band distally incised; the band of the hindwing is always separated from the cell and the white discal spots of the hindwing beneath are as a rule all narrow, none of the red submarginal spots are present above except sometimes the anal spot. In the ♀, which is much paler than the ♂, the band of the forewing is more diffuse than in the ♂, and the red anal spot on the upper surface is small or absent. British New Guinea, D'Entrecasteaux Islands, Woodlark, Louisiades, islands in the Torres Straits, Cape York. Common near the coast; MATHEW reports a migratory swarm of butterflies which he observed on the coast of New Guinea and which consisted in great part of specimens of this Papilio. — **capaneus** *Westw.*, from Queensland. Very similar to the preceding subspecies; the anterior spots of the forewing larger, and the hindwing bears above besides the always distinct red anal spot at least in the ♀ several red submarginal spots, often a complete row. The white discal spots of the hindwing beneath and the submarginal spots are mostly larger than in specimens from New Guinea. — **xenophilus** *Mathew* (= epibomius *Fruhst.*) (23 a). On an average much larger than *capaneus*; the band of the hindwing beneath broader beyond the 5. spot. The band of the forewing, which in many specimens is broadly interrupted and beneath is sometimes entirely absent, reaches to the 3. subcostal and is usually broadest anteriorly. On the southern Solomon Islands: Ugi, Guadalcanar, Isabel, New Georgia, Guizo, Rendova. — **hasterti** *Ribbe.* In ♂ and ♀ beneath and in the ♀ also above the band of the forewing is only developed posteriorly; in the ♂ moreover the first spot of the band is only indicated above. Choiseul and Bougainville. — The two ♀♀ taken by WEBSTER, which ROTHSCHILD recorded in 1895 as from Alu, probably came from New Georgia; WEBSTER'S localities were not always reliable. If a form of this species occurs on Alu, it is undoubtedly *hasterti*. — **cilix** *Godm. & Salv.* (23 a). ♂: forewing above without band, in fresh specimens rather thickly dusted with yellowish, beneath with small white spots from the hindmargin costad, the row never prolonged to the costa, frequently suppressed except for a small spot placed before the 2. submedian, occasionally even this spot not developed. The white band of the hindwing above and especially beneath broader than in all the other subspecies of *P. fuscus*, always extending to the abdominal margin. ♀: paler than the ♂, the forewing at least beneath with a whitish discal band which is suppressed anteriorly; specimens with almost white abdomen are ♀-ab. **alboventris** *Ribbe.* New Hanover and New Mecklenburg (= New Ireland). — **lamponius** *Fruhst.* Mostly smaller than the preceding (length of the forewing in *cilix* ♂ 57—67 mm., ♀ 67—70 mm.; in *lamponius* ♂ 50—61 mm., ♀ 62—64 mm.). The other differences given

thomsoni. *mordingtoni.* *rotalita.* *offakus.* *beccarii.* *indicatus.* *capaneus.* *xenophilus.* *hasterti.* *cilix.* *alboventris.* *lamponius.*

by FRUHSTORFER are still less tenable, yet it is a fact that at least in many ♂♂ of *lamponius* the white band of the hindwing above encroaches further on the cell than in *cilix*. According to RIBBE ♀♀ with almost white abdomen also occur. New Pomerania (= New Britain).

P. albinus. Similar to *P. fuscus*. The ground-colour in the ♂ almost pure black; the white area of the hindwing above very broad, always entering the cell, the 2. to the 4. spot distally sharply excised and produced at the veins into a pointed tooth, distally to the white area no grey-blue discal spots; beneath the white patches very sharply defined, especially distally. ♀ much paler than the ♂, the white area of the hindwing as in the ♂, but above mostly somewhat narrower, sometimes not reaching the cell; the hindwing beneath with a white discal band consisting of 6 or 7 patches and a complete row of dirty yellow submarginal spots. Dutch and British New Guinea, at low elevations in the hills. — **albinus** *albinus.* *Wall.* (= sekarensis *Honr.*). Forewing without white subapical band. Dutch New Guinea. In ab. **leucophanes** *leucophanes.* *Gr.-Sm.* the hindwing has only 2 white discal patches beneath. — **lesches** *lesches.* *Godm. & Salv.* (25 c). Forewing with white subapical band. British New Guinea.

P. schmeltzi *schmeltzi.* *Herr.-Sch.* (27 c). ♂: forewing black, commonly anteriorly with traces of a thin, curved white discal band, which is always present beneath. Hindwing with bluish grey discal band, which does not reach the abdominal margin and is very strongly dentate distally; beneath this band is represented by a fairly complete row of thin lunules, distally to which large blue lunules are placed, the submarginal spots, which are wanting above, are beneath ochre-yellow and all very well developed, the veins striped with grey at the base of the hindwing, especially the costal (as in *godeffroyi*). ♀ paler than ♂, forewing also above always with discal band. The freshly laid egg straw-yellow, later orange, before hatching grey. The young larva similar to bird-droppings, with branched spines on all the segments; when full-grown very variable, usually green, with brown thoracic band, which beneath runs laterally to the prothorax, on the abdomen 2 shortened oblique bands, on the 3 thoracic segments and the penultimate abdominal segment low tubercles; the scent-fork vivid red. Pupa always fastened to a twig, blue-green, beneath in the middle strongly convex, dorsally moderately incurved, with silver stripes on the wing-cases and the abdomen, the middle of the abdomen dorsally vivid golden green; on Aralia. The butterfly in the open forest where there is underwood; its flight irregular, jerky. — Fiji Islands; the only Papilio occurring there.

P. godeffroyi *godeffroyi.* *Semp.* (27 c). ♂: forewing rather pointed, with oblique band of white spots distally to the cell, the band beneath continued to the submedian by an interrupted or complete row of narrow transverse spots. Hindwing above with bluish grey discal band, which is pointed posteriorly and does not enter the cell; distally to the band indistinctly defined blue spots; fringe-spots of both wings large. Beneath the band of the forewing only indicated by a faint line, distally to this a complete row of blue lunules, the submarginal spots yellowish grey, not sharply defined, the anal spot yellow-red. The ♀ paler, the forewing with a macular band, continued also above to the hindmargin; hindwing above with several red submarginal spots, beneath the discal band very narrow, white, the submarginal spots all distinct, yellow-red. The young larva black, with white V on the back, and black spines. The full-grown larva variable, usually green and marked similarly to the larva of *schmeltzi*, on the 3. to 5. segments 2 short orange-coloured spines at each side, on the 8. to 12. segments an orange-coloured tubercle at each side; on Aralia. Pupa golden green, the back of the abdomen uniformly convex; always fastened on the midrib of a leaf. The larvae of this species and *schmeltzi* feed by day. — Samoa.

P. ilioneus. Palpi laterally entirely white; abdomen beneath at the sides and in the middle with altogether 5 yellowish white, rather thick lines. ♂: forewing above distally to the cell with an oblique band of white spots and before the distal margin a row of white submarginal dots, of which usually the 1. (placed before the 4. subcostal) is distinct; hindwing with white discal area from the costal margin to the 1. median or somewhat beyond it, the 3. patch always the largest, the last small, placed close to the cell, the apex of the cell always white; the fringe-spots white, large. Under surface: forewing as above, but the oblique band broader and all the submarginal spots except the last well developed, before the submedian a short white discal linear transverse spot; the discal band of the hindwing continued to the anal margin, a complete row of submarginal spots, the first and last large, rounded and yellow-red with yellowish white margin, the others yellowish white with red dots. The ♀ paler brown, the markings of the forewing yellowish, larger than in the ♂, before the hindmargin at $^2/_3$ a triangular patch. On New Caledonia and the neighbouring Loyalty Islands, as well as on Norfolk Island. — **ilioneus** *ilioneus.* *Don.* (= amphiaraus *Fldr.*). ♀: the subapical band of the forewing above broad, yellowish; the submarginal spots of the hindwing beneath large, the 2. and 3. at least as large as the black spots which are placed between them and the yellowish white discal area. Norfolk Island. — **amynthor** *amynthor.* *Bdv.* (= abstrusus *Bllr.*) (27 c). The subapical band of the forewing and the posterior patches of the yellowish white area of the hindwing less narrow than in the preceding form, the band of the forewing narrower and the submarginal spots on the under surface of both wings smaller. New Caledonia and the Loyalty Islands; apparently common.

P. canopus. Both wings in ♂ and ♀ with a white or yellowish band, which beneath is at least as broad as above. The band of the forewing in some tailless forms suppressed except for the 1—3 subapical

spots, sometimes also that of the hindwing only indicated by a few small, thin spots; these forms recall brown forms of *P. clytia*, but are easy to distinguish by the thin marginal spots and the much more distal position of the subcostal vein of the hindwing. In *P. fuscus capaneus* and *xenophilus*, which resemble the tailed *canopus*-forms, the continuous band of the hindwing above is beneath much narrower and broken up into spots. On the small Sunda and the Tenimber Islands, in North Australia and on the New Hebrides. — **hypsicles** *Hew.* The band of the forewing running straight from the subcostal fork to the hindmargin, *hypsicles.* somewhat obliquely placed, posteriorly somewhat widened, the spot placed in the subcostal fork not longer than the 1. or 3. spot; the blue discal spots on the hindwing beneath rather large, the submarginal spots reddish, the 5. and 6. patches of the white band about 1/3 as long as their distance from the submarginal spots. The tail spatulate. New Hebrides. — **canopus** *Wcstw.* The spot of the band of the forewing placed *canopus.* in the subcostal fork longer than the 1. and 3. spots, the central spots always smaller than the anterior ones; the abdominal margin of the hindwing shorter than in *hypsicles*, hence the discal band and the subcostal spots nearer together. Tail spatulate. North-West Australia and Cape York. — **tenimberensis** *tenimberensis.* *Rothsch.* (= babberensis *Fruhst.*). Similar to the preceding subspecies, but the band on both wings much broader. The ♂ without distinct submarginal spots on the upperside of the hindwing, these spots in the ♀ sometimes sharply expressed and red-yellow. Tenimber; Babber. — **croton** *Fruhst.*, from Dammer, is *croton.* so variable that there are no reliable differences from *canopinus* on the one hand and *tenimberensis* on the other. In some specimens the band of the forewing is almost obsolete beyond the 4. spot, whilst in others it is as broad as in *tenimberensis*; the band of the hindwing is in some specimens only 1/3 as broad as in others. The submarginal spots of the hindwing, which above are only rarely absent, are small and usually diffuse. Our series of 15 specimens was taken by H. Kühn from the 31. October to the 12. December 1898. — **canopinus** *Rothsch.* (= kallon *Fruhst.*) (24 c), from Roma and Moa (perhaps occurring also on the other *canopinus.* small islands of the group), likewise varies rather strongly; the band of the forewing is placed nearer to the distal margin than in the preceding races; the submarginal spots of the hindwing are also above always large; the tail is either widened at the end, or simply pointed, or reduced to a short tooth which scarcely projects more than the other marginal teeth. — **hypsiclides** *Rothsch.*, from Wetter, is even more variable than *croton.* *hypsiclides.* The band of the forewing, at least on the under surface, is not placed posteriorly so near to the margin as in *canopinus* and *vollenhovii*, it varies in width, especially from the 4. spot, and is sometimes widely interrupted; the central spots of the band of the hindwing are usually much shorter than their distance from the cell, the submarginal spots of the hindwing are also above always sharply developed; the tail is either feebly spatulate, or simply pointed, or is completely absent; in tailless specimens the distal margin of the hindwing is sometimes much less rounded than normally. — **vollenhovii** *Fldr.* (24 c), from Timor, is always tail- *vollenhovii.* less, the band of the forewing is placed close to the distal margin and is always broad; the band of the hindwing is broader than in most specimens of *hypsiclides*, the 5. and 6. patches are always considerably longer than their distance from the submarginal spots, the latter are well developed above and beneath and the 6 anterior ones in our 8 specimens white above. Doherty found this form in Dutch Timor in November and December. — **alorensis** *Rothsch.* (24 c). Tailless. The band of the forewing obsolete except three sub- *alorensis.* apical spots and traces of the posterior ones, the 1. spot only indicated, the 2. (placed in the subcostal fork) larger and distinct, the 3. small; the band of the hindwing very narrow, the submarginal spots further removed from the distal margin than in *vollenhovii*. Alor, only 1 ♂ known, taken by Doherty in October. — **umbrosus** *Rothsch.* (30 c). Tailless; brown, the distal margin of both wings paler brown; forewing without *umbrosus.* band, only with a spot in the subcostal fork; the discal band of the hindwing indicated by very thin, small spots, the submarginal spots small above, rather large beneath. Sumbawa; Doherty caught a pair in September. — **sumbanus** *Rothsch.* (24 c). Forewing with 3 large subapical spots and a small double *sumbanus.* spot at the hindmargin; hindwing without tail, the discal band on both sides very thin or scarcely indicated, the submarginal spots are wanting above and are beneath all white, linear and somewhat diffuse. Sumba; a pair in the Tring Museum. A rather faithful copy of *Euploea lewa* from the same locality, but larger.

P. hipponous. Forewing not far from the distal margin with a narrow band running forwards from the hindmargin, which above is yellowish and sometimes absent, and beneath white and sometimes reduced to a small double spot. Hindwing with a white band, broken up into spots by the black veins, which is of almost equal width above and beneath and always reaches to the abdominal margin. The ♀ very similar to the ♂, but somewhat paler. Nothing is known as to the earlier stages. The ♂♂ drink at puddles and springs. Indo-Malayan. — **pitmani** *Elw.* (= pitmanni *Rothsch.*). Forewing above without distinct band, *pitmani.* at most with a small spot before the hindmargin. Tenasserim and Siam. — **hipponous** *Fldr.* Forewing *hipponous.* above with distinct yellowish band, which gradually disappears costally; the 3. spot of the band of the hindwing about twice as long as the 5. On Luzon. — **bazilanus** *Fruhst.* Very similar to the preceding form, *bazilanus.* but the band of the hindwing of more uniform width, the 3. patch being shorter than in *hipponous.* Palawan, Bohol, Mindanao, Bazilan. — **lunifer** *Rothsch.* (33 b). A very large form, in which the submarginal *lunifer.* spots of the hindwing beneath are large and strongly curved and placed further from the distal margin *lepto-* than in the other forms. Sangir and Talaut Islands. — **leptopsephus** *Fruhst.* Forewing with an anteriorly *psephus.*

shortened white submarginal band; the ochreous submarginal lunules of the hindwing beneath very small. Assam, the locality however is doubtful. Not known to me in nature; is it different from *bazilanus?*

sakontala. **P. sakontala** *Hew.* (32 c). ♂: both wings narrower than in *P. hipponous* and *P. polytes.* Forewing with narrow marginal spots and grey discal stripes, without the band of *P. hipponous*; hindwing with a discal band composed of separated patches more or less strongly dusted with black, in which the 4. and 5. spots are the longest; the reddish submarginal spots of the hindwing beneath are very small, some of them not developed. — A rare North Indian species, of which so far only a few specimens have been found; from Mussourie eastwards to the Naga Hills in Upper Assam.

jordani. **P. jordani** *Fruhst.* Brownish black. Forewing from the 5. subcostal backwards with chalk-white marginal spots, the first two small, the others large, the 4. and 5. nailhead-shaped. Hindwing with discal macular band and large marginal spots, all chalk-white, but the marginal spots, as well as those on the forewing, above dusted with black; the discal spots very large, especially the 3.—5.; submarginal spots wanting. Both wings elongated, the hindwing strongly dentate, but without tail. — 1 ♂ in coll. FRUHSTORFER, probably from Celebes.

walkeri. **P. walkeri** *Jans.* (32 c). Only 1 ♂ known. Forewing with grey discal stripes and white marginal spots. On the upper surface of the hindwing a diffuse, broad grey-blue discal band and a complete row of blue-grey submarginal spots; beneath the submarginal spots are yellowish, the blue discal band is reduced to spots and on the proximal side of the posterior blue spots are placed yellow ones; the tail short, not spatulate. — South India; in the Tring Museum.

Polytes Group.

Sexes different. The ♀♀ mimics of Aristolochia-Papilios, in *P. polytes* polymorphic and one of the ♀-forms similar to the ♂. Closely connected with the preceding group by *P. eanopus, hipponous, sakontala*, etc., and with the following one by *P. ambrax.*

P. polytes. Palpi pure white at the sides. ♂: black, forewing with white marginal spots which are narrower at the distal margin than towards the disc, after the manner of a nail-head; hindwing with white, rarely yellowish discal band outside the cell, which consists of spots of about equal size and is almost the same beneath as above. The ♀ occurs in 3 principal forms: the *cyrus*-form is very similar to the ♂; the *theseus*-form has on the hindwing red discal patches instead of white ones; and the *polytes*-form bears white discal patches on the hindwing. In all the ♀♀ of the 2. and 3. form the forewing is black from the base to the 1. or 2. median and at the distal margin, the posteriorly narrowed central area lighter and traversed by black vein- and fold-stripes, the distal margin distinctly undulate, with thin white fringe-spots. Distributed from North-West India, West China and the Loo-Choo Islands southwards and eastwards to the Moluccas and Timor with the neighbouring islands; not yet known from Tenimber. The larva lives principally on species of Citrus, but also occurs on other trees, as Murraya, Triphasia, Zanthoxylum; when young similar to bird-droppings, the full-grown larva green, the thoracic legs reddish, prolegs pale green, above the legs a white longitudinal stripe, on the thorax a transverse band, which terminates at each side in a black spot, behind the thorax a second belt which is joined to the white lateral stripes, in the middle of the body two oblique bands, all white with brown or green spots. The pupa olive-brown, with brown, green and yellow spots and stripes, the underside of the abdomen milk-white, or the whole pupa green; the horns on the head short, obtuse, rather widely separated, the thoracic horn short, the dorsum at the base of the abdomen rather strongly incurved, the wing-cases moderately protruding (the figure in MOORE, Lep. Indica Tab. 462 is not correct). One of the commonest Indo-Malayan Papilios; everywhere in open woods and in gardens, at low elevations, in the Himalayas up to about 6000 ft. The flight of the ♂ is very swift, restless, oscillating, whilst the ♀ sails more slowly and in this also resembles those Aristolochia-Papilios to which it approximates in the markings. *P. polytes* is fond of visiting flowers, but is never found at wet places on the roads. The different ♀-forms fly at the same time, but are not equally common, also in some districts only one or two forms occur. The geographical forms are in general not sharply distinguished. We differentiate two groups of forms: 1) The ♂ has blue scales on the under surface at the distal side of the posterior white discal spots in the forms which are distributed from the Loo-Choo Islands southwards over India and the large and small Sunda Islands as far as Babber, whilst 2) these blue scales are extremely rarely present in those forms which inhabit the Moluccas, the Sulla Islands, North Celebes and the Philippines. In North Borneo both groups of forms appear to fly. The larvae of the two groups are said to be distinguished by this (is it constant?), that the saddle-spot in the first group is open above and in the

polytes. second closed. — **polytes** *L.* (= borealis *Fldr.*, polycles *Fruhst.*, pasikrates *Fruhst.*). ♂: the band of the hindwing mostly narrow, the spots usually rather widely separated; in the spring specimens the submarginal

borealis. spots of the hindwing beneath are red and rather large: ♂-f. **borealis** *Fldr.* (see vol. I, pl. 5 c), whilst in the

pammon. summer specimens they are mostly white, some of them often wanting: ♂-f. **pammon** *L.* (31 a). Among

depicta. the latter form occur examples which have no submarginal spots at all and have received the unfortunately

mandane. chosen name ♂-f. **depicta** *Fruhst.* The ♀ occurs in three principal forms: ♀-f. **mandane** *Rothsch.* (= ocha

Fruhst.), similar to the ♂; ♀-f. **stichius** *Hbn.*, hindwing with white discal spots, but without white cell-spot; *stichius.*
♀-f. **polytes** *L.* (31 a), hindwing with white spot in the cell also. Loo-Choo Islands, Formosa, China from *polytes.*
Shanghai to North Tonkin, Hainan, very common. — **romulus** *Cr.* (= ceylanicus *Fldr.*, neomelanides *Fruhst.*) *romulus.*
is the oldest name for the very variable form which is distributed from Tonkin to North-West India and Ceylon in the west and to the Natuna and Lingga Islands in the south. The band of the hindwing in the ♂ broader than in the preceding subspecies, but specimens also occur in which the band is quite as narrow; the spring specimens of the mountains have on the under surface of the hindwing strongly developed red submarginal spots, some of which are sometimes distinct also above. Two ♂♂ from South India in the Tring Museum are very aberrant and somewhat suggestive of *P. sakontala* by the diffuse band of the hindwing above; in both specimens the marginal spots of the forewing are enlarged; in the example from Coimbatore (the nametype) the two posterior discal spots of the hindwing above are small and white, the others are absent or replaced by bluish nebulous spots, which are joined to a second row of bluish spots; beneath 5 white discal spots are present, which form the proximal boundary of long red, bluish and yellowish grey stripes, whose discal ends correspond to the submarginal spots of normal specimens; the second example, from the Nilghirris, has above and beneath oblong bluish grey discal patches; on the left wing the row is complete, whilst the upper spots are wanting on the upper surface of the right hindwing and small on the under surface; on the other hand the right hindwing has beneath a row of submarginal spots which are wanting on the left wing: ♂-ab. **astreans** *ab. nov.* (32 a). The ♀ occurs in the western parts of the area of distribution *astreans.*
in 3 principal forms, in the eastern only in 2. The form similar to the ♂ is ♀-f. **cyrus** *F.* (= cyroides *Fruhst.*) *cyrus.*
(31 a). The band of the hindwing broader than in the corresponding form of the preceding subspecies, in spring specimens the submarginal spots of the hindwing are large and red beneath and often above also. The second ♀-form, with white discal area, varies even more strongly than ♀-f. *polytes*, and only the examples with large cell-spot are distinguishable from Chinese specimens. The 3. form, ♀-f. **romulus** *Cr.* (= mutius *romulus.*
F., astyanax *F.*, rubida *Fruhst.*) (32 a), mimics *P. hector* and occurs also only in the district of this species from Ceylon to North India; in Sikkim, where *hector* does not occur, *romulus* is scarce and further east it has not yet been observed at all: forewing with a short subapical and a longer discal light oblique band, hindwing without white patches, on the contrary with much red. — **nikobarus** *Fldr.* is a large form with *nikobarus.*
broad band on the hindwing. The ♀-form similar to the ♂ appears to be commoner than in other districts. The second ♀-form, with white discal area, is apparently rather rare and not distinguishable from certain
mainland specimens with white cell-spot. Nicobars and Andamans. — **theseus** *Cr.*, from Sumatra (except *theseus.*
the south-east) and Borneo. Smaller on the average than the preceding forms. ♂: tail shorter, less spatulate, the band of the hindwing usually narrower at the abdominal angle than in the ♂ of *romulus*. The ♀-form in male garb., ♀-f. **nonia** *form. nov.*, is distinguished in the same way as the ♂; the ♀ without white *nonia.*
spots on the hindwing, but with red spots, is ♀-f. **theseus** *Cr.* (30 c); in exceptional cases these red discal *theseus.*
spots are developed into long stripes: ♀-f. **melanides** *Deh.*; finally in ♀-f. **numa** *Weber* the hindwing has a *melanides.*
few small white discal spots. — **javanus** *Fldr.* (= antiphus *Deh.* nec *Edv.*, insularis *Piepers*) (31 a, b), from *numa.*
javanus.
South-East Sumatra, Billiton, Java, Banka, Bali. In the ♂ the tail usually reduced to a short stump. An evidently atavistic specimen from Java (in the Tring Museum) has the grey scaling on the upperside of the forewing condensed into a narrow discal macular band, which is obsolescent costally and on the under surface is represented by a very distinct transverse patch placed before the hindmargin: ♂-ab. **seronis** *ab. nov.* *seronis.*
(32 a). In ♂-ab. **gronovii** *Sulz.* the band of the hindwing above is yellow (discoloured?). In the form of *gronovii.*
the ♀ similar to the ♂ the tail is narrower and shorter than in the corresponding ♀ of the preceding race: ♀-f. **pygela** *form. nov.* The *polytes*-form of the ♀ differs from the white-spotted ♀♀ from Sumatra and *pygela.*
Borneo by the much larger white discal spots, in which this form agrees to a great extent with certain specimens of the ♀-f. *polytes* from Malacca, the under surface of the forewing is very pale and the dark basal area is usually extended to the base of the 1. median: specimens from Bali form a transition to the next subspecies. — **vigellius** *Fruhst.*, from Bawean. I have before me only ♂♂, and ♀♀ resembling the ♂, which *vigellius.*
agree with specimens from Java. In the second ♀-form, which I do not know, „the white discal spot hardly ever extends beyond the cell and the forewings have darker stripes than in *javanus*-♀♀". — **messius** *messius.*
Fruhst., from Lombok, common. The ♂ with short obtuse tail, the band of the hindwing narrower than in *javanus* ♀-f. *pygela*. In the white-spotted ♀ the white area of the hindwing is reduced to a few spots placed outside the cell, rarely there is a diffuse spot in the cell; the light area of the forewing is less extended than in *javanus* and *theseus* and above and beneath darker, the tail is usually only very little widened and never so strongly spatulate as in the corresponding ♀-forms of the preceding races: ♀-f. **nuceria** *form.* *nuceria.*
nov. In a third ♀-form the white spots on the hindwing are entirely absent, as in ♀-f. *theseus* from Sumatra and Borneo, but the forewing is not so light as in that form and the tail less spatulate: ♀-f. **tisias** *form.* *tisias.*
nov., mimics *P. aristolochiae lombockensis.* — **sotira** *subspec. nov.* flies on Sumbawa. The band of the ♂ is *sotira.*
on an average even narrower than in the preceding subspecies, the 3. spot of the under surface is usually very narrow. The only ♀-form known to me has a row of 3 or 4 discal spots on the hindwing, cut off straight towards the base; the forewing is above darker than in all the other forms, the light discal area is even more restricted than in *messius*, beneath the black basal area extends beyond the base of the 1. median

timorensis. and the black stripes between the veins are very broad; the tail is spatulate. — **timorensis** *Fldr.* (= polyphontes *Deh.* nec *Bdv.*), distributed from Sumba, Savu and Flores eastwards to Babber. The band of the ♂ broader than in the specimens from Lombok, especially beneath; many ♂♂ have on the under surface of the forewing a white spot before the hindmargin not far from the anal angle; this is the case in all the 5 specimens which we have from the island of Savu. One of these Savu ♂♂ has in addition on both sides of the forewing 4 small grey discal spots, which are placed between the 4. subcostal and 3. radial: ♂-ab. *solia.* **solia** *ab. nov.* The ♀ occurs in 2 principal forms: ♀-f. **virilis** *Röb.* is similar to the ♂; almost all specimens *virilis.* have a white spot on the underside of the forewing before the hindmargin, also the band of the hindwing is still broader than in the ♂. ♀-f. **timorensis** *Fldr.* is usually much lighter on the forewing, the interneural stripes are mostly narrow and the one placed between the two median veins does not generally reach the dark basal area; the white macular area of the hindwing is very variable, but always enters the cell. — *tucanus.* **tucanus** *subsp. nov.* Similar to *alcindor.* ♂♀: forewing posteriorly broader, the costal margin less strongly curved and the distal margin less incurved; the hindwing posteriorly less produced, hence the sinus placed behind the tail almost at the same height as the one placed before the tail; the tail in the ♂ distinctly pointed. In the ♀ the disc of the forewing above and beneath is purer white than in the *alcindor*-♀ and the posterior black stripes are thinner; the black basal area almost reaches the 1. median. The white area of the hindwing consists of a small cell-spot and 5 discal ones, which are all sharply developed; the first of these spots is rhomboidal. Binongka and Kalidupa, Toekan Bessi Islands, taken by H. KÜHN in December *alcindor.* 1901 and January 1902. — **alcindor** *Oberth.* (= thesalphenor *Stgr.*, passienus *Fruhst.*, persienus *Fruhst.*) (31 b). ♂♀: forewing narrower than in all the preceding forms, the costal margin strongly curved (as in many butterflies on Celebes) and the distal margin distinctly incurved before the middle; the hindwing posteriorly prolonged, so that the costal margin of the tail is much longer than the hindmargin. ♂: marginal spot of the forewing large, the posterior 4 or 5 broader than the interspaces. The band of the hindwing comparatively narrow, some specimens with a red spot at the distal side of the penultimate spot; in one of our examples from East Celebes there is a small white spot in the cell. The ♀ occurs in only one form: the dirty white discal area of the forewing reaches basad to the base of the 2. median, the black stripes and the black distal margin are broad. The white cell-spot of the hindwing always reaches the base of the 2. median; there are 3 to 5 spots round the cell, the upper ones are pointed, and the distal margins of all more or less diffuse. A copy of *P. polyphontes*: common on Saleyer and in South, Central and East Celebes, also on Buton; on the northern peninsula of Celebes flies quite another subspecies, which belonges to the following series of forms.

In the remaining forms of *P. polytes* the oblique bands of the abdomen of the larvae, so far as is known, are not interrupted dorsally; the ♂♂ very seldom have blue scales distally to the discal band on the under surface of the hindwing; in the ♀ the 2., and mostly also the 3. submarginal spot of the hindwing beneath is not lunular, but slightly S-shaped, moreover the longitudinal veins traversing the white discal area of the hindwing are very narrowly or not at all scaled with black.

valeria. — **valeria** *subspec. nov.* Only 3 ♀♀ in male garb known to me. The marginal spots of the forewing very thin at the distal margin, but broad towards the disc. The 1. spot of the band of the hindwing above and beneath very thin, the 2. broader than long, broader anteriorly than posteriorly, the 3. about as long as broad, irregularly rhomboidal, the 4. and 5. long; at least the posterior 5 submarginal spots well developed above, the anal one red, some only of the marginal spots indicated or all quite small; beneath the submarginal spots large, all considerably larger than the 1. discal spot, the marginal spots in the 2 Borneo specimens larger than above; the marginal teeth strongly projecting. Mantanani Islands (North Borneo), *ledebouria.* Baram River and Lawas in Sarawak (Borneo). — **ledebouria** *Eschsch.* From Balabac, Palawan, the Philippines, Palau and Yap. ♂: the 1. discal spot of the hindwing above rounded, usually longer than broad; in the specimens from Balabac and Palawan all the spots of the band are separated by black veins, whilst in the examples from the Philippines the spots, at least in large specimens, as a rule touch one another. *horsfieldi.* The ♀ in three forms: ♀-f. **horsfieldi** *Reak.*, similar to the ♂; the 1. discal spot of the band of the hindwing much smaller than in the ♂, transverse, always larger than the submarginal spots (also beneath), the latter above never very distinct, with the exception of the red anal spot, also beneath always thinner than in the *praxilla.* preceding form; singly on all the islands. ♀-f. **praxilla** *form. nov.* (= ledebouria *Fldr.* nec *Eschsch.*), hindwing with large white discal area, the longitudinal veins traversing it not black, tail spatulate (according to SEMPER sometimes short and not widened at the apex); on all the islands with the exception of Balabac, Palawan and Palau; commonest during the rainy season; on Luzon transitions to the following form are *elyros.* common. ♀-f. **elyros** *Wall.* flies on Balabac, Palawan and Luzon, and is said to occur also on Mindoro; hindwing without white markings or these small; distinguished from ♀-f. *theseus* from Borneo and Sumatra *perversus.* chiefly by the much broader and sharper black stripes and lighter whitish stripes of the forewing. — **perversus** *Rothsch.* (33 b). A large form from the Talaut and Sangir Islands (and Siao?). ♂: the contour of the forewing recalling *P. p. alcindor* from Celebes; the costal margin more strongly curved than in *ledebouria*, the marginal spots larger. The abdominal margin of the hindwing longer than in *ledebouria* and the sub-

marginal spots of the under surface more widely separated from the distal margin; the band from the 3. spot mostly narrower than in *ledebouria*, the 2. spot at least half as long again towards the costa as posteriorly, distally cut off very obliquely, the 1. spot above large, beneath always shortened to a transverse patch; one of our specimens has on the under surface blue scales outside the posterior spots of the band. The ♀ in two forms: ♀-f. **martius** *Rothsch.*, similar to the ♂; on the hindwing the submarginal spots are absent above except for a small anal spot, but are all large beneath. ♀-f. **atavus** *Rothsch.*, similar to ♀-f. *praxilla* from the Philippines, the costal margin of the forewing more strongly curved, the black stripes narrower, the white marginal spots mostly formed as in the ♂ and sometimes almost as sharply developed; the white area of the hindwing as in ♀-f. *praxilla*, but the cell-spot usually only indicated above. — **alpheios** *Fruhst.* On the northern peninsula of Celebes in place of *alcindor* occurs a form very similar to *P. pol. ledebouria*, which was long ago recorded from there by SEMPER and OBERTHUR under the name of *alphenor*. The ♂ differs from *perversus* by the broader wings, smaller marginal spots of the forewing and narrower band of the hindwing, and from large *ledebouria* by the more distinctly separated patches of the band of the hindwing. Only the *polytes*-form of the ♀ is known: larger than the largest specimens of the Philippine ♀-f. *praxilla*, the black stripes of the forewing beneath somewhat thinner and the submarginal spots of the hindwing somewhat further separated from the distal margin. — **polycritos** *Fruhst.* (= falcidius *Fruhst.*), from the Sulla Islands (Mangola and Besi) and Bangkai, is not distinguishable from *alpheios* in the ♂. The ♀ similar to the ♂ has narrower wings than the corresponding ♀ from the Philippines (the corresponding *alpheios*-♀ is not known), also the patches of the band of the hindwing are more distinctly separated and the submarginal spots, which beneath are always large but mostly only feebly developed, are placed somewhat further from the distal margin: ♀-f. **zacora** *form. nov.* The 2. form of the ♀, ♀-f. **rhacida** *form. nov.*, has the stripes of the forewing purer white than in *alpheios* and *ledebouria*, the black basal area is larger, especially in the cell and beneath between the lower median and the hindmargin; at the distal margin in all our specimens (10) there are more or less distinct whitish spots, which are similar to those of the ♂; the tail is sometimes short and pointed as in the ♀ of *alphenor*; the white area of the hindwing always enters the cell. — **alphenor** *Cr.*, from the Southern Moluccas, inclusive of Buru, agrees in the ♂ almost entirely with *ledebouria*; the marginal spots of the forewing are on the whole smaller and the 1. patch in the band of the hindwing is larger above and thinner beneath. The ♀ in two forms, of which only ♀-f. **alphenor** *Cr.* (31 b) is known to me in nature. In this the tail is always shortened and never distinctly spatulate; the submarginal spots of the hindwing are in general large and are mostly placed further from the distal margin than in *ledebouria* and *polycrites*. The other ♀-form is similar to the ♂. — **nicanor** *Fldr.* (33 c ♂, 31 c ♀) is the form of the Northern Moluccas and Obi. Wings in ♂ and ♀ more rounded than in the preceding forms. ♂ with large marginal spots on the hindwing and also above distinct submarginal spots on the hindwing. In ♀-f. **manzer** *Rothsch.* the 1. patch of the band of the hindwing is smaller than in the ♂, beneath even thinner than the 1. submarginal spot; sometimes the two submarginal spots placed behind the very short stump of a tail are united on the underside into rings with the marginal spots. In ♀-f. **typicus** *Rothsch.* the spot of the white area of the hindwing placed below the 2. median is larger than in *alphenor*, especially on the under surface; sometimes the red discal spots of the hindwing are lengthened into stripes. — **nicomachus** *Fruhst.* is based on 4 ♂♂ which are said to be from Buru. The specimens are „somewhat larger than *nicanor Fldr.* from Batjan, the white discal spots of the hindwing more oblong, placed more separate". I doubt whether a form similar to *nicanor* occurs on Buru; I only know *alphenor* from there. The locality of FRUHSTORFER'S examples (duplicates bought in London) is probably incorrect, since according to the description he cannot be dealing with specimens of *alphenor*.

martius. *atavus.* *alpheios.* *polycritos.* *zacora, rhacida.* *alphenor.* *nicanor.* *manzer.* *typicus.* *nicomachus.*

P. ambrax. Very nearly allied to *P. polytes*; both sexes without tail. ♂: forewing with thin marginal spots confined to the edge of the wing; hindwing above with large white area, which always enters the cell and is much broader than the black marginal area; beneath this area is entirely absent or is replaced by rounded white-grey shadowy spots. ♀ on both wings with thin marginal spots, which are smaller than in all the *polytes*-forms; no indication of nail-head spots at the black distal margin of the forewing; hindwing beneath as in the ♂ with extremely small yellow-grey scales between the veins in the basal area; the white area of the hindwing similar to that of *P. pol. nicanor*, but the veins, especially the apex of the cell, even less black. There is no ♀-form similar to the ♂. The earlier stages as in the north-eastern forms of *P. polytes*. The larva on Citrus, especially common in March and April, sometimes in dozens together on one bush; when full-grown green, ventrally at the sides a broad stripe, which also covers the prolegs and is above edged with whitish; from this stripe, besides an anal band, branch off 3 bands of the same colour, which are not interrupted above, on the thorax in addition is placed a transverse band, laterally widened into spectacle-shape. The butterfly is very common. — **epirus** *Wall.* (31 c). ♂ above with red anal spot, beneath with more than 2 yellow-red spots; the apex of the forewing with faint grey stripes. ♀: the forewing between the 1. median and the 2. submedian with 2 white patches, of which at least the posterior one is much shorter than its distance from the distal margin. Aru Island. — **ambrax** *Bdv.* (= decebalus *Fruhst.*, mazaios *Fruhst.*, akames *Fruhst.*) (31 c). In the different districts of New Guinea and on

epirus. *ambrax.*

most of the small neighbouring islands definable subspecies do not yet appear to have been formed. It is true that in some districts both sexes are fairly constant, but the distinguishing characters occur again in other localities, sometimes at a great distance, so that there is no occasion for the erection of geographical races. The principal forms are: ♂-f. **ambrax** *Bdv.*, forewing with very thin grey lines at the apex; ♂-f. *ambracia.* **ambracia** *Wall.* (= ambracina *Fruhst.*), forewing with white apical patch; ♂-f. **conspectus** *Rothsch.*, hindwing *conspectus.* beneath with a number of grey discal spots; and ♂-f. **alticola** *form. nov.*, hindwing above with red anal spot, *alticola.* only known to me from the mountains of British New Guinea. ♀-f. **ambrax** *Bdv.* (= orophanes *Bdv.*) has grey stripes on the forewing, whilst ♀-f. **ambracia** *Wall.* (= lutosa *Fruhst.*) is white posteriorly on the disc of the forewing also above. On the island of Waigeu occurs exclusively ♂-f. *ambracia* and ♀-f. *ambracia*; on Misol and Salawatti ♂-f. *ambrax* and ♀-f. *ambrax*. In Dutch New Guinea (Dorei, Kapaur, Sekar, Humboldt Bay, etc.) ♂-f. *ambrax* greatly preponderates and the ♀♀ belong to ♀-f. *ambrax* or are transitions to *ambracia*, just as in the northern part of German New Guinea. Further to the south-east, at the Huon Gulf, in British New Guinea, on the D'Entrecasteaux Islands and Trobriand the ♂ has nearly always an apical patch (as on Waigeu) and the large majority of the ♀♀ have a white area on the forewing. Very many ♂♂ from the British district belong to ♂-f. *conspectus* (the type of which, however, came from Waigeu). The butterfly flies also on the Louisiades, but we only possess 1 ♀ from there (St. Aignan), which has on *artanus.* the forewing a rather small white area, interrupted by black veins. — **artanus** *Rothsch.* ♂: upper surface of the forewing with weak grey apical stripes; band of the hindwing narrower in the middle than in *P. a. ambrax*. ♀: forewing with white area as in ♀-f. *ambracia*; the 1. discal spot of the hindwing smaller than in that form, oblique, triangular or trapezoidal. Suer, Mefor Island in Geelvink Bay. — On Woodlark occurs *dunali.* **dunali** *Montr.* The ♂ not constantly different from specimens from New Guinea; forewing with small apical patch or thin stripes; the band of the hindwing narrower than in most examples from the main island. ♀: forewing with rather small white area, which is more or less strongly dusted with black; the white area of the hindwing mostly distinctly suffused with yellow, the cell-spot and the spot placed before the 2. radial *egipius.* small or absent. Similar ♀♀ also occur at low elevations at Redscar Bay in British New Guinea. — **egipius** *Misk.* (31 d) flies in Queensland. ♂: forewing with apical patch. The band of the hindwing does not reach the abdominal margin, or the last spot is diffuse; the red anal spot is almost always present also above, beneath all the submarginal spots are commonly developed. ♀: forewing with white area, the light stripes in the apex of the cell and on the disc purer white than in ♀-f. *ambracia*. Hindwing also above with a complete row of red submarginal spots.

P. phestus. The subcostal of the hindwing branches off from the cell at a greater distance from the base than in *P. ambrax*. Palpi black or with a little white scaling. ♂: similar to *P. ambrax*, but the hindwing beneath always with pure white discal spots and above always with a rather large red anal spot. ♀: forewing as in the ♂ without white marginal spots or these extremely small. The white area of the hindwing smaller than in the *ambrax*-♀ and purer white than in those specimens of *ambrax* in which the white area is reduced; the veins intersecting it always black. Larva similar to that of *ambrax*, but according to Ribbe's figure the abdominal bands are interrupted above as in the western forms of *polytes*, and the longitudinal stripe is grey with blackish bordering. On Citrus. The butterfly is rather common. Bismarck and Solomon Islands, but from the southern islands of the latter group (Guadalcanar, Maleyta and S. *parkinsoni.* Christoval) *phestus* is not known. — **parkinsoni** *Honr.* ♂: the white band of the hindwing above broad, beneath on the contrary the discal spots reduced in number and size. The ♀ with large white patch on the *minor.* forewing. Small examples of both sexes are ab. **minor** *Honr.* New Pomerania (= New Britain). — **phestus** *phestus.* *Guér.* (= nusaliki *Ribbe*) (33 c). ♂: the 4. patch of the band of the hindwing above usually strongly produced; beneath the hindwing bears 5 or 6 white spots, of which the 3. is at least as long as its distance from the distal margin. ♀: the grey stripes of the forewing are not widened into a white patch. New Mecklen- *minusculus.* burg (= New Ireland) and New Hanover. There are also here large and small specimens. — **minusculus** *Ribbe.* The ♂♂ from the Solomon Islands have usually the band on the hindwing narrower and also more deeply incised and the veins are mostly thinly but distinctly black. In specimens from the northern islands, namely Bougainville, Alu, Treasury and Choiseul (and Isabel?), the white discal spots of the under surface are mostly reduced as in *parkinsoni*; on the other hand these spots are as large as in *phestus* in examples from the islands of the Rubiana Group (Rubiana, New Georgia, Guizo, Vella Lavella, Kulambangra). The ♀ very similar to the *phestus*-♀, the veins in the white area of the hindwing above more distinctly black.

Aegeus Group.

Large tailless species. Body as in the two preceding groups black, with faint white markings on head, thorax and the underside of the abdomen, or in certain ♀♀ the abdomen above yellow and beneath black. ♂: wings black, with white band or white discal area on the upper surface of the hindwing. ♀ similar to the ♂ or mimetically modified.

P. aegeus. Without tail. Palpi laterally white. ♂: forewing as a rule with white macular band between cell and apex; on the hindwing above a broad white band, which is distally emarginate between the veins and hence dentate at the veins; on the under surface of the hindwing the band replaced by a row of grey lunules, often reduced or absent, at the distal side of which blue spots are placed; submarginal spots red or yellow, above mostly only the anal spot present and even this often absent. The ♀ in many places occurs in only one form, whilst in other districts it is polymorphic. Brown-black, always much paler than the ♂, forewing posteriorly on the disc never with thin white stripes as in the ♀ of *P. phestus* and *ambrax* and in the mimetic ♀♀ of *P. polytes*. In the normal *polydorina*-form, which occurs everywhere, a large patch in the apex of the cell of the forewing and a row of large patches on the disc are white with brown dusting; the hindwing has a white (sometimes yellowish) discal area, at the distal side of which on the under surface blue angular spots are placed. In a second form the forewing is entirely black-brown and has an oblique white macular band as in the ♂. This band is sometimes entirely absent above. Finally in the *tenarides*-form both wings are for the most part white, or the forewing is grey and the hindwing from the base to beyond the apex of the cell white; the hindwing has basally to the submarginal spots black patches, on which blue spots are placed. The young larva of the colour of bird-droppings, on the 2. to the 4. segment with 3 pairs, on each of the other segments with 1 pair of rough spines, which are also retained in the full-grown larva; the latter grey-green, with irregular, light longitudinal stripes, behind the 4. segment a black belt, which is laterally lost in a broad black-brown lateral stripe, in the middle of the body a black oblique band which terminates at the subdorsal spine, and behind it a shorter black transverse stripe; at the outer side of the prolegs and above them a black longitudinal stripe consisting of lines; head black. On Citrus. The pupa varies according to its surroundings, above in the middle yellow, the dorsum at the base of the abdomen rather strongly incurved; thoracic horn scarcely as strongly produced as the truncate horns on the head. The butterfly emerges early in the morning. It is found in gardens and in open woods, where it is commonly taken feeding at flowers, it also drinks at the edges of brooks and at wayside puddles. The flight is somewhat irregular but swift; when the butterfly scents danger it hastens away with great speed. — **aegeus** *Don.* (♂ = erectheus *Don.*) (23 c). A very common butterfly in the gardens and bush of Queensland and New South Wales, which extends southwards to Victoria and is observed even in the streets of the towns. ♂: forewing always with subapical band; the band of the hindwing touches the cell or is somewhat separated from it, frequently there is a small spot in the apex of the cell, the band does not extend beyond the lower median; at the distal side of the two last patches of the band in fresh specimens there are grey spots; the red anal spot large, round; beneath a complete series of red submarginal spots, sometimes also above several submarginal spots. The ♀ except in the northern part of its range monomorphic (*polydorina*-form): the distal half of the forewing lighter, the distal margin narrowly blackish; the submarginal spots of the hindwing above and beneath darker red than in the other races, the white discal area at least beneath extended to the costal, but the first patch usually narrow; the blue discal spots large. At Cape York and the islands off it there is also a *tenarides*-form, ♀-f. **beatrix** *Waterh.*, which is chiefly distinguished from the corresponding ♀-f. *onesimus Hew.* from New Guinea by having the white area of the hindwing beneath constantly connected with the costal margin by a white spot. — **adrastus** *Fldr.*, from the Banda Islands; the butterfly is common even on the highly cultivated ground of Great Banda. ♂: the bands of both wings similar to those of *aegeus*, the distal spot of the band of the forewing not so near to the margin; the 2. patch in the band of the hindwing at most as long as its distance from the margin, rarely a small spot is placed in the cell, the red anal spot is at least indicated above; beneath a complete row of red-yellow submarginal spots is rarely present and in this case some at least of the spots are small, mostly only the anal spot is developed. ♀ dimorphic; ♀-f. **priasa** *form. nov.*, forewing with an oblique row of 5 yellowish patches between cell and subcostal fork, the cell-spot absent above, indicated beneath. Hindwing with small, diffuse yellowish discal area, which reaches neither the subcostal nor the 2. median and is at most 8 mm. broad; the cell-spot is absent or very small. ♀-f. **tellias** *form. nov.*, forewing with light patches in the cell and on the disc, the anterior discal patches more sharply expressed than in the *polydorina*-form from New Guinea, the posterior ones sharply rounded basally and usually densely dusted with blackish; the white area of the hindwing smaller than in New Guinea specimens, with the penultimate patch twice as long as broad, the blue spot placed distally to it small, sometimes scarcely indicated, the submarginal spots all well developed, the 5. and 6. above always smaller than the 3. and 4.; the marginal spots large, which is also the case in ♀-f. *priasa*; beneath a white discal spot is commonly placed behind the costal. The ♀ figured by Felder with the locality „New Guinea" shows the characteristics of the Banda specimens and doubtless also came from Banda. — **goramensis** *Rothsch.* (♀ = ? polydorina *Haase*). ♂: the band of the forewing as in *adrastus* always well developed, distally to it neither above nor beneath distinct grey stripes; the band of the hindwing much broader than in *adrastus*, always entering the cell and posteriorly extending somewhat beyond the 2. median, measured in the middle the 2. to 4. patches are at most as long and the 6. patch somewhat more than half as long as their respective distances from the distal margin. ♀: only the *polydorina*-form known, [1]) which approximates to the corresponding form from Key; the cell-spot of the forewing

aegeus.

beatrix.

adrastus.

priasa.

tellias.

goramensis.

[1]) Wallace, Trans. Linn. Soc. XXV. t. 3. fig. 3, figures a ♀ which is said to be from Waigeu, but agrees very well with the Goram specimens. Fig. 4 of the same plate represents a white ♀ with the locality Goram; there

larger and like the discal spots tinged with yellowish and strongly brownish above; the posterior discal spots longer than in *keianus* and the veins separating them less broadly black. The marginal spots of the hindwing yellowish, the white cell-patch beneath about is large as the yellow-red anal spot or smaller,
kissuanus. above larger than beneath. Goram Laut and Manovolka. — **kissuanus** *Rothsch.* The ♂ resembles that of *goramensis*, but the band of the hindwing as somewhat broader. The light patches of the forewing in the ♀ are still more strongly brownish than in *goramensis*, the cell-spot is much smaller, the veins are more broadly black, the discal area of the hindwing is more distinctly suffused with yellow, the 1. patch of this
keianus. area is on the whole smaller and the marginal spots are larger. Kissoei, Watubela Islands. — **keianus** *Rothsch.* ♂: the subapical spots of the forewing diffuse and much smaller than in the preceding forms; the band of the hindwing always enters the cell, but never extends beyond the lower median; the red anal
amaranta. spot is nearly always present above though often weakly developed. The ♀ in two forms: ♀-f. **amaranta** *Rothsch.* is the *polydorina*-form, the light patches of the forewing at least on the under surface chalky white, the posterior ones strongly rounded basally and beneath also mostly rather sharply defined distally; the mar-
blanca. ginal spots of the hindwing larger than in the following subspecies. The light ♀ is ♀-f. **blanca** *Rothsch.*, similar to the lightest examples from New Guinea, the marginal spots of both wings larger and the isolated black discal spots of the hindwing nearer to the cell. Key Islands, according to H. Kühn rather rare; the
othello. ♀-f. *blanca* „flies only at the end of the rainy season". — **othello** *Grose-Smith.* A small form, of which only 3 specimens are known. ♂: forewing without subapical band, only beneath slight traces of it present; the band of the hindwing narrow, the patch placed behind the 2. median thin, the cell-spot small (the band has become yellow through discoloration, which is also the case in our only Biak example of *P. ambrax* from
desdemona. the same collection). The ♀ in 2 forms: ♀-f. **desdemona** *form. nov.*, patches of the forewing also above almost pure white, the cell-spot rounded, the last two discal patches elliptical, all sharply defined distally, especially on the underside; the veins in the distal part of the band of the hindwing less black than in *ormenus*, the submarginal spots above small, dusted with black, the 5. and 6. very small or absent, beneath smaller
thuria. than the preceding ones. No similar ♀ from other localities is known to me. ♀-f. **thuria** *form. nov.* is very similar to the lightest specimens from New Guinea, perhaps not constantly different; the 1. and 2. submarginal spots of the hindwing beneath narrow, as deep yellow-red as in ♀-f. *desdemona*, not present above, before the abdominal margin a thin black transverse patch with a blue streak, before this 3 separated black patches, of which the anterior one is shadowy above, the marginal tooth at the 3, radial projects very
aegatinus. distinctly. Biak, in Geelvink Bay. — **aegatinus** *Rothsch.* Likewise small. ♂: forewing with 2 or 3 very small subapical spots or none at all; band of the hindwing touching the cell, only entering it in one of the 8 specimens before me; beneath the hindwing has a complete row of blue discal spots, which are mostly large and at the proximal side of which there is not a trace of grey spots. The ♀ in 2 forms (it may be
melia. assumed that in addition a *tenarides*-form also occurs): ♀-f. **melia** *Rothsch.*, forewing above entirely brown, with a slight indication of 3 grey spots distally to the apex of the cell, these spots beneath somewhat more distinct, the middle one in the subcostal fork; the discal area of the hindwing basally rounded, with very small cell-spot, posteriorly scarcely reaching the 2. median; the red submarginal spots above thin, with the exception of the anal spot, beneath a row of 5 white discal spots is present, which are all remote from the cell and of
myrtis. which the first is very small. ♀-f. **myrtis** *Rothsch.*, the patches of the forewing beneath white and sharply defined, above very strongly blackened, the cell-patch transverse, beneath about three times as long as broad, the posterior discal patches more or less reduced, no whitish spot behind the submedian; only the posterior yellow submarginal patches of the hindwing above developed, beneath the 2. to 6. narrow, almost straight, and nearly equal in size, the white area as large as in normal New Guinea specimens, the spot placed behind the 2. median small.
ormenus. Mefor (= Mafoor) in Geelvink Bay. — **ormenus** *Guér.* (= ormenulus *Fruhst.*, aegates *Fruhst.*). The ♂ in two forms connected by transitions: ♂-f. **ormenus** *Guér.* (23 c), with a subapical band of large white spots on the
pandion. forewing, and ♂-f. **pandion** *Wall.*, with a band of small spots or entirely without band. The two forms do not everywhere occur together; on Aru there are only and on Waigeu almost only large-spotted specimens; in the intermediate districts: Misol, Salawatti, and Dutch New Guinea, and also on Jobi and everywhere in the north of Dutch and German New Guinea occurs almost exclusively ♂-f. *pandion*; at Huon Gulf and in British New Guinea on the contrary *pandion* is the exception and is almost entirely wanting on the islands to the east and south-east of British New Guinea, at least we only possess more or less large-spotted specimens from there. As a rule the band of the hindwing is broader behind the 2. median in ♂-f. *pandion* than in ♂-f. *ormenus*, but the difference is not at all constant. Also the ♀ has not yet developed geographical differences which recur in the majority of the specimens from any single locality. The principal forms are:
inornatus. ♀-f. **inornatus** *Rothsch.* (25 a). Forewing above entirely brown, beneath with whitish spots distally to the cell; hindwing with the white discal area reduced, especially beneath; only known to me from the Arfak Pe-
selcucis. ninsula and Yanarba Island, to the south-east of British New Guinea. ♀-f. **seleucis** *form. nov.*, forewing brown, with a subapical row of 5 spots, which are arranged as in the ♂ and of which the second is placed in the subcostal fork; discal area of the hindwing as in the preceding ♀ beneath widely separated from the

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is possibly a confusion in the locality of the two ♀♀. Haase gave fig. 3 the name *polydorina*, which we retain as a suitable designation for all the ♀♀ of *P. aegeus* which recall *P. polydorus*.

cell; only known to me from Waigeu. ♀-f. **timoxena** *form. nov.*, like the preceding, but the spots of the fore- *timoxena.*
wing are placed between the cell and the subcostal fork and thus correspond to the light patches surrounding the apex of the cell in the *polydorina*-form; the white area of the hindwing beneath not always strongly reduced; only known to me from Trobriand. Transitions from this form to the next I know from Waigeu, Etna Bay (Dutch South-West New Guinea) and Trobriand. The form which is common everywhere and may be regarded as normal I call ♀-f. **leporina** *nom. nov.* (the name *polydorina Haase* most probably refers *leporina.*
to the corresponding ♀-form from Goram), forewing lighter in the distal half, always with cell-patch, the light parts above usually more or less strongly brownish, beneath mostly pure white (or almost); hindwing with large white area, which anteriorly reaches the subcostal, distally to the 4. and the 5. patch a blue spot (often large), the anterior submarginal spots sometimes not developed, as a rule the 6. larger than the preceding ones. The light, *Tenaris*-like ♀♀ are: ♀-f. **amanga** *Bdv.* (= intermedia *Hag.*) (24 b), forewing entirely grey- *amanga.*
brown, hindwing for the most part white, with broad dark distal margin and yellow anal area; probably occurs everywhere, known from Waigeu, Huon Gulf and British New Guinea (Aroa River, in low situations). ♀-f. **onesimus** *Hew.* (= tenarides *Hag.*), both wings for the most part white; very variable in the details *onesimus.*
of the marking on the hindwing; everywhere, but rarer than ♀-f. *leporina*. The area of distribution of *ormenus* embraces the whole of New Guinea, Waigeu, Salawatti, Misol, Jobi, the D'Entrecasteaux Islands, Trobriand, Woodlark, the Louisiades and the Egum Group. — Lately ♂♂ from German New Guinea (Astrolabe Bay) with lemon-yellow band on the hindwing have been described as a separate species, **pan-** *pandoxus.*
doxus *Grose-Smith.* As in the same collection (sent by Wahnes) there was also a ♂ of *P. ambrax* with similarly coloured band, I infer that discoloration occurred after the death of the butterfly. The scales are normal. — **websteri** *Gr.-Sm.* ♂: the subapical spots of the forewing of medium size, always present, *websteri.*
the row sometimes continued almost to the hindmargin by small indistinct spots (in *ormenus* there are also in single specimens small white spots before the hindmargin); the band of the hindwing broad, the first patch not widened basally, the inner margin of the band consequently uniformly rounded from the costal to the 2, median. The ♀ in 2 forms: ♀-f. **sopaea** *form. nov.* resembles the ♂; forewing with curved sub- *sopaea.*
apical band of medium-sized spots; the white area of the hindwing smaller than in the ♂, anteriorly only extending to the subcostal, beneath remote from the cell. ♀-f. **bismarckianus** *Rothsch.*, forewing with a *bismarckianus.*
curved band of large discal patches from the costa almost to the anal angle, the upper patches close to the cell, the latter with apical patch, which above is narrow or entirely wanting; the white area of the hindwing on both surfaces large, usually a thin white transverse patch is placed behind the costal. New Pom-
erania (= New Britain). — **oritas** *Godm. & Salv.* The apex of the forewing less rounded. ♂: the sub- *oritas.*
apical band of the forewing much broader than in *websteri*, the white band of the hindwing proximally almost straight or the 1. patch distinctly prolonged basad, the patch placed behind the 2. median large. The ♀ in 2 forms: ♀-f. **ximene** *form. nov.* resembles the ♂, band of the forewing broader than in *websteri*; *ximene.*
the area of the hindwing above large, extending from the subcostal to the 2. median or beyond it, beneath entirely obsolete or represented by grey-yellow discal nebulous spots. ♀-f. **nymphasia** *form. nov.*, the patches *nymphasia.*
of the forewing less sharply defined than in ♀-f. *bismarckianus*, more brownish, the cell-patch larger; the hindwing with longer tooth at the 3. radial and with paler submarginal spots. New Mecklenburg (= New Ireland) and New Hanover.

P. tydeus. Differentiated from all the forms of *P. aegeus* by the large ochre-yellow submarginal spots of the hindwing, which are distally truncate or emarginate and proximally are produced along the veins into bracket-like projections. ♂ always with subapical oblique band of white spots; the band of the hindwing narrow, not touching the cell, the 1. patch prolonged almost to the base. The ♀ appears only in the *tenarides*-form: forewing lighter in the centre; hindwing from the base to the disc yellowish white, at the proximal side of a broad discal band of large, black, connected patches ochre-yellow; the base of the costal margin beneath broadly black. Only on the Northern Moluccas. — **tydeus** *Fldr.* flies on Morty, *tydeus.*
Halmaheira, Ternate and Batjan. ♂: the spot placed behind the subcostal fork on the forewing shorter than its distance from the cell. ♀: the cell-spot of the forewing beneath reaches the base of the lower median; at the innerside of the 1. black discal spot of the hindwing beneath is placed a thin, often very diffuse, yellowish transverse spot. — **obiensis** *Rothsch.*, from Obi. ♂: the subapical band of the forewing broader than *obiensis.*
in *tydeus*, the 4. spot longer than its distance from the cell. ♀: both wings more extended light; the cell-spot of the forewing beneath extends to beyond the base of the 2. median; the transverse spot placed at the innerside of the 1. black discal spot of the hindwing beneath is produced basad along the subcostal.

P. gambrisius. Perhaps not specifically different from *P. aegeus*. Palpi less white. ♂: forewing with 4 subapical spots, the 1. and 2. small, sometimes absent, these spots beneath mostly much smaller than above. The band of the hindwing as in *P. aegeus* anteriorly widened basad, at the distal side of the 5. and 6. patches more or less strongly developed grey nebulous spots, the 5. patch at most half (usually only $^1/_3$) as long as its distance from the distal margin; beneath the hindwing bears a row of blue discal patches and proximally to them grey spots. ♀ monomorphic: forewing with large cell-patch and long discal patches. Hindwing with yellowish white, posteriorly ochre-yellow median band, which always reaches the costal and is broader posteriorly than between the costal and the cell; distally to the band large blue spots.

The earlier stages not known, probably very similar to those of *P. aegeus*. A butterfly of the open woods with a profusion of undergrowth, among which it flies about with great rapidity; it drinks at puddles and
gambrisius. the edges of brooks. Southern Moluccas. — **gambrisius** *Cr.* (♀ = drusius *Cr.*, fusconiger *Goeze*, drimachus *Godt.*; ♂ = amphitrion *Cr.* artefact; ♂♀ = colossus *Fruhst.*) (24 b). ♂: under surface of the hindwing with
abbreviatus. small yellow-red anal spot, without submarginal spots. ♂-ab. **abbreviatus** *Rothsch.*: band of the hindwing only reaching the 2. median; from Amboina in coll. Oberthur (ex coll. Boisduval). Fruhstorfer's *P. aegeus*
oritinus. **oritinus,** which was described from a specimen without locality, is perhaps an aberrant starveling of *gambrisius* with exceptionally large grey discal patches on the underside of the hindwing. According to Fruhstorfer ♂♂ from Ceram have a much larger and ♀♀ a much smaller cell-spot on the hindwing than examplee from Amboina, which is not confirmed by our specimens. ♀: the 3.—5. spots of the band of the hindwing shorter than the 1. and 2. spots. Amboina, Saparoea, Ceram. Rare; collectors obtain but few specimens;
buruanus. the insect easily eludes pursuit by its swift flight. — **buruanus** *Rothsch.* ♂: apex of the forewing strongly striped with grey, the subapical spots mostly larger than in the preceding form. The band of the hindwing narrower, the yellow-red anal spot on the underside of the hindwing large, also several yellow-red submarginal spots are present. ♀: the 1. and 2. spots in the band of the hindwing shorter and the 3.—5. longer than in *gambrisius*, the yellow-red submarginal spots above and beneath sharply developed. Buru, at the coast and in the mountains.

P. inopinatus. Nearly allied to *P. aegeus*. ♂: forewing with broad, white subapical band, which extends from the costal margin to the 3. radial and touches the upper angle of the cell. The band of the hindwing similar to that of *P. aegeus*, the 4. patch the longest, about as long as its distance from the distal margin, the 6. thin, posteriorly pointed, often not reaching the 2. median, behind this vein no white spot; the yellowish red anal spot above always present, beneath in addition one or several submarginal spots developed, the white cell-spot small or absent. ♀ in one form: forewing with broad white or somewhat yellowish band from the middle of the costal margin to the hinder angle; hindwing black, above without discal spot, but with large red submarginal spots, beneath with very narrow diffuse brownish yellow or whi-
inopinatus. tish discal band, which is remote from the cell. The earlier stages unknown. — **inopinatus** *Btlr.* (24 a), from different islands of the Tenimber Group. The anal spot of the hindwing in the ♂ and the submarginal
kosmos. spot of the upperside of the hindwing in the ♀ red. — **kosmos** *Fruhst.* (= inauris *Fruhst.*). The submarginal spots of the hindwing somewhat more yellowish (faded after death in the tropical climate?) and the marginal spots on the whole somewhat larger; none of the other differences given by Fruhstorfer are tenable. Babber, Dammer and Roma.

oberon. **P. oberon** *Gr.-Sm.* (23 c). Nearly allied to *P. aegeus*. ♂: forewing with rather broad, straight macular band; the band of the hindwing reaches the 2. median, the red anal spot is large; beneath the hindwing has a complete row of large red submarginal spots and from the anal patch forwards a number of yellowish white discal spots. ♀: forewing above with some somewhat diffuse spots distally to the apex of the cell; these spots beneath developed into a broad band, which touches the apex of the cell and runs from the costal to the 3. radial; on the under surface a small angular spot in the cell and a larger white spot before the anal angle. Hindwing above with small yellowish white discal area from the subcostal nearly to the abdominal margin, consisting of 7 spots (including the cell-spot), beneath the area developed into an anteriorly and posteriorly thin band, which reaches to the costal and touches the cell; the red submarginal spots large on both sides. — On the Santa Cruz Islands.

P. bridgei. The sexes very different. ♂ black as in *P. aegeus*, forewing with macular band from the costal to the hindmargin, or with subapical band and a patch placed before the hindmargin. The white band of the hindwing formed as in *P. aegeus*, i. e. the 1. patch prolonged basad; beneath the hindwing has red-yellow or reddish grey submarginal and blue discal spots. The ♀ corresponds to the *polydorina*-form of *P. aegeus*; the patches white or yellowish, the submarginal spots of the hindwing sometimes yellow-red; the forewing with large cell-spot, which is remote from the apex of the cell, and a band of discal patches which are separated by broad brown-black vein-stripes and of which the 3 posterior ones are placed much further from the distal margin than in *P. aegeus*; the hindwing with large cell-spot and 6 patches placed round the cell, which are distally rounded and all closely approximated to it, the 1. spot sometimes indistinct or obsolete. Larva very similar to that of *P. aegeus*, green, with irregular, short light longitudinal streaks, black head, black legs and above them a broad black longitudinal stripe, from which 4 bands emanate, on the 4., 7., 9. and last segments; the spines as in *P. aegeus*; on Citrus, in the forest. Pupa as in *P. aegeus*, in proportion to its size somewhat more slender. The butterfly in woods, where it is not easy to catch on account of the thick undergrowth and its swift flight. Appears to occur on all the islands
bridgei. of the Solomon Group, but is not yet known from Maleyta. — **bridgei** *Math.* (= fischeri *Ribbe*, nobilior *Fruhst.*, togonis *Rothsch.*). Our large series of specimens shows that only one form flies on the islands from Bougainville to Isabel; the differences given for the specimens from the various islands prove to be quite unreliable. The submarginal spots of the hindwing beneath in ♂ and ♀ large, at least the posterior ones broader than or as broad as the black border separating them from the marginal spots. Ribbe has named

yellowish ♀♀ ab. **gorei.** Bougainville, Fauro, Alu, Treasury, Choiseul and Isabel. — **ortegae** *Rothsch.* A transitional form to *hecataeus.* Submarginal spots of the hindwing beneath in the ♂ small, narrower than the black border separating them from the marginal spots, the anterior spots of the forewing larger than in the preceding form, sometimes all the spots except the last two very small. In the ♀ the marginal spots of the forewing and the submarginal spots of the hindwing smaller, the marginal spots of the hindwing on the contrary somewhat larger than in *bridgei.* Florida and Gela. — **hecataeus** *Godm. & Salv.* (25 a). ♂: the 5. and 6. spots of the forewing always much smaller than the preceding spots, which are larger than in *ortegae* and *bridgei* and also beneath large and sharply defined. ♀: the marginal spots of the forewing beneath smaller than in the other forms, none of the admarginal spots being distinctly developed, whilst the latter in *ortegae* and *bridgei,* but especially in *prospero,* are merged together with the marginal spots into nailhead-patches; the 4. discal spot of the forewing, reckoning from behind, dot-like or at most as large as the 3. On Guadalcanar. — **tryoni** *Math.* ♂: the band of the forewing consists of 5 spots; the hindwing has some submarginal spots above. ♀: hindwing above and beneath with yellow-red submarginal spots. Ugi and San Cristoval; 1 ♂ in coll. GODMAN, 2 ♀♀ in the Tring Museum. — **prospero** *Gr.-Sm.* (24 a). The most aberrant form (cf. *P. woodfordi laarchus*). ♂: forewing with subapical band and before the hindmargin one or two patches, sometimes a few more spots are slightly indicated between the band and these patches, which correspond to the posterior spots of the band of the preceding forms; band of the hindwing very broad, with long teeth; on the under surface of the hindwing the anterior submarginal spots are wanting. ♀: on the forewing above and beneath admarginal spots which form nailhead-patches with the marginal spots; the submarginal spots of the hindwing very large, strongly emarginate distally, especially above. On New Georgia and the neighbouring islands: Kulambangra, Guizo, Rendova, Vella Lavella.

gorei. ortegae. hecataeus. tryoni. prospero.

P. woodfordi. Sexes similar, the ♀ somewhat paler. Forewing above with complete broad white discal band or only with white spots between cell and apex. On the upper surface of the hindwing a white discal band which extends from the costal to the abdominal margin and is almost straight proximally, the 1. patch of the band always smaller than the 2., commonly much shorter than the 7.; the marginal tooth of the 3. radial distinctly projecting. On the under surface of the forewing a subapical band, which is commonly reduced to some faint spots. The hindwing beneath with submargianl spots, of which above mostly only the anal spot (sometimes also a second one) is developed; on the disc blue spots and proximally to these frequently a grey macular band. Northern Solomon Islands. The larva on Citrus; green, the underside with the exception of the thorax grey-green, on the raised 4. segment a black belt, which laterally is produced into a point anteriorly; on the pronotum and the 11. segment a pair of pale spines. — **woodfordi** *Godm. & Salv.* (23 b). Forewing with a band running from the costal to the hindmargin, which is more or less interrupted below the 2. radial. ♀♀ with yellowish bands are ab. **ochracea** *Ribbe.* Bougainville and Shortland Islands (Alu, Fauro). — **choiseuli** *Rothsch.* (24 b). The band of the forewing only developed in the anterior part, which is placed close to the apex of the cell. Choiseul. — **ariel** *Gr.-Sm.* Forewing in the ♂ with 2—4, in the ♀ with 3—5 spots, which are separated from the cell, posteriorly on the disc commonly traces of white spots; the band of the hindwing narrower than in the two preceding forms. Isabel. — **laarchus** *Godm. & Salv.* (23 b). Forewing with an oblique subapical band remote from the cell, terminating before the 2. radial half-way between cell and distal margin and appearing again before the hindmargin in the form of diffuse spots. The band of the hindwing almost twice as broad as in *ariel.* Rubiana Group: New Georgia, Kulambangra, Vella Lavella, Guizo, Rendova; common. The butterfly has a swift flight like all the allied species; it occurs principally in the open forest with much undergrowth, but also flies in the thick primeval forest.

woodfordi. ochracea. choiseuli. ariel. laarchus.

P. ptolychus *Godm. & Salv.* (23 b). Forewing with a curved band between cell and apex and a row of 3 or 4 submarginal spots from the hindmargin to the 2. or 3. radial. The band of the hindwing much narrower than the black marginal area, curved, rarely entering the cell. The ♀ paler than the ♂, hindwing above often with submarginal spots. — Guadalcanar and Florida.

ptolychus.

P. erskinei *Math.* ♂: forewing more rounded than in the two preceding species, above with a row of spots from the costal to the hindmargin, all the spots separated with the exception of the last three, beneath with four large, separated subapical spots. The band of the forewing touches the apex of the cell and is as broad in the middle as the black marginal area; the red anal spot large; beneath a complete row of red submarginal spots. — Ugi; only 1 ♂ known (in coll. GODMAN, now in the British Museum).

erskinei.

Memnon Group.

The wings beneath red or yellow at the base, with the exception of *P. ascalaphus* and *protenor.* ♂: upperside of the hindwing always black, never with white band, but almost always with grey or white-blue scaling, which is sometimes condensed into a broad band composed of stripes, only in *protenor* a large white costal patch present, which is hidden by the forewing. ♀ similar to the ♂ or with white, yellowish or reddish discal area or band on the hindwing, mimicking Aristolochia-Papilios.

P. ascalaphus. Underside of the body almost without traces of grey-white longitudinal lines; palpi with white spot, both sexes tailed and above and beneath without patches at the base. ♂: forewing with yellowish grey, hindwing with grey-blue or yellowish grey stripes before the distal margin; beneath the stripes of the forewing more discally placed, those of the hindwing replaced by much shorter grey-blue discal spots, distally to which are placed yellow submarginal spots, more or less shaded with blue. The ♀ very different from the ♂; the forewing from the base to about the 2. median black, then follows a large, posteriorly narrowed central white area, which is intersected by black stripes, the distal margin again broadly black; hindwing with large white central area, interrupted by the veins, which in a second ♀-form is only indicated by indistinctly defined grey and bluish patches; the red-yellow submarginal spots, with white tips, are well developed above and beneath. The earlier stages not described. The yellow egg is laid on Citrus, on which the larva lives. The butterfly is very common, especially in lower elevations near the coast. It is frequently found at Papaja flowers. „The ♀♀ are also fond of hiding in the foliage of Citrus trees and fly about
ascalaphus. even in the gardens and streets of Macassar" (FRUHSTORFER). — **ascalaphus** *Bdv.* (33 a), from Celebes. ♂: on the upper surface of the hindwing with broad grey-blue band composed of stripes. The ♀ bears normally a large white discal area on the hindwing; but sometimes specimens also occur in which this area
nubiger. is replaced by indistinct, blue-dusted grey patches: ♀-ab. **nubiger** *Fruhst.*; this darkened form is only known
ascalon. to me from North Celebes. — **ascalon** *Stgr.* (28 a). ♂: the stripes on the upperside of both wings short and yellowish, on the hindwing much less prominent than in *ascalaphus*. In the ♀ the middle of the forewing and the discal area of the hindwing are purer white than in *ascalaphus*. Sulla Islands: Mangola.

P. oenomaus. Black, tailed, entirely without blue scaling, the forewing elongate. ♂: forewing parallel with the distal margin with broad discal band which is pale yellow above, grey-white beneath; hindwing above without markings, beneath with a single row of yellowish red submarginal spots, which are remote from the cell and are sometimes indicated above also, and with 3 red basal patches. In the ♀ the disc and cell of the forewing are semitransparent, the band is paler and the red basal patch, which in the ♂ is only present beneath, is developed above also; on the hindwing a median band, which is reddish at its edges, the red submarginal spots above and beneath large, and the marginal spots reddish. The ♀ is very similar
oenomaus. to *P. liris*, and flies together with it. — **oenomaus** *Godt.* (28 b). occurs on Timor, Moa, Kisser and Roma (most probably also on the other small islands between Timor and Tenimber). The ♀ with broad median band on the hindwing. Whilst *P. liris* is different on almost all the islands, *oenomaus* apparently shows no differences either in ♂ or ♀ on those mentioned above. On the other hand the following subspecies follows
subfasciatus. its model. — **subfasciatus** *Rothsch.* (28 b), from Wetter, is distinguished in the ♀ by a very narrow, incomplete discal band on the hindwing, just as *P. liris wetterensis*. This band is above and beneath pale red and usually interrupted before the cell, sometimes it is only faintly indicated beneath between costa and cell. The ♂♂ are not constantly different from *oenomaus*; in general they have the band of the forewing somewhat narrower.

P. polymnester. ♂: a broad, costally obsolescent discal band on the forewing and the distal $^2/_3$ of the upperside of the hindwing white-blue; this area encloses a row of black discal patches and a similar row of submarginal spots; some of the latter united with the black distal margin. On the under surface the band of the forewing more discal and the area of the hindwing reduced, especially from the base, both dirty yellow-grey. The ♀ paler than the ♂, the band of the forewing and the area of the hindwing yellowish white suffused with bluish. The full-grown larva green, with strongly swollen thorax, shiny, at the sides of the thorax a thin white lateral line and above the prolegs a broader lateral stripe; on the thorax a black-dotted spectacle-marking and behind it a raised belt marked with black and white, at the sides of the abdomen two abbreviated white oblique bands, the anal segment likewise white. Pupa brown or green, with obtuse, strongly produced horns on the head and widely expanding wing-cases. On Citrus, Atalantia, Paramigyna, etc. The butterfly especially common in the plains, but also ascends high into the mountains, and occurs all through the summer in gardens, open country and in the woods. The flight is in general slow and imposing, yet the butterfly can also dart through the air. It is often taken at flowers, over which it remains hovering; it shows itself at such times so fearless that it can be caught with the fingers. Ceylon and South India to Calcutta; north of the Ganges only single stragglers, is said also to have been seen (!)
parinda. in Burma. — **parinda** *Moore* (26 a). ♂: not constantly different from the following form; the band of the forewing broad, the stripe placed behind the 2. median longer than its distance from the cell. ♀: the band of the forewing and the light area of the hindwing yellowish, much less blue than in the ♂. Everywhere
polymnestor. in Ceylon. — **polymnestor** *Cr.* (26 a). ♂: band of the forewing usually narrower than in the preceding form. ♀: almost as blue as the ♂ or at least bluer than the ♀ of *parinda*. Distributed over the whole of South India to Calcutta, in the Tring Museum also a (migrant) ♂ from Sikkim (MÖLLER coll.) and a second from Assam.

lampsacus. **P. lampsacus** *Bdv.* (26 b). Two longitudinal lines beneath at each side of the abdomen and a broad discal band on the hindwing, produced at the veins to the distal margin, white-yellow, the anal spot of the band and a narrow basal central streak on the under surface of the hindwing deeper yellow. The ♀ paler

than the ♂, with white-yellow basal patch on the upperside of the forewing. — Java: in the mountains, at 1500—4000 ft. elevation. A mimic of the Aristolochia Papilio *P. priapus*.

P. forbesi *Gr.-Smith* (26 b). Abdomen entirely black; under surface of the hindwing with red costal patch at the base. ♂: forewing with long, strong grey stripes before the distal margin; hindwing above with some grey submarginal lunules, which vary in number, the white marginal spots large. Under surface of the hindwing with large ochre-yellow area, which extends from the anal angle to the radial veins, is remote from the cell and encloses black patches; above this area some small blue spots. ♀ paler than the ♂, the grey stripes of the forewing extend to the cell and the latter is likewise striped; hindwing with large, almost pure white area, which extends to the subcostal or the 1. radial, almost reaches the cell and encloses large black discal and submarginal patches; forewing above with yellowish white patch at the base of the cell: ♀-f. **humeralis** *form. nov.*, or without this patch: ♀-f. **nigribasalis** *form. nov.* — Only known from the mountains of Sumatra, not below 3000 ft.; flies all the year round; the ♂ common on the sand of river-banks; the ♀ very rare. *forbesi. humeralis. nigribasalis.*

P. acheron *Gr.-Smith* (= goetheanus *Fruhst.*) (27 a). Very similar to the preceding species, the stripes of the forewing much weaker, the red basal spot on the underside of the hindwing larger, the light area in ♂ and ♀ yellow and very much smaller than in *forbesi*, in the ♀ only very little larger than in the ♂; the upper surface of the hindwing in ♂ and ♀ without markings except for a row of large, shadowy discal patches consisting of scattered blue-grey scales, the marginal spots very thin. — North Borneo, in the hills (Kina Balu, Mt. Mulu, Mt. Dulit, etc.), the ♂ common. *acheron.*

P. mayo *Hew.* (♀ = charicles Hew.) (25 b). One of the most beautiful species of this group. ♂ tailless, though the marginal tooth of the 3. radial projects perceptibly; hindwing above with a densely scaled, broad light blue discal band, which mostly touches the cell and is placed at a distance from the distal margin. The posterior discal, submarginal and usually also the marginal lunules brown-red; sometimes all these red spots are absent, the anal ring is only feebly indicated, and a very conspicuous grey-blue macular band is placed on the disc. The ♀ monomorphic, a mimic of the Aristolochia Papilio *P. rhodifer*, which is common in that locality: forewing with red basal spot, the disc and cell lighter as in the ♀ of *P. oenomaus*; hindwing with large white cell-spot and an interrupted row of discal patches placed at the cell, the submarginal spots dull red, the posterior ones very large, the last prolonged into a broad stripe which reaches the white discal spot, tip of tail whitish red. Under surface as upper, the anterior marginal spots of the hindwing whitish. — Andamans, the ♂ common. *mayo.*

P. lowi *Druce* (25 b). ♂ and ♀ tailed. ♂ black, upper surface of the forewing with rather short blue-grey stripes at the distal margin; hindwing with broad, blue-grey, densely scaled band, which extends nearly to the distal margin, is almost uniformly concave towards the base and does not reach the cell. ♀ in two principal forms; forewing with the exception of the base much lighter, the red basal spot at least indicated, the blackish stripes between the veins weaker than in the *memnon*-forms, hindwing with large white, distally yellowish central area, which is intersected by the thin black veins: ♀-f. **zephyria** *form. nov.*; or the hindwing almost entirely black, without white area: ♀-f. **suffusus** *Lathy.* — Palawan, Balabac and North Borneo. *lowi. zephyria. suffusus.*

P. memnon. Palpi with 3 small white spots. Under surface of the wings with large, dull red spot at the base, which on the hindwing is divided by the veins and is often present also on the upper surface of the forewing. ♂ black, with greenish or bluish sheen, the veins of the forewing accompanied by light bluish stripes. Hindwing above likewise with grey-blue stripes, which are mostly indistinctly defined; always without tail. Under surface of the hindwing in the distal part with 2 rows of large black patches, which are surrounded by grey, grey-blue, yellowish or yellowish red scaling, often only the submarginal black patches distinct and sometimes only the posterior ones of these. The ♀ in some districts fairly constant, in others extraordinarily variable. Of these different ♀-forms only a few can be regarded as mimetic. The forewing of the ♀ is always paler than in the ♂; the hindwing above dark, often striped with blue as in the ♂, and beneath as in the ♂ with 2 rows of black patches, or the hindwing with white discal patches and beneath with only one row of black patches, which are often very large and joined together. These two principal forms tailless and extraordinarily variable individually. The form which appears to be the oldest is tailed, has on the hindwing a white cell-spot (often large) and round the cell a row of likewise white patches, the distal ones more or less yellow or dull red; similar to the white-spotted ♀ of *P. lowi*, but the veins which separate the spots more broadly black. This tailed ♀-form is wanting in Borneo and is there represented by an otherwise quite similar tailless form. The abdomen of the ♀♀ with light hindwing is often yellow at the sides. The young larva brown, anteriorly on the thorax and on each of the last two abdominal segments with a pair of light spines, which disappear later; when full-grown dark velvety green, here and there bluish, the thorax swollen, with spectacle-marking and black transverse band, before which a whitish green band is placed, at the sides of the abdomen two whitish green oblique bands, of which the first is dorsally united with the band of the other side, the tip of the abdomen and a longitudinal stripe above the legs greenish white; the scent-fork in the young larva black, afterwards red. Pupa green or brown, above between the

wing-cases yellow; horns on the head strongly projecting, the wing-cases broad, the first 3 abdominal segments above them rough, the 3. segment triangularly widened laterally. On Citrus. Dr. MARTIN has bred tailless ♀♀ from the green eggs of a tailed ♀. Distributed from South Japan and North India to Borneo and the small Sunda Islands; wanting in South India and on Ceylon, where the species is replaced by *P. polymnestor*. The butterfly is very common and occurs in the northern districts from the spring to the autumn and in the southern localities all the year round; in lower elevations, in the Himalayas up to 7000 ft. It occurs everywhere near the settlements and in open woods. The ♂ visits flowers, but is never met with on moist places on the roads; its flight is swift and restless, whilst the sluggish ♀ sails more slowly and is therefore easier to catch. — The most northerly race is **thunbergi** *Sieb*, from Kiu Shiu, whose spring form has recently been designated by FRUHSTORFER f. temp. *mela*. — **pryeri** *Rothsch.* (30 b) flies on the Loo Choo Islands. ♂: the grey-blue stripes of the upper surface narrow and the posterior stripes of the hindwing far removed from the margin. Spring specimens as in the preceding race have a red basal spot on the upper surface of the hindwing. The ♀ only in one fairly constant form: forewing with white double stripes between the veins, so that the disc, especially the posterior part, appears almost pure white with black stripes; hindwing as in the ♂ with distinctly projecting tooth at the 3. radial, with a discal row of 5—7 large white patches and sometimes some white scales in the apex of the cell, the marginal spots above scarcely indicated, with the exception of the posterior two, which are reddish. — **agenor** *L.* (♂ = androgeus *Cr.*, mestor *Hbn.*) (30 a). This subspecies, which is polymorphic in the ♀, shows charcteristic differences in every geographical district, but the totality of the individuals from one district is not separable from the totality of the examples from another, since the various districts have all some forms in common. In the normal ♂♂ the forewing above and beneath and the hindwing above are broad-striped; the under surface of the hindwing is more or less red in the anal part, sometimes this colour extends to the costal margin, rarely no red at all is present, and often there is a blue macular band on this side, sometimes some of the stripes of the forewing beneath are also glossy blue; in spring specimens of the northern districts the upper surface of the forewing has usually a red basal spot. In ab. **heronus** *Fruhst.* the stripes of the forewing beneath are reduced in length and breadth; here belong all the examples known to me from Formosa, but specimens with a similar development of these stripes are also met with in other districts. ♂-ab. **primigenius** *Rothsch.* (27 a) is an aberration recalling *P. polymnestor* by the condensation of the light blue scaling on the upper surface of the hindwing and has the black submarginal spots especially heavily margined with white-blue; only known to me from Sikkim and the Khassia Hills in Assam. Still more peculiar is ab. **polymnestoroides** *Moore* (32 c), which occurs both in ♂ and ♀: the stripes on the upperside of the forewing in the ♂ are short, those of the hindwing above are densely scaled, linear, and do not reach the distal margin or enter the cell; in the ♀ the forewing is sepia-colour, distally lighter, and the otherwise dark hindwing bears a large blue central area, extending from the subcostal to the hindmargin, which is distally produced into streaks; known from Assam (Jaintia Hills) and Calcutta. The Tring Museum also possesses transitions from this aberration to normal specimens. In ab. **depelchini** *Robbe* ♂ and ♀ are characterised by more strongly dentate hindwing, also almost all the grey-blue scaling is absent on the upper surface; the upperside of the hindwing with greenish gloss, in the ♀ with open red anal ring and very slight traces of black patches; Sikkim. Of the polymorphic ♀, besides the ♀♀ of ab. *depelchini* and *polymnestoroides*, the following principal forms are known, each of which again varies considerably in itself: all the ♀♀ have at least traces of red or yellow-red spots at the anal angle of the hindwing and always possess on the upper surface of the forewing a red basal spot. ♀-f. **rhetenorina** *form. nov.*, tailless, both wings dark sepia-colour, forewing with darker stripes between the veins, hindwing above with slight blue scaling and often red anal ring, which is sometimes replaced by a spot without black centre, usually a broad white stripe along the hindmargin beneath; North India. ♀-f. **butlerianus** *Rothsch.* (29 b), like the preceding, forewing with white area before the hindmargin, hindwing above more strongly scaled with blue; North India to Malacca. ♀-f. **esperi** *Btlr.* resembles the ♂ above and beneath, but the forewing has a large white subapical area as in the forms from Sumatra and Borneo mentioned below; only known from Malacca. ♀-f. **vinius** *Fruhst.* (= cilix *Dist.* nec *Salv. & Godm.*), forewing unicolorous, with the usual stripes, hindwing above with 2 white patches and traces of a 3., beneath without these patches; only known from Malacca. ♀-f. **phoenix** *Dist.*, forewing as the preceding, hindwing above and beneath with 4 or 5 patches, of which especially the posterior ones are often broadly red; in North Indian specimens the last spot is frequently prolonged basad and there are often black discal patches beneath, rarely a white spot is placed in the cell; Malacca to North India. ♀-f. **agenor** *L.*, larger than *phoenix*, the forewing in general somewhat lighter, sometimes almost as much striped with white as in *pryeri*, the hindwing with 5—7 white or yellowish discal patches, the posterior ones only prolonged basad in examples with very large patches, there are also no black discal spots present, not even in specimens with proportionately small white patches; the marginal spots of the hindwing more transverse than in ♀-f. *phoenix*; Formosa, China, Hainan, ? Tonkin, Burma. The following ♀♀ are tailed: ♀-f. **alcanor** *Cr.*, the cell-spot of the hindwing and sometimes also the discal patches (as in CRAMER'S figure) small, the black vein-stripes always thick; Formosa, China, North India, Burma, Tenasserim. ♀-f. **distantianus** *Rothsch.* (= achates *Cr.* nec *Sulzer*) (33 a). The cell-spot of the

thunbergi. *pryeri.* *agenor.* *primigenius.* *polymnestoroides.* *depelchini.* *rhetenorina.* *butlerianus.* *esperi.* *vinius.* *phoenix.* *alcanor.* *distantianus.*

hindwing large; Malacca to Hainan, China, and Formosa; these two tailed forms, which are connected by transitions, probably occur everywhere. From Formosa a further tailed form is known to me, which is strikingly like specimens of ♀-f. *agenor* with very light hindwing: ♀-f. **titania** *form. nov.*, forewing sepia-colour, with dark stripes; on the hindwing a very small cell-spot, a row of 7 discal patches, of which the 3.—7. are very large, and a row of large marginal spots white, the posterior marginal spots slightly yellowish, the black vein-stripes thin, beneath the cell-spot is wanting and the discal patches are abbreviated basally. — **anceus** *Cr.* is the race which inhabits Sumatra, Nias and Batu. In the ♂ the upper surface is very similar to that of the ♂ of *agenor*; beneath the cell-stripes and discal stripes of the forewing are broad and the distal-marginal area of the hindwing is blue-grey, often somewhat yellow at the anal angle, in exceptional cases the yellow tint is deeper and more extended. In this race also the ♀ does not occur everywhere in the same forms; the abdomen is posteriorly nearly always yellow; the hindwing in the dark forms is above more densely scaled with blue than in the other Malayan races, the basal spot of the forewing above is red or white, not yellow, the tailless forms with white band on the hindwing always bear beneath two rows of black spots and the tailed form is likewise easy to distinguish from the corresponding form from other districts, as described below. The principal types of the ♀ are: ♀-f. **erebinus** *Haase* (30 a), abdomen black or posteriorly yellow; forewing dark, between cell and apex more or less extended white, basal spot always red; hindwing above (as also the forewing) paler than in the ♂, but quite as densely scaled with blue; Sumatra. ♀-f. **trochila** *form. nov.*, forewing with red basal spot and often a distinct white patch between cell and apex; upper surface of the hindwing at least in the middle scaled with blue, distally pale, in addition to the black submarginal spots with a row of smaller discal spots; Sumatra, Nias, Batu. ♀-f. **anceus** *Cr.* resembles the preceding form, but the basal spot of the forewing is white; Sumatra, Nias. ♀-f. **sitolensis** *Fruhst.*, similar to *anceus*, but the upper surface of the hindwing distally more or less yellow, the apex of the cell also yellow; only known from Nias. ♀-f. **gerania** *form. nov.*, forewing with white area between cell and apex, the basal spot red; hindwing with broad yellowish white band, which at least beneath bears two rows of black spots, abdomen posteriorly yellow; Sumatra. ♀-f. **ityla** *form. nov.*, like the preceding, the band of the hindwing white-yellow, the black submarginal spots very large, the distal margin blackened, the abdomen black; Nias. ♀-f. **butis** *form. nov.*, tailed, the basal spot of the forewing red, the border of the hindwing broadly black, the margin itself and the veins less deep black, the last white discal patch distally orange-yellow, sometimes also the last but one; abdomen yellow, a dorsal line and the under surface black; Sumatra. ♀-f. **hellopia** *form. nov.*, like the preceding form, but all or almost all the white discal patches of the hindwing distally yellow; Nias, Batu. The tailed form is the rarest in all the localities; the tail is sometimes scarcely widened at the tip. — **memnon** *L.* (♂ = atrovenatus *Goeze*, arbates *Zinken*, memnoides *Fruhst.*) (33 a). ♂: the blue streaks of the upper surface in general shorter than in the ♂ of *anceus*, on the hindwing commonly not reaching the cell; beneath the cell-stripes of the forewing less distinct and the discal stripes less broad basally and commonly not touching the cell; the distal area of the hindwing beneath blue-grey as in *anceus*, usually somewhat yellow posteriorly. In a ♂ from Java (Sukabumi) the streaks of the upper surface are glossy blue and cover almost the whole hindwing, also beneath the stripes of the forewing and the central port of the hindwing are cyaneous blue: ♂-ab. **sericatus** *Fruhst.* The ♀ as in *anceus* extraordinarily variable; the abdomen either entirely black or the sides and back with the exception of a dorsal line yellow; the hindwing above rarely with distinct glossy blue scaling; the basal spot of the forewing red or yellow, never white; the forms with broad, white area on the hindwing have also beneath only one row of black patches. We treat the specimens from Borneo, Bunguran, Banka, Bawean, Java and Bali as belonging to one geographical race, but several of the ♀-forms are confined to one or other of the islands, so that we have here no more than in *anceus* and *agenor* a geographically uniform subspecies. ♀-f. **gyrtia** *form. nov.*, forewing above with red basal spot and white subapical area, otherwise very dark; hindwing almost pure black, distally with very slight yellowish scaling; Borneo, corresponds to ♀-f. *erebinus Haase* from Sumatra. ♀-f. **dobera** *form. nov.*, forewing with sharply defined, black basal area, which does not reach the base of the lower median, and red basal spot, otherwise broadly striped with white, these stripes broadest towards the base and distally shaded with blackish brown, so that the forewing recalls the ♀♀ of *pryeri* and *thunbergi*; hindwing black, distally somewhat paler; Borneo. ♀-f. **laomedon** *Cr.* (= memnoides *Fruhst.*) (30b), forewing more or less brownish sepia-colour, with black base and black interneural stripes, red basal spot and usually a whitish subapical area; hindwing distally sepia-colour to yellow-grey, with two rows of black spots; abdomen black; Bunguran, Borneo, Java, Banka; the commonest form. ♀-f. **hiera** *form. nov.* (30 b), forewing as in the preceding form, hindwing with broad white or yellowish band and a row of black submarginal spots, the black discal patches absent also beneath, abdomen black; Java, Banka. ♀-f. **imperiosa** *Fruhst.* (48 b). Forewing white before the distal margin from the subcostal fork to the hindmargin, this band-like area posteriorly widened; the yellowish white area of the hindwing reaches the cell, in the apex of which a small white spot is placed; the extreme tip of the abdomen yellow; only known from Banka, where this form appears to be common. ♀-f. **isarcha** *form. nov.*, forewing as in ♀-f. *laomedon* of lighter or darker sepia-colour, with sharply defined black basal area and red basal patch; hindwing for the most part white, distally with yellowish tinge and a row of black patches, basally the white area reaches to about the middle of the cell, sometimes almost to the base; abdomen black; Java to Bawean, on Banka represented by the preceding form, on Borneo by the following one. ♀-f. **venusia** *form. nov.* (48 b), abdomen yellow as in the tailed forms, a dorsal line and the underside black, forewing

titania. *erebinus.* *trochila.* *anceus.* *sitolensis.* *gerania.* *ityla.* *butis.* *hellopia.* *memnon.* *sericatus.* *gyrtia.* *dobera.* *laomedon.* *hiera.* *imperiosa.* *isarcha.* *venusia.*

as in the preceding, but the distal margin not darker than the disc, the hindwing nearly to the base yellowish white, the base and a row of large submarginal patches black, the distal margin less densely dusted with black than in the preceding form, the veins thinly black; only on Borneo. The tailed form known from Java and Banka,
achates. ♀-f. **achates** *Sulzer* (= achatiades *Esp.*) (33 a), is characterised by the yellow colour of the basal spot of the forewing and of the posterior marginal spots of the hindwing. This form, which is a copy of *P. coon*, is replaced
anura. on Borneo by a tailless one, ♀-f. **anura** *nom. nov.* (= javanus *Haase* nec *Felder*), in which the basal spot of the forewing is red and the discal spots of the hindwing are more or less strongly orange and often reduced; the abdomen as in ♀-f. *achates* yellow, with black dorsal line and underside, the dorsal line often widened. The occurrence of this tailless form, which is otherwise similar to the tailed ♀-f. *achates*, and the existence of the above described tailed form *titania* (p. 73), on Formosa, which otherwise resembles the tailless ♀-f. *agenor*, seem to indicate that originally all the ♀♀ of *P. memnon* were tailed, as is still the case in *P. lowi* and also in the monomorphic
oceani. ♀♀ of *P. mayo, ascalaphus* and *oenomaus*[1]). — **oceani** *Doh.* ♂: the stripes of the forewing above and beneath very strongly reduced; the blue stripes of the hindwing narrow and placed at a distance both from the cell and the margin; the red basal spots of the under surface on both wings suppressed except for a few scales. ♀ only known in one form; body black, forewing above with quite small, red basal spot, which is larger beneath, the red basal spots of the hindwing beneath very small; both wings above dark, the forewing gradually somewhat lighter distally, the hindwing with scattered blue scales in the distal half, somewhat paler distally than basally, on the under surface a broad grey marginal band, which encloses the black submarginal patches but not the discal
perlucidus. ones. Engano. — **perlucidus** *Fruhst.* ♂: the blue-grey stripes of the upper surface of both wings and of the underside of the forewing extend close to the distal margin; those of the hindwing above are remote from the cell and form a proximally almost uniformly concave broad band; the distal-marginal area of the hindwing beneath usually blue-grey, sometimes more or less extended orange; the length of the forewing in the Tring Museum specimens
nesocles. varies from 60—70 mm. The ♀ in two tailless forms: ♀-f. **nesocles** *form. nov.*, forewing dark sepia-brown, the black basal area not sharply defined, the light stripes pale brown, the basal spot red, beneath a row of feebly indicated light submarginal spots; hindwing brownish black, in the distal third paler, with distinct large black submarginal spots, beneath the distal third grey, posteriorly and anteriorly yellowish, besides the large submarginal spots with a row of small black discal spots, of which the anterior ones are united with the dark proximal
nysala. area of the wing. In the otherwise similar second form, ♀-f. **nysala** *form. nov.*, the hindwing has a white band
clathratus. consisting of large patches, which is usually somewhat yellowish. Lombok. — **clathratus** *Rothsch.* (27 b). ♂: as the preceding; but the stripes of the forewing are less distinct and shorter on both sides; length of the forewing 52—60 mm The ♀ with dirty yellowish white band on the hindwing; beneath without traces of submarginal spots on the forewing and with four very small black discal spots in the white patches of the hindwing. Sumbawa.
merapu. — **merapu** *Doh.* A large form, like many of the Sumba butterflies. Only the ♂ known: forewing strongly curved, 66—75 mm long, above almost entirely without stripes, beneath these are mostly more distinct, but are always placed 4—5 mm from the margin. Hindwing more elongate than in the other Malayan races, posteriorly narrower, the stripes of the upper surface narrow, remote from the cell and not reaching the margin; the large black submarginal spots of the under surface margined with ochre-yellow, the black discal patches entirely confluent
subclathratus. with the black part of the wing. Sumba, rare in collections; 4 ♂♂ in the Tring Museum. — **subclathratus** *Fruhst.* ♂: length of the forewing 50—66 mm, large specimens closely approximate to *merapu*; the stripes of the forewing feebly indicated, beneath as in *merapu* placed at a distance from the margin; the stripes of the hindwing beneath even weaker than in *merapu*, usually only the proximal ends (halfway between cell and distal margin) distinct; the black marginal spots on the underside of the hindwing in small specimens broadly edged with orange, in large examples this edging more grey, in all specimens the black discal spots united with the black area of the wing. ♀ tailless, corresponding in the markings to ♀-f. *achates*; forewing paler than in the ♀♀ of *clathratus* and *perlucidus*, hindwing with small cell-spot and a band of large, white, partly yellowish discal spots, which are separated by broad black vein-stripes, the marginal spots distinct. Flores, taken by A. Everett in November; the smallness of the specimens is probably explained by the long drought which prevailed in Flores when Everett visited the island (in 1896). The Tring Museum possesses several ♂♂ from Adonara and Pantar, likewise captured by Everett, which attain a considerable size (forewing 65—70 mm long), but otherwise agree well with large Flores specimens. The only ♀ from Pantar, with the forewing 80 mm long, has a larger cell-spot than the only ♀ known to me from Flores.

P. rumanzovia *Eschsch.* (♂ = krusensternia *Eschsch.*, floridor *Godt.*, amalthion *Bdv.*, ciris *Fruhst.*, spinturnix *Fruhst.*) (26 c). Tailless, but with distinct tooth at the 3. radial; both wings beneath with large, brilliant red basal patch; the submarginal and admarginal spots of the hindwing likewise glaring red. ♂ black, forewing with rather faint bluish grey stripes before the distal margin, of which the anterior ones mostly extend nearly to the cell; hindwing between the veins with broad bluish grey double stripes, which form a very broad band, the inner margin of which is twisted somewhat in S-shape. The anterior red spots of the hindwing beneath united into hooks and the posterior ones into rings. Some ♂♂ have above a red anal ring on the hindwing. In the ♀ the forewing in the cell and along the veins with white-grey stripes which are light, especially beneath;

[1]) Cf. Piepers, in Iris XVI, p. 247 (1903).

several forms: ♀-f. **semperinus** *Haase* (26 c), forewing almost as dark as in the ♂, but also above with large red basal spot, which is continued on the hindwing by a red band parallel with the abdominal margin; the rest of the hindwing above black with blue stripes; but the longitudinal band is often more or less whitish and widened and in that case a number of admarginal and submarginal spots are also present. The second main form is ♀-f. **rumanzovia** *Eschsch.* (= descombesi *Bdv.*) (27 a). The stripes of the forewing above and beneath at least partly white, the hindwing with large white central area, which extends from near the abdominal margin into the cell; according to SEMPER the specimens of this form from the Philippines have always a red basal spot on the upperside of the forewing; on Siao, Sangir and Talaut on the contrary the basal spot is often very small or entirely absent, some specimens moreover present a very strikingly different appearance through the white area of the hindwing being reduced and the 4.—6. admarginal spot very large, isolated[1]) and red-white: ♀-f. **eubalia** *form. nov.* (type from Siao) (48 c). — Larva green, with strongly swollen thorax; a spectacle-band on the thorax and behind it a raised yellowish band, which is connected laterally with a yellowish or greenish longitudinal stripe, on the abdomen an oblique band and a transverse one, not interrupted and like the anal segment whitish; the scent-fork orange. Pupa as in *P. memnon*. The butterfly on all the islands of the Philippines (Mindoro, Luzon, Mindanao, etc.), as well as on the Siao, Sangir and Talaut Islands to the north of Celebes; common. The *semperinus*-form of the ♀ resembles *P. semperi*, the red longitudinal stripe on the wings mimics the red abdomen of *semperi*; but this form is also found on the Talaut Islands, where *semperi* does not occur.

semperinus. *rumanzovia.* *eubalia.*

P. deiphobus. Very nearly allied to the preceding species. Forewing much less falcate. With or without tail, the patches of the under surface as brilliant red as in *rumanzovia*. ♂: upper surface of the hindwing before the distal margin with a broad band composed of light blue stripes, the inner margin of which is uniformly concave. ♀: forewing with thin white fringe-spots; the red admarginal spots of the hindwing, and especially the anterior ones, broadly confluent with the white fringe-spots. This quick-flying butterfly is especially common near the settlements, where Citrus trees grow in the gardens, rarer in the woods. The larva still undescribed, probably similar to that of *memnon*. The Moluccas and Waigeu, perhaps also in New Guinea. — **deiphontes** *Fldr.* (29 a). Tailless, but with distinctly projecting tooth at the 3. radial. ♂: the blue stripes on the upper surface of the hindwing densely scaled, more or less united in pairs and the patches thus formed distally emarginate. ♀: forewing from the base to the 2. median brownish black, then lighter, with brownish black streaks between the veins, on the under surface only the light streaks placed behind the 2. median basally white, the others all darkened. Hindwing always with white discal area and anteriorly near the apex with metallically blue scaling. ♂♂ and ♀♀ which have yellowish instead of red spots on the hindwing are ab. **flava** *Oberth.* Morty, Halmaheira, Ternate and Batjan. — **deipylus** *Fldr.* ♂ tailed, the band of the hindwing as in *deiphontes*, but the black interneural stripes on the whole even thinner. The ♀ likewise tailed, the forewing darker than in *deiphontes*, the posterior grey-brown stripes not whitish basally, the white cell-spot of the hindwing only indicated. Waigeu and perhaps also Dutch New Guinea. — **deiphobus** *L.* (♀ = alcandor *Cr.*) (28 a, b). Tailed. ♂: the grey-blue stripes on the upperside of the hindwing much further from the distal margin than in the preceding forms and mostly also much thinner. ♀: the part of the disc of the forewing placed below the cell and also the adjoining part of the cell itself much lighter; the markings of the hindwing individually variable. Specimens (♂♀) in which all the red is replaced by yellow are ab. **hypoxanthos** *Röb.* On Ceram, Saparoea, Amboina, Buru and Obi; common.

deiphontes. *flava.* *deipylus.* *deiphobus.* *hypoxanthos.*

P. protenor. ♂ and ♀ similar. ♂ black, wings with bluish gloss; hindwing long, without tail, from the apex of the costa towards the anal angle almost uniformly broad, with long white costal patch, which is covered by the forewing. Under surface paler, especially on the forewing, which is striped with whitish in the cell and on the disc; hindwing with red submarginal spots, of which the central ones are usually entirely absent, whilst the 7. and frequently also the 6. are united into rings with the marginal spots. ♀ much paler than the ♂. Larva green, a spectacle-band on the thorax, a black-edged band on the 4. segment, two oblique bands on the abdomen and the anal segment brown mixed with white; the prolegs grey; on Zanthophyllum. The butterfly common in most localities, often in swarms on moist sand at the banks of rivers, also visits flowers, being especially fond of thistles. During its slow and somewhat tumbling flight it moves the wings only slowly up and down, which gives it a somewhat clumsy appearance. The spring specimens are smaller. In the mountain-valleys of North India, in Burma, Tonkin, China, Hainan and Formosa. — **euprotenor** *Fruhst.* (= protenor *auct.*, euanthes *Fruhst.*, sulpitius *Fruhst.*). Upper surface of the hindwing usually sprinkled with blue scales to beyond the 3. radial. Distributed from North India to Burma, northwards beyond Tonkin to Hainan. — In **protenor** *Cr.*, from China and North-West India (see vol. I, pl. 3 b), the blue dusting of the hindwing above mostly does not reach the 2. radial, also the under surface of the forewing is on the whole less whitish than in *euprotenor*. Not sharply distinguished from *euprotenor*. — **amaura** *subsp. nov.* As in the Chinese form the blue dusting on the upperside of the hindwing is always very much reduced and usually almost entirely absent. Beneath the forewing is darker

euprotenor. *protenor.* *amaura.*

[1]) This ♀ strongly recalls the *deiphontes*-♀ from the Northern Moluccas, and was recorded by SEMPER as such.

than in the preceding forms, the pale discal stripes are only white distally and do not extend so near to the distal margin, hence the latter is more broadly black than in *euprotenor* and *protenor*. Formosa, common.

demetrius. **P. demetrius** *Cr.* Very nearly allied to the preceding species. Both sexes tailed (see vol. I, 3 c). The summer specimens as in the preceding species are larger than the examples of the spring brood (from hibernated pupae). Japan, Loo Choo Islands, East and Central China (teste LEECH), according to BUTLER also on Formosa. — *liukiuensis.* **liukiuensis** *Fruhst.* (= sitalkes *Fruhst.*) differs, though not quite constantly, from the priority form, which occurs in Japan, by broader wings and larger red submarginal spots on the hindwing; moreover the upper surface in the ♂ is deeper black and the blue scaling on the upperside of the hindwing of the ♂ is reduced. The number of the red spots on the upper surface of the hindwing is not constant either in *demetrius* or in *liukiuensis*; ♀♀ occur both in Japan and on Okinawa with a complete row of red spots. Okinawa and Ishigaki; Formosa?, China?

P. rhetenor. Body and wings bluish black, the abdomen laterally somewhat paler. The distal two-thirds of the forewing lighter, with black stripes between and on the veins, beneath in the ♂ more or less white-grey, above and beneath, in many ♂♂ only beneath, with red basal spot. Hindwing elongate, with strongly undulate distal margin; in the ♂ with projecting tooth at the 3. radial or without indication of a tail, above unicolorous, with scattered blue scales on the disc and red or white anal ring, before which is placed usually a second ring and sometimes a part of a third, beneath the base, as well as the abdominal margin of the hindwing is occupied by a broad dull red stripe, in which are placed black discal and submarginal patches, before the margin one or more dull red spots, of which the posterior ones are often united into rings with the red marginal spots, on the disc a dull black spot, which corresponds to the white patch of the ♀ (this spot was erroneously regarded by MOORE as secondary sexual character) and in Chinese specimens is often wanting. In the ♀ the hindwing has a broad rounded tail and a white discal area, also the red marginal and submarginal spots are larger than in the ♂. The earlier stages are not known. The ♀ is a mimic of the Aristolochia Papilios *P. dasarada* and *philoxenus* of the same localities. The butterfly occurs in North India all through the summer and ascends to about 6000 ft. — *rhetenor.* **rhetenor** *Westw.* (= turificator *Fruhst.*; ♀ = icarius *Westw.*; ♂ = alcmenor *Fldr.*, albolunata *Fruhst.*, publilius *leucocelis.* *Fruhst.*) (29 b). ♂: forewing often with large white patch at the hindmargin (♂-ab. **leucocelis** *ab. nov.*); the hindwing with distinct blue scaling on the disc and hardly projecting marginal tooth at the 3. radial, beneath with dull black discal spot before the 2. radial and without red submarginal spots from the 2. radial forwards. ♀: the white discal area of the hindwing consists of a cell-spot and 3 or 4 discal spots. Nepal to the Shan States and Tenas- *platenius.* serim. — **platenius** *Fruhst.*, known from West and Central China, doubtless also occurs in southern China. The hindwing in ♂ and ♀ is somewhat more sharply dentate than in the Indian form; in the ♂ the blue scaling on the upper surface of the hindwing is much reduced, whilst in the ♀ the white discal area is smaller.

thaiwanus. **P. thaiwanus** *Rothsch.* (= annaeus *Fruhst.*) (32 d ♀), which by a lapsus was described as a form of *protenor*, is much more strikingly different in the ♀ than in the ♂. ♂: under surface of the forewing almost entirely black, the grey stripes being reduced as in many butterflies from Formosa; the red area on the underside of the hindwing is much more extended than in the other forms and there are large red submarginal spots as far as the subcostal. The ♀ tailless; forewing paler than in the ♀ of *P. rhetenor*; hindwing from the subcostal to the anal margin with a macular band, the anterior patches of which are large and white and the posterior ones smaller and reddish, the posterior submarginal spots united into rings with the marginal spots; under surface as in the ♂ with larger markings than in *P. rhetenor*. — Formosa.

Bootes-Group.

Head and a lateral stripe on the abdomen red; base of the wings beneath red. Sexes similar, tailed, both mimics of Aristolochia Papilios.

P. janaka. Sexes similar, with spatulate tail; head, a part of the thorax and a lateral stripe on the abdomen dull red; forewing black, above more weakly, and beneath more strongly grey, with usually deep black stripes; hindwing with white discal area, which is wanting in the Chinese form—only 1 ♂ known —, is larger in the ♀ than in the ♂ and never enters the cell, in addition to the anal spot 1—4 submarginal lunules present. Beneath a red band covers the base of both wings and extends along the abdominal margin of the hindwing. The larva and pupa not known. The butterfly in the spring in North-West India, Sikkim and West China; such a faithful copy of the Aristolochia Papilio *P. latreillei* that MOORE was misled into uniting *janaka* and the following *janaka.* species *bootes* with *latreillei, adamsoni, nevilli*, etc., in one of his „genera"! — **janaka** *Moore* (= sikkimensis *Wood-Mas.*) flies in Sikkim at from 3—5000 ft. in May and June, as well as in the North-Western Himalayas ♂ and ♀ with white discal patches on the hindwing and a pale red double spot at the tip of the tail. — *dealbatus Rothsch.* (see vol. I, 3 a), from West China, has no discal patches and no spots in the tail.

P. bootes. Very similar to the preceding species, principally distinguished by the red basal area of the under surface not being continued at the abdominal margin of the hindwing. Assam and West China. — **bootes** *Westw.* (27 b), from Assam, has always a reddish white double spot at the tip of the tail. — In *nigricans Rothsch.* (= echo *Ehrm.*) (see vol. I, 3 a), from West China, the tail is black. Examples from Tse-kou are ab. *rubicundus Fruhst.*; do they really differ from the very variable *nigricans*? *bootes.*

3. Gloss-Papilios.

The upperside of the body and wings with green or blue metallically glossy scaling; in some forms this dusting is almost uniformly distributed over the whole upper surface, but most species have a large metallic patch or a band, and in others the greater part of the upper surface is glossy blue or green. The under surface is always dark (protectively coloured). In the larvae, so far as known, the thoracic segments are thickened, scutellated.

Paris-Group.

The upper surface of the wings dusted with green, forewing with or without thin green or yellowish band; hindwing without metallic patch or anteriorly with thicker metallic scaling or with metallic patch, which is sometimes prolonged into a posteriorly thin band. The submarginal spots of the hindwing beneath red or yellow, ornamented with a curved blue mark.

P. elephenor *Dbl.* (34 a). Head pale ochre-yellow, the sides of the abdomen yellow-grey; ♂ and ♀ tailless. ♂: forewing with hair-streaks, and like the hindwing sprinkled over with green-blue scales; hindwing narrower than in *protenor*, with red anal eye-spot and sometimes a red submarginal lunule between the two median veins. Under surface of the forewing blackish grey, with black stripes on and between the veins; forewing black, with a row of red submarginal lunules. ♀ quite similar to the ♂. — Assam: Khasia and Naga Hills, Cachar, Sadiya, Jorehat. Rare, especially the ♀. *elephenor.*

P. dialis. Body black as in the following species, above dusted with metallic scales. Upper surface of the wings dusted with green, hindwing with blue tinge in the costal region, but without metallic patch, at the anal angle a red ring; the tail is absent, or is stunted, or as long and broad as in *P. bianor*, with all the intermediate stages. The under surface similar to that of *bianor*, but the forewing always less extended dark than in the respective form of *bianor* from the same country. The scent-streaks of the ♂ always narrow and widely separated, of much more uniform width than in *P. polyctor*, in which the stripes are likewise separated. The ♀ is less densely metallically scaled than the ♂ and has on the upperside of the hindwing a red submarginal spot behind the 2. median. The earlier stages are unknown. The butterfly is rare in collections. Fruhstorfer is the only collector who captured even a small series. He found the insect near the native habitations on refuse-heaps before and among the huts, as well as on the moist sand of a river-bank. Though the butterfly is very shy, yet when driven away it frequently returned again to the same place. When feeding it always keeps the wings closed. During its circling, hovering flight it presents a fine spectacle by its graceful movements (Fruhstorfer). Distributed from the Shan States to Central China and Formosa. The genitalia of most species of this group are so similar that scarcely any distinct differences can be shown. — **schanus** *subsp. nov.* ♂: upper surface of the hindwing somewhat less blue than in the next subspecies, with 1—3 red submarginal spots besides the anal eye-spot, and very short stumpy tail, which projects less than in the other forms. Beneath the forewing only blackish to the base of the lower median and the submarginal spots of the hindwing more yellowish. The scent-stripes very narrow, no stripe on the submedian fold. Southern Shan States: 1 ♂ in the Tring Museum, a second in the Museum at Calcutta (coll. De Nicéville). — **doddsi** *Janet* (= megei *Oberth.*) (34 a). Tail either quite short or long, broad and spatulate, with all the intermediate stages. ♂ only with red anal eye-spot on the upperside of the hindwing, ♀ in addition with red submarginal spot. The black basal area on the underside of the forewing reaches in the ♂ to the base of the upper median, and in the ♀, which I only know from the description, probably does not extend quite so far. Tonkin. — **cataleucas** *Rothsch.* (= cataleuca *Fruhst.*). A small form, of which only a few ♂♂ are known, which were taken by the late J. Whitehead in the Five-Finger Mountains of Hainan. Forewing with 2 very thin distinct pilose stripes and one indistinct one; the black basal area of the under surface is very strongly reduced and remains at a distance from the lower median. The tail short and narrow or longer and spatulate. Hindwing above with 3 red submarginal spots. — **dialis** *Leech.* Tailed; the black basal area of the forewing beneath reaches to the lower median, the scattered light scales on the under surface of the hindwing are almost all green, upper surface with 2 red submarginal spots. West China, ♂ in coll. Leech; a second, slightly different ♂ from Kiatim, North-West Fokien, in the Tring Museum. — **andronicus** *schanus.* *doddsi.* *cataleueas.* *dialis.* *andronicus.*

Fruhst. (not *Ward*). Only known to me from the description. The darkest of the known *dialis*-races. The tails long and spatulate; the upper surface of the hindwing without red spots except for the anal ring, otherwise confusingly similar to that of *bianor formosanus*; without the glossy green ornamental patch of the hindwing (which, however, is often absent in *formosanus*, also many *formosanus* have above small red submarginal spots); forewing with narrower sexual stripes. Nothing is said as to the colouring of the forewing beneath. Formosa.

P. bianor. Geographically as well as seasonally very variable. ♂: the pilose stripes broad, the posterior three usually united, when they are separated the stripe of the lower median remains broader than the interspace, which separates it from the stripe of the submedian fold; upper surface of the forewing dusted with green or green-blue, this scaling commonly condensed into a band before the narrowly dark distal margin; upper surface of the hindwing anteriorly blue or blue-green and posteriorly dusted with green, commonly with a more thickly scaled large green or blue patch (or a similar band), a red anal spot, besides 0—4 red submarginal spots and at least anteriorly some distinct green submarginal spots. The black basal area of the forewing beneath always extends beyond the base of the upper median, sometimes the whole wing is black; under surface of the hindwing with a complete row of red submarginal spots. The ♀ with less dense metallic scaling; the red spots on the upperside of the hindwing usually more numerous and larger than in the ♂. The butterfly occurs from North Japan to Tonkin and West China and appears to be fairly common in all its localities, sometimes occurring in profusion. Like the allied species the ♂♂ congregate on moist sand and visit flowers. The larva is green with 2—3 light oblique bands, on Aurantiaceae. Although the butterfly is frequently bred in the northern parts of its range, no sufficient description of all the earlier stages has yet been published. — The Palaearctic forms of *P. bianor* have

okinawensis. been dealt with in vol. I, p. 10. — **okinawensis** *Fruhst.* Only the summer form known, which is relatively small. Very similar to *dehaani* of Japan, smaller than the summer form of this, darker on both surfaces; the upper surface of the hindwing distally broadly black, as in *dehaani*, the blue costal area is placed at a distance from the submarginal spots and surrounds the apex of the cell; the submarginal spots of the upper surface usually conspicuously blue, those of the under surface somewhat larger than in *dehaani*. In the ♀ the submarginal spots of the hindwing beneath especially large and sometimes connected with the likewise enlarged marginal spots.

junia. The grey discal area of the forewing beneath is similar to that of *dehaani*. Okinawa. — **junia** *subsp. nov.* Herr FRUHSTORFER refers the specimens from Ishigaki-sima to *okinawensis*. Two ♂♂ of the summer brood received from him, however, agree much better with the forms from Formosa and China. Shape of the wings much as in *formo-*

sanus; the blue costal area of the hindwing reaches the middle of the cell and extends distad to the submarginal spots, so that at the proximal side of these spots instead of the broad black band of *okinawensis* and *dehaani* there are only black patches. Beneath *junia* resembles the Chinese *bianor* in that the forewing is grey from the apex of the cell nearly to the distal margin and the narrow black distal margin is only a little widened at the apex;

formosanus. the marginal spots of the hindwing are larger than in *bianor* and *formosanus*. — **formosanus** *Reb.* is the form from Formosa; it is very similar to *bianor*, but is distinguished from it nearly always by a considerable reduction of the grey stripes of the forewing beneath, also the red submarginal spots of the hindwing are smaller and are absent

bianor. above in most ♂♂ (except for the anal spot). Common. — **bianor** *Cr.* (vol. I, 4 c). The costal area of the hindwing above usually blue to the middle of the cell and distally to the submarginal spots, more rarely grey, in small

majalis. spring specimens (f. **majalis** *Seitz*, see vol. I, p. 10. vol. I, 3 c) sometimes with more densely scaled large metallic patch, in addition to the anal spot there are mostly 3 or 4 red submarginal spots, in the ♀ sometimes 6, in the large summer specimens the green scaling of the posterior part of the wing is often separated from the submarginal spots by a broad black area. Beneath the grey discal area of the forewing is always broad, it also extends nearly to the distal margin and in most specimens goes far into the cell. East, Central and West China; in the mountains of West China the butterfly ascends to 6000 ft. and between 5 and 6000 ft. occurs together with the nearly allied species *P. syfanius Oberth.* (vol. I, pl. 5 b). — No *bianor*-form is yet known from Hainan, on the other hand FRUHSTORFER captured a considerable series in Tonkin, among which examples with unicolorous blue costal area on the upper surface of the hindwing predominate. Such specimens agree well with South Chinese ones. But there were also many specimens in which the blue scaling of this area is condensed near the submarginal spots into a large bipartite patch and the 1. submarginal spot is enlarged. Similar specimens also occur in China, but rarely; the name originally applied to all the specimens from Tonkin may be retained for such examples,

gladiator. as ab.. **gladiator** *Fruhst.*

P. polyctor. Very nearly allied to *P. bianor*; but as both butterflies occur together in Tonkin without intergrading, they must be recognised as separate species. The pilose stripes of the ♂ are always separated, even the stripe on the submedian fold is isolated, those placed on the two median veins are more strongly narrowed at both ends than in *P. bianor* and consequently more spindle-shaped; the green scaling on the upperside of the forewing is usually condensed into an anteriorly abbreviated narrow discal band. The hindwing in ♂ and ♀ with large blue or blue-green patch, which reaches from the costa at least to the 2. radial vein, is commonly prolonged into a band, and with which the upper submarginal spots are confluent; besides the anal spot there are 3 or 4 red submarginal spots. The grey distal area of the forewing beneath always enters the cell. The ♀ is

larger and especially on the forewing paler than the ♂. The several earlier stages described in detail in Moore, Lep. Ind. vol. VI, p. 53—56. The young larva bears spines which disappear in the later stages, and is very dark. In the half-grown and full-grown larvae, which are green, the thorax is thickened above like a shield; the margin of the shield and also four oblique stripes on the abdomen are yellowish green, a longitudinal line above the prolegs is white. On Zanthoxylum alatum. The pupa bluish green, usually with brown markings, the lateral keel very distinct, brown or white, the horns on the head about as long as they are broad at the base, the thoracic horn broad, low, pointed. The butterfly is in most localities very common, with the exception of the eastern districts, where hitherto only a few specimens have been captured. Kashmir to Tonkin and Siam. — **triumphator** *Fruhst.* The blue patch on the upper surface of the hindwing small, the 2. submarginal spot only partially confluent with it. Tonkin; Chentaboon (somewhat aberrant). — **significans** *Fruhst.*, from Tenasserim and Lower Burma, has on the upperside of the forewing a small, round, white spot before the hindangle. — **ganesa** *Dbl.* (34 b). Forewing usually with green discal band, which in specimens from Assam is often only very weakly indicated, but sometimes is broader than in many Sikkim examples. Hindwing with blue patch, which reaches to the 3. radial and is more or less strongly produced distad behind the subcostal and 1. radial. In two of the ♂♂ in the Tring Museum (both from the Khasia Hills) the submarginal spots on the upperside of the hindwing are larger than the normal and beneath extraordinarily enlarged: ab. **porphyria** *ab. nov.* (48 a). The aberration corresponds to *P. paris gedeensis* ab. *prillwitzi* from Java. — **polyctor** *Bdv.* (vol. I, 5 b) has in ♂ and ♀ on the upperside of the forewing a golden green band, which is distinct to the subcostal fork, the metallic patch of the hindwing is usually more green and commonly prolonged into a band; the grey stripes of the forewing beneath are strongly reduced and sometimes almost entirely absent, whilst the yellowish grey dusting on the under surface of the hindwing is more extended than in *ganesa*. The summer form, f. aest. **polyctor** *Bdv.*, is not quite so large as *ganesa*, whilst the spring form, f. vern. **peeroza** *Moore*, is much smaller. The butterfly is very common in the valleys of the North-Western Himalayas up to 6000 ft. and extends in Kashmir into the Palaearctic Region. The ♂♂ commonly rest in large numbers on the moist sand of river-banks.

triumphator. *significans.* *ganesa.* *porphyria.* *polyctor.* *peeroza.*

P. paris. Upper surface of the body and wings dusted with green, forewing with or without narrow green band, hindwing with large patch, which is green or blue according to the fall of the light and is always broadest behind the 1. radial, usually the patch is connected with the abdominal margin by a narrow green band, at the anal angle a red ring. Under surface brown-black, sprinkled with yellowish grey scales; forewing with grey discal stripes, which especially towards the hindmargin are light and towards the costa are longer and more indistinct; hindwing with a complete row of red or yellowish red submarginal lunules, on or at which are placed purple-blue curved marks, the posterior submarginal spots often united into rings with the marginal spots. ♂ usually without, sometimes with thin scent-stripes. The earlier stages of this butterfly are only known of *arjuna* (see below). The insect is very common at lower elevations in wooded districts; the ♂♂ are fond of visiting flowers and often rest in crowds on moist sand; their flight is very swift, and like many butterflies they have a habit of returning again and again in the same course. — **hermosanus** *Rebel* (= neoparis *Fruhst.*). A small form from Formosa. On the forewing the green band is absent or only feebly developed and beneath the grey band in the ♂ mostly only indicated and also in the ♀ less pure grey than in continental specimens. The metallic patch of the hindwing is small, especially in the ♀, and the submarginal spots on the under surface are mostly more yellowish. The ♂ has usually a distinct pilose stripe on the 2 median, a weaker one on the submedian, and sometimes a third on the 1. median; but these stripes may also all be absent. The presence of this scent-organ misled Rebel into referring the form to *P. polyctor*. According to Fruhstorfer there occurs on Formosa together with „*polyctor hermosanus*" also a *paris*-form, which, however, according to his description, is nothing but *hermosanus*. But it appears to me doubtful whether the specimen briefly described by Fruhstorfer as ♀ of *hermosanus* belongs here. — **tissaphernes** *Fruhst.* Likewise a small form; forewing more obtuse than in *P. p. paris*, the green band only feebly or not at all developed, the under surface as dark as in *hermosanus*, above the metallic patch of the hindwing larger. Hainan; a series of both sexes in the Tring Museum. — **chinensis** *Rothsch.* (vol. I, 5 b) is the form from Central and West China, in which the metallic patch is reduced from behind; the smaller spring specimens are f. vern. **gemmifera** *Fruhst.* — **paris** *L.* (= majestatis *Fruhst.*, decorosa *Fruhst.*) (34 c). As in *tissaphernes* the forewing of the ♂ has in exceptional cases a distinct pilose stripe on the 2. median, slight indications of this stripe are of common occurrence. The metallic patch is as large as in Hainan specimens, but the grey band on the underside of the forewing mostly of purer colour. The larger summer form is f. aest. **paris** *L.*, and the smaller spring form (dry season) f. vern. **splendorifer** *Fruhst.* Some of the examples from South-East China are not distinguishable from Indian specimens, while others bear a close resemblance to *tissaphernes* and *hermosanus*. Distributed from Hong-Kong to Malacca and North-West India. — **tamilana** *Moore* (34 c). A large form, with very large metallic spot on the hindwing and reduced grey band on the under surface of the forewing. In the South Indian hills. Bell saw a ♀ lay its eggs on Evodia roxburghiana. — **battacorum** *Rothsch.* With shorter wings than any of the preceding forms; forewing above entirely without green band or the latter is slightly indicated, beneath with narrow grey band, hindwing with large metallic area, which is almost as broad at the subcostal as at the 1. radial. The yellowish scaling of the hindwing beneath extends at the posterior veins to between the submarginal spots; the latter yellow-red, rather small, with very thin pale purple arcs. North-East Sumatra,

hermosanus. *tissaphernes.* *chinensis.* *gemmifera.* *paris.* *splendorifer.* *tamilana.* *battacorum.*

gedeensis. in the mountains; the flight extremely swift, low. — **gedeensis** *Fruhst.* Forewing without green band; the metallic area of the hindwing narrower than in *battacorum*, behind the lower median on the other hand broader, hence on the whole more band-like; the submarginal spots on the underside of the hindwing more yellow and like the purple arcs larger; these purple arcs, as in *battacorum*, cover the inner margin of the submarginal *prillwitzi.* spots. In West Java, especially common on Mt. Gedé. ab. **prillwitzi** *Fruhst.* has been described from a ♂ with very strongly enlarged submarginal spots on the underside of the hindwing (cf. the similarly *arjuna.* developed aberration of *P. polyctor*). — **arjuna** *Horsf.* (35 a). As the preceding, but the forewing with *tenggerensis.* narrow green band. Central Java. — **tenggerensis** *Fruhst.* As the preceding, the band of the forewing, however, somewhat broader. East Java.

P. karna. Larger than the Malayan forms of the preceding species. The forewing, so far as is known, at most with a slight indication of a green band before the hindmargin; the metallic area of the hindwing nearly always separated from the cell, posteriorly broader than in the *paris*-forms and hence even more band-like than in *P. paris gedeensis*, the red anal ring very large, the grey scaling before the distal margin condensed into more distinct submarginal patches than in *P. paris*. The submarginal spots on the under surface of the hindwing reddish yellow, the 3 central ones reduced, the purple arcs large, the yellowish grey dusting of both wings less extended. In the ♀ the upper surface of the hindwing bears a yellow submarginal spot behind the costal vein. The earlier stages not known. The butterfly on Java, Sumatra and Borneo; much rarer than the *paris*-forms. This species *karna.* stands in the same relationship to *P. paris* as *P. iswara* to *P. helenus*. — **karna** *Fldr.* (35 b) is the smallest of the *discordia.* three known geographical forms; it flies in West Java, in the same districts as *P. paris gedeensis*. — **discordia** *Nicév.* (= discoidea *Nicév.*) is larger than *karna* and the central reddish yellow submarginal spots on the *carnatus.* underside of the hindwing are smaller. North-East Sumatra, in the Gajo highlands. — **carnatus** *Rothsch.* (= karnata *Fruhst.*) (35 a), from North Borneo, appears to be much less rare than the preceding forms and occurs also in the plains. Mostly as large as *discordia*, but many specimens not larger than *karna*; the inner margin of the metallic area between the subcostal and the 1. radial very oblique, the yellowish green submarginal spots very large, the reddish yellow submarginal spots on the underside of the hindwing reduced, the 5. nearly always absent.

P. arcturus. Sexes similar; the ♀ somewhat paler and larger, with larger red spot on the hindwing. The upper surface dusted with green, forewing with green, costally obsolescent submarginal band; hindwing darker than forewing, bearing in and before the apex of the cell a large blue patch, which behind the subcostal is produced to the distal margin, and a row of 3—6 red submarginal spots, as well as a red anal ring, the red spot placed behind the tail is rarely indicated; when the red spots are absent a green spot appears in their place. Beneath the forewing is grey in the distal half and posteriorly before the distal margin broadly grey-white; the hindwing has a complete row of red submarginal spots, some of which are often united into rings with the marginal spots. The ♂ without scent-stripes. The earlier stages are not known. The butterfly on paths and *arcturus.* openings in the woods. North-West India to Tenasserim, West and Central China. — **arcturus** *Westw.* (vol. I, pl. 5 c) occurs from Tenasserim to Nepal. The red submarginal spots on the under surface of the hindwing are large, the disc of the forewing beneath is posteriorly almost pure white and this band at the lower median broader than its distance from the cell; the short green band which is placed at the proximal side of the *arius.* anal eye-spot on the upperside of the hindwing is not thicker than the ring. — **arius** *Rothsch.* ♂: the blue spot of the hindwing extends somewhat further basad than in *arcturus*, the short green band at the anal eye-spot of the hindwing is broader, the red submarginal spots are smaller above and beneath, and the grey distal area on the underside of the forewing is less extended and not so pale. Kashmir and North-West India. — *arcturulus Fruhst.* is the form from West and Central China; the butterfly is apparently not yet known from tropical China.

hoppo. **P. hoppo** *Mats.* (48 c, 49 a). A magnificent species, similar to *arcturus*, in which the blue costal area of the hindwing is very large and the under surface of the hindwing has *two* rows of red lunules. — Formosa.

P. krishna. The upper surface dusted with green; forewing elongate, above and beneath with sharp yellowish discal band; hindwing anteriorly with broad blue spot, which is connected with the abdominal margin by a narrow green band, 4 submarginal spots and the large anal eye-spot purple-red, placed at a distan e from the distal margin; beneath the hindwing has a discal band composed of yellowish spots and a complete row of purple-red submarginal spots, the marginal spots reddish. The ♀ very similar to the ♂, larger, with broader *krishna.* wings. The ♂ without scent-stripes. North India and West China. — **krishna** *Moore* (34 a, b). Upper surface of the wings rather densely dusted with green, the band of the forewing above very sharply developed. Sikkim, Bhotan; perhaps also Assam. The butterfly from 3—9000 ft., it commonly flies according to ELWES on bare places on mountains the slopes of which are covered with forests consisting of chestnuts, oaks and magnolias. —

charlesi (!) *Fruhst.*, from Sze-chuan (West China), differs according to the author in the almost black upper surface of the wings, the partly obsolete band of the forewing and the more red submarginal spots of the hindwing. *charlesi.*

Palinurus-Group.

Upper surface with green or blue band on both wings; the submarginal spots of the hindwing beneath usually distinctly tri-coloured (blue-yellow-black).

P. crino *F.* (36 b). Upper surface almost uniformly dusted with green, the green or bluish band on both wings outside the cell; the tail with metallic spot at the tip. Under surface dark sepia-colour; forewing with a proximally almost uniformly concave grey band distally to the subcostal fork, this band anteriorly broad, posteriorly narrow, very variable; hindwing with pale yellow submarginal transverse spots, at the proximal side of which are placed similar grey- or blue-white spots and further towards the disc a row of yellowish grey, often diffuse spots, at the anal angle above and beneath a reddish ring or half ring. The ♂ usually with thin pilose stripes, which are absent in ♂-ab. **montanus** *Fldr.* (36 b, c). — Larva bluish green, the 1. and last segment with two short processes. Pupa green, angles of the head weakly projecting. On Chloroxylon. The butterfly is rather common in the plains, especially in the spring on Ceylon, but also occurs in the mountains up to about 6000 ft. The flight is very swift. Ceylon, South India, Calcutta. In the northern districts as well as in the higher mountains probably only an occasional migrant. *crino.* *montanus.*

P. buddha *Westw.* (35 b). The band of the upper surface broad, placed anteriorly on the forewing almost entirely in the cell and on the hindwing also entering far into the cell; the basal area of both wings dusted with green, on the other hand the distal-marginal area almost pure black; hindwing with yellow submarginal spot at the costal margin and anal angle, and in the ♀ in addition a second spot placed behind the subcostal; tail black. Under surface with very broad, proximally almost straight, grey band distally to the cell; distal margin of the hindwing pale, a row of narrow yellow submarginal spots, which are distally bordered with black and proximally with bluish white. ♂ entirely without pilose stripes. — Larva green, from the 5. segment onward with white longitudinal stripe above the legs, posteriorly on the thorax a white transverse line, which laterally is continued forwards and forms the boundary of the somewhat shield-shaped, swollen upperside of the thoracic segments; anteriorly and posteriorly a pair of short processes. Pupa almost uniformly curved, without thoracic horn, head produced in two long protuberances; underside from the lateral keel pale green, upperside dark green. Food-plant: Xanthoxylum rhetsa. The butterfly all the year round with the exception of June and July, commonest in September and October; it flies very quickly and high, seldom stops at flowers and is consequently difficult to catch. In the hills of South India, both in the woods and in open cultivated land. *buddha.*

P. palinurus. Similar to *P. buddha*, the band of both wings narrower, the distal-marginal area of the forewing dusted with green, the hindwing with large green submarginal spots; the grey band of the forewing beneath is placed very close to the cell and is basally concave. The earlier stages are not known. The butterfly according to MARTIN flies in wooded country and is very shy and agile; it occasionally comes into gardens and is fond of feeding at the flowers of Ixora, Lantana, etc., it is also often found at damp places on the forest-paths. HAUXWELL mentions that it has a habit of flying close over the water like a swallow, dipping its body in and then hurrying away. Burma to Sumatra and Nias, northwards to the Philippines. — **palinurus** *F.* (= regulus *Stoll*, brama *Guér.*, tubero *Fruhst.*, nikagoras *Fruhst.*) (35 b, c). The band of the forewing is very obliquely placed, being posteriorly at most 5 mm from the end of the submedian; both it and the band of the hindwing vary in width in all localities. In most of the specimens from North Borneo the band is slightly blue: ab. **solinus** *Fruhst.* The under surface varies especially in the size of the submarginal spots of the hindwing. Burma, Tenasserim, Malacca, Sumatra, Borneo. — **adventus** *Fruhst.*, from Nias, differs in both sexes principally in the larger submarginal spots of the hindwing beneath. — **angustatus** *Stgr.* Upper surface of the hindwing in ♂ and ♀ more broadly black between the discal band and the submarginal spots than in *palinurus* and *adventus*; beneath the pale band of the forewing is less curved and the pale marginal area of the hindwing broader than in these forms. Palawan. — **daedalus** *Fldr.* (35 c). The largest form. The green discal band of the upper surface broader than in the preceding subspecies, that of the forewing less oblique; otherwise similar to *angustatus*. Philippines, probably on all the islands, according to SEMPER almost all the year round, principally in May and October. — **nymphodorus** *Fruhst.*, from Bazilan, is said to be distinguished by a broad discal band on both wings and very large green submarginal patches on the hindwing. I have before me only an abnormal specimen, from which I can form no opinion as to the constancy of the characters given. *palinurus.* *solinus.* *adventus.* *angustatus.* *daedalus.* *nymphodorus.*

P. blumei. One of the most beautiful Papilios. Larger than *P. palinurus daedalus*, the upper surface similarly marked, but the band green-blue and the tail with the exception of the vein and the margins likewise blue. The yellowish grey distal band of the forewing beneath very broad, proximally straight or slightly curved; the yellow submarginal spots of the hindwing all very large, proximally margined with blue. Many ♂♂ have one or several very narrow pilose stripes on the upperside of the forewing. The ground-colour of the ♀ is paler

than in the ♂ and usually the blue band is narrower. Only known from Celebes; rare in the south of the island,
blumei. commoner in the north. — **blumei** *Bdv.* (36 a) is the northerly form. In the ♂ the band of the forewing entirely or almost entirely fills up the apex of the cell and in the ♀ the part of the apex of the cell which is not blue
fruhstorferi. is much narrower than the band. — In **fruhstorferi** *Röb.*, from South Celebes, the band of the forewing is placed at some distance from the apex of the cell, so that basally to the lower radial its distal margin enters the cell and the black apical part of the cell is at least half as broad as the band; moreover in both sexes the light distal area of the forewing beneath is broader and the basal area of both wings more thickly dusted with yellowish. In the Tring Museum 1 ♂ and 1 ♀ taken by W. Doherty and 1 ♂ (type) by H. Fruhstorfer.

Peranthus-Group.

The upper surface of the wings from the base to one or two thirds glossy green or blue, with the exception of *P. neumoegeni*, which bears a metallic band; the tricoloured submarginal spots of the hindwing beneath yellow-black-blue.

neumoegeni. **P. neumoegeni** *Honr.* (= maremba *Doh.*) (36 c). ♂: upper surface with the exception of the distal margin scaled with green; forewing with lighter green, densely scaled discal band, which is interrupted by a very large pilose patch, the green scaling sparse distally to the anterior part of the green band which is placed at the apex of the cell; hindwing with broad, light green discal band and submarginal spots of the same colour. ♀ recalling *P. palinurus*; not quite so densely scaled with green as in the ♂: forewing with green oblique band and feebly marked submarginal spots; the discal band of the hindwing narrower and anteriorly shorter than in the ♂. — Sumba, especially in the interior of the island.

P. peranthus. About a third or the half of both wings bluish green, this metallic area never reaching beyond the apex of the cell of the forewing, before the distal margin of the forewing a green band, which is very broad anteriorly and strongly narrowed posteriorly. The pilose stripes of the ♂ mostly confluent, never all completely separated, as at least the stripe placed on the submedian fold is united with the lower median. The ♀ paler than the ♂, especially in the distal part of the under surface, the metallic area mostly somewhat darker blue. The
peranthus. earlier stages are not known. In habits the butterfly resembles *P. palinurus*. — **peranthus** *F.* (37 a). ♂: the green submarginal band of the forewing anteriorly as broad as the black discal band or broader; the green basal area reaches to or nearly to the anterior angle of the cell. In the ♀ the green scaling of the submarginal area of the forewing above is very sparse. The inner margin of the pale submarginal area of the forewing beneath is mostly
transiens. placed basally to the subcostal fork. Java. — **transiens** *Fruhst.* (= kinesias *Fruhst.*, fannius *Fruhst.*, phoebus *Fruhst.*). The green area somewhat less extended than in *peranthus*, hence the black discal band of the forewing broader; as in Javan specimens the green submarginal band of the ♂ reaches only to the 1. median, rarely a green submarginal spot is indicated below this vein. The light distal band of the forewing beneath is placed distally to the fork of the subcostal. Bali to Alor; specimens are before me from Bali, Lombok, Sumbawa, Flores, Larentula,
intermedius. Adonara, Pantar, Alor. — **intermedius** *Snell.* (= fulgens *Röb.*). The basal area somewhat more densely scaled and bluer than in *transiens* and *peranthus*; the submarginal band of the forewing in the ♀ distinctly green to the submedian and in the ♂ continued to the 2. median or even to the submedian; anteriorly this band is usually
baweana. broader than in *transiens*. Bonerate, Djampea and Kalao. — **baweana** *Hag.* I have before me only the two ♀♀ described by Hagen; in these the blue-green basal area only reaches to the anterior angle of the cell of the forewing; the green submarginal band is much narrower anteriorly than the black discal band and its green scaling does not extend below the lower median; the costal and anal spots of the hindwing beneath are large and pale yellow, and, in the only well preserved specimen, appear also on the upper surface; the very light inner margin of the pale distal area of the forewing beneath is placed outside the furcation of the subcostal and before the middle
insulicola. is still more distinctly curved basad than in ♀♀ from Java. Bawean. — **insulicola** *Rothsch.* (37 b), from Saleyer, connects the preceding forms with *adamantius*, but most nearly approaches the latter. The costal margin of the forewing more curved and the distal margin more strongly emarginate than in the preceding forms. In the ♂ the green-blue basal area reaches on the forewing not quite to the upper median and on the hindwing to the apex of the cell and in the ♀ it is even somewhat more reduced, the pilose stripes broadly confluent, the green submarginal band narrower than the black discal band; the upper surface of the hindwing almost entirely without green submarginal spots, especially in the ♂. The grey discal band on the underside of the forewing is approximated to the cell, its inner margin crosses the stalk of the subcostal fork about halfway between fork and cell. In the
adamantius. Tring Museum 1 ♂ collected by A. Everett and 1 ♂ and 1 ♀ by H. Kühn, appears to be rare. — **adamantius** *Fldr.* (= macedon *Wall.*). A large form with long, falcate forewing and long, broad-tailed hindwing. The greenish blue basal area reaches on the forewing about to the lower median and does not quite fill up the cell of the hindwing, the green submarginal band is very broad and in many examples from North Celebes broader than in most of the specimens from the south of the island; the grey discal band of the forewing beneath is broad and extends nearly to the cell. The pilose stripe on the 1. median is mostly isolated and in many specimens the stripe on the submedian is absent. The ♀ very similar to the ♂, the basal area somewhat less densely scaled and the under

surface paler. From North, Central and South Celebes; common, especially in the hills. From the Sulla Islands no Gloss-Papilio is yet known.

P. lorquinianus. Very nearly allied to *P. peranthus*. ♂: the metallic area of the forewing much less straight distally than in *P. peranthus*, posteriorly broader, extending between the pilose stripes, forewing with blue or green submarginal band, hindwing from the subcostal with distinct submarginal spots of the same colour, the basal area of the hindwing always extends beyond the apex of the cell. Under surface similar to that of *P. peranthus*. In the ♀ the metallic area of the forewing is more uniformly rounded than in the ♂, also the submarginal spots of the hindwing above are larger and the under surface is paler. Earlier stages unknown. In the genitalia *P. lorquinianus* agress almost entirely with *P. peranthus*. As in the other Gloss-Papilios the metallic area assumes a deeper blue tone when the light falls obliquely from the front or side. Moluccas and Dutch New Guinea. — **lorquinianus** *Fldr.* (= philippus *Wall.* partim, ? apollodorus *Fruhst.*) (37 b). Greenish blue, the metallic area of the forewing does not quite reach the apex of the cell, but there are always a few metallic spots distally to the upper angle of the cell. Halmaheira, Ternate. — **gelia** *subsp. nov.* The black apical area of the cell of the forewing about twice as large as in the preceding form, the metallic area reaching at most to the 3. radial, also no metallic spots are placed at the distal side of the apex of the cell. Batjan. — **philippus** *Wall.* The metallic spots are more extended in both sexes than in *lorquinianus* and more greenish, the green submarginal macular band on the upperside of the forewing and the grey band on the underside are narrower. Ceram, very rare. From Obi, Buru and Amboina no form of *lorquinianus* is yet known. — **albertisi** *Oberth.* (37 a). Golden green, appearing blue when looked at sideways or from the front; the metallic area even larger than in *philippus*; the under surface very uniform dark brown, the light discal band of the forewing mostly only indicated. The pilose stripes are usually separated, except that the thin stripe of the submedian fold, if present, is always confluent with the lower median stripe. The ♀ not known. Dutch New Guinea: Andai and Kapaur.

lorquinianus. *gelia.* *philippus.* *albertisi.*

P. pericles *Wall.* (= hekaton *Fruhst.*, hermogenes *Fruhst.*, olympiodorus *Fruhst.*) (37 b). The blue metallic area always reaches beyond the apex of the cell of the forewing and is distally cut off straight as in *P. peranthus*, only in the ♀ the lower angle of the cell sometimes remains black. Upper surface of the hindwing with 5 or 6 blue submarginal spots, on the other hand the submarginal band of the forewing is only indicated by a very few blue and yellowish scales, whilst the deep black discal band is distinct. The pale discal band of the forewing beneath is placed distally to the subcostal fork and is proximally somewhat yellowish and almost entirely straight; the yellow lunules of the hindwing are deeper yellow than in *P. peranthus*, also the costal lunule is almost entirely orange-yellow. The pilose stripes of the ♂ are very variable; they are sometimes all very narrow and in that case are isolated. The genitalia are strikingly different from those of the preceding species. — The earlier stages not known. Distributed from Timor and Wetter to the Tenimber Islands: Dutch and Portuguese Timor, Wetter, Moa, Letti, Roma, Dammer, Babber and Tenimber (Selaru and Sjerra), probably also on the other islands of this group.

perieles.

Ulysses-Group.

The upper surface of the wings blue from the base to one-third or beyond, the forewing above distally pure black without metallic or pale scales; the submarginal spots on the underside of the hindwing yellow, proximally margined with blue or blue-grey and distally with black, the sequence of the colours consequently just the reverse of that in the *peranthus*-group.

P. ulysses. Upper surface in the ♂ velvety black, the forewing from the base at least to the apex of the cell and the hindwing to the middle of the disc or beyond glossy blue, mostly with greenish tinge; the forewing without a trace of metallic scaling in the black distal area, with long pilose stripes on the veins, which vary individually and geographically. Under surface blackish brown from the base to beyond the cell of the forewing and to about the middle of the disc of the hindwing, the distal part more or less distinctly yellowish; forewing with grey discal band, which is very broad anteriorly and gradually narrower posteriorly; hindwing with a row of submarginal spots which are lighter or darker yellowish and margined distally with black and proximally with white (or white and blue). The ♀ less deep black than the ♂, the blue area of both wings reduced, less densely scaled with blue, the hindwing above with blue submarginal spots. Under surface as in the ♂, but paler. The body of the larva divided by a straight whitish lateral line into a dark green dorsal and a greenish white ventral part; on the 4. segment a white transverse band which is laterally narrowed, being elongate-luniform, behind the band in the segment-incision a small black dorsal spot, from the 6. segment at each side a subdorsal white spot, of which the 3. is the largest; prothorax with 2 slight protuberances, penultimate segment with 2 long rough spines. On Citrus. Pupa beneath very strongly convex; head with two widely separated short smooth processes, thorax above feebly convex, without horn, but with slight central keel, which is continued almost to the tip of the abdomen, the abdomen also with lateral keel, the 3. abdominal segment the broadest, laterally not angular but rounded. The butterfly is found both in the woods and in open country and is especially fond of sunny river-beds, in which it flies high above the ground. The flight is undulating, the butterfly rising and

falling in rapid alternation. According to HAGEN the form from German New Guinea is very inquisitive and
morotaicus. was there the first butterfly which visited the flowers of the imported Lantana and Zinnia. — **morotaicus** *Rothsch.* ♂: the black spot at the apex of the cell of the forewing large, the blue scaling placed distally to the apex of the cell reduced, the pilose stripes broad, the posterior 3 or 4 joined together; the black margin of the hindwing between the veins much narrower than the discal part (placed distally to the cell) of the blue area, a blue stripe behind the 1. radial, joined to the blue area, an isolated blue streak behind the 2. radial, no blue streak at the
telegonus. two median veins. ♀ not known. Morty (= Morotai), 2 ♂♂ in the Tring Museum. — **telegonus** *Fldr.* (= ulysses *Westw.*) (39 a). ♂ as the preceding, but the black distal margin of the hindwing broader than its distance from the apex of the cell, two blue stripes at the median veins. ♀ paler than the ♂, the metallic area of both wings less extended and the metallic scaling less dense, the hindwing with blue-green submarginal patches. Batjan,
dohertius. Ternate and Halmaheira. — **dohertius** *Rothsch.* ♂: forewing as the preceding, but the blue at the apex of the cell less extended; the black distal margin of the hindwing somewhat narrower even than in *morotaicus*, without isolated blue stripe, but the blue area is produced into a tooth behind the 1. radial and into a streak behind the
ulysses. 2. radial. ♀ not known. Obi. — **ulysses** *L.* (♀ = diomedes *L.*) (38 a, b). ♂: the blue area on both wings more extended than in the preceding forms, on the forewing it almost entirely fills up the cell, the spot placed before the 3. radial is at least half as long as the cell is broad, the pilose stripes are spindle-shaped and do not usually touch one another; the blue area of the hindwing is dentate behind the 1. and 2. radials. The submarginal spots of the hindwing beneath are yellowish olive-colour, the anal spot purer yellow. The blue area of the ♀ on the forewing sometimes almost as extended as in the ♂, in other specimens on the other hand more or less strongly reduced, below the cell there are grey hairs, which in dark specimens form a large patch, commonly a large black spot is placed on the lower median in the blue area; hindwing with 6 blue submarginal arcs. Amboina, Ceram,
ampelius. Saparoea. — **ampelius** *Rothsch.* ♂ similar to the ♂ of *ulysses*, the pilose stripes narrower, the one placed on the submedian only indicated by a few small hairs. The marginal area of the forewing beneath (distally to the grey discal area) anteriorly broader and posteriorly narrower and the corresponding marginal area of the hindwing
oxyartes. broader than in *ulysses*. Buru, only 1 ♂ known to me. — **oxyartes** *Fruhst.* ♂: very similar to *autolycus*-♂ from New Guinea; the forewing beneath with grey spot in the cell, the brown marginal band narrow, the submarginal spots of the hindwing strongly reduced, the 2. to 4. very narrow, the yellowish olive-coloured central part of the 3. spot almost entirely suppressed. ♀ not known. Aru, only a few specimens in collections, the single example in the Tring Museum taken by H. KÜHN in August 1900. From the Key Islands no *ulysses*-form is yet known. —
dirce. **dirce** *subsp. nov.* ♂: forewing 32 mm long, narrower than in the following forms, the abdominal margin of the hindwing likewise longer in comparison with the size of the insect. Markings as in the usual form from New Guinea, but the black distal margin of the hindwing posteriorly broader; the brown distal margin of the hindwing beneath narrower and the submarginal spots strongly reduced. Misol; in the Tring Museum one ♂ taken by H. KÜHN
autolycus. in February 1899. — **autolycus** *Fldr.* (= penelope *Wall.*, physkon *Fruhst.*, eugenius *Fruhst.*, roxana *Fruhst.*, taxiles *Fruhst.*) (38 b). This form varies in all the localities so much that there seems to be no single character which is confined to specimens from any one district. ♂: the black spot at the end of the cell of the forewing usually isolated, but in many examples (as even in the type of *autolycus*) connected with the black distal area; the blue area of the hindwing is commonly produced into a streak behind the 1. and 2. radials. Beneath the cell of the forewing nearly always bears a distinct grey spot; the grey discal area of the hindwing does not reach the costal margin and the submarginal spots are much smaller than in *P. u. ulysses*, the first one especially is always incised and curved somewhat in comma-shape. The pilose stripes are mostly not contiguous, occasionally even the submedian stripe is absent, yet the 3 posterior ones in many specimens are so much widened as to touch one another. The examples from the islands in Geelvink Bay have somewhat rounder wings than specimens from other districts. The ♀ is very variable in the extent of the blue, but this is usually more extended than in *ulysses*, also the hairs behind the cell of the forewing are absent; the submarginal spots of the hindwing above are narrow as in *ulysses*, but less regularly curved; the under surface similar to that of the ♂, paler. The specimens with
conjuncta. transiens. melanotica. much blue are ♀-f. **conjuncta** *Hagen*, those with reduced blue ♀-f. **transiens** *Hagen*. Salawatti, Waigeu, the whole of New Guinea, Jobi and Mafor; at the coast and in the hills, common. — **melanotica** *Hagen*, from Dampier Island, only 1 ♀ known (in the Tring Museum). A very dark form, which recalls ♀♀ from the Solomon Islands. The green-blue scaling only fills up about half the cell of the forewing, and is also very strongly reduced below the cell, only the stripe placed at the hindmargin is as long as in normal New Guinea specimens; as in *ulysses* there is a paler hairy area behind the lower median. On the hindwing there is only a very little blue scaling before
telemachus. and distally to the cell. — **telemachus** *Montr.* (= telephanes *Fruhst.*). ♂: the black distal margin of both wings very broad; the blue area of the forewing does not usually extend quite to the apex of the cell and that of the hindwing does not mostly reach to halfway between the apex of the cell and the distal margin. But there are also specimens both on Trobriand and on Fergusson and Goodenough (from Woodlark so few examples are known that we know nothing definite as to the individual variation) which approximate closely to those from New Guinea. For these
agasophus. transitions the name ♂-ab. **agasophus** *Fruhst.* may be accepted. The ♀♀ vary as in New Guinea; the blue scaling is less dense than in *autolycus* and does not extend so far distally. The black distal margin of both wings is broader in the 2 ♀♀ from Goodenough than in the 3 ♀♀ from Fergusson and the 8 ♀♀ from Trobriand in the Tring Museum;
joësa. ♀♀ from Woodlark are not known to me. D'Entrecasteaux Islands, Trobriand, Woodlark. — **joësa** *Btlr.* (37 c),

from Queensland, is very similar to *autolycus*. The blue is always very extended in both sexes. The under surface is paler than in *autolycus*, the grey cell-spot is larger and the posterior part of the grey discal area of the forewing broader than in *autolycus*, also the submarginal spots of the hindwing are on the whole larger and more yellow and the grey central area is always very strongly developed. — **ambiguus** *Rothsch.* (= kallinikos *Fruhst.*, marius *Fruhst.*). A small race. ♂: the blue area of the forewing does not mostly quite reach the apex of the cell; even when a few blue spots are placed distally to the apex of the cell, the black discocellular spot is still connected with the black marginal area; the pilose stripes on the 2 median veins are confluent, commonly the last 4 stripes are united; the blue of the hindwing extends to about halfway between cell and distal margin. Beneath the cell of the forewing always bears a grey spot. ♀: the blue is somewhat more reduced even than in the ♂, especially at the apex of the cell of the forewing; the hindwing has above no blue submarginal spots or these are only feebly developed. Bismarck Islands: New Pomerania (= New Britain), New Lauenburg (= Duke of York), New Mecklenburg (= New Ireland) and New Hanover. Some of the statements made by Fruhstorfer with regard to the distinctions between specimens from different localities are erroneous and some of them completely contradict one another (cf. Iris 1907 p. 12). — **gabrielis** *Rothsch.* (39 a). A very peculiar large form with long wings. ♂: the blue darker than in the preceding subspecies, strongly reduced on both wings, on the forewing it only reaches to about the middle of the hindmargin and on the hindwing usually only somewhat beyond the apex of the cell, also the cell of the forewing is anteriorly very broadly black and the blue scaling of both wings less dense than in the ♂♂ of the other subspecies; the pilose stripes are very broad, the 4 posterior ones broadly connected. The submarginal spots of the hindwing beneath are very large and all nearly uniformly ochre-yellow. ♀ even less extended blue than in *melanotica*, the blue submarginal spots on the upperside of the hindwing larger, the two posterior ones (between tail and anal angle) strongly curved. The submarginal spots of the under surface as in the ♂. St. Gabriel, Admiralty Islands, collected by Webster in April. The fauna of the Admiralty Islands is still almost entirely unexplored on account of the hostile attitude of the natives. Captain Webster could not land on the main island and only collected for 2 days on the small island St. Gabriel, then he was obliged to take flight with his small schooner. — **nigerrimus** *Ribbe*. Somewhat larger than *ambiguus*, the under surface in both sexes darker, especially the marginal part, the submarginal spots lighter yellow, with more strongly blue proximal border. ♂: the blue somewhat more extended than in most *ambiguus*, no blue spots distally to the apex of the cell of the forewing, the grey scaling in the distal part of the forewing beneath very sparse. ♀: the grey scaling less dense and usually less extended than in *ambiguus*; the blue submarginal spots of the hindwing distinct, the anterior two or three mostly only represented by longitudinal streaks at the veins, the two posterior ones transverse, concave either only proximally or on both sides. Two principal forms: ♀-f. **cyanippe** *form. nov.*, the blue of the forewing reaches almost to the apex of the cell; ♀-f. **nigerrimus** *Ribbe*, the blue of the forewing very strongly reduced, usually not extending beyond the lower median. Bougainville and Shortlands Islands. — **orsippus** *G. & S.* (39 a). ♂: the blue of the forewing extends beyond the apex of the cell, but the black discocellular spot is still connected with the black distal area; the yellow in the 2. to 4. submarginal spots of the hindwing beneath usually suppressed by black, which is also sometimes the case in the 1. spot. ♀: the blue submarginal spots of the hindwing above smaller than in *nigerrimus*, sometimes only indicated; the grey scaling in the middle of the hindwing beneath proximally mostly condensed into a band; the 2. to 4. submarginal spots of the under surface sometimes black as in the ♂. Two principal forms: ♀-f. **hilaria** *form. nov.*, the forewing fairly uniformly scaled with blue nearly to the apex of the cell and the hindwing almost to the middle of the disc; ♀-f. **penthina** *form. nov.*, the blue on the whole somewhat more strongly reduced than in ♀-f. *nigerrimus*. I have before me: ♂♂ from Choiseul, Isabel, Guadalcanar and Florida; ♀♀ of the 1. form from Guadalcanar, of the 2. form from Isabel, and transitions between the two from Choiseul, Guadalcanar and Isabel. — **georgius** *Rothsch.* (= rothschildianus *Fruhst.*) differs from *orsippus* chiefly in that the grey scaling of the under surface is denser and the marginal area of both wings is so dark that the border of the forewing appears scarcely paler than the disc; also the yellow anal spot is more obliquely placed. The blue in the ♀ is about as much extended as in average specimens of *orsippus*-♀. In the Tring Museum 6 ♂♂ and 2 ♀♀ from Guizo, Kulambangra and Vella Lavella, captured by A. S. Meek.

ambiguus. *gabrielis.* *nigerrimus.* *cyanippe.* *orsippus.* *hilaria.* *penthina.* *georgius.*

P. montrouzieri *Bdv.* (= ulyssinus *Westw.*, chaudoiri *Fldr.*). Smaller than all the forms of *P. ulysses*, both wings more strongly sinuous between the veins, the forewing beneath with yellowish grey transverse bar in the cell and crescents of the same colour as proximal bordering to the grey discal area; the submarginal spots of the hindwing darker yellow than in *P. ulysses*. The genitalia are extraordinarily different from those of *P. ulysses*. The number of the pilose stripes in the ♂ and the extent of the blue in ♂ and ♀ are variable. The principal forms are: f. **ulyssellus** *Westw.*, the blue reaches in the ♂ to beyond the apex of the cell and completely encloses the small black discocellular spot; the pilose stripes are absent or feebly indicated, in the ♀ the blue reaches to or nearly to the apex of the cell of the forewing. f. **montrouzieri** *Bdv.* (37 c), the blue in the ♂ does not extend beyond the apex of the cell and extends in the ♀ about to the 3. medial vein, the pilose stripes are narrow but distinct. f. **westwoodi** *Oberth.*, the blue still more strongly reduced, the ♂ with 4 or 5 rather broad pilose stripes. — New Caledonia and Loyalty Islands.

ulyssellus. *montrouzieri.* *westwoodi.*

C. Kite-Swallowtails.

Antenna short, with powerful club, the upperside in fresh specimens scaled like the tibiae and tarsi, the fine sensory hairs almost uniformly distributed over the proximal part of the underside of each segment. The dorsal spines of the tarsi separated from the ventral ones by a spineless, somewhat impressed interspace. The wings in most species thinly scaled, semitransparent, especially in the costal part of the forewing; the green or bluish bands and spots on the upper surface mostly without scales, sometimes also on the under surface; the abdominal margin of the hindwing bent over upwards, provided with long hairs at the margin, inside the fold usually yellowish scent-wool (♂); the cell of the hindwing mostly narrow, its costal margin incurved between the subcostal and 1. radial. With the exception of *P. payeni*, *gyas*, *hercules* and *leosthenes*, as also *podalirius*, the 1. subcostal of the forewing in the Kite-Swallowtails of the Old World runs into the costal, in some species the 2. subcostal is also united with the costal vein. The young larva with forked hairs; full-grown in the Indo-Australian forms so far as is known with a pair of short spines on each of the three thoracic segments and the last segment, the thorax swollen. Pupa smooth, in the middle rounded in barrel-shape, the wing-cases not projecting, the thoracic horn four-sided, the lateral carinae forming the prolongation of the upper edge of the wing-cases; on the dorsum two carinae, converging anteriorly and posteriorly; the anal segment longer than broad. — Most of the Kite-Swallowtails are long-winged and long-tailed, yet there are many species, especially mimetic, in which the hindwing is rounded and has no tail. They are all good fliers and occur in wooded districts; the mimetic forms imitate the slow flight of their models. The ♂♂ often rest together in crowds at wayside puddles and on the moist sand of river-banks and can mostly be attracted by urine and the like. The ♀♀ are taken singly in the woods.

Antiphates-Group.

Wings white with black bands, which on the forewing are perpendicular to the veins; on the under surface of the hindwing a subbasal band parallel with the abdominal margin and a median band, which approach one another at the apex of the cell or are connected there; tail long, gradually pointed. Except in *P. leosthenes* the 1. subcostal of the forewing runs in tothe costal vein.

P. eurous. Body above black, with long grey hairs, beneath grey, with black stripes on the yellowish underside of the abdomen. Forewing semitransparent, with ten black bands, the extreme base also black, the 1. and 2. band, as well as the four distal, partly united bands usually reach the hindmargin; upper surface of the hindwing with black anal area, which is spotted with grey-blue and from which the black lines run out costad, at the anal angle a yellow double spot, the cell narrower than in the following species; under surface of the hindwing with two parallel oblique median lines, between which a number of yellow spots are placed. The full-grown larva green, dotted with black, the pronotum with yellow transverse band, which is laterally continued to the anal segment, the three thoracic segments each with a pair of black spines, the anal process yellow with black tip, curved laterad. Pupa slender, green, with four yellow lines. Food-plant: Machilus odoratissima, a Laurineae on which the larvae of many Kite-Swallowtails live. Probably only one brood. The butterflies fly from the spring until July; like many Kite-Swallowtails they are fond of resting on the tops of trees, round which they circle in swift flight. In North India they occur from about 3—7000 ft., but ascend higher in China. Kashmir to Assam and Formosa. — In West and Central China flies **eurous** *Leech* (cf. vol. I, 8 a). From eastern and southern China no form is yet known. — On the other hand a broad-winged form, with broad black bands, occurs on Formosa: **asakurae** *Mats.* Originally described from a specimen with the tails broken off. The black bands in the marginal area of the hindwing are especially much broader than in the Chinese form. — **sikkimica** *Heron* (= sikkima *Moore*, glycerion *Rothsch.*) (40 a). Broad-winged; the hindwing above without black median band, also the subbasal band only present towards the costa and very narrow. Assam, Sikkim, Nepal. — **caschmirensis** *Rothsch.* (vol. I, 8b). The upper surface of the forewing is more extensively scaled with white, the yellow spots of the hindwing above and beneath are paler and the two black median lines on the underside of the hindwing are thinner and hence further separated than in *sikkimica*. Kashmir and North-West India.

eurous. *asakurae.* *sikkimica.* *caschmirensis.*

P. glycerion. Under surface of the hindwing at the costal margin and at the apex of the cell with a black-edged spot, which are united into an 8. The earlier stages are unknown. In its habits the butterfly resembles the preceding species, but appears to ascend somewhat higher in the mountains. Distributed from Nepal to Upper Burma as well as West and Central China. — The Chinese form is **mandarinus** *Oberth.* (see vol. I, 8 a, b), which also occurs in Yunnan. The subbasal line of the hindwing above not interrupted behind the cell. — **glycerion** *Gray* (= paphus *Nicév.*) (40 a). The forewing in the cell and distally to it less densely scaled with white than in *mandarinus*, hence more transparent, the subbasal band of the hindwing always interrupted behind the cell, the median line very thin and short. Nepal, Sikkim, Assam, Upper Burma.

mandarinus. *glycerion.*

P. alebion. Under surface of the hindwing with only one black median line, at the distal side of which is placed a yellow costal spot, usually bordered with black distally; the cell of the hindwing broad. The earlier stages unknown. — *tamerlanus Oberth.* (see vol. I. 8 a) flies in West and Central China. — **alebion** *Gray* (see vol. I, 8 a) occurs in East China (Kiukiang and Foochow). Both wings are narrower than in *tamerlanus*; moreover in the ♂ the yellow anal spot is not divided either above or beneath. The only example known to me from Foochow

alebion.

is a ♀ (I have seen no other ♀♀ of *P. alebion*); it agrees in the shape of the wings with *al. alebion*, on the other hand the anal spot is small and constricted as in *tamerlanus* and the yellow costal spot of the hindwing beneath narrow and prolonged to the cell; possibly this ♀ belongs to a south-eastern subspecies.

P. agetes. Body above black with light lateral line, beneath yellowish white, head and pronotum reddish. Wings white with black bands; hindwing with black distal margin, which encloses some white spots, and with red anal spot, tail thin, black with white tip. Under surface like upper, but hindwing with black subbasal band parallel with the abdominal margin and with black median band in which red spots are placed. The ♀ similar to the ♂, with somewhat broader wings. The earlier stages unknown. The butterfly flies in the hills in wooded districts. The ♂♂ congregate at wayside puddles and on the moist sand of river-banks. North India to Sumatra, Borneo and Hainan. — **agetes** *Westw.* (= tenuilineatus *Fruhst.*). The 1. and 2. band of the forewing always extend beyond the hindmargin of the cell. Sikkim, Bhutan, Assam, Burma, Tenasserim, Shan States, Annam, Tonkin, Hainan. — **iponus** *Fruhst.* The 2. band of the forewing somewhat shorter than in the preceding form. Malay Peninsula. — **insularis** *Stgr.* (41 c). The forewing in the cell more densely scaled with white than in *agetes*, the 2. band on the upperside does not extend beyond the cell; the black markings of both wings deeper black, especially beneath. In the Battak and Gayoe Mountains of Sumatra, not below 3000 ft., very common. — **kinabaluensis** *Fruhst.* The interspace between the black submarginal band of the forewing and the apex of the cell is much broader than the submarginal band. Kina Balu, North Borneo.

agetes. *iponus.* *insularis.* *kinabaluensis.*

P. stratiotes *Grose-Smith* (41 b). The three outer black bands of the forewing very much broader than in *P. agetes*, the transparent submarginal interspace reduced to a line; the hindwing above before the distal margin grey, with very large red anal spot. The under surface of the forewing yellowish, the subbasal and the median band narrow, straight, the latter without red spots, the red anal spot large. The ♀ similar to the ♂. The earlier stages unknown. — Kina Balu, North Borneo.

stratiotes.

P. leosthenes *Dbl.* (40 a). Except *P. podalirius, payeni, gyas* and *hercules* the only Kite-Swallowtail of the Old World in which the 1. subcostal of the forewing runs free into the costal margin. Body above black, with grey hairs, with a lateral stripe on head and thorax, beneath grey; antenna beneath yellowish, legs pale green. Wings semitransparent, white with brownish black bands (cf. figure); the median band of the hindwing beneath with yellow spots, of which the posterior 4 are also developed above. The ♀ very similar to the ♂. — Queensland.

leosthenes.

P. nomius. Very nearly allied to *P. aristeus*. But as *nomius* occurs in North India, Burma and Siam together with *P. aristeus* and is sharply differentiated from it in the genitalia, we entertain no doubt that it is a separate species. The wings are somewhat broader than in *P. aristeus*; the anterior submarginal spots of the forewing are rounded, the black median band of the hindwing above is always well developed, the 1. and 2. brown bands of the forewing beneath are blackish at the costal margin, also the parts of the 2. and 3. bands placed behind the cell are deeper black than in *P. aristeus*. The full-grown larva above usually black with white transverse stripes, beneath green, the anterior and posterior segments yellowish, sometimes the larva entirely green; on each of the thoracic segments and the anal segment a pair of spines. On Saccopetalum tomentosum and Polyalthia longifolia. The pupa not on the food-plant, but under stones, in crevices and under the roots of trees; earth-coloured, with short thoracic horn, directed forwards, and somewhat produced angles to the head; pupal stage lasts in South India from July to March or even May. The butterfly is a very common lowland species, in some years and at certain places extremely abundant. The ♂♂ often in crowds at wayside puddles; they also visit flowers. — **nomius** *Esp.* (= ? orestes *F.*, meges *Hbn.*, niamus *Godt.*). The 3. band of the forewing does not extend beyond the cell; the anal part of the hindwing is plentifully dusted with white; the under surface of the forewing without short black costal line near the base. Ceylon to Bengal, single stray specimens in low-lying places in Sikkim. — **swinhoei** *Moore* (= pernomius *Fruhst.*) (41 c). The 3. band of the forewing and commonly also the 4. extend beyond the hindmargin of the cell; under surface of the hindwing with black subbasal streak at the costal margin. In most of the examples from Assam, Burma, Tenasserim, Siam and Annam, and also in the single specimen before me from Tonkin, the under surface is much lighter yellow than in the preceding form, in single examples from these districts taken at the same time, however, and in all the specimens from Hainan, the under surface is as dark as in *nom. nomius*. Singly in Sikkim and Assam (migratory specimens?), common in Burma, Tenasserim and Hainan, from Tonkin only a few examples yet known.

nomius. *swinhoei.*

P. aristeus. Body beneath white, above black with light longitudinal stripe at each side. Wings white, above with black, beneath with brown bands. Forewing with 7 bands, of which the 3.—5. are abbreviated and the 4. is sometimes absent; the 5. commonly united with the 6. at the lower angle of the cell, the 6. and 7. form a broad marginal area, which encloses a submarginal row of white spots. Hindwing with subbasal and median bands, which run parallel with the abdominal margin, the median band sometimes only indicated, the distal

margin black with white submarginal spots, of which the posterior three or four are very thin and lunular. Under surface of the forewing like the upper, the bands posteriorly blackish; the median band of the hindwing from the costal margin to the anal angle with red (rarely yellow) spots, at the distal side of which are placed black spots. Although this species occurs from North India to the Bismarck Islands and North Australia in numerous subspecies and in many districts is very common, nothing is yet known as to the earlier stages. The butterflies are found in wooded districts at low elevations; on account of their high and rapid flight they are not easy to

anticrates. catch, but they sometimes rest in considerable numbers at wayside puddles and river-banks. — **anticrates** *Dbl.* (41a). The white discal area of the forewing above is scarcely broader at the lower median than the black distal margin, but there are also examples in which it is narrower than the margin; the median band of the hindwing above mostly interrupted, sometimes broad and complete, but never broader anteriorly than the white discal band

hermocrates. placed at its distal side. Sikkim, Assam, in the spring, only one brood. — **hermocrates** *Fldr.* (= pado *Fruhst.*) (41 a). Connected with the preceding subspecies by all the intermediate gradations; many examples have as much white as the lighter *anticrates*; in general, however, the black bands are more extended than in the North Indian form. The genitalia are slightly different. Examples with narrow white discal area on the forewing are

aristeoides. ab. **aristeoides** *Eimer* (= aristinus *Fruhst.*), and specimens in which the cell of the forewing bears only three white bands and the white submarginal band of the forewing and the white discal band of the hindwing are posteriorly

nigricans. abbreviated, are ab. **nigricans** *Eimer.* It appears to me impossible to divide *hermocrates* into further local races, at least I can find no character by which the examples from any one locality may be recognised. The greater number of the examples from Palawan have a broad white discal band, but there are also specimens on Palawan in which the white bands are quite as strongly reduced as in those from Kalao and Wetter and the dark Sumba specimens. On the other hand there are also on Sumba both light examples which resemble the light specimens from Palawan and Luzon, and dark ones, which cannot be distinguished from Kalao and Wetter examples. I have the butterfly before me from Burma, Tenasserim, the Shan States, Siam, Langkawi Island, the Malay Peninsula, North-East Sumatra, Borneo, Palawan, the Philippines, Kalao, Sumba, Timor, Wetter and Dammer. From

aristeus. Java it is not yet known and on Sumatra also only a few examples have been found. — **aristeus** *Cr.* (= aristaeus *Godt.*) (41 a). The white discal band of the forewing above narrower at the lower median than the black distal margin; on the hindwing this band reaches to the 3. radial, but the last spot of the band is very small, sometimes only indicated. Under surface brown-black, much darker than in *hermocrates* and *anticrates*. Amboina, Ceram. —

timoerates. **timocrates** *Fldr.* The white discal band on both wings broader than in *aristeus*, the last spot of the band on the hindwing especially larger, there are also always three white spots on the underside of the hindwing between the 3. radial and the 1. median, namely distally a thin crescent, further proximally a diffuse spot and between this and the red median band a proximally concave spot; the latter is absent in *aristeus* or is only just indicated.

bifax. Halmaheira, Batjan, Mount Mada on Buru. — **bifax** *Rothsch.*, from Obi, was described from a single ♂. The white discal band of both wings is even broader than in *timocrates* and the black median band of the hindwing

parmatus. above is for the most part dusted over with white. Probably these differences are not constant. — **parmatus** *Gray* (= pherecrates *Fldr.*, guineensis *Grose-Smith*) (41 a, b). Similar to *timocrates*; the white discal band of both wings still broader, the black median band of the hindwing above for the most part dusted over with white, yet in some examples the band is entirely black; anal area of the hindwing more strongly dusted with white than in *timocrates*; the white spots of the discal row placed between the 2. radial and the abdominal margin larger than in *timocrates*, mostly connected. Distinguishable from the Indian *anticrates* by the deeper yellow spots of the pronotum, the dark under surface and the genitalia. Aru, Waigeu, Dutch, German and British New

paron. Guinea, Queensland. — **paron** *Godm. & Salv.* The black median band on the upperside of the hindwing dusted over with white, beneath on the other hand very broad, with yellow instead of red spots. New Pomerania (= New Britain). New Mecklenburg (= New Ireland).

P. rhesus. Larger than *P. aristeus*, the wings narrower, the forewing strongly falcate. The black bands very broad, but the subapical band of the cell of the forewing is absent or very narrow, so that the 4. and 5. white bands of the cell are confluent and form a continuation of the narrow and obliquely placed white discal band. *P. rhesus* is a Celebes edition of *P. aristeus*; it is curious that the butterfly was treated by Eimer as a near relative of American species (*P. marcellus*, *philolaus*, etc.). The earlier stages are unknown. The ♀ is rarely taken, on the other hand the ♂ is very common, especially in the neighbourhod of rivers and brooks. Like all the allied species the ♂♂ often rest in crowds in moist places by river-banks and at the wayside and can be attracted by

rhesus. placing dead specimens with the wings spread out on the sand. — **rhesus** *Bdv.* (= celtibericus *Bdv.* indescr.) (41 a). The veins inside the white discal band of the forewing nearly always entirely black; the white discal band of the hindwing narrow, often broken up into spots. North and East Celebes, Buton. The erroneous statement of Fruhstorfer that Boisduval described the under surface

rhesulus. as black, rests on a confusion of „dessus" with „dessous". — **rhesulus** *Fruhst.* The greenish white submarginal and discal bands in most examples somewhat broader than in the preceding form, also the red

rhaphia. spots on the under surface of the hindwing usually somewhat larger. South Celebes. — **rhaphia** *subsp. nov.* The light bands somewhat broader even than in *rhesulus*, the short band placed distally to the apex of the cell of the forewing longer, usually connected with the discal band by a thin streak below the apex of the cell;

the submarginal line of the forewing above and beneath broader. The under surface paler brown than in the two preceding forms. Djampea, also on Tomia (Toekan-Bessi Islands), 12 ♂♂ and 1 ♀ in the Tring Museum.

P. dorcus *Dehaan* (41 c). In the markings of the hindwing beneath and also in structure nearly allied to *P. rhesus* and *P. aristeus*, on the other hand in size and shape and in the markings of the upper surface similar to *P. androcles*. Body above black with light lateral stripe, beneath white. Forewing black with 3 white bands, in the broad median band sometimes a thin black costal stripe; hindwing for the most part white, with black band near the base and in the middle and black markings in the marginal area, tail very long. Under surface of the hindwing with red spots in the black median band, which are very similar to those of *rhesus*. The ♀ similar to the ♂. The earlier stages unknown. — North Celebes, rare. *dorcus.*

P. androcles *Bdv.* (41 b). An enlarged edition of *P. euphrates*. Considerably larger than all the forms of *P. euphrates* and *P. antiphates*. Wings white, greenish towards the base; on the forewing the apical half and 3 bands, on the hindwing a subbasal and a median band as well as patches in the marginal area black, the tail very long; in the black apical area of the forewing a submarginal and a short discal line, both greenish. Beneath much as above, the hindwing with more numerous black patches, more sharply developed bands and with diffuse yellow patch behind the 3rd radial. The ♀ similar to the ♂. The earlier stages unknown. — North, East and South Celebes, not rare in wooded districts near water-courses. Unquestionably one of the most elegant butterflies of the Indo-Australian region. *androcles.*

P. antiphates. Body above black with light lateral stripe, or the abdomen entirely white, under surface white with black lateral stripe. Wings white, the forewing above and beneath greenish towards the costa, as also the basal half of the hindwing beneath; forewing with seven black bands. Hindwing above with black marginal spots and a complete or incomplete row of black submarginal spots, either only the posterior part of the marginal area dusted with grey-black, or the whole margin broadly grey-black. On the under surface of the forewing the following black markings are present: before the abdominal margin a stripe which is anally united with a subbasal stripe, in the middle of the wing a double band, longitudinally divided by the ground-colour, the distal half of which is broken up into spots, a row of submarginal and a row of marginal spots, the submarginal spots shaped like the figure 3, at their proximal side yellow patches, which are for the most part indistinctly defined. The ♀ similar to the ♂. The larva at first yellowish or white with forked hairs and usually dark transverse lines; when full-grown green with two yellow transverse bands on the thorax, a yellow lateral line running from the head to the tail and dark green dorsal lines; or the ground-colour more bluish green and the markings white. On Anonaceae, e. g. Unona lawii. Pupa pale green, with yellow lateral line, thoracic horn short. The butterfly is mostly very common in the wooded districts of its area of distribution at lower elevations; the ♂♂ congregate in crowds at puddles and the edges of brooks, where they drink in company with Pierids. The ♀♀ are taken singly in the woods. On the wing *antiphates* gives the impression of a Pierid, as the long tails are scarcely noticeable during its swift flight. Distributed from China to Ceylon, North Borneo and the Lesser Sunda Islands. — **antiphates** *Cr.* (= antipates *Jabl. & Hbst.*) (40 b, c). A large form; the 1st band of the forewing reaches to the hindmargin and the 2nd nearly to the submedian vein or beyond it, the black submarginal spot placed behind the 3rd radial of the hindwing large. South-East China, Tonkin. — **pompilius** *F.* (= continentalis *Eimer*, linga *Fruhst.*). The black markings on the whole less extended than in the preceding form; very variable. Hainan, Annam, Siam, Tenasserim, Burma, Assam, Sikkim. In North India occur single melanistic specimens (the Tring Museum possesses 4 such examples), in which the forewing above and beneath and the under surface of the hindwing as well as the distal margin of the upper surface are more or less completely dusted with black, with the exception of the greenish white bands in the anterior part of the forewing: ab. **nebulosus** *Btlr.* (40 d). — **naira** *Moore.* Large, the two distal bands of the forewing are confluent posteriorly and reach the hindmargin as in *P. epaminondas*; the marginal spots of the hindwing are larger and the grey-black dusting is more extended than in the preceding forms. South India; not common. — **ceylonicus** *Eimer* (= antiphanes *Fruhst.*). Very similar to *pompilius F.*, on the forewing the marginal band reaches to the hinder angle, the submarginal band above and beneath to the lower median vein, the subbasal band is of uniform width and reaches the hindmargin, whilst the second band extends to the submedian; the anal area of the hindwing above and the anterior part of the hindwing beneath are paler than in *pompilius*. Ceylon; rare. — **itamputi** *Btlr.* (= poetus *Fruhst.*) (40 b) is distinguished from *pompilius* chiefly by the deeper and more extended yellow distal area of the underside of the hindwing. Malay Peninsula, Langkavi, Straits Settlements, Sumatra, Natuna Islands, Borneo, Banguey. In a ♂ from North-East Sumatra in the Tring Museum the 2nd and 4th black bands on the forewing are absent, moreover the greenish submarginal band is partly united with the discal band and the forewing has a continuous black marginal line: ab. **leucania** *ab. nov.* (32 c). — **antiphonus** *Fruhst.* has somewhat larger black submarginal spots on both sides of the hindwing than *itamputi*. Nias. — **alcibiades** *F.* (= javanicus *Eimer*) (40 b). The distal black bands of the forewing narrower than in *itamputi*; the anal part of the hindwing above much deeper black, the tail distinctly white at the tip only, the distal part of the hindwing beneath less yellow. Java. — **balius** *subsp. nov.* The black submarginal band of the forewing is posteriorly broadly united with the marginal band, extends above beyond the lower median and beneath almost reaches this vein; the hindwing as in *alcibiades*, but the black marginal area much broader and extended costad to the

antiphates. *pompilius.* *nebulosus.* *naira.* *ceylonicus.* *itamputi.* *leucania.* *antiphonus.* *alcibiades.* *balius.*

2nd black marginal spot; the black patches on the underside of the hindwing larger. Bali, only 1 ♂ in the Tring
kalaoensis. Museum. — **kalaoensis** *Rothsch.* Forewing as in *alcibiades*, on the other hand the anal area of the underside of the hindwing blackish grey, so that the black submarginal spots in it stand out distinctly. Kalao, Djampea, Sumbawa, Flores.

epaminondas. **P. epaminondas** *Oberth.* (= laestrygonum *Wood-Mas.*) (40 d). As large as the largest *antiphates*; the black bands broad, the 1st and 2nd on the under surface of the forewing always reaching the hindmargin, the black median band of the forewing more or less developed above also; the yellow patches of the hindwing beneath more sharply defined than in *P. antiphates*, the light submarginal spots and also the ground-colour at the distal side of the median band and inside it white. The ♀ very similar to the ♂. The earlier stages unknown. — Andamans.

P. euphrates. Confusingly similar to *P. antiphates* in the markings, constantly differing in that the anterior 3 or 4 submarginal spots on the under surface of the hindwing are not elbowed, but straight. Moreover the genitalia are strikingly different. As *P. euphrates* occurs in North Borneo and on Banguey at the same time and in the same localities with *P. antiphates*, there is not the slightest doubt that we are dealing with forms which have become independent, i. e. species. The earlier stages are not known. North
decolor. Borneo to Philippines. — **decolor** *Stgr.* (= palawanicus *Eimer*). The 1st black band of the forewing thin, the 4th always abbreviated, sometimes absent; the black marginal line of the hindwing broad, the black-grey anal area reaches to the 2nd radial. In distinction from *P. antiphates itamputi* the inner part of the black median band on the under surface of the hindwing is not prolonged beyond the cell or the spot of this line placed
domaranus. below the apex of the cell is only indicated. North Borneo, Banguey, Palawan. — **domaranus** *Fruhst.* On Domara, one of the small islands off the east coast of Palawan, the butterfly is dimorphic, as apparently also on some of the Philippines proper. In the light form, to which the name *domaranus* belongs, the 4th band of the forewing is broad and reaches the hindmargin of the cell, the marginal band extends to the hindmargin of the wing, the black submarginal band on the other hand is narrowed from the basal side in such a way that at the costal margin a short black projection remains between this band and the discocellular one; hindwing similar to that of *decolor*. The second form, according to Semper, agrees entirely with dark
atratus. Luzon specimens (*euphrates*), i. e. has a broad black marginal band on the hindwing. — **atratus** *Rothsch.* The bands of the forewing and the marginal band of the hindwing are very broad; upper surface of the hindwing with black subbasal stripe. The anterior yellow spots of the hindwing beneath indistinct, the posterior ones on the other hand large. A light form is not known. On Mindoro, and according to Semper on Bohol. —
euphrates. **euphrates** *Fldr.* (= moorei *Reak.*) (40 c, d). The 1st band of the forewing extends to the hindmargin, the 4th always to the hindmargin of the cell, the submarginal band broadly united posteriorly with the marginal band and continued to the hindmargin; hindwing broadly bordered with black to the costal margin, this marginal band in the ♀ somewhat paler than in the ♂. The yellow spots on the under surface of the hind-
nisus. wing all rather sharply developed. Central (and South?) Luzon. — **nisus** *subsp. nov.* In North Luzon flies a dimorphic subspecies which is less extended black. Semper mentions a ♀ from there and the Tring Museum possesses two ♀♀ taken by J. Whitehead. In these specimens the 4th band of the forewing does not reach the hindmargin of the cell, and the marginal band of the hindwing is paler and does not extend to the costal margin. The marginal band of the forewing is posteriorly pointed. The specimens differ from *decolor* and *euphratoides* by the much larger black submarginal spots on both sides of the hindwing. The three examples belong to two strikingly different forms (seasonal forms?), which differ in almost exactly the same way as the two forms known from Mindanao. In the light form, f. *nisus*, the 1st and 2nd bands of the forewing are thin and scarcely extend beyond the hindmargin of the cell, the white band placed distally to the apex of the cell is broadly connected with the white disc, the blackish grey anal area of the hindwing above is narrow and only reaches to the 2nd radial, yet between this vein and the costal margin there are 3 rather large black
zebraica. submarginal spots. The second form, f. **zebraica** *form. nov.*, which corresponds in all respects to f. *tigris Semp.* from Mindanao, is considerably larger than f. *nisus*, the 1st band of the forewing extends to the hindmargin and the 2nd terminates just before the margin, the black submarginal band is broader than in the light form and at the lower angle of the cell joined to the black discocellular band by a black vein-streak; the black-grey marginal area of the hindwing is broader than in *euphrates*, lighter, and only extends about to the subcostal; the black subbasal line is indicated above; the black dorsal stripe of the abdomen is very broad,
euphratoides. whilst in f. *nisus* it is only indicated. — **euphratoides** *Eimer* flies on Mindanao and Bazilan. The 4th band of the forewing is nearly always abbreviated, the black submarginal band does not reach the lower median, and the marginal band, which is pointed, does not extend to the submedian; the grey dusting in the anal area of the hindwing is even less extended than in *nisus*, the black submarginal spots of the hindwing beneath are thin and the anterior ones are entirely absent above; the distal area more yellowish than in *euphrates* and *nisus* and the yellow patches are more diffuse. The light form, f. *euphratoides Eimer*, is small, the grey anal area of the hindwing above very narrow, the fringes are more extended white than in *decolor*, the tail
tigris. is broadly margined with grey. Of the second form, f. **tigris** *Semp.*, only 1 pair was obtained by Semper; it is considerably larger than f. *euphratoides*, the 1st band of the forewing reaches the hindmargin and the 2nd extends almost as far, the subbasal band of the hindwing is indicated above, and the grey anal area, which

extends to the 2nd radial, is about twice as broad as in f. *euphratoides*. — **ornatus** *Rothsch.* (40 c). Fore- *ornatus.*
wing more densely scaled with white costad than in the preceding forms, hence less greenish; the 1st band of the forewing only indicated, none of the bands of the cell extend beyond its hindmargin, the distal border of the hindwing is deep black, narrowed costad; on the under surface of the hindwing the black markings in the distal half very large, the posterior yellow spots margined with black. Halmaheira; only ♂♂ known to me. — As in *P. antiphates*, the geographical forms in *P. euphrates* are also mostly somewhat different in the structure of the genitalia.

Payeni-Group.

The subcostal veins of the forewing free, the 3rd arising before the apex of the cell, the 2nd discocellular deeply incurved. The claw of the tarsi with tooth in or behind the middle. The wings densely scaled, for the most part yellow-brown or black-brown. The scent-fold of the hindwing of the ♂ weakly developed. — Distributed from China to the large Sunda Islands; only two species. The tooth of the claw is a very peculiar character, which is again indicated in *P. macleyanus* and *gelon*.

P. gyas. Strongly dimorphic sexually. ♂: body greenish, the head and the underside of the thorax chestnut-brown; the wings above dark brown, the broad dark distal margin with a row of yellowish spots, similar spots also on the disc of the forewing. Under surface with large chestnut-brown basal area, a spot at the apex of the cell of both wings and the anal area of the hindwing of the same colour; the middle of both wings white-grey with dark crescents, the hindwing with light, dark-edged submarginal spots, which are only indicated on the forewing; the tail spatulate. ♀ with broad white median band, which on the forewing becomes yellow costad and is here more or less distinctly broken up into patches, whilst it has a bluish tone on the hindwing. The submarginal spots larger than in the ♂; the tail broadly margined with light chestnut-brown. From Sikkim to Tenasserim, in wooded mountain districts at a height of 6—7000 ft., commonest in the Khasia Hills. The earlier stages are not known. — **gyas** *Westw.* (= lachinus *Fruhst.*) (39 c) *gyas.*
occurs in Sikkim, Bhutan and Assam (Garo, Khasia and Naga Hills). The specimens from Sikkim are distinguishable according to Fruhstorfer, but the characters given by him are not confirmed by the series in the Tring Museum (2 ♂♂ and 5 ♀♀ from Sikkim, 6 ♂♂ from Bhutan, 13 ♂♂ and 5 ♀♀ from Assam). — **aribbas** *Fruhst.*, erected from a ♂ from Upper Burma, is distinguished according to the author by the weaker *aribbas.*
development of the middle and posterior spots of the forewing and the lighter colour of the central area on the under surface of both wings. — *gyas* also occurs in Tenasserim (according to Hauxwell), but I have not been able to compare any specimens from there. — This species is represented in China by *P. hercules Blanch.* (= sciron *Leech*, porus *Streck.*) (vol. I, 8 b). Strecker erroneously describes *porus* as from the Garo Hills in Assam.

P. payeni. Body and ground-colour of the wings ochreous yellow, above with slightly greenish tone; vertex and collar as well as the greater part of the cell of the forewing above yellow-brown. The tooth of the claws large. Forewing with strongly produced apex, the distal margin of both wings broadly brown-black with yellow spots; on the forewing a discocellular patch and a transverse spot in the cell likewise brown-black; hindwing narrower than in *gyas*, much more triangular, without distinctly marked anal angle. Beneath on the whole lighter than above, the basal area of both wings with a brown band broken up into spots, the distal third commonly darker than the middle of the wing, always with brown lines and rows of spots, which are often confluent, on the disc of the hindwing a number of silver spots. The ♀ paler than the ♂, with broader wings and smaller dark markings. The earlier stages are unknown; the butterfly in the mountains at medium elevations. Distributed from Sikkim and Hainan to Java and Borneo. — The largest form is **evan** *Dbl.* (= evanides *Fruhst.*) (39 b), from Sikkim, Bhutan and Assam. The hindwing bears above *evan.*
4 yellow discal spots, of which the 1st is placed behind the 2nd radial. The butterfly is very rare in Sikkim, but rather common in the mountains of Assam. It appears to fly in at least 2 broods; the spring specimens have the dark markings somewhat reduced. — **amphis** *subsp. nov.*, from Tenasserim and Burma, resembles *amphis.*
the Malayan forms, but the dark markings are less black; upper surface of the hindwing with 5 yellow discal spots, of which the 1st is lunular and placed behind the 1st radial; at the proximal side of the 4th spot there is a distinct yellow spot. The ground-colour of the under surface as in the Malayan forms darker than in *evan*, the dark markings in the distal area of both wings sharper and narrower, the submarginal line almost without interruption, the silver spots larger than in *evan*, and the brown subbasal transverse patch behind the costal is placed nearer to the corresponding costal spot than to the precostal vein. — **langsonensis** *Fruhst.*, from *langsonensis.*
Tonkin, is paler yellow than any other subspecies, on the other hand the costal margin of the forewing and the distal margin of both wings are deeper black, the yellow spots in the dark border are small, the hindwing bears 4 small, sharply defined yellow discal spots. Beneath the marginal area of both wings is deeper brown than in *evan*. — **hegylus** *subsp. nov.* A small form from Hainan, of which a pair taken in May are in *hegylus.*
the Tring Museum. Ground-colour as in *evan*, the dark marginal area somewhat reduced from the proximal side, the yellow spots placed in it not larger than in summer specimens of *evan*, the brown-black spot placed in the apex of the cell of the hindwing much smaller; the hindwing with a row of 5 discal spots, to which in the ♀ is added a 6th spot situated at the proximal side of the 4th. Beneath as in *evan*, but the brown markings on the whole more feebly developed, especially the spots at the apex of the cell of both wings are smaller.

ciminius. — **ciminius** *Fruhst.* ♂: ground-colour above and beneath darker than in the preceding forms and above less extended in consequence of the darkening of the base of both wings, also the costal margin of the forewing is deep brown-black and there are no light markings in and before the subcostal fork. The brown markings of the under surface are on the whole thinner than in *evan*; the ground-colour of the distal area is almost uniform red-brown and contrasts with the lighter discal area. The ♀ not known. East and West Sumatra,

brunei. Malay. Peninsula. — **brunei** *Fruhst.* ♂ as the preceding, but the ground-colour of the marginal area of the under surface paler, hence less distinctly contrasted with the disc. The ♀ differs from that of *evan* principally in the absence of light spots before the subcostal fork on the upperside of the forewing and the reduction of the black markings on the upperside of the hindwing, and also in the darker ground-colour of the under

payeni. surface. North and South-East Borneo. — **payeni** *Bdv.* ♂ as in *brunei*, but the upper surface of the forewing with 3 yellow patches in the marginal cell placed behind the subcostal fork. The anterior silver spots of the hindwing beneath less well developed in both sexes. In the ♀ the dark border of the upperside of the forewing somewhat weaker at the costal margin than in the ♀ of *brunei*. Java.

Codrus-Group.

The 1st subcostal of the forewing runs into the costal vein. Body robust, without light stripe at each side of the back, tail broad, obtuse. Wings for the most part black, green-black or brownish black-grey, at least in the costal area of the forewing with green spots, under surface of the hindwing in the basal half without red or yellow spots, at most the costal margin is very narrowly red. The claws in some species with tooth, as in the *payeni*-group.

gelon. **P. gelon** *Bdv.* (44 c, d). Nearly allied to *P. macleayanus*. Body above greenish black, beneath dirty grey-yellow, legs green, claws with small tooth; antenna beneath yellow-brown. Upper surface of the wings black, with green markings; forewing with a band of 4 spots before the base of the 3rd radial running straight to the hindmargin, a spot in the apex of the cell and two spots behind the cell, all these spots often very small and sometimes only partly indicated; hindwing without tail, with narrow band before the middle. Under surface much paler, the veins in the distal area green, the band of the hindwing white and the costal margin red at the base; forewing with some white submarginal spots. ♀ paler than the ♂, the forewing with yellowish submarginal spots, on the hindwing some similar small spots, which are placed at a distance from

megasthenes. the margin. A ♀ with broad band on the hindwing is ab. **megasthenes** *Math.* — The butterfly is not rare in New Caledonia and the Loyalty Islands.

macleayanus. **P. macleayanus** *Leach* (42 a, b). Body beneath grey-white, above dark with grey-white hairs, with the exception of the head and the anterior part of the thorax, which are greenish brown-black; legs green; underside of the antenna brown-yellow. Wings above black, a large basal area white-green, on the forewing a spot in the apex of the cell and a second distally to it green, a row of small submarginal spots and a small discal spot white-green. On the under surface the anterior part of the basal area of the forewing, the cell-spot and subcostal spot and on the hindwing the basal area green, without scales, the forewing at the distal margin black-brown, the distal area of the hindwing of the same colour, traversed by a white-grey or pale brownish submarginal band and a short, oblique band of the same colour which is placed behind the apex of the cell, the costal margin of the hindwing narrowly red, especially at the base and before the apex. The young larva is almost black, with white dorsal line and whitish underside, a black hairy tubercle on the 3 thoracic segments and the last segment, the other segments with a transverse row of forked bristles, similar bristles also on the thorax. When full-grown green, with small, faint white and greenish spots and slight dark thoracic belt; on the 3rd segment a pair of dark brown spines, from which extends a yellowish white longitudinal line. Pupa green, with 2 roundish reddish spots on the dorsum; the thoracic horn long. Food-plants: Geijera salicifolia and the imported Camphora officinalis. The butterfly flies in the gardens and open shrubby woods of East Australia from Tasmania to Queensland (extending northwards to about Cairns) and occurs also on the islands Lord Howe and Norfolk. It has a swift and agile flight and is fond of visiting flowers.

weiskei. **P. weiskei** *Ribbe.* ♂: body above brown-black, beneath grey-brown. Wings more elongate than in *P. macleayanus*, the forewing with large subbasal purple area behind the cell, the transverse area at the apex of the cell anteriorly green, posteriorly blue or purple-red, the subcostal spot green, the submarginal spots small and bluish green; the hindwing with green basal area and 2 blue submarginal patches, before which there are usually 3 small, more or less indistinct submarginal spots. Under surface similar to that of *P. macleayanus*; the basal half of the cell of the forewing green, the area placed below the cell white; hindwing with thin red costal streak before the apex. The purple area varies from purple-red to purple-blue. The ♀ similar to the ♂: ♀-f. **weiskei** *Ribbe* (42 a); or the basal area of the forewing and the submarginal spots of the hind-

euprasina. wing green: ♀-f. **euprasina** *form. nov.* — The butterfly is not rare in the mountains of British New Guinea; A. S. Meek found it in considerable numbers at both the south and north sides of the Owen Stanley Range.

P. empedocles *F.* (42 c). Body white-grey, head and upperside of the thorax greenish grey-brown. *empedocles.* Upper surface of the wings greenish black-brown; forewing between cell and hindmargin yellowish grey, with a discal row of yellow-green patches, of which the last is placed between the median veins and is the largest, sometimes there is a smaller patch behind the 2nd median vein, rarely the 1st and 3rd spots are absent; hindwing from the base to about the apex of the cell with grey-white hairs, in the darker distal area a row of blackish patches. Under surface grey-brown, paler in the ♀ than in the ♂; the patches of the forewing scaleless as above; the hindwing about halfway between cell and distal margin with a row of dark spots, of which the last two usually bear on the basal side a red or yellow spot, whilst all are distally and the first spot also basally margined with grey. A Malayan species, very nearly allied to *P. codrus*. Nothing is known as to the earlier stages. The butterfly flies in the hills and is only taken singly. — Malay Peninsula, Sumatra, Batu, Java, Banka, Borneo and Palawan.

P. codrus. Body with white-grey hairs, the upperside of the head and thorax green. Upper surface of the wings silky black-green in the ♂, somewhat paler and almost entirely without gloss in the ♀; forewing with a macular band extending from the apex to the middle of the hindmargin, which is often incomplete and is above green or yellow and scaleless, beneath green-white and scaled; hindwing elongate-triangular, with broad tail, the base and the abdominal margin to about the apex of the cell grey-white. The under surface blackish brown, distally to the band of the forewing only with light and dark shadows, the hindwing, however, often with triangular costal patch as continuation of the band of the forewing; distinct submarginal spots are absent both above and beneath. Full-grown larva yellowish green, the 3 thoracic segments each with a pale red spine at either side, a similar pair of spines on the last segment, the stigmata blue, on segments 4, 11 and 12 a number of small blue dorsal spots (Kühn). According to Wahnes the larva has in New Guinea a large brown dorsal spot, yellow-edged posteriorly, which extends from the 3rd to the 5th segment, and a smaller brown spot on the 11. segment. „The food-plants are trees with large leaves divided into five lobes". Pupa pale green, slightly bluish or yellowish, head obtuse, rounded, with only very feebly produced angles; thoracic horn sharply pointed, with brown tip, the lateral keel running out into the margin of the wings straight, the small lateral tubercle of the mesothorax pointed, without brown spot. The butterfly has a very swift and straight flight; it mostly flies high in the air among the tops of trees, yet it often darts down with lightning speed to feed at flowers or rotten fruit (with which it can be baited); it is especially often seen at the sea-shore, where it is fond of drinking on damp sand. Distributed from the Philippines and Celebes eastwards to the Solomon Islands; does not occur on the large and small Sunda Islands and in Australia, but may yet be discovered on Cape York, where many New Guinean species occur. — **melanthus** *Fldr.* The *melanthus.* band of the forewing yellowish green, very broad, at the submedian broader than its distance from the distal margin; hindwing with large grey costal spot, which beneath reaches the cell. Philippines, apparently on all the islands. — **taloranus** *subsp. nov.* The band of the forewing pale green, not yellowish, as broad as in *taloranus.* *gilolensis*, the costal margin as strongly curved as in *celebensis*. Under surface of the hindwing grey from the middle of the costal to beyond the apex of the cell, but without grey-white spot. Talaut. — **celebensis** *Wall.* *celebensis.* The band of the forewing yellowish green, somewhat narrower than in *gilolensis*, the costal margin strongly curved. North and South Celebes. — **stiris** *subsp. nov.* The band of the forewing yellow-green, very narrow, the *stiris.* penultimate spot at least twice as long as broad. Shape of the wings as in *celebensis*. Sula Islands: Mangoli. — **gilolensis** *Wall.* The band of the forewing yellow-green, consisting of 9 spots; under surface of the hindwing *gilolensis.* with grey-white costal spot. Northern Moluccas: Halmaheira, Batjan. — **codrus** *Cr.* (42 c). The band of the *codrus.* forewing pale green, its last spot small or entirely absent, sometimes the band very narrow; under surface of the hindwing usually with grey-white costal spot. Southern Moluccas: Buru, Amboina, Saparoea, Ceram. — **toealensis** *Rothsch.* The band of the forewing pale green, broader than in *codrus*, the last spot always present, *toealensis.* the white-grey scaling of the hindwing less extended, the tip of the tail much more broadly white-grey. The under surface very dark, the costal spot of the hindwing small. Key Islands. — **medon** *Fldr.* (= papuensis *medon.* *Wall.*) (42 b). The band of the forewing even broader than in *toealensis*, the submedian usually white-scaled inside the band, the hindwing grey-white to beyond the apex of the cell. The under surface paler than in *toealensis*, the costal spot of the hindwing mostly very large and usually prolonged into a band. New Guinea and the neighbouring islands: Waigeu, Jobi, Mafor, Biak, D'Entrecasteaux Islands, Woodlark, Rossel: also on Aru. — **auratus** *Rothsch.* The band of the forewing yellow, the anterior spots somewhat larger and *auratus.* the posterior 2 smaller than in *medon*, the grey-white area of the hindwing reduceed, not reaching the apex of the cell. The grey-white costal area of the hindwing beneath narrow. St. Gabriel, Admiralty Islands (Webster). In consequence of the hostile attitude of the natives no collector has yet succeeded in making a good collection on the Admiralty Islands. Captain H. C. Webster, who attempted to collect there, could not land at all on the principal island and was obliged to take to flight after 2 days. — **segonax** *Godm. & Salv.* *segonax.* (42 c). The band of the forewing broadly interrupted, spots 6—8 being absent, sometimes the 6th and 8th are indicated by a dot each. Under surface of the hindwing without white-grey costal spot. Bismarck Islands: New Pomerania, New Lauenburg and New Mecklenburg. — **pisidice** *Godm. & Salv.* (= solon *Godm.* *pisidice.* *& Salv.*). The band of the forewing complete, pale green, sometimes yellow (discoloured), narrower than in *medon*, the spots more widely separated, the last but one usually narrow and commonly interrupted; the

hindwing less extended grey-white than in *medon*. The under surface darker, the forewing as in the races from the Philippines, Talaut, Celebes and the Sulla Islands with large grey spot at the apex of the cell and grey band in the middle of the cell, hindwing basally grey, with narrow grey discal band, all these grey markings weakly developed. Solomon Islands, known to me from: Bougainville, Shortland, Choiseul, Maleita, Florida, Guadalcanar. — **christobalus** *subsp. nov.* ♀: paler than *pisidice*, especially on the under surface; the band broader; the white marginal spots of both wings much more extended. Beneath the grey cell-patches of the forewing and the grey discal band of the hindwing more strongly developed, the band of the forewing from the 7th spot twice as broad as in *pisidice*. San Christoval, May 1908 (A. S. Meek), 1 ♀ in the Tring Museum. — **tenebrionis** *Rothsch.* (43 a). The band of the forewing only reaches the 1st median, as the posterior 3 spots are absent; the hindwing is much less extended grey-white than in *pisidice*. In some specimens the forewing has a very small green spot at the proximal side of the 1st patch. New Georgia, Rendova, Vella Lavella; probably on all the islands of this western group of the Solomons.

christobalus.

tenebrionis.

Eurypylus-Group.

The 1st subcostal of the forewing runs into the costal, the 2nd subcostal is free or likewise joins the costal. Body above dark with a light stripe at each side. The wings for the most part black, above with green (or yellowish) markings, which are scaleless. Under surface of the hindwing with red or yellow discal spots from the apex of the cell to the anal angle or at least traces of such spots, and usually one or two red or yellow subbasal spots, which are never absent even when the red discal spots are suppressed. The tail when present short and obtuse. — Some of the species are extraordinarily common. Freshly emerged examples and those killed too soon have the markings whitish or yellowish instead of green; decayed as well as worn specimens are likewise yellowish. Such individuals therefore do not represent aberrations, yet fresh specimens are also taken with yellowish markings. The normally red spots on the under surface of the hindwing are replaced in single individuals by yellow ones, which may happen in all the species.

P. cloanthus. Body black, head and thorax above with grey-greenish hairs, beneath grey, abdomen beneath yellowish white with two black lines, above with yellowish white lateral lines. Wings above black, forewing with two large cell-patches and a broad discal band, which is continued on the hindwing in the form of a triangle, hindwing in addition with 4 submarginal patches, all these markings green, transparent, the bands and patches of the forewing as well as the submarginal spots of the hindwing above scaleless. The dark areas beneath somewhat paler than above; the hindwing with red line at the base and small red linear spots from the end of the cell to the anal angle, only the last spot somewhat larger. The ♀ similar to the ♂. Larva green, beneath bluish, on the 4th segment a laterally projecting yellow transverse band, at each side of the back a yellowish longitudinal line. On Machilus odoratissima. Pupa bright green, with yellow carinae. The butterfly occurs throughout the summer; the spring specimens of North India and China differ from the summer specimens in the enlarged green markings. The butterfly has a very rapid flight and is fond of remaining high up among the tops of trees, round which it flies with a dancing motion. The ♂ drinks on wet sand, keeping the wings closed. From Kashmir to the Shan States, China, Formosa, Sumatra; not yet known from Tonkin, Siam and the Malay Peninsula. — **clymenus** *Leech* (vol. I, 8 c), from Central and West China, certainly occurs also in the mountains of South China. The spring form resembles the North Indian summer form, whilst the summer form of *clymenus* is more extended black. In the Tring Museum there is a single specimen from Formosa, which is distinguished from the spring form of *clymenus* by somewhat broader wings and broader submarginal line on the under surface of the forewing. — **cloanthus** *Westw.* The median vein of the forewing is never entirely black in the green parts of the wing, likewise the two median veins are at most black distally in the grey area. In the smaller spring form, f. vern. **cloanthus** *Westw.*, the green areas are large. In the somewhat larger summer form, which has received the unhappily chosen name of f. aest. **cloanthulus** *Fruhst.*, the wings are more extended black. Distributed from Kashmir to the Shan States. — **sumatrana** *Hag.* (45 b). A strikingly different form. Yellow-green, the dark parts of the under surface purple-brown, dusted with reddish grey. In the mountains of Sumatra, the ♀ rare.

clymenus.

cloanthus.

cloanthulus.

sumatrana.

P. sarpedon. Body above brownish black with brown-grey hairs, beneath for the most part white-grey. Wings above brownish black, with green or green-blue discal band, which is strongly narrowed towards the apex and separated into spots and posteriorly on the hindwing is produced into a point; the costal part of the band on the hindwing white-scaled, as also partly the veins intersecting the band; the cell of the forewing nearly always without markings, but occasionally a row of submarginal spots is present; hindwing triangular, with green or blue submarginal lunules. Under surface paler than upper, the discal band scaled with transparent whitish, hence with slight mother-of-pearl gloss; forewing at least with slight indications of submarginal spots before the hinder angle; hindwing near the base with red transverse bar, which extends from the costal margin to the cell and is separated from the discal band; 5 red discal spots, of which the an-

terior one encircles the apex of the cell. ♀ similar to the ♂, paler and somewhat broader-winged. The yellowish egg is laid singly on the leaves and shoots of the food-plants. The young larva is black or dark green, with numerous spines, of which those on the metathorax are long and bristly; when full-grown green, beneath lighter, with a pair of short spines on each of the 3 thoracic segments and on the last segment; on the metathorax a yellow transverse band and from the metathorax to the anal segment a yellowish stripe above the legs; on Machilus odoratissima, Geijera salicifolia, Litsaea, Alseodaphne, etc., and especially Camphora officinalis, where this tree has been imported. Pupa green, the thoracic horn slenderer, more pointed and straighter than in the allied species, the lateral ridges extending downwards from the horn straight, between this carina and the frontal one a very slight, somewhat curved vertical ridge. The butterfly everywhere in wooded districts, very common both in gardens and woods; it flies about the tops of trees with great rapidity, and the ♂♂ are found in large numbers on wet places on the roads and on sandy river-banks. In the mountains it ascends to about 7000 ft., but is commonest in the lower hills. From China and South Japan to the Solomon Islands in numerous geographical forms. Much less common in the east of its range than in the west. In the northern districts distinctly horodimorphic; the band broader in the spring than in the summer specimens. — In **nipponus** *Fruhst.* (= morius *Fruhst.*) (vol. I, 8 c, described as *sarpedon*), from Japan and the Loo Choo Islands, almost all the veins crossing the band are black above and beneath; the under surface of the forewing posteriorly with distinct grey submarginal line, which is not rarely present also above. In the spring specimens: f. vern. **sarpedonides** *Fruhst.*, the band of the forewing is almost as broad posteriorly as the black distal margin, whilst in the summer specimens, f. aest. **nipponus** *Fruhst.*, it is narrower. — **connectens** *Fruhst.* flies on Formosa; the two last spots of the band of the forewing are distinctly narrower than the preceding spot (which however is sometimes also the case in specimens from Okinawa) and the band of the hindwing is strongly narrowed. — **semifasciatus** *Honr.*, from South-East, Central and West China, has three forms: a broad-banded spring form, a narrow-banded summer form and a second summer form with the band of the hindwing more or less obsolete. The two summer forms fly at the same time and are connected by transitions. — **sarpedon** *L.* (= demophon *Meerb.* nec *Linné*, demophoon *Shaw*, luctatius *Fruhst.*, pagus *Fruhst.*, colus *Fruhst.*) (44 d), distributed from Hainan, Tonkin and North India to the Philippines and Lombok. In the broad-banded specimens the median and submedian veins are more or less white inside the band of the forewing. In the summer specimens of the northern districts, f. aest. **melas** *Fruhst.* (= demophoon *Shaw*) the band is narrower and the veins are black. — From the Andamans and Nicobars *sarpedon* is not known. — **teredon** *Fldr.* (45 a) is distinguished particularly in that the band of the forewing is anteriorly yellowish green and posteriorly bluish green and the hindwing is much more strongly dentate at the 3rd radial than in the preceding forms. South India and Ceylon. Specimens in which the 1st spot in the band of the forewing is absent are ab. **thermodusa** *Swinh.* — **rufofervidus** *Fruhst.*, from Nias, has larger red spots on the under surface of the hindwing than *sarpedon*. — **rufocellularis** *Fruhst.*, from Bawean, has a very narrow median band, the spots of which are all separated; the red spot at the apex of the cell of the hindwing beneath unusually large, the posterior red spots on the other hand small. Not known to me in nature. — **adonarensis** *Rothsch.* The band of the forewing posteriorly broader than the black distal margin, the anterior spots larger than in the preceding races; especially the 2nd and 3rd spots, the hindwing quite as strongly produced as in *teredon*. Sumbawa, Flores, Adonara. — **jugans** *Rothsch.* Small; the band of the forewing as in *adonarensis*, but not quite so broad posteriorly; hindwing as in *sarpedon*, the first (white) submarginal spot well developed. Sumba. — **timorensis** *Rothsch.* Very similar to *adonarensis*, the 3rd spot in the band of the forewing nearer to the cell, and the hindwing even somewhat narrower. Timor, Wetter. These forms from the small Sunda Islands further differ from one another and from *sarp. sarpedon* in the genitalia. — From Timorlaut and the islands between Timor and Timorlaut *P. sarpedon* is not yet known. — **choredon** *Fldr.* (= parsedon *Westw.*) (45 a). Similar to broad-banded specimens of *sarp. sarpedon*, the forewing broader, the submarginal spots of the hindwing larger. New South Wales and Queensland. — **messogis** *Fruhst.* (= temnus *Fruhst.*, corycus *Fruhst.*). Not sharply distinguished from *choredon*; the band of the forewing mostly somewhat narrower and the submarginal spots of the hindwing smaller. Distinguishable from *sarp. sarpedon*, apart from the genitalia, by the more uniformly blue-green band and by the submarginal spots of the hindwing being more distinct beneath. Key, Aru, New Guinea and the neighbouring islands (Waigeu, D'Entrecasteaux Islands, Woodlark, Louisiades, etc.); very common. — **imparilis** *Rothsch.* Upper surface deeper black than in the preceding forms, the under surface likewise darker, especially the disc of the hindwing, the red spots larger than in *choredon* and *messogis*. Bismarck Islands: New Pomerania, New Lauenburg, New Mecklenburg, New Hanover, Nusa. Many specimens have a 2nd spot before the subcostal fork, others bear a spot in the cell; it is noteworthy that the spots are not present in any of the 6 ♀♀ before me. — **impar** *Rothsch.* is nearer to the following than to the preceding subspecies. The 1st spot in the band of the forewing is short, transverse, not oblong, before the subcostal in both sexes there is always a 2nd spot, which is commonly as large as the 2nd spot of the band; the submarginal spots of the hindwing larger on both surfaces than in *imparilis*, also the red spots, especially the subbasal line and the spot at the apex of the cell, are large. New Georgia and the neighbouring islands: Kulambangra, Guizo, Vella Lavella, Rendova. — **isander** *Godm. & Salv.* (44 d) resembles *impar*, but bears on the forewing above and beneath a row of submarginal spots; the last of these spots is above only indicated and commonly the two preceding ones also are not developed. Boug-

nipponus. *sarpedonides.* *connectens.* *semifasciatus.* *sarpedon.* *melas.* *teredon.* *thermodusa.* *rufofervidus.* *rufocellularis.* *adonarensis.* *jugans.* *timorensis.* *choredon.* *messogis.* *imparilis.* *impar.* *isander.*

ainville, Shortland Islands, Choiseul, Isabel, Guadalcanar, Florida. Ribbe described as *P. impar Rothsch.* var.
shortlandica. **shortlandica** an example captured on Fauro (Shortland Islands) which has white instead of green bands and spots. It is probably a specimen of *isander* killed too soon (the colour not fully developed). The pupa figured by Ribbe in Iris X, t. 7, fig. 6, judging from the size and shape, is not that of *isander*, but of *P. codrus pisi-*
anthedon. *dice.* — **anthedon** *Fldr.* (= moluccensis *Wall.*) (45 a). The median band of both wings and the submarginal spots of the hindwing more strongly bluish than in all the preceding races; the submarginal spots large and
aureifer. strongly curved; the red spots of the under surface paler red than normally, sometimes yellow: ab. **aureifer**
halesus. *Fruhst.* (= aurifer *Fruhst.*). South Moluccas: Amboina, Saparoea, Ceram. — **halesus** *Fruhst.* As *anthedon*,
crudus. but the submarginal spots of the hindwing somewhat less strongly angled. Buru. — **crudus** *Rothsch.* The band broader than in *anthedon* and *halesus*, the hindwing shorter, the posterior submarginal spots again somewhat less curved than in *halesus*; the under surface of the hindwing with large red spots, a spot between cell and subcostal as in *dodingensis*, *milon*, *monticolus* and *sulaensis*, the red subbasal line broader than
dodingensis. the black streak separating it from the median band. Obi. — **dodingensis** *Rothsch.* The band narrower than in *anthedon*, the 1st submarginal spot of the hindwing almost straight, the next likewise less curved than in *anthedon*; the under surface of the hindwing with deeper red spots, a similar spot between cell and subcostal.
monticolus. North Moluccas: Halmaheira, Batjan. — **monticolus** *Fruhst.* (45 a). A small mountain form from South Celebes (dwarfed form?), which recalls the forms from the large and small Sunda Islands by the green colour of the band and the small green submarginal spots of the hindwing, but agrees better with *dodingensis* and *milon* in the markings of the hindwing beneath and the genitalia. The 3rd spot in the band of the forewing larger than the 4th, which is also the case in the races from the Lesser Sunda Islands; the underside of the hindwing
milon. in both sexes with a red spot between cell and subcostal. — **milon** *Fldr.* (= miletus *Wall.*) (45 b). A large, narrow-winged form with narrow blue band and strongly curved blue submarginal spots; the patches of the band are all separated. Under surface of the hindwing with a broadly concave red spot between cell and sub-
milonides. costal, which is sometimes completed into a ring and occasionally is only a bar. In ab. **milonides** *Honr.* the
citricinctus. band of the hindwing is broadly interrupted at the subcostal vein. ab. **citricinctus** *Fruhst.* has yellow instead
sulaensis. of red spots. The whole of Celebes; Talaut. — **sulaensis** *Lathy* (= coelius *Fruhst.*, adjacentus *Fruhst.*). Similar to *milon*, but the band still narrower. Sula Islands: Mangoli.

P. mendana. Body above black, with light lateral longitudinal stripe, which is greenish grey on the thorax and yellowish grey on the abdomen; sides of the frons yellow-grey. Wings above velvety black; forewing with a discal row of large pale bluish green spots, of which the last is unites with a narrow green subbasal band, at the base a green band, some small spots in the cell and a row of small submarginal spots pale green; hindwing parallel to the abdominal margin with a band which is green in the ♂, white in the ♀, at the distal side of this band between costal margin and cell two patches, some very small submarginal spots white or greenish, often absent, tail obtuse, triangular. Under surface black-brown, spots of the forewing as above, almost all smaller, scaled, a transverse band in the cell and the anterior part of the disc with purple-white scaling, costal margin red at the base; hindwing with a red spot before the cell, commonly a second be-
acous. tween subcostal and cell, and one or two before the anal angle. Solomon Islands. — **acous** *Ribbe.* The discal spots of the forewing all well developed; under surface of the hindwing with green basal spot and two red
mendana. spots before the anal angle. Bougainville; A. S. Meek found the butterfly in January and May. — **mendana** *Godm. & Salv.* (43 a). On the upper surface of the hindwing the green patches of the ♂ and the white area of the ♀ are more strongly developed than in *acous*. The green basal spot on the underside of the hindwing is absent or small and before the anal angle there is only one red spot. Guadalcanar; taken by Meek in
neyra. May. — **neyra** *Rothsch.* The discal spots of the forewing are strongly reduced with the exception of the anterior ones and the last and the posterior ones are absent on the under surface. The forewing beneath without green basal patch and with only one red spot before the anal angle. New Georgia and Rendova.

P. doson. Body above black with bluish grey hairs, abdomen with white lateral line, under surface white. Wings above white with green or greyish white markings, which are scaleless for the most part, on the forewing 5 cell-spots, of which the basal one is streak-like and the 4th comma-shaped, a posteriorly widened discal macular band, a row of submarginal spots and a single spot in the subcostal fork between the submarginal and discal spots; on the hindwing before the middle an elongate-triangular band, which is anteriorly divided by a short, narrow black band, and a row of submarginal spots; the patch of yellow scent-wool in the fold of the ♂ reaches nearly to the black stripe which is parallel with the abdominal margin. The markings on the under surface are mostly somewhat larger than above, silver-scaled; hindwing always with mostly red, more rarely yellow ornamental markings, namely a spot before the costal in the short black costal band, and a row of spots from the apex of the cell to the abdominal margin, of which the last is usually produced basad into a long stripe, the short black costal band never united with the black subbasal stripe. The ♀ similar to the ♂, less deep black and the markings somewhat smaller. Larva black or green, the spines of the mesonotum are absent and those of the 3rd pair are reduced to tubercles. On Anonaceae, e. g. Cinnamomum, Polyalthia, etc. The pupa varies in colour according to

its environment; angles of the head distinctly projecting, thoracic horn bent forwards, gradually pointed, the tip itself rounded, the carinae of the horn sharp and straight. The butterfly in wooded districts, especially near river-beds, in most districts very common; the ♂♂ in abundance in moist places on the roads and river-banks in company with other butterflies; throughout the summer. In North India and Indo-China distinctly horodimorphic; the spring specimens smaller, with larger light markings than those of the summer. Distributed from South Japan and Ceylon southwards and eastwards to the Sunda Islands. The butterfly was first figured by ESPER, as „*jason* LINNÉ sp. 38". As LINNÉ'S *jason* is not this species, there is an error in determination[1]), and FELDER was justified in giving the species a new name: *doson Fldr.* The type of this name is ESPER'S figure. — **doson** *Fldr.* (= telephus *Fldr.*) (43 c). Both wings elongate, the marginal tooth at the 3rd radial of the hindwing longer than the other marginal teeth, the median band of both wings narrow, the subbasal costal stripe of the hindwing above indistinct, not united with the median band, the latter interrupted by a black vein-streak at the hindmargin of the cell. Ceylon. — **eleius** *Fruhst.* differs from *doson* in having the green spots in the apical half of the forewing somewhat more yellowish; mostly also the median band is somewhat broader. South India. — In South Japan flies *mikado Leech* (see vol. I, 8 c). — **perillus** *Fruhst.* Larger than the following subspecies, the submarginal spots of the under surface smaller, the „basal red border is absent, the transcellular black spots are more distinct, but the red ones narrower and paler". Ishigaki-sima. Not known to me in natura. — **postianus** *Fruhst.* (= jostianus *Fruhst.*). Varies considerably in size as well as in the width of the bands; in all examples the median veins of the forewing broadly black and the hindmargin of the cell of the forewing likewise black; summer specimens similar to the following subspecies, but the submarginal spots on the under surface larger. Formosa. — **axion** *Fldr.* (= eurypylus, *Hbn.* nec *L.*, actor *Fruhst.*) (43 c, also as doson U, 32 c aberr.). The spring form, f. vern. **acheron** *Moore* (= nivepictus *Fruhst.*, nivepicta *Fruhst.*, nanus *Fruhst.*), is small, the median band of both wings is broad and the submarginal spots of the under surface are large; this form, from hibernated pupae, is most strongly pronounced in the mountain districts of North India. The summer form, f. **praestabilis** *Fruhst.* (43 c, as axion U), which is not at all sharply distinguished from *postianus* from Formosa, has smaller submarginal spots on the under surface and above the submedian of the forewing and the median of the hindwing inside the band are less black. HÜBNER'S figure, to which FELDER gave the name of *axion*, represents a transition between the pronounced small spring form and the large summer form; it agrees best with certain examples from South-East China. The ornamental spots of the hindwing beneath are sometimes yellow instead of red. South-East China, Hainan, Tonkin, Annam, Cochinchina, Siam, Tenasserim, Burma, Assam, Sikkim, Bengal, North-West India. — **evemonides** *Honr.* (= appuleius *Fruhst.*, autronicus *Fruhst.*, vulso *Fruhst.*). The submarginal spots of the under surface as small as in the summer form of the preceding subspecies, the last two patches of the median band of the forewing above not separated by a black vein-streak, the lower median vein not black or only narrowly so. Malay Peninsula, Sumatra, Banka, Java, Natuna, Borneo, Balabac. — **gyndes** *Fruhst.*, from Palawan and the Philippines, has again larger submarginal spots on the under surface and can scarcely be distinguished from *axion*; in specimens from the Philippines, however, which are also somewhat larger than those from Palawan, the genitalia appear to have somewhat longer teeth on the innerside of the anal claspers. — **rubroplaga** *Rothsch.*, from Nias, is distinguished by a very strong development of the red ornamental spots on the underside of the hindwing. — **sankapura** *Fruhst.* (= sankapurus *Fruhst.*). The median band of the forewing is narrower than in *axion*, *evemonides* and *gyndes*, and the veins intersecting it are broadly black, moreover the band of the hindwing is narrower in the cell than in the forms just mentioned and the black cell-spot on the under surface is very large. Bawean. — **eurypylides** *Stgr.* (= euryphylides *Fruhst.*, ampyx *Fruhst.*) (43 b). All the green resp. white patches very strongly reduced, all the spots of the distal band of the forewing separated by black veins; the band of the hindwing narrow, mostly broken up into spots, especially beneath. Lombok, Sumbawa.

doson. *eleius.* *perillus.* *postianus.* *axion.* *acheron.* *praestabilis.* *evemonides.* *gyndes* *rubroplaga.* *sankapura.* *eurypylides.*

P. evemon. Although very similar to *P. eurypylus*, *evemon* is nevertheless an independent species. The scent-wool of the ♂ always forms a narrow stripe hidden in the fold, the upperside of the abdomen is also never dusted with white in large ♂♂, the last submarginal spot of the forewing above is absent or at most weakly indicated and the harpe of the male genitalia is always recognisable by the long and more basally placed ventral process; moreover. in Malayan specimens the red costal spot on the under surface of the hindwing is always absent. The ♀ similar to the ♂. Nothing is known as to the earlier stages. In its habits the butterfly resembles the allied species, together with which it congregates on damp places on the roads and on sandy river-banks or wet stones in the rivers. When such a swarm is disturbed, the butterflies fly up and down in the forest-paths in Indian file, one behind another, like *Catopsilia* (MARTIN). Distributed from Assam and Tonkin to Java and Borneo; possibly occurs also on the Philippines. — **albociliatis** *Fruhst.* (= albociliatus *Fruhst.*). Under surface of the hindwing with red costal spot as in *P. eurypylus*. May be distinguished from the respective *eurypylus*-form from the same

albociliatis.

[1]) In synomymy falsely applied earlier names are to be distinguished from new but preoccupied names, e. g. *Papilio Eques Achivus jason, Esper* (nec *Linné*, err. determ.) and *Papilio striatus Lathy* (nec *Zink.*, preoc.). In the first case I place a comma between the name and the author who committed the error in determination; it should properly be written *jason L., Esper* (err. determ.),

districts by the absence of the last submarginal spot on the under surface of the forewing and the narrow scent-stripe. Spring specimens have a broader median band and beneath larger submarginal spots than summer ones.

orthia. I have *albociliatis* before me from North-East Assam, the Shan States and Tonkin. — **orthia** *subsp. nov.* Similar to the summer specimens of the preceding form, but much smaller; the third discal spot from the front on the upper surface of the forewing is nearly always wanting, the red costal spot on the underside of the hindwing is absent, the submarginal spots of both wings are much larger beneath than above. Malay Peninsula, Penang,

evemon. Sumatra, Banka, Borneo. — **evemon** *Bdv.* (44 b). Median band broader than in *orthia*, the spots in the apical half of the forewing yellowish, the submarginal spots, especially the posterior spots of the forewing, smaller

igneolus. above and beneath and the red ornamental spots of the hindwing larger. Java. — **igneolus** *Fruhst.* Like *orthia*, but the red spots on the underside larger. Nias.

P. eurypylus. So extraordinarily similar to *doson* that in our revision of the Papilios of the Old World with the exception of Africa (1895) we merged the two species together. The study of the genitalia, however, soon set us right. These organs are indeed almost of the same build in *eurypylus*, *doson* and *evemon*, but they always show distinct differences in the details. In the markings *eurypylus* may nearly always be recognised by the short, brown-black costal band of the hindwing beneath, which bears the red costal spot, being united posteriorly with the brown-black subbasal band, whilst in *doson* it terminates inside the silver band. There are, however, also specimens of *eurypylus*, e. g. among the North Indian spring form, in which the bands are not united. In this case the basal margin of the silver band is notched at the subcostal vein. In the large forms the greater part of the abdomen is generally white above. The yellow scent-wool in the fold of the ♂ forms as in *doson* a broad patch, which extends to the black band which is parallel with the abdominal margin. The harpe (on the innerside of the anal claspers) is distally narrower than in *doson* and bears longer processes; as in that species not only individually but also distinctly geographically variable. The larva on Anonaceae; it recalls that of *doson*, is at first black or brown, in the middle stages brown, yellowish, reddish or green, and when full-grown dark green. Pupa likewise as in *doson*. The butterfly has the same habits as *doson*, with which it flies together in India, Indo-China, Malacca and on some of the Sunda Islands. The distribution of the two nearly allied species, *eurypylus* and *doson*, is interesting. Evidently *eurypylus* is a Papuan butterfly which has spread westwards, but has not (or not yet) reached the western districts of the range of *doson*, whilst *doson* is an Indo-Chinese butterfly which

macronius. has extended eastwards as far as Sumbawa and the Philippines. — **macronius** *subsp. nov.* Large, the abdomen for the most part white, the median band of both wings broad, that of the hindwing dusted with white, at the costal and distal margins of the cell not at all or only feebly incised, the submarginal spots above small, the last on the forewing and the first on the hindwing usually only indicated, the two spots placed in the subcostal fork on the under surface of the forewing separated, the red spots of the hindwing entirely or almost entirely without

cheronus. white edging, hence deeper red than in continental specimens. Andamans. — **cheronus** *Fruhst.* The Indo-Chinese

petina. subspecies is strongly horodimorphic. The spring form, f. vern. **petina** *form. nov.* (= acheron, *Fruhst.* nec *Moore*), is small and has a broad median band, moreover the submarginal spots of the under surface are very much enlarged. The summer form, f. aest. **cheronus** *Fruhst.*, is larger, the abdomen is for the most part dusted with white, the median band of both wings is narrower and the submarginal spots of the under surface are less enlarged. In both forms the band of the hindwing is incised at the costal and hindmargins of the cell, the two spots on the under surface of the forewing placed in the subcostal fork are united, in the summer form, however, often separated by a thin brownish streak, and the last submarginal spot on the forewing beneath is always well developed.

mecisteus. Sikkim, Assam, Burma, Tenasserim, Siam, Tonkin, Hainan, probably everywhere in Indo-China. — **mecisteus** *Dist.* About as large a s the spring specimens of the preceding subspecies, the wings less broad, the median band narrower, the submarginal spots somewhat smaller even than in the summer form of *cheronus*, the spots placed in the subcostal fork on the underside of the forewing separated, rarely touching one another, the abdomen above not

gordion. dusted with white. Malay Peninsula, Sumatra, Borneo, Palawan, Java. — **gordion** *Fldr.* (= tagalicus *Fruhst.*) (44a). Abdomen above more or less whitish, the band of the hindwing above white-scaled, hence in and below the cell less green than in *mecisteus* and *cheronus*. Somewhat larger than *mecisteus*, the median band broader. Philippines, perhaps on all the islands, but only known to me from Mindoro and Luzon, according to FRUHSTORFER on Bazilan. —

insularius. **insularius** *Rothsch.* (= lucius *Fruhst.*, sallastius, *Fruhst.* nec *Stgr.*). Much paler green than the preceding forms, the band of the forewing narrower, the last two patches always contiguous, the antipenultimate more regularly rounded towards the cell than in *mecisteus*; the ornamental spots of the under surface commonly yellow, small, the apex of the cell of the hindwing with silver spot or ring, without red, yet often a small red spot before the apex of the cell. Sometimes the band of the hindwing and the submarginal spots on the under surface strongly enlarged and the short brown costal band of the hindwing entirely separated from the brown subbasal band (as in

sallastinus. *doson*). Kalao and Djampea. — **sallastinus** *Fruhst.* (= gabinus *Fruhst.*). Like the preceding subspecies in the pale colouring, the median band of both wings even more reduced, its spots usually all separated, the two last patches occasionally united, the submarginal spots on the upper surface larger than in *insularius*. Sumbawa,

aloricus. Sumba, Flores. — **aloricus** *Fruhst.* Not known to me in nature. According to the author essentially larger and

lighter green than *sallastinus* and *sallastius*. Alor. — **sallastius** *Stgr.* (43 b), from Wetter. The specimens before me are distinguished by a strongly reduced median band, the spots of which are separated also on the hindwing above and beneath. As in *sallastinus* the cell of the hindwing bears above at the apex an often distinct white spot. — **crispus** *Fruhst.*, from Babber, is unknown to me. According to the description the median band is narrower than in *sallastinus* and broader than in *insularius*, which is incomprehensible, as *insularius* has a broader band than *sallastinus*. — **lepidus** *Fruhst.*, from Tenimber, recalls small specimens from Australia. The three posterior patches in the band of the forewing are connected, rarely the last spot but two is separated, the band of the hindwing is less incised than in broad-banded specimens of *sallastinus*. — **lycaon** *Fldr.* (43 c). Abdomen white-dusted; the median band of both wings very broad, at the hindmargin of the forewing much broader than its distance from the base, on the hindwing white-scaled, sometimes filling up almost the whole of the cell, the submarginal spots also small, but beneath usually large (dry-season form?). Queensland, New South Wales. — **lycaonides** *Rothsch.* (= priscus *Fruhst.*). Larger than *lycaon*, beneath darker black-brown, the submarginal spots smaller. Specimens with yellow instead of red ornamental spots are ab. **aurifer** *Fruhst.* The whole of New Guinea, Fergusson, Waigeu, Jobi. — **extensus** *Rothsch.* differs from *lycaonides* in the larger cell-spots of the forewing, in having the band of the hindwing narrower especially towards the costa and hence straighter, and in the larger red spots of the hindwing beneath. Bismarck Islands: New Pomerania, New Lauenburg, New Mecklenburg, New Hanover. Far less common than the *eurypylus*-forms of the more westerly districts. — **melampus** *Rothsch.* A connecting link between *lycaonides* from New Guinea and *eurypylus* from the Moluccas. Forewing somewhat narrower, the 2nd cell-spot is absent, usually the 1st is also suppressed, the 3rd is very small, beneath the spots are greenish and brownish, reduced, the median band is narrower than in *lycaonides*, the submargianl spots of the upper and under surface smaller than in *lycaonides* and *eurypylus*, the red spot as large as in *eurypylus*, the black spots placed at their proximal side contrast strongly with the brown distal margin and are large. Key Islands, rare. In a specimen in the Tring Museum the red costal spot is enlarged to a short band reaching to the cell: ab. **rufinus** *Rothsch.* — **eurypylus** *L.* (= crocospilus *Röb.*, discoloured specimens) (43 b). Very similar to *melampus*, on the under surface the cell-spot and the posterior submarginal dots of the forewing and the submarginal spots of the hindwing larger. South Moluccas: Goram, Ceram, Amboina, Buru. — **lutorius** *Fruhst.* (= georgius *Fruhst.*). The submarginal spots of the under surface in most specimens larger than in *eurypylus*. Obi, Batjan, Ternate, Halmaheira. — **sangira** *Oberth.*, from Sangir, 1 ♂ in coll. Oberthür. Small, the median band very narrow, on both wings completely broken up into spots, these spots are smaller than in *sallastius*; the ornamental spots of the hindwing beneath yellow instead of red (individual character?). — **pamphylus** *Fldr.* (= telephus *Wall.*) (44 a). Large, costal margin of the forewing strongly curved, the cell-spots as in *sangira* small, but sharply developed, the median band of both wings narrow, the two last patches in that of the forewing almost always connected, the band of the hindwing not at all or very narrowly interrupted, the submarginal spots above and beneath small. The whole of Celebes. — **arctofasciatus** *Lathy* (= sulanus *Fruhst.*) (44 a). Not constantly different from *pamphylus*, the median band still somewhat narrower. Sulla Islands: Mangoli.

sallastius. *crispus.* *lepidus.* *lycaon.* *lycaonides.* *aurifer.* *extensus.* *melampus.* *rufinus.* *eurypylus.* *lutorius.* *sangira.* *pamphylus.* *arctofasciatus.*

P. procles *Grose-Smith* (44 b). Similar to *doson*, the median band very broad, the spots in the apical half of the forewing yellowish, the cell of the forewing without dot in the upper angle or with only a very small one; the hindwing beneath with yellow discal spots from the apex of the cell to the abdominal margin, without yellow or red costal spot, the short brown-black costal band is completely isolated and does not usually extend to the cell. No scent-wool in the abdominal fold of the hindwing. The ♀ very similar to the ♂. The earlier stages unknown. — A mountain species of North Borneo: Kina Balu.

procles.

P. meyeri *Hopff.* (44 a, b). Similar to *eurypylus pamphylus*; the genitalia very different from those of the allied species. Large, abdomen in the ♂ for the most part white, costal margin of the forewing strongly curved, the four linear cell-spots sharply developed, placed more transversely than in *eurypylus*, *doson*, *bathycles*, etc., the 1st continued to the posterior spot of the discal band, and the 4th more strongly curved than in *pamphylus*; the black-brown band bearing the red costal spot of the hindwing beneath is continued distad along the anterior margin of the cell, unites with the dark apical spot of the cell and completely separates the shorter distal costal part of the median band from the proximal longer part. Earlier stages unknown. The butterfly flies in company with *eurypylus pamphylus* and other Swallowtails, especially near water; common. — Celebes.

meyeri.

P. bathycles. Body above black, with ash-grey hairs at the sides of the head and thorax, beneath grey-white, abdomen laterally with a grey-white stripe. Upper surface of the wings black, with pale green markings: on the forewing 5 spots in the cell, a posteriorly much widened discal band, a row of submarginal spots, and a single spot in the subcostal fork at the proximal side of the submarginal spot; on the hindwing 2 large white costal patches, an oblong spot between subcostal and cell, a long spot in the cell and one between the two median veins, often a streak below the cell, a discal spot (often absent) before the 1st median, and a row of submarginal spots. Beneath the spots silver-white, at the base of the hindwing often yellowish, the cell-spots of the forewing and the submarginal spots of the hindwing larger than above, on the hindwing the brownish black costal margin

of the cell is prolonged to the costal margin in the form of a narrow, curved band, inside this band before the costal mostly a yellow spot, in addition a row of yellow spots on the disc from the apex of the cell to the anal angle. No yellowish wool in the scent-fold of the ♂. The ♀ similar to the ♂. The earlier stages not known. In wooded districts of the lowlands and hills, the ♂♂ often in large numbers at wayside puddles and on sandy river-banks. In the northern part of its range the summer specimens are larger and have smaller patches than the
clanis. spring specimens. — **clanis** *subsp. nov.* The cell-spots of the forewing and the submarginal spots of both wings above and beneath fully as large as in the North Indian spring form; the discal spots of the forewing narrow and long and the black vein-stripes separating them as broad as in the North Indian summer form, the cell-patch of the hindwing longer and narrower than in the latter. No light streak at the abdominal side of the hindwing above
chiron. and only a very narrow one beneath. Fokien, one ♂ taken in April. — **chiron** *Wall.* The hindwing bears at least
ligyra. beneath always a white stripe behind the cell. In the spring form, f. vern. **ligyra** *form. nov.*, the discal spots and beneath also the submarginal ones are large, the median veins of the forewing narrowly black, the hindwing with a small discal spot before the 1st median. The summer form, f. aest. **chiron** *Wall.* (= chironides *Honr.*), is larger and the light patches are smaller. Distributed from Nepal to Tonkin, Annam and the Shan
bathycloides. States. — **bathycloides** *Honr.* (44 c). Wings narrower than in the preceding forms: hindwing always without stripe at the abdominal side of the cell, above without discal dot before the 1st median and on the
bathycles. under surface without yellow costal spot. Malay Peninsula, Penang, Sumatra, Borneo, Palawan. — **bathycles** *Zink.* (44 c). Hindwing without stripe at the abdominal side of the cell, above with discal dot before the 1st median and beneath with yellow costal spot; the veins between the posterior discal patches of the forewing and the patches of the basal half of the hindwing above and beneath more narrowly black than in the other forms. Java.

leechi. **P. leechi** *Rothsch.* Distinguished from *P. bathycles* chiefly by the strongly developed woolly scent-organ in the fold of the hindwing. — Chang-Yang, Central China, is sure to occur also further south: only 1 ♂ known.

P. macfarlanei. Similar to *P. eurypylus* and *agamemnon*. Patches on the upper surface scaleless, except the white-scaled costal patches of the hindwing, pale grey-green, in the basal area yellow-green. Forewing with grey basal and subbasal band, the latter nearly always united posteriorly with the discal band, in addition three pairs of spots in the cell and a single spot at its apex, on the disc a band composed of spots, which is strongly widened posteriorly, between this row of spots and the apex of the cell two single spots, further a submarginal row of small spots; on the hindwing an anteriorly broad, posteriorly pointed band before the middle, the band is forked anteriorly and has between cell and subcostal a spur-like projection, which is often isolated and sometimes entirely absent, a curved row of 4 discal spots, which are sometimes reduced to 3 or 2, and a row of 5 or 6 submarginal spots, the marginal tooth at the lower radial only projects a little more than the other marginal teeth. The patches of the underside as above, but scaled with the exception of the spots in the basal part of the cell of the forewing; hindwing in the fork of the light band with a red double spot extending from the costal margin to the cell, another red spot between subcostal and cell and often also one before the anal angle. The ♀ very similar to the ♂, but the light markings of the hindwing often reduced. Larva larger than that of *P. agamemnon*, the thoracic spines smaller, between these spines a longitudinal stripe consisting of dark granules. Pupa with truncate head, the angles of which project distinctly; the thoracic horn laterally compressed (as in *P. agamemnon*), brown, this colour continued as an irregular band from the upper margin of the wing-cases to the apical margin of the 4th abdominal segment, at the sides of the mesothorax a brown spot, which is larger than in *P. agamemnon*. Dr. Hagen found the larva abundantly in New Guinea on the imported Anona muricata. The butterfly is very common in some parts of its range. On the Moluccas, New Guinea with the small neighbournig islands and on
cestius. the Bismarck Islands. — **cestius** *Fruhst.* (= aegistus *Cr.* nec aegisthus *L.*) (45 c ♀, as macfarlanei ♀). The cell-spots of the forewing large, commonly united together in pairs, especially often the two discal posterior cell-spots are confluent; the proximal costal part of the band of the hindwing narrow, sometimes separated from the band, the part of the band placed in and behind the cell narrow, especially in the ♀, beneath the band does not extend beyond the cell, which in the ♀ is often the case above also; the discal and submarginal spots of the hindwing above small, sometimes only 2 or 3 small discal spots are present, moreover the streak- or hook-spot placed between cell and subcostal is always separated from the band at least by the narrowly black veins. Southern Moluccas: Amboina, Ceram, Buru. Originally described from a specimen
macfarlanei. without locality which had become yellowish through discoloration (probably after death). — **macfarlanei** *Btlr.* (45 c). The cell-spots of the forewing mealler than in *cestius*, the band of the hindwing broader and longer, beneath extending beyond the cell, the narrow part of the band placed behind the cell above in the ♀ separated from the large cell-patch at most by a very narrow black vein-streak. Northern Moluccas,
seminigra. Waigeu, Salawatti, Misol, Aru, Jobi, New Guinea (in the Dutch, German and British parts). — **seminigra**

Btlr. (= aegistiades *Honr.*). The upper surface of the hindwing almost entirely without markings. New Pomerania.

P. agamemnon. Body above brown-black, with a green-grey longitudinal stripe at each side; under surface grey. Upper surface of the wings brownish black, with grey or blue-green patches, of which those placed towards the base are band-like and those below the cell of the forewing large and elliptical or almost circular; hindwing with tail, which is longer in the ♀ than in the ♂ and in the Indo-Malayan forms longer than in the Papuan. Under surface paler than upper, the green patches partly covered with white or brownish scales, both wings clouded with violet-grey; hindwing between costal and cell with black crescent, which is basally margined with red, beneath this spot usually a distinct second arc, there is often also a red anal spot and in some forms a row of red discal spots; the red spots are occasionally replaced by yellow. The young larva almost black, with a large light area on the middle of the back, the 3 thoracic segments and the anal segment each with a pair of processes with forked hairs, the other segments likewise with some forked hairs arranged in longitudinal rows; these hairs disappear later; the full-grown larva either ochre-yellow with greenish tinge or dark green, larvae bred indoors sometimes light yellow (want of light? PIEPERS); the thoracic segments each with a pair of black spines, the spines of the 3rd pair in a small orange-yellow spot (in contrast to *sarpedon* there is no yellow transverse stripe on the metathorax); the anal spines light with dark tips. The larva remains by day motionless on the midrib of a leaf. It lives especially on Anona, but also feeds on other trees of the order Anonaceae, e. g. Saccopetalum, Gualteria, Polyalthia, Michelia, and prefers young trees or bushes. The thoracic horn of the pupa is laterally compressed, obtuse when viewed from the side, bent forwards and about twice as long as broad, the tip and the lateral carina brown, the latter undulate; behind the stigma of the prothorax a short brown ridge. The butterfly is very common near the settlements, but also occurs in large numbers in the woods, in the plains and hills; it is fond of visiting the flowers of Lantana. The ♀♀ are especially captured when ovipositing; collections from the Papuan region, where the butterfly is much less common than in the Indo-Malayan districts, and hence is more sought after by the collector, usually contain as many ♀♀ as ♂♂, whilst from India and the large Sunda Islands almost exclusively ♂♂ are obtained. — **agamemnon** *L.* (= dorylas *Sulz.*, rufescens *Oberth.*) (45 d). The spots of the upper surface yellow-green, the three discal patches placed between the lower angle of the cell and the lower median on the forewing broader than the interspaces between them. Specimens with very short stumpy tail are ab. **aegisthus** *L.* (= anoura *Oberth.*). Distributed from South China and North India to Bali and the Philippines. — **menides** *Fruhst.*, from Ceylon and South India, has a longer tail. — **andamana** *Lathy*, from the Andamans, resembles *agamemnon*, but the patches of the upper surface are more grey-green. — **decoratus** *Rothsch.*, from the Nicobars, agrees above with *andamana*, but bears on the underside of the hindwing at least 5, mostly 7 light red spots. — **rufoplenus** *Fruhst.* resembles *ag. agamemnon*, but the red spots on the under surface of the hindwing are somewhat larger. Nias. — **atropictus** *Fruhst.*, from Engano; „a strikingly dark local race; very rare, only 2 specimens". Not known to me in nature. — On Batu flies *ag. agamemnon.* — **baweana** *Hagen* (= aelius *Fruhst.*). The patches of both wings smaller than in the preceding forms. Bawean. — **meton** *Fruhst.* is very similar to *baweana*, but the tail is somewhat longer. The patches in the apical half of the forewing are grey-green. Lombok, Sumbawa, Sumba, Timor? — **exilis** *Rothsch.* (= pedius *Fruhst.*, perecopus *Fruhst.*) (45 d). A small form with small grey-green (slightly bluish) spots. Wetter, Dammer, Babber, Kisser, Tenimber. — **enoplus** *subsp. nov.* Similar to the preceding subspecies, the patches of the forewing still smaller, with the exception of the basal and subbasal bands, which are as broad as in *ag. agamemnon*. The markings of the hindwing are fully as large as in *ag. agamemnon*. Beneath all the discal spots of the forewing are scaled, hence whitish. Palau (= Pelew). — **comodus** *Fruhst.* (= celebensis *Fickert* nec *Wall.*). Large, costal margin of the forewing strongly curved, the patches small. Celebes, Sangir, Sulla Islands, Saleyer, Kalao, Djampea. — **guttatus** *Rothsch.* (= kineas *Fruhst.*, appius *Fruhst.*). The wings broad, the tail very short. The patches of both wings of about the same size as in *comodus*, all well developed; the under surface of the hindwing anteriorly and posteriorly with 2 red patches, which are sometimes very large. The discal spots of the hindwing beneath fully scaled. Northern Moluccas: Morty, Halmaheira, Ternate, Batjan and Obi. — **plisthenes** *Fldr.* (46 a). The cell-spots and the discal ones of the forewing are larger than in *guttatus* and on the whole more yellowish green, commonly the cell-spots are joined together in pairs; the spots of the hindwing more or less strongly reduced. The discal spots on the underside of the forewing partly scaleless (and hence green); the under surface of the hindwing anteriorly and posteriorly with 2 red spots. Hindwing longer than in *guttatus*, in the ♀ with longer tail. Southern Moluccas: Buru, Amboina, Ceram, Goram Laut. — **argynnus** *Drucc* (46 b). Similar to *plisthenes*, but the spots of the hindwing still more reduced, the posterior and distal spots usually absent; both wings narrower. Key Islands. — **ligatus** *Rothsch.* (= atreus *Fruhst.*) (45 d). With broader wings than *ag. agamemnon*, to which this Papaun race is most similar, the tail shorter, the discal patches of the forewing larger, the two discal spots placed between the lower median and the submedian always merged together into a band. The black spots placed at the proximal side of the submarginal spots on the hindwing beneath larger than in *ag. agamemnon*. Distinguishable from *argynnus* and *plisthenes* by the larger spots on the upper surface of the hindwing and the smaller spots of the underside, also at most 3 red spots are present. The whole of New Guinea with the neighbouring islands: Aru, Misol, Waigeu, Jobi, Mafor, Ron, D'Entrecasteaux Islands, Woodlark, Yanarba. — **mynion** *Fruhst.* The tail on the whole somewhat longer than in *ligatus*. Queensland. —

agamemnon. *aegisthus.* *menides.* *andamana.* *decoratus.* *rufoplenus.* *atropictus.* *baweana.* *meton.* *exilis.* *enoplus.* *comodus.* *guttatus.* *plisthenes.* *argynnus.* *ligatus.* *mynion.*

obliteratus. **obliteratus** *Lathy.* Very similar to *argynnus* from Key; the hindwing broader, with shorter tail and beneath with only three red spots, the one placed between the two median veins in *argynnus* being absent in *obliteratus.*

salomonis. Louisiades: St. Aignan, Sudest, Rossel. — **salomonis** *Rothsch.* The patches of the forewing on the whole even larger than in *ligatus*, the submarginal spots however usually smaller; hindwing shorter than in *ligatus*, the submarginal spots and in the ♀ also the discal spots much smaller, some of them absent in the ♀. The under surface of the hindwing always with at least 4 red spots, commonly there is a small red costal spot before the red subcostal lunule. Solomon Islands: Bougainville, Shortlands Islands, Choiseul, Isabel, Guadalcanar, Flo-

ugiensis. rida, Gela, New Georgia, Kulambangra, Rendova, Guizo, Vella Lavella. — **ugiensis** *subsp. nov.* The subbasal stripes and the discal spots strongly enlarged, the three discal spots placed between the 2nd radial and 2nd median on the forewing cut off almost straight distally and the black veins separating them narrow. The under surface of

neopommeranius. the hindwing without red spot between the median veins. Ugi. — **neopommeranius** *Honr.* (46 b). A very striking form. The patches of the forewing small, bluish green; the hindwing almost entirely black. The discal patches of the forewing beneath whitish, scaled. Bismarck Islands: distributed from New Pomerania to New Hanover.

meeki. **P. meeki** *Rothsch.* (49 b). ♀: similar to *P. agamemnon*, hindwing more rounded. Forewing more uniformly spotted (see figure); hindwing with a row of large pale green wedge-patches on the disc, two white spots behind the costal, a green streak in the cell and a green spot before it. The patches on the underside as above, somewhat larger, white; the hindwing with indistinct red lunule between cell and costal vein. — Ysabel (= Isabel), Solomon Islands, one ♀ in the Tring Museum.

P. arycles. Smaller than *P. agamemnon*, tailless. Body as in that species. Wings above with pale green patches, which often fade to yellowish (after death); on the forewing an indistinct basal band, a subbasal band, three transverse spots and a smaller apical spot in the cell, a discal row of patches, of which the 1st and 3rd are small, and a submarginal row of small spots, moreover in the subcostal spot a further isolated discal spot, the last submarginal spot double, but the anterior part placed straight before the posterior part, not as in *P. agamemnon* removed towards the disc, only 2 spots before the subcostal fork; on the hindwing a tripartite subbasal band parallel with the abdominal margin, a discal row of 4 spots, of which the 1st is large and white, and a submarginal row of 6 spots. The patches beneath almost as above, but all with silvery scaling; on the hindwing in addition a small spot at the costal between the subbasal band and the large costal discal spot and also three spots between the 3rd radial and the anal angle red, rarely yellow. The ♀ similar to the ♂. The earlier stages not known. Dis-

arycleoides. tributed from the Shan States and Siam to Java and Palawan. — **arycleoides** *Fruhst.*, from Muok-Lek in Siam, was erected from *one* specimen and differentiated from *arycles arycles* especially by the patches on the upper surface being *always* (!) blue-green and small and the white spot at the costal margin of the hindwing circular

aryeles. and very small. Not known to me in nature. — **arycles** *Bdv.* (= rama *Fldr.*) (45 c, d) shows in its wide area of distribution no tendency towards the formation of further local races. Specimens from localities as far apart as Banka, Palawan and the Shan States are quite similar. The large central costal spot of the hindwing is always somewhat longer than broad. Shan States, Malay Peninsula, Sumatra, Java, Banka, Borneo, Palawan. —

sphinx. Fruhstorfer describes in addition a specimen without locality as *P. arycles* **sphinx**. It is somewhat larger than *arycles* and has narrower spots in the cell of the forewing, and the red spots on the under surface of the hindwing of *arycles* are here replaced by yellow ones. According to the original description the patches of the upper surface are lighter green than in *arycles*, in a later paper, however, they are described as blue-green. A second example,

incertus. likewise without locality, was called by Fruhstorfer *P. arycles* ab. **incertus;** the length of the forewing is 57 mm, which is probably a mistake for 37 mm, and the silver patches in the „median part of the hindwing" are more extended.

Wallacei-Group.

The 1st and 2nd subcostal vein of the forewing running into the costal. Head large. Hindwing rounded, with red subbasal patch on the under surface.

The three species which belong here are nearly allied. But the difference in the genitalia proves that we are dealing with species which have become independent.

P. wallacei. Body above black-brown, head and thorax with grey-green hairs, under surface grey-white, the legs green, the club of the antenna with a yellow spot. Upper surface of the forewing brownish black, with grey-brown silky gloss, at the hinder angle deeper black, a streak in the base of the cell green, some small spots in the cell, a discal macular band, a row of submarginal spots and some further small spots between cell and apex greenish grey, scaleless; hindwing from the base to the apex of the cell grey-brown, this area distally emarginate, the rest of the wing velvety black, before the middle a short band which is green in the cell, and before the apex usually two small greenish grey submarginal spots. Under surface paler brown, shaded with glossy grey, the hindwing near the base with short, green costal band separated from the submedian band by

a narrow black band which bears a red streak extending from the costal margin to the cell, in the apex of the cell a grey ring or half ring, similar spots, filled up with black, on the disc. The ♀ paler than the ♂. The larva similar to that of *P. agamemnon*, on Anona muricata. The butterfly not rare. — **rubrosignatus** *Rothsch.* The middle discal spots of the forewing beneath not scaled towards the cell, the under surface of the hindwing with red spot before the abdominal margin. Northern Moluccas: Batjan, Halmaheira, Obi. — **wallacei** *Hew.* (46 b). The discal patches of the forewing beneath fully scaled, the underside of the hindwing without red spot before the abdominal margin. Aru, Waigeu and the whole of New Guinea. *rubrosignatus.* *wallacei.*

P. browni *Godm. & Salv.* (46 c). The discal band of the hindwing narrow and linear before the hindmargin, the green costal patch on the under surface of the hindwing divided in the middle, with red spot before the costal vein, the part of the green patch placed in the cell is very small or entirely absent, two red spots between the apex of the cell and abdominal margin. — New Pomerania, New Lauenburg, New Mecklenburg, Nussa, New Hanover. In the woods, where the butterflies fly round the tops of trees. *browni.*

P. hicetaon *Math.* The discal band of the forewing broader than in *browni*, but narrower than in *wallacei*; upper surface of the hindwing entirely or almost entirely without costal spot, beneath the red costal streak reaches to the cell, distally to this streak there is either no green spot or only a very small one, on the other hand at its proximal side there is invariably a large green double spot, which always only extends to the cell. — Solomon Islands, known from Bougainville, Shortlands Islands, Choiseul, Florida, Guadalcanar, Ugi, Rendova, Vella Lavella, Guizo. *hicetaon.*

Macareus-Group.

The 1st subcostal of the forewing runs into the costal. Ground-colour of the wings pure white or with greenish tinge, the veins black-striped, the interspaces with light longitudinal stripes as in *Danaus*, sometimes, however, almost all the light markings or also the vein-stripes suppressed (mimics of Euploeas). The under surface of the hindwing without red or yellow ornamental spots, except that an anal spot is often present; the hindwing rounded, with the exception of *P. phidias*, which is tailed.

These mimetic species must evidently be derived from tailed forms which were allied to *P. aristeus* and *P. antiphates*. Concerning the earlier stages nothing in known. The butterflies are inhabitants of the woods and have quite the sluggish flight of the Danaids. The species were formerly erroneously placed near *P. clytia*. They may be grouped as follows:

A. Tailed: **P. phidias.**

B. Tailless:

1. Abdomen with black median line on the underside: **P. macareus, xenocles, leucothöe, delesserti.**
2. Abdomen without black median line on the underside, the cell of the hindwing very narrow: **P. megarus, megaera, stratocles, deucalion, thule.**
3. Abdomen without black median line on the underside, the cell of the hindwing broad at the point of origin of the subcostal vein, the light parts of the wing also above all scaled: **P. idaeoides, encelades.**

A. Phidias-Subgroup.

Tailed. Only one species known.

P. phidias *Oberth.* One of the most interesting butterfly discoveries of recent times, the species being a precursor of the tailless mimetic forms. Wings black with the following white marks: on the forewing five cell-bands placed almost perpendicularly to the hindmargin of the cell, below the cell a broad band divided into longitudinal patches by the black veins, which is continued costad from the 3rd radial by two rows of small spots; between this band and the distal margin a row of linear longitudinal spots, two in each marginal cell; hindwing from the base to the apex of the cell white, with black stripes as in *P. eurous*, distal part of the wing brown-black with small light submarginal spots, double yellow anal spot and before this some small yellow spots; tail narrow, about as long as the distance from the apex of the cell to the distal margin. — Annam. Three ♂♂ in coll. Oberthür. *phidias.*

B. Macareus-Subgroup.

Tailless.

P. macareus. Abdomen with black median line on the underside. The scent-organ of the ♂ strongly developed. Wings above black or brownish black with white or greenish white markings. ♂: cell of the forewing with 3 stripes, which are sometimes broken up into small spots, and 2 apical spots, outside the apex of the cell a row of 4 dots, distally to these 4 spots, between the 2nd radial and the hindmargin 5 stripes, of which the 3rd and 4th (separated by the submedian fold) are sometimes completely confluent; hindwing from the base striped with white, the cell entirely or for the most part white, with black transverse line before the apex, on both wings a row of submarginal spots. Under surface brownish, the light markings in the distal third of the hindwing mostly less distinct than above. The ♀ in some districts similar to the ♂, in others much darker. Sometimes there

is in the ♂ a small yellow anal spot on the hindwing. The butterfly is common in most districts. The ♂♂ congregate in swarms at wet places, whilst the ♀♀ are taken singly in the woods on flowers, on which they rest with the wings closed. Distributed from North India to Hainan, Bali and the Philippines. The dark ♀♀ resemble

indicus. Euploeas. — **indicus** *Rothsch.* (= polynices *Nicév.*) (46 c). ♂: all the white stripes broad, the three stripes in the cell of the forewing complete, the cell of the hindwing entirely white, the oblique subapical line weakly developed. ♀: very similar to the ♂, the white discal stripes of the forewing broader than the black vein-stripes

lioneli. separating them. Sikkim. — **lioneli** *Fruhst.* (32 d, ♀). ♂: either exactly like *indicus* or the light stripes somewhat narrower. ♀: forewing brown-black, with white submarginal spots, the light discal stripes scarcely indicated; hindwing with white spot in the apex of the cell and white stripes round the cell, these stripes narrower than in *indicus*, the posterior ones not extending to the base, the submarginal spots well developed. Assam. In one of the ♂♂ in the Tring Museum, from the Khasia Hills, the submarginal spots of the hindwing above and beneath are enlarged, beneath they form a band which commences behind the subcostal with a specially strongly enlarged

gyndes. spot, the costal margin is broadly edged with brown. — **gyndes** *subsp. nov.* The ♂ as in *lioneli*, the white stripes mostly somewhat narrower than in *indicus*. The ♀ (name-type) similar to the Sikkim ♀, but the white spots in the apical half of the forewing and the distal half of the hindwing smaller. Burma. — The ♂♂ from Tenasserim have narrower white stripes than in the preceding forms, but the cell of the hindwing is still almost entirely filled up with white, moreover the 3 cell-stripes on the upperside of the forewing are not or not distinctly interrupted.

indochinensis. The specimens form a transition to the next form. — **indochinensis** *Fruhst.* (= striatus *Lathy* nec *Zink.*). ♂: the 2nd and 3rd cell-stripe of the forewing also above broken up into spots, the white cell-stripe of the hindwing narrower than the brown-black border of the cell, the discal stripes of both wings thin. ♀: both wings for the most part brown-black as in the ♀ of *lioneli*, the light discal spots much more reduced than even in that form, on the other hand the submarginal spots of the hindwing larger. Specimens of both sexes also occur in which the light discal stripes of the hindwing are widened and some of them at least connected with the large submarginal spots: ab.

argentiferus. **argentiferus** *Fruhst.* (♀ = serda *Fruhst.*). This aberration flies singly among normal *indochinensis*. Siam, Annam,

mitis. Tonkin. — **mitis** *subsp. nov.* ♂: the light stripes above as strongly reduced as in *indochinensis*; beneath the 4 anterior discal spots of the forewing are small and diffuse and the costal margin of the hindwing is less grey than

perakensis. in the preceding races. Hainan. — **perakensis** *Fruhst.* has the white markings almost as large as in *indicus*, but the costal margin of the hindwing beneath is brown. In a ♂ from Perak in the Tring Museum the submarginal

xanthosoma. spots of the hindwing are confluent with the discal stripes. The ♀ of *perakensis* is unknown. — **xanthosoma** *Stgr.* Abdomen yellow-brown instead of black, rarely brown-black, the under surface with two white lines, between which is placed a black line. The light stripes of both wings narrow. The ♀ similar to the ♂. East and West

macaristus. Sumatra. — **macaristus** *Grose-Smith* (47 b). Body black with 4 white lines as in the continental forms. The light stripes of the wings narrow, at least one of the anterior discal spots of the forewing united into a stripe with the corresponding dot placed distally to the apex of the cell; the discal stripes of the hindwing very thin, especially beneath; the costal margin of the hindwing beneath without light stripe. ♀ similar to the ♂. North

maccabaeus. and South Borneo. — **maccabaeus** *Stgr.* The light stripes of the forewing almost as broad as in *indicus*, the anterior discal spots oblong, usually united with the dots placed distally to the apex of the cell; the stripes of the hindwing likewise broader than in *macaristus*, the discal spots placed at the apex of the cell short and beneath shaded with

macareus. brown, the submarginal spots small. The ♀ unknown. Palawan. — **macareus** *Godt.* (= striatus *Zink.*) (46 c, d). ♂: the light stripes on the forewing broader than in *indicus*, on the other band the stripes and spots of the hindwing smaller, the costal margin of the hindwing beneath without light stripe. ♂♂ in which the discal stripes of the

palanus. *masformis.* hindwing are united with the submarginal spots are **palanus** *Fruhst.* The ♀ in two forms: ♀-f. **masformis** *Lathy*

astina. is similar to the ♂, but has narrower white stripes, and ♀-f. **astina** *Westw.* is for the most part brown. The Tring Museum possesses an example of ♀-f. *masformis* from Sukabumi; the specimen described by Lathy (in coll. H. J.

albinovanus. Adams) came from Java. — **albinovanus** *Fruhst.*, from Bali, is said to have even larger light stripes than *macareus*. Described from a ♂. Unknown to me in nature.

P. xenocles. Very nearly allied to *P. macareus*, mostly considerably larger, the wings broader, the light stripes larger than in the respective *macareus*-races from the same districts, the hindwing always with yellow anal spot, which in dark ♀♀ is sometimes only indicated. Distributed from North India to Hainan and Siam. The butterfly occurs at the same localities as *P. macareus*, in company with which it is met with; it is rather rare in the eastern districts of its range, on the other hand common in Burma, Assam and Sikkim. According to Fruhstorfer the dry-season (spring) examples have the distal border of the hindwing beneath lighter brown

phrontis. and broader than those of the wet season (summer). — **phrontis** *Nicév.* ♂: the white discal and cell-stripes broad. ♀ similar to the ♂, the discal stripes of the hindwing somewhat narrower; in a ♀ in the Tring Museum, from Sikkim, in addition the spots placed in the cell and in the apical half of the forewing are smaller than in the ♂. The specimens (♂♀) in which the distal margin of the hindwing beneath is narrow and

xenocrates. black-brown are according to Fruhstorfer the rainy-season form: f. aest. **xenocrates** *Fruhst.* Sikkim and Bhutan.

xenocles. — **xenocles** *Dbl.* (47 a). The ♂♂ as the preceding; the ♀ on the other hand much darker, the light stripes being very strongly reduced; the forewing usually lighter brown basally than distally, the cell-spots thin and

towards the costa indistinct or suppressed here, the light discal stripes much narrower than the dark vein-stripes; the yellow anal spot of the hindwing always small, often only just indicated. The ♂♂ from Assam with light brown marginal area on the under surface of the hindwing are f. vern. **theronus** *Fruhst.*; I cannot distinguish them from specimens from Sikkim. — **kephisos** *Fruhst.* ♂: the light discal stripes of the hindwing on the whole somewhat narrower than in the preceding forms. The ♀ similar to the ♂, but the light stripes narrower; the only ♀ known to me is distinguished from *phrontis* by the narrower light markings. The ♂♂ with broader and lighter brown distal margin to the hindwing beneath are according to FRUHSTORFER the dry-season form (= spring form): f. vern. **neronus** *Fruhst.* Burma, Tenasserim, Shan States, Tonkin. — **lindos** *Fruhst.*, of which only a few ♂♂ are known, has rounder wings, very broad white stripes and small yellow anal spot. Siam. — **xenoclides** *Fruhst.*, from Hainan, has narrower light stripes than all the other forms. *theronus.* *kephisos.* *neronus.* *lindos.* *xenoclides.*

P. leucothoë. Differs from *P. macareus* and *P. xenocles* chiefly in the shorter and more rounded hindwing, which has no yellow anal spot, in the reduction from the basal side of the light patches and the longer discal stripes of the hindwing. Even in the lightest specimens the cell-spots of the forewing are not developed costally; none of the light stripes of the hindwing nor the posterior stripes of the forewing quite reach the base, whilst the discal stripes of the hindwing are very broad and extend close to the submarginal spots; in the darkest specimens only the submarginal spots of both wings and the short discal stripes on the hindwing are developed. The ♀ has even less and smaller light markings than the ♂. Malayan. The butterfly, which is Euploeid-like in appearance and flight, flies in the spring and autumn in wooded districts of the plains and hills. — **leucothoë** *Westw.* (47 b). ♂: the posterior white stripes of the forewing usually reach the cell, and the cell of the hindwing is for the most part white, moreover the cell of the forewing has mostly a number of white spots. ♀: forewing brown, with small submarginal spots, and before the hindmargin a trace of a discal streak; on the hindwing, in addition to the submarginal spots, there are 6 brown-shaded grey discal stripes, which are more distinct on the underside, moreover the cell bears beneath a small apical spot, which above is only indicated. Malay Peninsula and North-East Sumatra. Some specimens not distinguishable from the next form. — **interjectus** *Honr.*, from South-East and West Sumatra, has no spots in the cell of the forewing, the discal stripes of the forewing are short, the anterior discal spots usually dot-like, and the cell of the hindwing for the most part black-brown. In the ♀ the discal stripes of the hindwing are somewhat smaller than in the ♀ of *leucothoë*. — **ramaceus** *Westw.* (47 b). A much darkened form. ♂: the discal stripes of the forewing are suppressed, at most there are traces of two spots before the hindmargin. The discal stripes of the hindwing are short and always much narrower than in the preceding forms, usually much narrower than the interspaces. ♀ without discal spot on either wing; the submarginal spots small, partly suppressed, beneath somewhat larger and here there are also faint discal stripes before the abdominal margin of the hindwing. North and South Borneo. *leucothoë.* *interjectus.* *ramaceus.*

P. delesserti. Body above black, at the sides of the thorax with greenish grey hairs, head spotted with white, underside of the body white, abdomen with black median and lateral lines. ♂: wings white, very slightly greenish, with black vein-stripes which are widened at the distal margin, the white stripes of the forewing enclose a submarginal row of black patches, the cell of the forewing for the most part black, with white spots and lines; hindwing with yellow anal spot, before which a second spot is usually placed, both spots beneath large. The black markings on the under surface smaller than above. The ♀ larger than the ♂, the black markings reduced, the light parts of the wings transparent, smoky or chalky white, the yellow anal spot small. The earlier stages unknown. The butterfly flies in wooded districts in the plains and in the hills and occurs all the year round, but is especially common in the spring. Whilst the ♀♀ are only rarely captured, the ♂♂ are met with in large numbers on sandy places on the river-banks and at wayside puddles. The ♀ is a strikingly faithful copy of the Danaid *Ideopsis daos* and the Zygaenid *Cyclosia pieridoides*. Malay Peninsula to Java and Palawan; on Java the butterfly has not been found again recently. — **delesserti** *Guér.* (= laodocus *Deh.*, dehaani *Wall.*, catoris *Grose-Smith*, labienus *Fruhst.*, sacerdotalis *Fruhst.*) (47 c). The three short white discal streaks near the apex of the cell on the hindwing above are narrower in the ♂ than the black vein-stripes between them. Malay Peninsula, Penang, Sumatra, Banka, Java, Borneo, Natuna. — **hyalinus** *Fruhst.* The costal margin of the forewing beneath somewhat more extended black at the apex in both sexes than in the preceding form, and the white submarginal spots on the upperside of the hindwing straighter in the ♂. Nias. — **palawanus** *Stgr.* (= palawanicus *Rothsch.*). The three white discal stripes which are placed near the apex of the cell on the upper surface of the hindwing are broader than in the preceding forms, the white cell-patches on the forewing beneath are intersected by black longitudinal lines, which seldom occurs in the other forms. Palawan. *delesserti.* *hyalinus.* *palawanus.*

P. megarus. Underside of the abdomen without black median lines. The scent-organ of the ♂ strongly developed. The white markings slightly greenish; forewing with 3 rows of greenish white spots between cell and distal margin, the spots of the two inner rows placed between the 1st median and the submedian united into three stripes, on the other hand the spots placed before the 1st median nearly always isolated; on the hindwing in the basal half some long greenish white stripes, round the apex of the cell several short streaks and between these and the distal margin three rows of spots, of which the submarginal ones are lunular. The

light markings vary individually in size. The ♂♂ common on moist sand, the ♀ singly in the woods. — In
megarus. **megarus** *Westw.* (= loki *Röb.*) (46 e), from Assam, the cell-spots of the forewing are small above and almost
similis. entirely absent beneath. Its occurrence in Sikkim is doubtful. — **similis** *Lathy* (= meagrus *Fruhst.*, megapenthes *Fruhst.*, mendicus *Fruhst.*, martinus *Fruhst.*). The cell-spots of the forewing well developed also be-
sagittiger. neath. Hainan, Tonkin, Siam, Shan States, Tenasserim, Malay Peninsula, North-East Sumatra. — **sagittiger** *Fruhst.* The light stripes thinner and the spots, especially the submarginal ones, smaller than in the preced-
fleximacula. ing forms, the cell-spots of the forewing present also beneath. North Borneo. — **fleximacula** *Rothsch.* Forewing with white stripe instead of 2 spots before the 1st median; submarginal spots small. Banguey Island, a pair in coll. STAUDINGER.

megaera. **P. megaera** *Stgr.* (46 e). ♂ and ♀ paler brown than *megarus*, the light markings in the basal half of both wings absent above and beneath, or very faintly indicated on the upper surface of the hindwing. Palawan.

P. stratocles. The light markings purer white than in *megaera* and *megarus* and with the exception of the submarginal spots larger; the forewing bears between the hindmargin and the 2nd radial or even the subcostal fork white discal stripes; the cell of the hindwing is entirely white or has only traces of two black lines.
stratocles. The light markings in the ♀ larger than in the ♂. Palawan, Mindoro, Mindanao. — **stratocles** *Fldr.* (= magicus *Stgr.*, stratoclides *Lathy*) (47 d). The cell-spots of the forewing and the discal stripes of both wings broad. Palawan, Mindoro. FELDER originally gave Mindanao as locality, but the ♂ described by him came from Min-
stratonices. doro. — **stratonices** *subspec. nov.* ♂: the white stripes much less strongly developed, the cell-patches of the forewing obsolete towards the costa, the discal stripes of the hindwing partly shaded with brown, the submarginal spots, especially on the hindwing, smaller than in *stratocles*. ♀: the white markings almost as much reduced as in the ♂, or at least the submarginal spots of the hindwing above and beneath smaller than in the ♀ of the preceding form. Mindanao.

P. deucalion. Similar to *stratocles*, mostly larger, the cell-spots of the forewing broken up into dots, the light stripes of both wings shorter, the cell of the hindwing before the apex with black oblique line, on the disc of the hindwing a row of 4 or 5 small spots. In the ♀ the white markings somewhat larger than in
deucalion. the ♂. Celebes and North Moluccas. — **deucalion** *Bdv.* (47 d). The light markings yellow. North and South
leucadion. Celebes. — **leucadion** *Stgr.* (47 d). The light markings white, slightly yellowish, smaller than in *deucalion*, partly shaded with black, the stripes of the forewing, however, somewhat longer. North Moluccas: Halmaheira, Batjan.

P. thule. Nearly allied to the preceding species; very variable, in all specimens the light markings are white, with slightly greenish tinge (the wing-membrane of the light spots, beneath the scales, greenish), which is often absent in the light ♀♀. Forewing without light stripe at the hindmargin or this stripe in light ♀♀ feebly developed; on the hindwing the light stripes united into a central area, which is distant from the base or extends to near the same only below the cell, being usually very strongly reduced from the basal side; the veins which intersect this area are mostly very narrowly black; the cell of the hindwing bears no black oblique line as in *deucalion*. In dark specimens the light markings of the body are also reduced. There do
fumosa. not appear to be any fairly constant geographical differences. The principal individual forms are: f. **fumosa** *form. nov.*, the area of the hindwing above reduced, intersected by rather broad black veins, beneath so densely scaled with brown that the light spots are barely indicated; several ♂♂ in the Tring Museum from the
leuthe. hills of British New Guinea; on the rivers running into Redscar Bay. f. **leuthe** *Grose-Smith* (32 b), the discal stripes of the forewing short, cell of the forewing without markings or the cell-spots small, the area of the hindwing far removed from the base; Waigeu and north side of Dutch and German New Guinea, less pronounced
thule. dark specimens also in the southern parts of New Guinea. f. **thule** *Wall.* (= alfredi *Fruhst.*), some at least of the stripes of the forewing extending to the cell, narrower than the black vein-stripes, the area of the hindwing moreover does not reach the base posteriorly, the cell-spots of the forewing distinct; in the entire geo-
goldiei. graphical range of the species. f. **goldiei** *Godm. & Salv.* (= princeps *Weym.*) (32 c). The light stripes of the forewing broader than in the preceding form, usually broader than the black vein-stripes separating them, the area of the hindwing nearly reaches the base posteriorly; in the ♀ the light stripes are especially strongly developed, also the cell-spots of the forewing are large and sometimes the posterior half of the cell is occupied by a long, uninterrupted patch; apparently as widely distributed as f. *thule*. All these forms are connected by transitions. — The species is hitherto only known from Waigeu and various parts of New Guinea, but probably also occurs on Aru and the islands off the coast of New Guinea. The butterfly in the woods; the different varieties are mimics of Danaids.

idaeoides. **P. idaeoides** *Hew.* An extremely noteworthy mimetic butterfly on account of its great similarity to its model (*Hestia leuconoë*). In the markings similar to *P. delesserti*; the cell of the hindwing much broader, the scales normal. Wings white with black markings as may be seen from the figure; the under surface resembles the upper. The ♀ is marked exactly like the ♂, somewhat larger. — Only known from Mindanao.

P. encelades *Hew.* (49 b). Cell of the hindwing broad. Forewing elongate, with incurved distal margin; white, at the costal and distal margins black, the black distal area anteriorly extended to the apex of the cell; hindwing white with broad black distal margin. Under surface almost as upper, the dark parts paler, the light areas intersected by dark veins, cell of the hindwing with dark longitudinal streak, both wings with grey-white submarginal spots, which above are mostly only weakly indicated. The ♀ does not appear to be known. — North and South Celebes. *encelades.*

2. Genus: **Eurycus** *Bdv.*

An Aristolochia butterfly, which in many respects approaches *P. polydorus*. Differs from *Papilio* chiefly in the shorter, thicker, not curved club of the antenna, the much larger basal cell (so-called precostal cell), and in having the precostal vein curved towards the base. The ♀ has after copulation a „pouch" like the ♀♀ of *Parnassius* and of the South American genus *Euryades*. Legs as in the Indo-Australian Aristolochia-Papilios distinguished from those of the Aristolochia-Papilios of America by the deeper apical incision of the 5th tarsal joint. Larva not yet described; we have been told by R. E. Turner that it is similar to that of *P. polydorus*; on Aristolochia. Pupa with girth; similar to that of the Aristolochia-Papilios, but much more cylindrical, the wing-cases not expanding and the dorsal humps of the abdomen small and almost coniform; head truncate; with a horn at each side above and beneath; grey-yellow, striped and marbled with brown-yellow. — One Papuan species.

E. cressida. ♂ and ♀ similar in shape, different in colouring. ♂ black, frons yellowish white, thorax and abdomen marked with red. Forewing transparent, this part only scaled above, the margins dark, the base black; cell long, with black spot opposite the base of the upper median, a second black spot on the discocellulars. Hindwing black, distally strongly rounded, abdominal margin even more slightly bent over than in *polydorus*, incurved behind the middle, a median band consisting of white patches extends from the costal to the distal margin; a row of submarginal spots red, more or less densely dusted with black, at the distal margin light spots. Underside as above, but the submarginal and marginal spots of the hindwing more distinct. ♀ much paler than the ♂, both wings for the most part transparent, yellowish smoke-colour; the light scales at the base of the forewing form thin undulate lines; the discocellular spots smaller than in the ♂, the cell-spot replaced by an indistinct transverse patch, hindwing either transparent with indistinct markings, or similar to that of the ♂, but the dark parts paler, the submarginal spots yellowish grey, beneath more or less distinctly reddish. The pouch towards the front with 2 lateral flaps and 3 central processes placed one over another. Both sexes vary considerably in size. The butterfly is common; it has a straight and rather feeble flight, but hastens away with great rapidity when it is frightened. It visits flowering trees and sometimes swarms in numbers round flowering Eucalyptus. — **cressida** *F.* (= heliconides *Swains.*, ♀ = harmonia *F.*, harmonides *Godt.*) (49 c). Under surface of the hindwing with distinct marginal spots. In northern Australia, Thursday Island (perhaps also on the neighbouring islands), and on the small islands between Timor and Timor-laut, which perhaps it has only recently reached: Sermatta, Babber, Letti, Moa, Kisser. One of the ♂♂ before me from Moa has yellow instead of red submarginal spots on both sides of the hindwing. — **troilus** *Btlr.* Hindwing without distinct marginal spots in both sexes; hindwing of the ♀ smoky black, with white median band; British New Guinea. *cressida.* *troilus.*

3. Genus: **Leptocircus** *Swains.*

Head broad, thorax thick, abdomen scarcely longer than the thorax; the antennae extend beyond the apex of the cell of the forewing; above scaled, the fine sensory hairs almost uniformly distributed over the scaleless underside, club short and broad; legs scaled. Neuration: in the forewing subcostals 1 and 2 from the cell, 3 and 4 long-stalked, 5 from this stalk nearer to the cell than to branch 4, anterior angle of the cell pointed; in the hindwing the cell very small.

Forewing triangular, the hindmargin much shorter than the distal margin, before the middle a light oblique band, which is continued on the hindwing and is in part scaleless, between cell and distal margin a large, transparent. scaleless, triangular area, which is divided by thin black vein-stripes into 6—8 spots; hindwing narrow and long, folded, produced into a very long tail, which is distally edged with white. ♂ and ♀ similar; ♀ with large ventral copulation-groove before the tip of the abdomen.

Two species. Most nearly allied to the Kite-Swallowtails, from which *Leptocircus* is without doubt derived. The possession of a scent-organ in the abdominal fold of the hindwing of *L. curius* and of a tooth at each of the tarsal claws in the same species, as well as the powerfully built body, the markings of body and wings, the scaled greenish legs, etc., recall Kite-Swallowtails. We consider it quite a mistake to separate *Leptocircus* from the *Papilioninae* as a distinct subfamily.

Concerning the earlier stages nothing is known, except that the egg is *Papilio*-like. The butterflies are common in most parts of their range. They occur near the water in open places, over which they dart backwards and forwards near the ground. their rapid flight resembling that of dragonflies; they are immoderate water-drinkers, and often squirt the water out again rhythmically at the anus. They are also commonly met with at flowers, before which they hang with the wings vibrating rapidly and the tails quivering and raised high, without resting on the flower.

The genus is distributed from South-East China and Assam to Java, Celebes and the Philippines.

L. curius. Tarsal claw with long tooth; fold at the abdominal margin of the hindwing of the ♂ with white scent-organ; the oblique band of both wings white. North-East China, Assam, south and east to Java
walkeri. and Palawan. Several geographical forms have been erected, which, however, completely intergrade. — **walkeri** *Moore* (49 d). The black median band of the forewing posteriorly narrowed, very often incomplete, the
curius. white band consequently widened. South-East China, Tonkin, Hainan. — **curius** *F.* As the preceding, but the black median band of the forewing broader and always complete. From Assam to Palawan and Java.
libelluloides. — **libelluloides** *Fruhst.* (49 d). The transparent area of the forewing narrower and the veins intersecting it thicker black. Nias.

L. meges. Tarsal claw simple. Hindwing of the ♂ without scent-organ. The oblique band of both wings green (scaleless, the membrane of the wing green). The genitalia likewise easy to distinguish from those of *L. curius.* Distributed further to the east than *curius*, *meges* being represented also on the Philippines and
virescens. Celebes, but does not extend so far north on the continent as *curius.* — **virescens** *Btlr.* The black median band of the forewing never twice as broad in the middle as the green band, in the northern districts usually even somewhat narrower than the latter; the grey scaling at the base of the hindwing beneath rather sharply
meges. defined. Hainan, Tonkin, Burma, Shan States, Annam, Siam, Malacca. — **meges** *Zink.* (49 d). The black median band of the forewing usually half as broad again in the middle as the green band; the grey scaling at the base of the hindwing beneath extended to the first grey transverse line, the white band broader than the
niasicus. black band placed basally to it. Sumatra, Borneo, Java. — **niasicus** *subsp. nov.* The transparent area of the forewing smaller than in the preceding forms, consisting of 7 sections, of which the first is small, the black distal margin as broad as in the form from Celebes, the green band one-third narrower behind the middle than the black band; under surface of the hindwing with very distinct transverse lines before the abdominal
decius. margin, the grey basal area does not reach the transverse angular patch. Nias. — **decius** *Fldr.* (= wilsoni *Reak.*) (49 d). The green band of the forewing narrower than in the preceding forms, about half as broad as the black median band; the grey basal area of the hindwing beneath smaller than in *meg. meges.* Balabac.
ennius. Palawan, Domaran and all the islands of the Philippines. — **ennius** *Fldr.* (= curtius Wall.) (49 d). Larger, especially the hindwing, and the tail strikingly longer; the vitreous area of the forewing narrower, intersected by thick black veins; the green band above and beneath narrow on both wings. Celebes, apparently commoner in the north of the island than in the south.

4. Genus: **Teinopalpus** *Hope.*

Frons projecting conically; palpi very long, pointed, porrect; antenna short, with strong, obtuse, curved club, scaleless except at the base, the segments almost cylindrical, the sensory hairs almost uniformly distributed over the underside. Neuration similar to that of *Papilio*, the median spur of the forewing only indicated, the upper transverse vein of the forewing short, the 2nd long and incurved, apex of the forewing pointed, hindwing with 1 (♂) or 2 (♀) long tails. — The earlier stages not yet described, the larva is said to live on Daphne nipalensis. The butterfly is very local and only occurs at medium and higher elevations on the mountains (6—10,000 ft.) in wooded districts. It usually remains in the tops of trees, from which it only comes down from about 8—11 o'clock in the morning when the sun is shining, and can then be attracted by baiting. Its flight is exceedingly fast. The best localities are open places on the tops of mountains surrounded by timber-forests. One species. Distributed from Nepal to Tenasserim; also in Central China.

T. imperialis. ♂: body green, beneath yellowish. Upper surface of the wings green on black ground; forewing before the middle with black, gently curved line and between it and the distal margin 2 broad, blackish, indistinctly defined shadowy bands, the extreme margin black, the fringes white; hindwing with black median line, at the distal side of which there is a yellow area, and the space from here to the abdominal margin is edged with white, before the distal margin green-yellow submarginal lunules, tip of the tail yellow. Under surface to the black median line green, the rest of the forewing brownish yellow with black bands; the hindwing almost as above. ♀ larger than ♂, paler, above on the forewing with two grey bands, on the hindwing with large grey central area, which is narrower and yellow before the abdominal margin, marginal teeth longer than in the ♂, the tooth of the 1st radial developed into a tail, which is shorter than the tail of

the 3rd radial and at the apex yellowish grey. Under surface: basal area green, rest of the forewing grey with black bands, hindwing almost as above, sometimes entirely without yellow. — **imperialis** *Hope* (= himalaicus *Rothsch.*, ♀ = parryae *Hope*) (49 c). ♂: the yellow area of the hindwing, although very variable in size, always enters the apex of the cell and beneath reaches the 1st median. ♀: the central area of the hindwing above is grey with a little black to the 2nd median and from there onwards yellow, beneath this area is sometimes mostly black and without yellow. Nepal, Sikkim, Bhutan, Assam, Upper Burma. From April to August. The ♀♀ from Sikkim and Bhutan appear to have a paler under surface to the hindwing (*himalaicus*) than ♀♀ from Assam, yet examples also occur in Assam which are as pale as Sikkim specimens or even paler. — **imperatrix** *Nicév.* ♂: less densely scaled with green than the preceding form, the yellow area of the hindwing does not enter the cell and beneath reaches to the 2nd median; marginal teeth longer. ♀: the grey area of the hindwing above anteriorly densely dusted with black, posteriorly broader than in *imperialis*, yellow as far as the 3rd radial and beyond, marginal teeth longer. Upper Tenasserim: Toungoo, January to April; in the Tring Museum 2 ♂♂ and 1 ♀, inclusive of the name-types (♂♀).

imperialis.

imperatrix.

5. Genus: **Armandia** *Blanch.*

This genus differs from *Papilio* principally in having the median spur of the forewing only very weakly indicated. It belongs to the essentially Palaearctic subfamily *Thaidinae* (or *Zerynthiinae*).

Body with rough hairs, weak in proportion to the size of the wings; head small; palpi pointed, projecting; antenna scaleless, thin, short, with weak club, the sensory hairs dense at the base of the segments on the underside; abdomen long, thickest in the posterior half; legs short. Wings long, forewing rounded, the 1st and 2nd subcostal free, the 3rd—5th stalked together, the 1st radial arising near the upper angle of the cell; hindwing long-toothed, with long tail at the 3rd radial and a shorter one at each of the median veins, precostal vein directed basad, basal cell large. — The earlier stages unknown. Two species, in medium to higher elevations on the wooded mountains of North India and West China. The butterfly has a feeble flight, recalling *Hestia* and allows itself to be driven backwards and forwards by the wind between the tops of trees like a dry leaf. It also visits flowers, and during a shower it sits on a leaf and pushes the forewing over the hindwing, so that the brillant colours of the latter are concealed (Doherty). From the spring to September. The sexes similar.

A. lidderdalei. Black with grey lines, as may be seen from the figure. Hindwing from the 2nd radial to the abdominal margin with large bright-coloured area, which is proximally rose-red and distally black and is bordered by yellow patches; on the black part two bluish grey spots, which bear basally a white line or dot; tail obtusely pointed, not spatulate as in the Chinese species *A. thaidina*. Beneath similar to above, the markings larger, the rose-red area paler. The ♀ somewhat larger than the ♂. North India and West China. — **lidderdalei** *Atkins.* (49 c). The cell-lines of the forewing only very slightly curved, the blue-grey spots on the black area of the hindwing large. Bhutan, Naga Hills in North-East Assam, Chin Hills in North-West Burma. — *spinosa Stich.* occurs in West China.

lidderdalei.

6. Genus: **Parnassius** *Latr.*

The genus *Parnassius* is purely Palearctic. We must regard as its original home the Central Asiatic mountains, from whence the species spread in the glacial epoch over the whole of non-tropical and non-arctic Asia and the non-arctic regions of Europe, and there is no doubt that the North American Parnassiids also have found their way across the Alaskan bridge to Alaska and the Rocky Mountains.

It is not improbable that originally all the Parnassiids inhabited the lowlands, and some of the species only ascended into the higher mountains as the continental ice receded. Certain it is, however, that some of the recent species retained the steppe-frequenting habit (abundance of *P. mnemosyne* in the Hungarian Puszta and the steppes on the Volga), whilst the principal contingent belongs to the mountains. The Indian species are exclusively mountain-dwellers and even favour preeminently the high alpine regions, which alone, at this southernmost limit of their occurrence, can offer them the accustomed conditions of existence.

But even this southern migration upwards, which has taken place close to the boundary of the tropics and to the climatic barrier between the high plateaus of Asia and the hot lowlands of India, has produced no essential modifications in the habitus of the genus.

The character of the wing-pattern preserves the same scheme as in the purely Palearctic Region, a constancy which gives to the Parnassiids the exclusive and uniform stamp by which they are so strikingly distinguished from their nearest relatives, the Papilionids, which in India more than elsewhere are subject to essential variations in the contour of the wings and scheme of markings.

But at the same time the southern slopes of the Himalayas and the mountain ranges adjoining them on the north produce those forms which are conspicuous as the most brightly coloured (*hardwicki*) or the most ornamentally marked (*charltonius*) among all the species.

The general characters of the genus are dealt with in detail in the Palearctic part vol. I, p. 19, and in vol. V, p. 45 of the exotic fauna.

We therefore merely point out here that the Parnassiids are morphologically distinguished from the Papilionids by the absence of the transverse vein between median and submedian near the base of the forewing and the hindmarginal vein of the hindwing.

The clasping-organs of the Parnassiids approximate very closely to those of the Papilionids. The uncus is provided with two claw-like points, the valve relatively long, oval and armed with a strongly projecting, distally rather pointed process (the clunicula), which also occurs in *Ornithoptera*. The penis is sword-like, with the apex sharp and curved somewhat outwards.

The most striking pecularity of the Parnassiids is the pouch of the females, the structure of which may serve as a help in determination.

The Indian species also may be divided according to this organ into several heterogeneous groups.

simo. **P. simo** *Gray*, the most insignificant species of the whole region and on the whole the smallest species known as yet, is characterised by a tubular or vermiform pouch. Only four specimens are known to have yet been brought to Europe; these were taken in Ladak, or Chinese Tartary as the district was called at that time, at an elevation of 16,000 ft. The species is weakly coloured, with small, dark-bordered eye-spots on the hindwing. — Kashmir.

acconus. **P. acconus** *Fruhst.* (= moelleri *Bingham*) (50 e). Of somewhat more imposing appearance; with distinct light red ocelli and with continuous submarginal band, which is not broken up into single spots as in *simo. acconus* was discovered before the English-Tibetan war in Kambajong, at the border of Tibet and Sikkim, and is said to have been taken at an elevation of 16,000 ft.

acco. **P. acco** *Gray* (vol. I, 16 c) is distinguished from *simo* by the varnished appearance of the under surface and the larger, deeper red ocelli. Likewise very rare, discovered together with the preceding species in Kash-
gemmifer. mir, also on the Karakorum, where it occurs at an elevation of 17—19,000 ft. — From Kambajong **gemmifer** *Fruhst.* has been described, recognizable by the darker distal margin and the deeper red ocelli of the hindwing with broader black markings. The pouch of *acco* is sack-shaped, enclosing the body with two lobes, and is furrowed beneath.

delphius. **P. delphius** *Ev.* (vol. I, 15 d, e). One of the species with the greatest tendency to geographical dif-
stoliczkanus. ferentiation, it sends off five known branches into the region of the Himalayas. — **stoliczkanus** *Fldr.* (vol. I, 16 c). Hindwing with broad marginal band, on which are situated 4—5 roundish darker spots, which in the ♀ are dusted with blue. Taken at an elevation of 16—18,000 ft. Flight low, rapid, in zigzag, entirely different from that of *hardwicki* and *jacquemonti*, similar to that of *charltonius Moore*. North-Western Hima-
atkinsoni. layas, Kashmir. — **atkinsoni** *Moore* we regard as a brilliant ♀-form, with much broader black longitudinal bands of the forewing and strongly enlarged red patches and ocelli and the hindwing. Pir Pingal, North Kash-
hunza. mir. — **hunza** *Gr.-Grsh.* is somewhat larger than *stoliczkanus*; described from the Hindu Kush, but extending into the Indian territory at Chitral near the border of Afghanistan. The band-markings are somewhat reduced, the disc plentifully dusted with grey. Distal margin of the hindwing much narrowed, the submarginal spots,
stenosemus. however, very well-developed, quadrate. — In **stenosemus** *Honr.* (vol. I, 16 b) a widening of all the black bands is noticeable, which recalls *atkinsoni*, but the submarginal spots of the hindwing are isolated as in *hunza*, with distinct blue centres. Ladak, Kuti Pass, 17,000 ft.

lampidius. **P. lampidius** *Fruhst.* (= whitei *Bingh.*) (50 e). Recognizable by the pure white ground-colour; it is perhaps the smallest known *delphius*-race; from Kambajong, South Tibet. All the black markings reduced, especially also the marginal band and the submarginal spots of the hindwing. The basal area of the hindwing on the other hand more extended black than in the other known forms, recalling *staudingeri Bang.-H.* The ocelli of the hindwing light carmine red, but smaller than in *atkinsoni*. The pouches surround the body in ring-shape, are broader than high and have two points.

jacquemonti. **P. jacquemonti** *Bdv.* (50 b). According to VERITY this species is distinguished by the predominantly melanotic colouring of the ♂♂ in contrast to the other Parnassiids, whilst the ♀♀, usually dark in other species, are here without exception much lighter and almost pure white. The species is extraordinarily inconstant and varies very considerably in size, ground-colour, and the number and shape of the red spots, which, as in the European *apollo*, may be with or without white centres. These differences may perhaps be traced back
impunctata. to seasonal dimorphism. — The least marked form has been described as **impunctata** *Austaut* (50 b), from Sikkim. Kashmir specimens are somewhat smaller in both sexes, invariably more richly adorned with red and mostly with two red preapical spots. Specimens are also known with the forewing still darker than in
himalayensis. the figure and of a vitreous appearance. — I refer the name **himalayensis** *Elw.* (50 c) to the form from the eastern Himalayas, of which I have a number before me from Native Sikkim, distinguished by the pure white ground-colour, the smaller and lighter red ocelli, the narrower vitreous distal margin of the hindwing and the more

sharply defined submarginal spots. — **rhodius** *Honr.*, from Kashmir, differs in the more circular ocelli and the diffuse submarginal bands of the hindwing. — **chitralensis** *Moore* is a local form with pure white ground-colour, reduced black and red spots on the forewing, but more extended black basal spot on the hindwing, which sends tooth-like projections into the middle of the wing, and more reniform red ocelli. Chitral. — *jacquemonti* is a high alpine species, which has been found on the passes of the Himalayas at elevations of 10,000 to even 18,000 ft. The butterflies fly low and rapidly over snow-fields or the frozen ground, even where the least vegetation can no longer exist. Time of flight July to September. The ♀♀ of the races of *jacquemonti* possess keeled pouches, whilst those of the following *epaphus*-series have instead of the keel a pouch with transverse folds at the broad end. *rhodius.* *chitralensis.*

P. epaphus *Oberth.*, from the north-west Himalayas (Ladak), is a species which flies in July and August, has been observed up to a height of 15,000 ft. and is locally common, although it is seldom brought to Europe. Oberthür's type belongs to the rainy-season form, recognisable by larger red ocelli and broader black bands than the form *cachemiriensis Oberth.* (vol. I, 15 c), which has smaller spots and ocelli and pure white instead of ochre-yellow ground-colour. Near Leh, Kashmir, the latter is not rare. — **nirius** *Moore* (vol. I, 15 b), which belongs to *epaphus* on account of the melanotic colouring of the ♀ (which is much darker than the ♂), is a habitually small individual aberration, likewise from Kashmir, and only to be distinguished from *epaphus* by the complete submarginal band of the forewing, not broken up into separate spots (Bingham). *epaphus.* *nirius.*

P. sikkimensis *Elw.* (50 d) is a well-defined, very small local form from Native Sikkim, where it was taken by Elwes in September 1870 on the Tibetan border at an altitude of 19,000 ft. Also in South Tibet (Kambajong) the species is still common, but varies much in size, some specimens even approximating to the North Tibetan *nanchanica Aust.* by their large red ocelli, whilst dark examples also occur with the disc of the forewing densely dusted with black. *sikkimensis.*

P. hardwicki *Gray* (vol. I, 15 b) represents in its most developed forms decidedly the most brightly coloured species of all the Parnassiids, with such a wide range of variation that Moore devoted to it in the Lepidoptera Indica three plates with 24 coloured figures, no two of which are alike, and yet the peculiar moss-green tinted under surface only occurring in *hardwicki* (similar to that of certain *Colias*) is not once represented there. *hardwicki.*

hardwicki was discovered by Major Charlton in Kashmir together with *acco* and *simo*. There and in Simla the species occurs all the year round. It prefers bare mountain peaks only overgrown with grass, flying slowly above the tree-limit like ordinary sluggish Pierids, but can also hasten rapidly over the rocks. Two broods have been definitely proved. Moore even believes there is evidence of the existence of three, but only an early spring and a late autumn brood are certain. The latter apparently hibernates, for Capt. Lang has seen *hardwicki* flying in December and February on fine days which followed on weeks of snow-storms. Young found large numbers of pupae in the middle of October and believes that even more pupae than imagos hibernate. The larvae, like those of the allied species, feed on species of Saxifrage. The species varies least in the western Himalayas, the lighter forms fly at elevations of 7500—9000 ft., the dark ones from 10—15,000 ft. I consider that two races can be differentiated, namely *hardwicki Gray* (vol. I, 15 b), from Kashmir and the western Himalayas with the extremely albinotic development f. **otos** *Fruhst.* (50 c), and **charino** *Elw.* (50 d), the melanotic high alpine form. — For the smaller Sikkim race, which particularly in the female is also dusted with darker green beneath, the name **viridicans** *subsp. nov.* (50 c, d) may be introduced. Of this **afer** *Fruhst.* is a darkened form, **albicans** *Fruhst.* an albinotic one, and **parva** *Verity* an undersized mountain form. The ♀♀ are the most brightly coloured, being always darker than the ♂♂ and also beneath marked with red on a green ground. The pouch is compressed laterally, bladder-shaped, whitish yellow, with a deep longitudinal furrow on the underside. *otos.* *charino.* *viridicans.* *afer.* *albicans.* *parva.*

P. imperator *Oberth.* (50 a, ♂; ♀ vol. I, 16 f) is the largest representative of the group. One of the rare ♂♂, which are found in very few collections, is here figured, and also a race from South Tibet, taken near the border of Sikkim, **augustus** *Fruhst.* (50 b). This highly specialised local form differs from *imperator* in the yellowish, sometimes even canary-yellow ground-colour and the more sharply defined and narrower black bands of both wings, the very large red, transparent basal patch and the red tear-shaped spots (resembling those of *jacquemonti*, *epaphus* and *hardwicki*, but even larger) in the cell and the subanal area of the hindwing. The red ocelli of the hindwing remain smaller, but are more broadly margined with black and as well as the blue anal ocelli have more white in the centre. *augustus* does not equal *imperator* in size, on the other hand the submarginal band of the forewing is almost twice as broad, moreover all the yellowish bands on the forewing show a tendency to increase in width. Pouch of the ♀ similar to that of *delphius*, but stronger, darker, with two pointed lobes. *imperator.* *augustus.*

Among the most conspicuous of all the species is also

P. charltonius *Gray* (50 a), distinguished by the gorgeous, mostly very large, quadrate, light red ocelli and the isolated, large black blue-centred submarginal spots of the hindwing. In contrast to *augustus* there *charltonius.*

are in *charltonius* no red basal spots on the hindwing beneath, instead of these is a blackish area densely covered with yellow scales. Pouch of the ♀ limaciform. Kashmir, North-West Himalayas. — MOORE says that *charltonius* skims over the ground with an irregular, swimming flight, like a pointer following the scent of game. at elevations of 4500—5000 m. The ♂♂ of *charltonius* and *imperator* are always rarer than the ♀♀, which is explained by the fact that the ♂♂ are fond of circling round inaccessible, isolated mountain peaks, and only come down for copulation to the lower alpine meadows, where alone the ♀♀ find conditions suitable for oviposition. It is known of *charltonius* that the ♂♂ dart up and down with great rapidity and can only occasionally be taken, when the sun is covered by clouds or strong, cold winds set in, when the butterflies seek shelter on the rocks. *augustus* and *charltonius* are very local and both show much less tendency to variation than other Parnassiids. Also the seasons appear to exercise no influence on their colouring. In *charltonius*, however, the extent of the red of the ocelli varies somewhat. — Specimens in which the latter are especially
deckerti. richly adorned with red VERITY has named **deckerti.**

Additions and Corrections.

P. 14: **Papilio priamus arruanus** ♂-ab. **chrysopsila** read **chrysophila.**

P. 21: **Papilio helena papuensis.** There are in German New Guinea among the ♂♂ specimens in which
rubra. the hindwing is red instead of golden: ♂-ab. **rubra** *Pagenst.* Not known to me in nature.

P. 22: **Papilio helena bandensis** *Rothsch.* (1908) is **bandensis** *Pagenst.* (1904).

P. 23: **Papilio helena mannus** *Fruhst.*, from Bali, I cannot distinguish from Javan specimens (*P. h. helena*).

P. 33: **P. ikusa** *Ehrm.*, recently described from Simoda, Japan, sinks to *alcinous Klug.*

P. 48: A large series of examples of **P. xuthus,** from Formosa, now before me, confirms my suspicion that **koxinga** *Fruhst.* was founded on a discoloured specimen. The name *koxinga* must therefore be regarded as synonymous with *xuthus.*

P. 57: **capaneus** *Westw.* from Queensland.

P. 61: Line 3 read ♂-f. **depicta** instead of ♀-f.

P. 62: Line 6 et seq. read Savu instead of Suva.

P. 67: ♀-f. **nymphasia** is = ♀-f. **capsus** *Ribbe* (1898).

P. 79: Line 40 read forewing instead of hindwing. (K. Jordan.)

Alphabetical List

with reference to the original descriptions of the forms of the Indo-Australian *Papilionidae.*
* signifies that the form is also figured in the place cited.

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2. Family: **Pieridae, Whites.**

The greater part of the species of this cosmopolitan family live in South America and South Asia. The number of genera in the two regions is about the same.

It is true that sharply defined species are rather more numerous in South America, but the Indian archipelagos produce an astonishing variety of local races, so that the two regions rival one another in a way which makes it difficult to decide where the maximum of development is to be sought.

The large number of forms is due to local and climatic influences. The mightiest expanse of mountains in the world, the Himàlayas with their off-shoots and the lowlands lying before them, are fully as favourable to the formation of species as the numerous islands in the Malay Archipelago. The highly diversified climatic conditions, partly caused by the regularity of the Monsoons and the consequent steady alternation of dry seasons and rainy periods, contribute further to the modification of species.

Hence we meet both in the high-mountain species and in those of the plains and islands with unstable forms, often broken up into polychromatic and even polymorphic elements, the elucidation of which formerly occasioned serious difficulties. These forms have been described in the earlier works as an endless number of species, and to reduce them to their true status and to ascertain their geographical connection will be one of the principal objects of the following pages.

But in spite of this extensive morphological variation all the Pierids have much in common; such as particularly their very similar earlier stages and certain social habits. A noteworthy peculiarity of the Asiatic Pierids is their fondness for water, which is shown in their propensity for congregating on wet places in small or large numbers. They are frequently met with at river-banks or muddy places in such numbers that horses often shy when the Pierids rise up with an audible rustle. Sometimes they group themselves according to species so that the assemblages look like large flowers with white centres and gaily-coloured petals, or suggest large patches of snow, as I frequently observed in Siam. Most striking, however, is the peculiar migratory instinct of the Pierids. *Appias* and *Catopsilia* in particular follow an irresistible impulse and unite in swarms which travel even over mountains of 6000 ft., suspending their flight at sunset to resume it the next day with the same determination. I once observed such a flight in Java. On a sunny day, on the 13. January 1892, enormous swarms of *Catopsilia* began flying over Sukabumi in a westerly direction. These clouds of butterflies presented a wonderful spectacle, the flight lasting from 11 till towards 2 o'clock and the swarms appearing, as far as could be estimated, to be over 2 km. in breadth. The butterflies followed one another sometimes in large crowds, sometimes in groups at distances of from several inches to a few feet and at a height of about 4—6 m above the ground. On the 14. and 17. January similar flights were observed, but of shorter duration. The causes of the migration of such swarms have not yet been satisfactorily explained; the phenomenon observed by me was preceded by an unusually dry year, in which not a drop of rain had fallen in East Java for months, so that the consequent want of food perhaps furnished a motive for the emigration.

Like the imagines the Pierid-larvae also often occur in such abundance as to become injurious, and are especially dangerous to young Ironwood trees (Cassia florida L.). Grass and low bushes in the neighbourhood of these plantations are then covered with the pupae, from which the butterflies emerge in January, in such numbers as to fill the air as if with white snow-flakes (MARTIN).

The eggs of the Indian Pierids are spindle-shaped, being sometimes very wide, so that they look like soda-water bottles, twice as high as broad, with longitudinal ribs, which are connected by fine transverse ridges. Towards the apex they are sometimes produced into a short point. The colour principally white, variable, sometimes becoming yellow and orange. The eggs of *Huphina* are spotted with red and those of *Leptosia* are whitish to quite blue. The eggs are as a rule laid singly on the upperside of a leaf or on young shoots. Exceptions are *Colotis amata F.*, *Appias hippoides Moore*, *Delias eucharis Don.*, *Anaphais mesentina Cr.* and *Terias silhetana Wall.*, whose eggs are deposited in clusters. The larvae of these species live gregariosly in the first stages, but separate when they are well grown if they find sufficient food.

The larvae of the Asiatic species, when adult, lie on the upperside of a leaf and, when they live isolated, along the midrib, where they cover the leaf with a silver web. Some are said to have carniverous tendencies,

eating one another with no apparent cause and in case of want of food even attacking the larvae of other species. It has also been observed that *Appias*-larvae for instance greedily devoured the pupae of *Leptosia* (Bell).

The larvae of some species, such as *Hebomoia glaucippe*, which are ornamented with eye-spots, sometimes assume a terrifying attitude and are said to look like small snakes. On this account, according to Piepers, the Javanese are even afraid of these larvae.

The pupae as a rule have a pointed, sometimes snout-shaped head and are sometimes protectively adapted to their surroundings. When they hang down from leaves they are green, near the cassia flowers yellow, and when fastened on grasses they become black-brown like the grass-seeds or like dried pods (Martin, Piepers). The length of the pupal stage varies somewhat, lasting in *Terias* only 6 days.

In neuration the Pierids stand nearest to the Papilionids, from which, however, they are distinguished by the proportionately larger hindwing. The hindwing is always especially broad, being traversed by a second inner-marginal vein, which is absent in the Papilionids, and moreover is often so widened as to partly envelop the abdomen.

The contour of the wings is mostly rounded, but there occur also long and narrow, as well as sharply pointed and angled forewings and strongly dentate hindwings. Tails, as are frequently found in the Papilionids and many Nymphalids, are, however, entirely absent.

The ground-colour is predominantly white with black transverse stripes, yet we also find red, yellow, orange, bluish, brown, black colours and beneath, though very rarely, even green colouring. But nearly throughout there is a vivid contrast between the mostly unicolorous upper surface and the often very gay under surface. All the markings, however, can easily be traced back to a row of marginal spots and a row of submarginal ones alternating with them, as well as some circumcellular patches (Aurivillius). In the more temperate districts of the subtropical zone, especially if by vertical elevation they are removed a few degrees further back into the colder zone, the components of the fauna still belong to the Palaearctic genera with their primitive and monotonous colouring. The nearer the tropical zone, however, the brighter becomes the colouring, which is charmingly shown even on the small Sunda Islands with their comparatively few species.

In general the Pierids have a long season of flight, and in the commonest species of *Catopsilia, Appias, Pieris, Terias* the successive generations overlap.

The ♂♂, like most butterflies, are throughout sun-loving and gregarious, whilst the ♀♀ prefer the shade of the woods, where they are occupied in seeking suitable food-plants for their offspring. As they travel less, they are never met with at the drinking-places, but appear to be satisfied with a smaller supply of water, which they find for instance on the leaves of the forest-vegetation.

Many Pierids present typical examples of that resemblance to other butterflies which has been named Mimicry. — The origin of this resemblance, however, is now explained by the supposition that the mimics were modified by the same (as yet unknown) influences under which the colouring of the models, mostly Danaids, developed.

On the continent only a few species are localised, as their distinctions are very easily effaced by migration, whilst on the islands the representatives of one and the same species are broken up into a varied series, the forms occurring near to the centre of the range being still very similar to the primitive type, whilst those at the extreme limit can scarcely be recognised as belonging to the same species.

Very interesting zoogeographically is the conflict of two large faunistic regions in the Malay Archipelago, the Oriental and the Australian, which were formerly believed to be separated by Wallace's line of division.

Another interesting phenomenon is that the three large Sunda Islands often produce the same species as the Malay Peninsula — and that both Malacca and Perak have many more species in common with Sumatra and Borneo than with India and Burma — and especially that the Malay forms almost without exception assume the character of insular races. This peculiarity in the fauna goes hand in hand with a similar pecularity in the flora and is repeated in all families of Lepidoptera and in other insects, so that it was desirable to introduce a collective name for this geographical zone. As the expression „large Sunda Islands", hitherto in use, only includes Borneo, Sumatra and Java, and takes no account of the Malay Peninsula, „Macromalayana" was chosen — in contrast to „Micromalayana", for a faunistic region which begins with the island of Bawean, north of Java, and not, as hitherto accepted, with Bali, and embraces all the small Sunda Islands.

The originals for the figures of plates 50—73, with the exception of a very few figures which were taken from specimens in the British Museum, are exclusively from the collection of Fruhstorfer in Genf-Florissant. in which are also contained the types of the new forms and races which are here described for the first time.

Nova Hedf 1924

1. Genus: **Leptosia** *Hbn.*

Small, delicate, white butterflies, irrorated beneath and with the forewing rounded. Antenna long and spindle-shaped with compressed club. Palpi short but hairy, the hairs long anteriorly. Subcostal three-branched, with two branches before the end of the cell. Egg blue; larva similar to that of *Terias hecabe*, but more delicately green and with fine hairs; on Capparis and Crataeva. Pupa green shaded with various colours. The butterflies occur in large numbers. They have a slow but irregular flight, are found at open places in the woods and at their edges in the undergrowth, and are fondest of thorn-bushes.

L. xiphia *F.* (62 f), distributed over the whole of India and Ceylon, also found by me in Siam and Annam. An inhabitant of the plains, but ascends to 7000 ft., and sometimes appears in such crowds that the English in India call it „the wandering snow-flake". The under surface is finely spotted with greenish with traces of two more distinct transverse bands on the forewing. — **nicobarica** *Doh.* is an island race with very narrow black distal margin to the forewing, and otherwise more reduced and paler markings; Nicobars. — **malayana** *subsp. nov.* A somewhat larger subspecies, but nevertheless with smaller subapical spot in the forewing; beneath with two distinctly prominent greenish transverse bands. The larger Sunda Islands and Malay Peninsula, with the exception of Java, where **chlorographa** *Hbn.* (62 f) occurs, with relatively large black dot on the forewing and uniformly yellow-spotted under surface of the hindwing without band. Java, Bali; common in the dry season and ascending to 3000 ft. — **fumigata** *Fruhst.* (62 g) is an unusually large race with broad subapical spot and the under surface of both wings densely dusted with black. The butterfly ascends to 2000 ft. and occurs at the edges of woods by the sea-shore in April-May in a profusion which is often quite bewildering; over and over again I have found them in the net even when I have been in quest of other species. Lombok to Flores. — **aurisparsa** *subsp. nov.* (62 g) is perhaps only a dry-season form of the preceding with gold-yellow scales on the hindwing beneath. Savu Island, August. — **comma** *Fruhst.* (62 f) is a well-marked race in which the tip of the subapical dot is constantly united with the apical margin of the forewing. Islands of the Timor Group, Key, Timor-Laut. — **aebutia** *subsp. nov.* is a form with the subapical spot of the forewing as large as in *fumigata*, but sprinkled with light yellow beneath. Tana-Djampea, Kalao; flies in December. — **dione** *Wall.*, a distinct local form, as large as *fumigata*, but without a trace of a black apical margin on the forewing, with a roundish subapical patch placed much more proximally and yellowish-scaled under surface. Hitherto only observed in the immediate neighbourhood of Macassar. South Celebes. — **terentia** *subsp. nov.* is likewise somewhat deficient in black markings, also beneath very pale; the apical spot of the forewing only reaches to the upper radial, but is sharply defined. South Philippines, Bazilan, February, March; Mindanao. — **georgi** *subsp. nov.* The reverse of the preceding, with broad, diffuse black markings; the apical margin of the forewing reaches to the middle of the wing; but under surface pale, almost without green-yellow scaling. North Philippines, Luzon; flies in August, November. — **niobe** *Wall.* The most northerly race known, similar to *terentia*, but the very deep black apical margin to the forewing bearing but indistinct grey scaling; the transverse bands on the hindwing beneath distinct. Very common in Formosa, where it ascends to 4000 ft.

xiphia. *nicobarica.* *malayana.* *chlorographa.* *fumigata.* *aurisparsa.* *comma.* *aebutia.* *dione.* *terentia.* *georgi.* *niobe.*

L. lignea *Vollenh.*, unknown to me in nature; a narrow-winged species, with grey-black-margined hindwing, without costal spot on the forewing, but with the subapical spot prolonged into a band. The whole underside of both wings powdered with dark brown-grey. Very rare. Minahassa, North Celebes.

lignea.

2. Genus: **Leuciacria** *R. & J.*

This interesting genus is very nearly allied to *Elodina*, from which it differs in the broader, shorter cell of both wings and in the second subcostal vein arising before the apex of the cell of the forewing. Only one species known.

L. acuta *R. & J.* (73 a). Under surface of the forewing slightly glossy, thereby recalling the South American *Leptophobia*. Cell of the forewing almost imperceptibly tinged with yellow. Hindwing as in most *Elodina* with yellow, sharply defined costal margin. The black apical margin of the upper surface feebly transparent. Only a few specimens known, which were discovered by Meek at an elevation of over 6000 ft. in British New Guinea.

acuta.

3. Genus: **Elodina** *Fldr.*

Small, delicate, mostly milk-white, rarely yellow or black butterflies with pointed forewing. The second subcostal branch arises at a shorter or longer distance beyond the apex of the cell. The life-history of the species is not known. The forms hitherto found are indigenous to the Australian faunistic region and its subregions and exclusively inhabit the lowlands.

egnatia. **E. egnatia** *Godt.* (= cirrha *Bdv.*) is the first described species. Shape of the wings and appearance similar to *angulipennis* (62 e, angulipes on the plate). Markings as in *anticyra* (62 e), but with proximally straight brown distal margin to the forewing. Very rare, South Moluccas (Amboina, Ceram). — As an island *bouruensis.* race **bouruensis** *Wall.* (62 g) approaches it very nearly. Upper surface as under, except that the blackish tinge extends over the whole apical part of the wing. Buru Island.

dispar. **E. dispar** *Röb.* is a very rare, sexually dimorphic species from Bangkai near Celebes. Both sexes with narrow wings; ♂ above with almost triangular apical spots, beneath white; ♀ with very broad, proximally straight distal margin on the upper surface, occupying one-third of the wing, which is repeated also on the under surface.

therasia. **E. therasia** *Fldr.* A distinct species, of the size of *pasarga* (62 e), but with narrower wings, very broad but short apical spot on the forewing, which is very weakly repeated beneath, reduced to a narrow band. Halmaheira.

E. hypatia. Distributed over the whole of New Guinea and the islands off it, inclined to form local *sada.* races, of which quite a number are probably yet to be discovered. — **sada** *subsp. nov.* (62 e), with the sub- *litana.* apical spot on the underside of the hindwing scarcely indicated. Waigeu Island. — **litana** *subsp. nov.* Cell of the forewing above with darker dusting, under surface of the forewing with very broad black subapical band. *mulliercula.* Key Islands. — **mulliercula** *subsp. nov.* As the preceding, but with black apical margin and narrow, but *pasarga.* continuous subapical band on the forewing. British New Guinea. — **pasarga** *subspec. nov.* (62 e). The largest known white form of the genus, duller, more chalky than milky white. ♀ with relatively broader subapical band on the forewing beneath and light ochre-yellow upper surface to the hindwing. Common in the *hypatia.* woods on the coast of New Guinea, where it flies slowly, but with restless, wavering flight. — **hypatia** *Fldr.* is a normally smaller race with paler black markings on the under surface of the forewing and the under surface of the hindwing of the ♀♀ whitish instead of yellowish. Dutch New Guinea.

perdita. **E. perdita** *Miskin* (62 g) is perhaps also a race of *hypatia.* Queensland.

andropia. **E. andropia** *Btlr.* (62 f). A parallel species to the preceding, described from British New Guinea. — *hydatis.* **hydatis** *subsp. nov.* is a rare, normally larger local form from German New Guinea, in which the ♀ instead of the black marginal band bears only five large brown submarginal patches on the upperside of the hindwing.

namatia. **E. namatia** *spec. nov.* (62 e) possibly replaces *andropia* on Waigeu Island; the ♀, however, has no black markings on the milk-white hindwing and the black subapical band of the forewing beneath is scarcely half as broad as in *hydatis.*

umbratica. **E. umbratica** *Gr.-Sm.* shows beneath no sign of a subapical band on the forewing, and the black distal margin of the wing is more uniform. Solomons, Ulawa Island.

argypheus. **E. argypheus** *Gr.-Sm.* With very broad black bordering also to the costal margin of the forewing and the distal margin of the forewing proximally still straighter, also with a sharply curved costal and subapical band on the forewing beneath. Solomons, Guadalcanar.

signata. **E. signata** *Wall.* (62 d). A distinct, small species with black forewing containing a large white discal patch. New Caledonia.

angulipennis. **E. angulipennis** *Luc.* (62 e, where the name is erroneously spelt *angulipera*). The dry-seasonal form *pallene.* Hewitson named **pallene** (62 f); this has larger black patches on the under surface of the forewing. Queensland, New South Wales, Victoria.

padusa. **E. padusa** *Hew.* (62 d). With fine black distal margin to the forewing extending into the anal angle and large, isolated subapical spot on the forewing beneath. Queensland.

parthia. **E. parthia** *Hew.* (62 d). Forewing with black distal margin sharply dentate proximally. Under surface of the hindwing sand-coloured, tinged with grey-yellow or red-brown according to the time of year. In the whole of Australia.

quadrata. **E. quadrata** *Btlr.* approaches *padusa Hew.*, with longer wings, more quadrate apical spot, which is proximally less emarginate, the black distal margin as in *padusa* continued into the anal angle, the cell of the forewing yellowish. Under surface similar to that of *angulipennis*, but the whole cell yellow. Hindwing with a black cell-dot. Sydney.

walkeri. **E. walkeri** *Btlr.* is said to be allied to *perdita*, but without incised black distal margin to the forewing. Under surface of the forewing silver-white with three blackish subapical spots and the cell suffused with saffron-yellow as in *parthia.* Hindwing with black dot at the apex of the cell and 4—5 small blackish submarginal spots. Port Darwin, North-West Australia.

baudiniana. **E. baudiniana** *Btlr.* Smaller than *perdita*, above snow-white with smoke-grey costal margin to the forewing, the basal part of which wing appears flesh-coloured. Distal margin shorter than in *walkeri* and the row of dots on the hindwing beneath more indistinct. Port Darwin, probably only a seasonal form of the preceding.

E. primularis *Btlr.* (62 g) is the only species of the genus which has both surfaces light sulphur-yellow. The forewing is ornamented above with a moderately broad, proximally dentate costal and distal border, moreover the hindwing has often 4—5 brown marginal spots. New Lauenburg (= Duke of York). — **citrinaris** *Gr.-Sm.* is a local form from New Pomerania (= New Britain) with uniformly broad distal margin to the forewing and without black subapical band on the under surface. — **incisa** *subsp. nov.* is the race from New Mecklenburg (= New Ireland) with proximally strongly dentate marginal band on the forewing. — *primularis* flies sluggishly on open places in the woods, where it rests on leaves of the lower bushes (Ribbe). *primularis. citrinaris. incisa.*

E. pseudanops *Btlr.* (62 d). Both sexes beneath milk-white with broad, black, semicircular submarginal band, which at the anal margin extends to the base of the forewing and encloses an oblong, distally incised pearl-white spot. ♀ above black with an irregular yellow-marked band in the disc of the forewing and a large, roundish basal spot on the hindwing. New Caledonia, Lifu. *pseudanops.*

4. Genus: **Parelodina** *gen. nov.*

Differs from *Elodina* in the second subcostal vein of the forewing arising at the apex of the cell. Otherwise like *Elodina,* but less rich in species; it may be assumed that some of the forms treated under *Elodina,* which I have not been able to see in nature, belong here.

P. pura *Gr.-Sm.* Forewing with grey-black apical spot, which proximally is only feebly dentate. Under surface silver-white, at the base of both wings slightly suffused with yellow. Pura, Alor, Flores, Adonara. *pura.*

P. invisibilis *spec. nov.* One of the smallest known Pierids. Upper surface pure white, tinged with red-brown at the costa. The black apical spot is formed much as in *anticyra* (62 e). Under surface of the forewing as in all *Elodina* with yellowish tinge and a roundish black, bipartite subapical spot, which in the ♀ is prolonged into a band. Underside of the hindwing in the ♀ light ochre-yellow. Wetter. *invisibilis.*

P. effeminata *spec. nov.* Habitually somewhat smaller than *pasarga* (62 e), but blue-white, with a silky gloss, instead of dull yellowish, the anterior half of the cell densely scaled with brown-black. The black distal margin of the forewing more deeply dentate proximally. Under surface of the forewing only slightly yellow, hindwing of the ♀ pure white. German New Guinea, rare. *effeminata.*

P. anticyra *spec. nov.* (62 e). Under surface of the forewing and the whole upper surface of the hindwing light yellowish. Forewing with narrow black costal margin and very broad black submarginal band. Roon Island and Mafor in Geelvink Bay. *anticyra.*

5. Genus: **Delias** *Hbn.*

This genus, which is very rich in species, recalls in many respects in the shape of the wings, the colouring and the mode of flight, the South American *Pereute.* The *Delias* are a characteristic feature of the Indian fauna. They enliven the woods and their borders, as *Appias* and *Catopsilia* predominate at the river-banks, fly often round the tops of the forest-trees, are fond of resting on leaves and flowers (for instance on those of the Cinchona-tree, the Lantana) or in rarer cases speed over grassy plains in wild, irregular flight (*battana* in South Celebes).

But most species fly slowly and quietly from flower to flower and often do not even leave the bush on which, frequently to the number of many hundreds, they emerged from the pupa (*belisama* on Java). Comparatively few species are distributed over large tracts of country, most remain local or insular; they are inclined to geographical variation, even on the same island (*bromo, fruhstorferi* in East Java and *crithoë, momea* in West Java, which are so different that they were described as separate species). But they are by no means particular as to their place of flight and we meet with them at the seashore in mangrove thickets (from whence they often fly out even over the sea), on the high volcanoes of the Malayan Archipelago and in the Himalayas, where they are common up to 8000 ft., but also ascend to 10 and even 11,000 ft.

The eggs are laid on the underside of leaves, often 20—30 in parallel rows. Larva cylindrical with two rows of long hairs, lives on mistletoe (Loranthus longiflorus); but one species (*eucharis*) was also observed on Hibiscus chinensis. Pupal stage usually lasts 10 days, pupa fastened at the end of the tail, with the head upwards, often very abundant on tree-trunks, branches and even walls.

a. Under surface of the hindwing yellow with mostly whitish submarginal spots without red basal spot.

D. agostina inhabits exclusively the lower spurs of the Himalayas and neighbouring ranges. Three races are hitherto known: **agostina** *Hew.* (54 d). ♂: upper surface white, forewing with the veins only distally broadly covered with black. Under surface with all the veins black. Hindwing canary-yellow with narrow white, black-edged distal half. ♀: upper surface of the forewing grey with lighter cell and discal area, a row of 5—6 white *agostina.*

submarginal dots; the hindwing above in the dry-season-form light orange and in the wet form dark orange-colour.
infumata. Inhabits the valleys of Sikkim, where it occurs from March to December. — **infumata** *Fruhst.* (54 e) has almost entirely black forewing and the distal border of the hindwing often extends nearly to the wall of the cell. Assam,
annamitica. Tenasserim, taken in May at an elevation of 4000 ft. — **annamitica** *Fruhst.* (54 e), with the forewing somewhat less suffused with black, the under surface only a little darker than in Sikkim examples. The ♀ has the upperside of the forewing uniformly and delicately suffused with light grey, that of the hindwing pale yellow with sharply defined distal margin. Locality: South Annam, February, at about 5000 ft., where they had chosen the summit of a treeless hill covered with a few native huts as the scene of a nuptial flight. The swift-winged butterflies came out of the neighbouring wood and flew over a marshy swamp, only sparsely overgrown with brushwood, and then suddenly darted away uphill, high above the grass roofs of the houses. Only when a butterfly occasionally strayed away in the ardour of the pursuit were my hunters able to catch it and it took us over an hour to capture some three ♀♀ and ♂♂.[1])

singhapura. **D. singhapura** *Wall.*, usually somewhat larger than the preceding, with uniformly grey-black-powdered distal part of forewing and lemon-yellow under surface to the hindwing. Very rare, hitherto only the type spe-
indistincta. cimen is known from Singapore. — **indistincta** *Fruhst.* (55 d), forewing beneath with the black shading twice
agoranis. as broad as in the preceding. In North and South Borneo, not very rare. — **agoranis** *Gr.-Sm.*, with more sharply defined, deep black apical border and especially broad submarginal bands on the underside of the hindwing; inhabits Tenasserim and the Shan States.

themis. **D. themis** *Hew.*, from Mindanao, with the deep black distal margin more sharply expressed but essen-
soteira. tially narrower than in **soteira** *subsp. nov.* (55 d), from Luzon, which is also distinguishable beneath by much narrower white circumcellular spots on the forewing.

kuehni. **D. kuehni** *Honr.* approximates to *themis*, with the forewing entirely black beneath. Hindwing with
sulana. three light yellow submarginal spots. Bangkai Island, near Celebes, only a few specimens known. — **sulana** *Stgr.*, a good local form, with larger white spots on the forewing and six yellow and yellow-grey submarginal patches on the hindwing beneath. Only 1 ♂ known; Sula Mangoli.

baracasa. **D. baracasa** *Semp.*, a small species parallel to *themis* and *agostina*, which has advanced southwards to Sumatra. The under surface of both wings white with narrow black bands and a thin submarginal band of the same colour. Only the base of the hindwing is suffused with greenish yellow. Hitherto only 1 ♂ known, from
cathara. South-East Mindanao. — **cathara** *Gr.-Sm.* (55 d), a strongly darkened local form from the Kina Balu, with entirely
danala. yellow upper surface to the hindwing and confluent black bands. — In **danala** *Nicév.* (= karo *Hag.*) (55 d, e), from the mountains of Sumatra, there is a conspicuous row of white subapical dots on the upperside of the forewing, which beneath assume a yellow colour, as is also the case with the submarginal spots on the under surface
dives. of the hindwing in the ♀♀. — **dives** *Nicév.*, from Penang. Upper surface of the forewing similar to that of *cathara*, only slightly scaled with black. Under surface of the hindwing light ochre-yellow without submarginal band and with only a narrow black distal margin. Whether it is a distinct species cannot be decided with certainty, as *dives* is not known to me in nature.

dorimene. **D. dorimene** *Cr.* (55 b). The figure shows the upperside of the ♂ and the underside of the ♀. The under surface of the ♂♂ only differs from that of the ♀♀ in the narrower black distal margin and smaller yellow patches.
rothschildi. Common on the South Moluccas: Amboina, Ceram. — On Buru occurs the race **rothschildi** *Holl.*, with smaller white submarginal spots on the forewing. On the hindwing, however, these patches are enlarged and the black marginal band is broader. Only 1 ♀ known.

echidna. **D. echidna** *Hew.* (52 c), from Ceram, has apparently not been found again since 1861, as only the type in the British Museum is known. The upper surface according to Hewitson is white, with black costal margin and finely dentate distal margin to the forewing. Hindwing likewise with black distal margin, which proximally is finely dusted with grey.

melusina. **D. melusina** *Stgr.*, a mountain species from the north of Celebes, has beneath some resemblance to *echidna*, but the whitish subapical spot of the forewing is absent. All the submarginal spots are strongly reduced, the base and the discal area of the forewing blue-grey. The upper surface is blue-white, with black areas on both wings.

b. Under surface of the hindwing without red or yellow basal spot, but with red or yellowish submarginal spots.

eucharis. **D. eucharis** *Drury* (51 a). Characterised by the gorgeous submarginal spots, which are above rose-coloured, beneath light red bordered with white, distally somewhat pointed, otherwise quadrate. The apex of the forewing and the upper surface of the hindwing suffused with a beautiful light yellow. The butterfly lays 20—30 eggs on the underside of leaves in parallel rows. The larvae are polyphagous and are often found in thousands, but suffer from ichneumons and parasitic flies. The pupae are fastened closely to the leaves by

[1]) Cf. addenda.

the tail, but with the head upwards; the pupal stage lasts about 10 days. The butterfly flies all the year round, in parts of northern Ceylon in great abundance, and is very fond of the flowers of Lantana, on which it hangs with the wings half open. *eucharis* ascends in India to 7000 ft., reaches in Kashmir the Palearctic Region and varies but little.

D. hyparete, a species distributed from the Himalayas to Formosa and in the south from the Malay Peninsula to Celebes in a large number of local forms, some of which are sharply separated. — **peirene** *Fruhst.* (51 b), from Formosa, where it occurs up to about 4000 ft., has on the under surface a more extended white submarginal area than *luzonensis*. Specimens also occur with light ochre-yellow or orange-coloured submarginal spots on the underside of the hindwing (**maenia** *form. nov.*). — Of **luzonensis** *Fldr.* (51 d, e) the larva is known. This is entirely lemon-yellow, only head, legs and anus being black, the dorsum with yellow hairs. It lives on Averhoa bilimbi, where it is often found hanging by long threads. — **mindorensis** *subsp. nov.* has as a rule fewer and smaller red submarginal spots on the hindwing; similar specimens also occur on Cebu, Bohol and Camotes. — **mindanaensis** *Mitis* (51 c) is a small form with strongly darkened ♀♀, less red on the under surface in the figured dry-season-form and broader red in the larger rainy-season-form. Mindanao, South Philippines. — In **palawanica** *Stgr.* (51 b) all the veins and the distal margin of the hindwing are more broadly black. Palawan Island. — **lucina** *Dist.* (= jolana *Stgr.*) (51 d), from the Sulu Islands, is distinguished by its almost entirely white upper surface and the absence of yellow colour on the hindwing beneath. — **stolli** *Btlr.*, from southern China, has the ♀ almost entirely black above and on the under surface of the hindwing the yellow basal tinge reaches to the black distal margin. — Very close to it is **ciris** *subsp. nov.* (51 b), whose ♂♂ are distinguished by a broad black apical area and whose ♀♀ are conspicuous by the darker cell-area on the forewing. Siam, Cochin China, Tonkin, Tenasserim. In Bangkok and Saigon *ciris* was quite an ornament to the gardens and pleasure-grounds, where it flew up and down under the shade of the high Ficus, alighting from time to time on the upperside of the leaves. — **hierte** *Hbn.* (51 a), from the mainland of India, ascends in the Himalayas to 6000 ft., but is no longer common at this extreme limit of its range. — As **devaca** *Moore* an aberration is known with the cell of the hindwing beneath suffused with scarlet, whilst ab. **indica** *Wall.* denotes an aberration with almost entirely white apex to the forewing. — **ethire** *Doh.* is a very light race from South India, which has also been taken in Bengal, beneath with light lemon-yellow tinge on the hindwing and very large yellow subapical spots on the forewing. — **metarete** *Btlr.* is the strongly darkened geographical race from the Malay Peninsula and Singapore. — **despoliata** *subsp. nov.*, from Sumatra, very nearly approaches it, but the red spots on the underside of the hindwing are much less conspicuous, often only 3 instead of 6 submarginal spots present, moreover the proximal black bordering of these is distinctly narrower. — In **diva** *Fruhst.* (51 b), from North Borneo, the yellow shade on the hindwing again reaches the much broader proximal black bordering of the submarginal red spots, which are still more prominent. — All the islands round Sumatra produce distinct local forms, of which **haemorhoea** *Voll.*, from Banka, is characterised by orange-yellow basal spots and only 3 short, broad red submarginal patches on the hindwing beneath. The forewing remains almost entirely white. — **simplex** *Btlr.*, locality unknown, has the proximal third of the hindwing beneath pale chrome-yellow. — **jataka** *Fruhst.* (51 d), from the Batu Islands, has the forewing grey-black and the under surface of the hindwing dark lemon-yellow throughout. — **hypopelia** *Hag.* differs from *jataka* by a row of yellow submarginal strigae on the forewing and much more broadly black veins, as well as a grey-yellow base to the hindwing; from the Mentawei Islands, only 1 ♀ known. — **niasana** *Kheil* (51 d), very light in the♂, whilst the ♀♀ show above broad black veins, yellow subapical strigae and densely scaled interneural areas. An aberration with yellow instead of red submarginal spots was named **amarilla** by Kheil. — **hyparete** *L.*, from Java and Bali, is very variable; scarcely two specimens agree. The rainy-season-form (51 c) is broadly margined with black above, whilst the dry-season-form from East Java, **aureivenula** *form. nov.* (51 c), shows large yellow apical strigae and the upper surface of the hindwing is suffused with light yellow. Very common in Java, where the species ascends to 2500 ft. and is very common at the edges of open woods. Larva ochre-yellow with fine lateral hairs of the same colour. Head and legs black. Pupa beautiful light yellow, 12 ventral spines black, the others yellow (Vollenhofen).

peirene. maenia. luzonensis. mindorensis. mindanaensis. palawanica. lucina. stolli. ciris. hierte. devaca. indica. ethire. metarete. despoliata. diva. haemorhoca. simplex. jataka. hypopelia. niasana. amarilla. hyparete. aureivenula.

D. rosenbergi *Voll.* (= chrysoleuca *Mitis*) (52 a) is the Celebes representative of the *hyparete*-group, a stately species, above in the ♀ almost entirely suffused with black-grey. In South Celebes *rosenbergi* flies all the year round, in large numbers in March and April at the end of the heaviest rainy season. The larva does not differ from that of *despoliata* from Sumatra, except that it is larger, dark yellow with light yellow and white hairs, and lives on Loranthus, which is parasitical on mango trees. The butterflies first appear very early in the day about 6 or half past 6 o'clock, and then again late in the evening (Martin). — In the north of the island occurs **lorquini** *Fldr.* (= catamelas *Stgr.*) (52 b), where the species ascends from the sea-coast to 3000 ft. The black bands on the underside of both wings are broader, the cell-region with more extended black scaling.

rosenbergi. lorquini.

D. mitisi *Stgr.* is a rare species from the Sula Islands, with still darker under surface to the hindwing, which also bears larger red spots than *rosenbergi.*

mitisi.

D. periboea *Godt.* (51 e), a variable species, which is very local on Java, but in some years occurs abundantly even in large towns, such as Soerabaja and Bandong. — **wallacei** *Rothsch.* is the name of the race from Bali,

periboea. wallacei.

somewhat more broadly striped beneath, which has been erroneously described as being from Celebes in consequence of a mistake on the part of the collector DOHERTY. — **livia** *Fruhst.* (56 d) is a form discovered on Lombok at an elevation of about 2000 ft., which has always much fewer and narrower red patches on the hindwing beneath. — **pagenstecheri** *Fruhst.* may be recognised by the shorter black stripes on the under surface and the washed-out submarginal spots of the hindwing, which are more orange-coloured than red. Sumbawa, rare. — **alorensis** *Fruhst.* (52 a) is the most easterly offshoot yet known, distinguished by broader light yellow subapical spots on the forewing, dark ochre-yellow tinge at the base and a complete row of intensively red submarginal spots on the hindwing, which appear on the upperside as faint pale pink spots. Upper surface of the hindwing light yellow instead of whitish or grey-blue as in the eastern subspecies of *periboea*. Alor.

livia. *pagenstecheri.* *alorensis.*

fasciata. **D. fasciata** *Rothsch.* (51 e) is peculiar to Sumba, of Australian aspect and somewhat similar above to *argenthona F.*

sumbawana. *minerva.* **D. sumbawana** *Rothsch.*, from Sumbawa, with only one known subspecies, **minerva** *Fruhst.* (52 a), which on Lombok flies rapidly round the tops of high trees at an elevation of 2000 ft. in company with *livia*. *minerva* differs considerably from *sumbawana* in the greenish yellow instead of light orange colour and in having the submarginal red crescents on the underside of the hindwing scarcely half as broad.

splendida. **D. splendida** *Rothsch.* is a magnificent species, which beneath is deceptively like *Huphina laeta Hew.* (65 e). From Timor.

argenthona. **D. argenthona** *F.* (53 e). ♂: above with the apex of the forewing somewhat more broadly suffused with black than in *fasciata*. Hindwing with the red spots of the under surface showing through in rose-colour. The ♀ occurs in two forms, one with the upper surface entirely light yellow and another with the distal half of the hindwing entirely black: **seminigra** *form. nov.* (55 a). — **fragalactea** *Btlr.* (53 e), with red apex to the cell and somewhat broader black submarginal bands on the hindwing, may be regarded as a seasonal form, perhaps even only a casual aberration. Australia.

seminigra. *fragalactea.*

schoenbergi. **D. schoenbergi** *Rothsch.* (56 c). A species distinguished by its size and the peach-blossom-coloured tint of the hindwing, which is very rare and inhabits Bougainville in the Solomon Islands. The under surface of the hindwing is of light yellow ground-colour with weaker black discal spot and larger red submarginal spots than **isabellae** *Rothsch.* (56 d) from the island of Ysabel. — **choiseuli** *Rothsch.*, from Choiseul, with both surfaces still more broadly margined with black and with a more conspicuous black median band on the hindwing, may be regarded as a highly specialised transitional form, the ♀ of which is adorned above with a series of five roundish submarginal patches on the hindwing.

isabellae. *choiseuli.*

timorensis. **D. timorensis** is one of the most gaily coloured known species and is confined to the islands of the Timor Group. **timorensis** *Bdv.* (= vishnu *Moore*) (54 b, c), in my collection from Timor, Wetter, Babber and Kisser, *gardineri.* ♂♂ with whitish, ♀♀ with gold-yellow colour at the base of the forewing beneath. — **gardineri** *Fruhst.* (54 c), from Timor Laut, with dark ochre-yellow colour at the base and much broader black distal margin on the under surface of both wings.

poecilia. **D. poecilia** *Voll.* (54 d). Hitherto only known from the northern Moluccas. The red submarginal band *edela.* of the hindwing beneath narrower than in **edela** *subsp. nov.* (54 d) from Obi, an island form which shows above a broad deep black apical area with 5 white oblong spots and very broad black border to the hindwing, at the distal margin of which are scattered 6 white dots. The ♀ is unknown.

sacha. **D. sacha** *Gr.-Sm.*, above very similar to *edela*, but with the black distal border of both wings more reduced, bears on the under surface of the hindwing quite near to the distal margin narrow ochre-yellow spots, the basal part of the hindwing somewhat lighter yellow and the orange-coloured subanal tinge somewhat more extended than in *poecilia*. Rare on the island of Obi.

alberti. **D. alberti** *Rothsch.* (56 d) closely resembles *sacha* beneath, but the preapical spots of the forewing are more broadly white, the submarginal spots of the hindwing lighter, more than twice as broad, their proximal black bordering is broader anteriorly and the disc of the hindwing is dusted with black. Choiseul, where it occurs together with *schoenbergi choiseuli Rothsch.*

D. mysis appears to replace the Indian *hyparete* in the Papuan region and shows the same tendency as *mysis.* the latter to local variation. The oldest form is well known from Australia. — **mysis** *F.* (54 c) is characterised by the most extended black margining of both wings and the row of white subapical patches on the forewing. *aestiva.* A smaller, lighter-spotted dry-season-form was named **aestiva** by BUTLER. North Australia, Queensland. — *nemea.* **nemea** *subsp. nov.*, from Merauke, Dutch South-West New Guinea, is essentially smaller and the ♂♂ have beneath *onca.* a strikingly narrow red submarginal band, which bisects a very broad deep blue-black border. — **onca** *subsp. nov.*, *lara.* from Milne Bay (British New Guinea), forms a transition to **lara** *Bdv.*, from Dutch North-West New Guinea, from which it differs in having the red and black bands on the underside of both wings almost twice as broad. —

intermedia *Mitis*, from German New Guinea, shows in the ♂ beneath only as little proximal black bordering to the red submarginal band as *oisyme*. ♀♀ also occur with white, and others with yellow subapical spots on the under surface of the forewing. — **oisyme** *subsp. nov.* (54 d) is a small island race with almost quadrate forewing and very sharply defined bands and beautiful chrome-yellow subapical spots on the forewing beneath. Waigeu. — **cruentata** *Btlr.* closely approximates to *oisyme*, but differs from it in the much narrower red submarginal band of the hindwing. Misol. — **aruensis** *Mitis* (54 d) again approaches the mainland type, but has a longer forewing and appreciably broader spots and bands. Aru Islands. — Finally, **maga** *Gr.-Sm.* is a further well differentiated island race with the black bands on the under surface of both wings twice as broad as in *mysis* from the mainland, almost entirely yellow upper surface to the hindwing and broad, brilliant carmine-red submarginal band. Sudest Island, near British New Guinea. *intermedia. oisyme. cruentata. aruensis. maga.*

D. ennia *Wall.* (54 a), likewise only indigenous to the Papuan region, has beneath yellow instead of red submarginal bands. There are only four local races known, but the species may certainly still be looked for from other parts of New Guinea and its numerous attendant islands. Rare on Waigeu. — **jobina** *Oberth.*, with almost entirely yellow under surface to the hindwing and very broad black distal area on the hindwing beneath. Jobi Island. — **nigidius** *Misk.* (54 b), with very narrow distal area, common in Queensland. In the latter a widening of all the black and yellow bands is noticeable, especially beneath, whilst **xelianthe** *Gr.-Sm.*, with very small yellow markings on the hindwing beneath, occupies a middle place between the two as regards the shape and course of the black bands. British New Guinea. Rare. *ennia. jobina. nigidius. xelianthe.*

D. lytea *Godm.* is a charming, but rare species of the Bismarck Archipelago, without opaline gloss on the under surface, and also otherwise with duller colours, which present a mealy appearance. The ♀ is more than twice as broadly margined with black as the ♂. New Pomerania (= New Britain). — **georgina** *Gr.-Sm.* (54 b), from the Solomon Islands, appears to differ but very little. *lytea. georgina.*

D. narses *Heller* has also the base of the forewing beneath yellow and the whole distal half of the wings is sharply differentiated, deep black and with 5 almost equal yellow roundish patches. New Pomerania (= New Britain). *narses.*

D. totila *Heller* presents one of the darkest coloured species of *Delias*, with the wings half yellow, half black, and a large elliptical white spot on the upper surface of the forewing. The base of the forewing beneath is white, but the upper surface of the hindwing is deep black almost all over, except for a slightly lighter, yellow-powdered and very restricted basal area. New Pomerania. *totila.*

D. caliban *Gr.-Sm.*, from Fergusson Island, also belongs in this group, but is much larger than *narses*, in shape and on the upperside very similar to *belisama Cr.*, from Java. Under surface of the forewing with entirely black distal part and 3 yellowish white subapical dots. The proximal third of the hindwing yellowish, but little powdered over, the whole of the broader distal part deep black with white subcostal spot. Only in English collections and but 2 specimens known. *caliban.*

D. iere *Gr.-Sm.*, a peculiar and rather plain *Delias*, so far very rare, which is intermediate between *mysis* and *ennia* and has a similar scheme of marking to *gabia*. The under surface is characterised by yellowish subapical patches in a black apical area on the forewing, the upper surface of the hindwing is light canary-yellow with relatively narrow black distal margin, which is divided by delicate orange spots. British New Guinea, discovered by A. S. Meek. *iere.*

D. euphemia *Gr.-Sm.* Hitherto only known from Biak Island in Geelvink Bay, a species which forms a transition from *mysis* to *bagoë*, without the yellow subapical spot on the underside of the forewing of the latter. *euphemia.*

D. bagoë inhabits the Bismarck Archipelago. There are only two geographical races known: **bagoë** *Bdv.* (= eurygania *Godm. & Salv.*), from New Mecklenburg, with narrower apical spot, but entering further into the cell, on the forewing beneath and much narrower black bands on the upper surface of the hindwing than **nusana** *Fruhst.* (55 a), from the island of Nusa Laut, which beneath is more pronounced and extended red, above more broadly margined with black, than *bagoë*. *bagoë. nusana.*

D. salvini *Btlr.* (55 a) represents *bagoë* on New Pomerania and differs from it by a white subapical band on the forewing beneath.

With **D. candida** *Voll.* (55 b) begins the series of species peculiar to the Moluccas; *candida* has entirely white upper surface to both wings, through which, however, the black and yellow markings of the under surface are distinctly visible. Sexual dimorphism is very prominent in all the Moluccan species, compare the entirely black-grey ♀, which only bears white submarginal spots. The underside bears brighter colours; the proximal half of the wings is yellowish grey, the distal half black, the forewing bears white submarginal lunules and the hindwing dark ochre-coloured ones. Batjan, Obi. Not rare. *candida.*

D. caeneus *L.* is divided into two races over the South Moluccas. **caeneus** (= plexaris *Don.*) (53 d) occurs very commonly on Amboina, Ceram and Saparoea. In the ♀ the grey basal dusting of the forewing reaches *caeneus.*

philolis. the costal margin, whilst in **philotis** *Wall.* (53 d, e), from Buru, it only extends a little beyond the base of the cell and only below the median is widened in the shape of distinct white stripes. The base of *philotis* is beneath lighter and purer yellow, on the other hand the red spot in the cell of the hindwing is much reduced and the black submarginal region is extended.

duris. **D. duris** *Hew.* (53 d). Hitherto only known from Ceram, where the species appears to occur in two seasonal forms; for I have before me ♂♀ with moderately narrow red submarginal band on the hindwing and broadly developed black margins and specimens with very broad and light red bands, without or with only a little proximal black bordering and very large dark instead of light yellow subapical and cell-spots on the underside *aleria.* of the forewing (= **aleria** *form. nov.*).

funerea. **D. funerea** *Rothsch.* (= plateni *Stgr.*) is somewhat larger, has the under surface of the forewing entirely *buruana.* white, but that of the hindwing entirely black. Batjan. — **buruana** *Rothsch.*, the race from Buru, is unknown to me in nature.

isse. echo. **D. isse** *Cr.* (55 a), common on the South Moluccas. The under surface is similar to that of **echo** *Wall.* (53 e), from Buru, but the hindwing has a yellowish area of almost double the width, extending beyond the cell, and the submarginal spots are twice as broad and ochre-yellow.

ribbei. **D. ribbei** *Röb.*, from the Aru Islands, is a very rare species, of which *sacha Gr.-Sm.* is perhaps a local form. The white subapical spots on the underside of the forewing in *ribbei* are broader than in *echo*, the black submarginal band of the hindwing is narrowed, whilst the submarginal spots are strongly enlarged and assume a quadrate form.

diva. **D. diva** *R. & J.* (56 f), one of the most gaily coloured species. The upper surface is plain white, with broad, deep black, apical transverse area on the forewing. In the ♀ some yellowish dots placed on the distal *emilia.* margin of the hindwing are also noticeable. British New Guinea. — **emilia** *R. & J.* (= Tachyris weiskei *Ribbe*), a paler local form from British New Guinea, with grey instead of black distal margin on the hindwing beneath, which is ornamented with larger yellow patches.

enniana. **D. enniana** *Oberth.* (= ennia *Wall.* pt.; dorothea *Mitis* pt.) (54 a); hitherto only known from Waigeu, where it is not very rare. ♂: the upper surface white with sharply cut off, black distal margin to the forewing, which bears a few white dots. ♀ with black, mostly isolated transverse spot at the end of the cell, with fairly uniform black distal margin and mostly dull white upper surface to the forewing, upperside of the hindwing suffused with yellow.

diee. **D. dice** *Voll.* is a very rare species, whose ♂♂ are not yet known. The figure (54 a) represents a local form of the ♀ from Kajumera Bay, Dutch South-West New Guinea. On the under surface the black distal area of the hindwing is widened, sharply defined proximally and bears, like the apical area of the *dorothea.* forewing, a row of 5—6 yellowish patches in the middle. — **dorothea** *Mitis* (55 e). The hitherto unknown ♂ is figured here for the first time. There exist ♀♀ with entirely white and others with yellowish upper surface to the hindwing. The short black subapical band of the forewing beneath is commonly not united with the distal band, moreover the intensity of the yellowish subapical spots varies. Waigeu. Rather common.

gabia. **D. gabia** *Bdv.* (55 c) is likewise figured here for the first time. The upper surface is pure white with the black distal margin, present also beneath, on which, however, the white dots can scarcely be recognised. ♀ still unknown. The species comes from Offak on Waigeu. Quite a number of local races deserve mention. — *dorylaea. felsina.* **dorylaea** *Fldr.* (= hippodamia *Wall.* ♂) (55 c), with still broader black distal margin. Aru Islands. — **felsina** *subsp. nov.* (55 c), from Kajumera Bay, in Dutch New Guinea. The upper surface of the ♀ is dull yellowish *seribonia.* white, forewing with 3 large dots in the blue-black distal margin. — **scribonia** *subsp. nov.* (55 c) is adorned with more vivid orange-yellow tinge on the underside of the hindwing. The ♂♂ vary on the under surface, having in the marginal band of the hindwing between the veins sometimes whitish spots (forma *albipunctata Hagen*); sometimes orange-yellow (forma *flaripunctata Hagen*), sometimes no spots at all (forma *impunctata Hagen*). *zarale.* Not rare in German New Guinea, and flies especially in January and February. — **zarate** *Gr.-Sm.* has less orange yellow colour on the hindwing, but larger yellow patches on the under surface of the forewing. Milne Bay, British *banlina.* New Guinea. — **bantina** *subsp. nov.*, from Kiriwina, D'Entrecasteaux Islands, differs in the smaller form and *callistrate.* broader black marginal bands. — **callistrate** *Gr.-Sm.* (55 d) is a large race from Fergusson Island, with very broad black spots.

geraldina. **D. geraldina** *Gr.-Sm.*, a pretty species, ♂ with pure white upper surface to the forewing, bordered by a distal margin which is costally broader, and which in the ♀ also surrounds the hindwing. Under surface: forewing white, with black distal third, hindwing light yellow, in the black distal area submarginal rows of small yellow dots. Only known from the Saddle Mountain, German New Guinea.

altivaga. **D. altivaga** *Fruhst.* (55 c, incorrectly named *gabia* on the plate, under surface), a mountain species from West Java, hitherto only observed on Mt. Gedé at 5000 ft., where it flies rapidly

except when flying round the tree-tops in search of the epiphytic mistletoe, its food-plant.

c. Under surface of the hindwing with yellow basal spot.

D. mysa *F.* (54 f) is the oldest-known species of a small group of *Delias* which has spread from Australia to Sumatra. *mysa*-♂ is above scarcely distinguishable from *fruhstorferi*-♂ (56 d), but beneath as in the ♀ it is grey-black all over, with yellowish basal half to the forewing and 6 orange-coloured, isolated small submarginal spots on the hindwing. In Australia distributed from Cairns in Queensland to Sydney, and locally very common. *mysa.*

D. momea. A pretty species only known from Java and Sumatra, where it occurs at elevations of 4-6000 ft., flying slowly and heavily. — **fruhstorferi** *Honr.* (56 d), hitherto only found in the Tengger Mts., East Java, has a white under surface to both wings, a broad white discocellular and large white subapical spots on the forewing. Hindwing: the submarginal spots yellowish, large, distally pointed. Central area broadly white, the base and distal area grey-black. — **momea** *Bdv.*, from West Java, where it is not rare at Mt. Gedé, has the under surface yellow instead of white, with small white subapical dots. The discocellular is black, only ornamented with small white dots, hindwing distinctly grey-black with diffuse whitish median spots and small submarginal dots. — **hageni** *Rogenh.* (= datames *Nicév.*), from the mountainous parts of Sumatra, almost agrees with *momea* beneath, except that the hindwing of the hitherto undescribed ♀ is completely black, and its upper surface is more broadly margined with deep black, with hardly a trace of white dots and the basal part of the hindwing is suffused with blue-grey. *fruhstorferi.* *momea.* *hageni.*

D. itamputi *Ribbe* (56 f) (name from the Malayan = black-white). Sexes dimorphic, ♂ above pure white with black, oblique, very broad apical spot. ♀ above as beneath, only with yellowish white base to both wings and in the distal margin of the hindwing without the subterminal row of white patches. Flies in May. Aroa River, British New Guinea. *itamputi.*

D. hypsomelas *R. & J. i. l.* (56 f). ♂ above as the preceding species, under surface black with 2 yellow apical dots on the forewing, 5 small oblong white subterminal streaks on the hindwing. Locality as the preceding. *hypsomelas.*

D. aroae *Ribbe.* ♂: upper surface as in the two preceding, except that the distal margin of the otherwise pure white hindwing is adorned with a narrow black band, which is somewhat narrowed from the costa to the anal angle. The under surface as in *geraldina Gr.-Sm.* and *cuningputi*, but with white median and basal region on the forewing and a strongly divided black basal part to the hindwing, on which are placed 2 larger yellow patches. The subterminal spots of the hindwing pure yellow, isolated, much larger than in *cuningputi*. Rothschild has figured in Novitates 11 what is supposed to be the ♀, the under surface of which bears 3 median and 4 submarginal patches, which are much smaller and more orange-yellow than in the ♂. British New Guinea. *aroae.*

D. cuningputi *Ribbe* (56 e) (name from the Malayan = yellow-white). ♂: upper surface grey-white with broad distal margin on both wings, which on the forewing encloses 3 small white subapical dots, hindwing with very broad white cilia. ♀ above almost like the ♂, but beneath richer in colour, as all the submarginal spots and the base of the forewing are tinged with light orange-yellow. The white median area of the hindwing deeply incised distally. British New Guinea. *cuningputi.*

D. iltis *Ribbe* (56 e), one of the most brightly coloured species, the pattern of whose hindwing recalls the head-dress of Indians. Upper surface pure white with black discocellular and oblique black apical border, in the centre of which are placed 2 white dots. The ♀ is more broadly margined with black. British New Guinea. *iltis.*

D. georgina *Fldr.* A hitherto rare species from the Philippines, of which only 2 ♀♀ are known, taken in March on West Luzon at a height of 600 m. *georgina* is distinguished by the rounded form of the wings and the uniformly spotted under surface, which on the hindwing differs from *battana* in the absence of the black basal dusting, but broader black bands. — **battana** *Fruhst.* (54 f). The ♂♂ are above lemon-yellow with 2 rows of black spots interrupted by yellow, whilst the under surface is paler yellow and has the same latticed pattern as the ♀. ♀♀ somewhat variable: there occur pale lemon-yellow and more rarely ochre-yellow specimens (f. **auricoma** *form. nov.*). *battana* was commonest in misty or even rainy weather. The butterflies came hurrying out of the neighbouring wood, straight down from the trees, and were carried by the wind over an adjoining heath. Here they could then be captured with little trouble and the natives even brought me uninjured specimens taken with their hands. Once in the net these *Delias* remained completely passive and sat quietly with the wings folded. All this was changed in sunny weather. The butterflies flew then at an inaccessible height, encircling the tops of flowering trees, and we only succeeded by chance in catching one of them. Flies in February, March at 5-6000 ft. on the peak of Bonthain. South Celebes. Not rare. *georgina.* *battana.*

D. orphne *Wall.* has a white instead of yellow under surface to the forewing and the black bands on it only extend to the apex of the cell. Hitherto only 1 ♀ known, which Wallace caught on Mt. Ophir, Malacca. — *orphne.*

cinerascens. **cinerascens** *Mitis* (54 e) is a rare local form from the Kina Balu in North Borneo. Upper surface of the ♂♂ white with slight grey apical shade. ♀ broadly margined with black, with grey base to the forewing and yellowish discal *simanabum.* area on the hindwing. The under surface of the ♀♀ is always somewhat darker than in the ♂ figured. — **simanabum** *Hagen*, from the tableland of Sumatra, is the poorest in colour and markings, nevertheless the most specialised local form of *orpline*, with yellowish white upper surface, white under surface to the forewing, which only bears 2 yellowish apical spots, and pale yellow under surface to the hindwing, on which vestiges of the black apical spots in the middle of the wing still remain. Only 1 ♀ known.

chrysomelaena. **D. chrysomelaena** *Voll.* (55 b), from Batjan, where it is rather rare, has above only a slight black tinge at the apex of the forewing and the distal margin of the hindwing. The under surface is characterised by broad yellow areas on a black ground.

clathrata. **D. clathrata** *R. & J.* (56 e). ♂ above white, forewing, especially in the apical region, very broadly, hindwing narrowly margined with black. In the ♀ the black area extends beyond the cell-wall of the forewing. British New Guinea.

mira. **D. mira** *R. & J.*, a very rare species, somewhat larger than the preceding, in the ♂ only a small basal area on the otherwise black upper surface remains grey-white, whilst the hindwing on the contrary is only black in the distal third. Under surface similar to that of *clathrata*, but the white basal area only extends into the cell, the subapical band is much more extended, the hindwing bears only a black discal spot, its anterior part is shaded with brown and only the extreme anal region remains white. The ♀ has a more extended white basal region on the forewing and is ornamented on the latter with 6 submarginal spots. Flies in May. Only 1 pair known.

eichhorni. **D. eichhorni** *R. & J.*, from the same district, above marked somewhat like *cuningputi*. ♂: under surface of the forewing orange-yellow with isolated black dot at the apex of the cell and uniform black distal margin, relatively narrow, with 4 white subapical spots. Hindwing predominantly black with peculiarly angled white discal part, white basal spot and 6 large hexagonal submarginal patches. British New Guinea.

D. belladonna. A widely distributed species, principally inhabiting the mountains, which by its size always attracts the attention of travellers, consequently more is known of its habits than of those of any other *Delias*, although we known nothing at all as yet concerning the earlier stages. In the Indian empire 5 local races *sanaca.* may be distinguished: **sanaca** *Moore* from the western Himalayas as the lightest, forewing sometimes even with *flavalba.* white cell (= forma **flavalba** *Marsh.*), hindwing mostly white with light yellow tinge at the inner margin. Even the darkest specimens bear on the hindwing beneath still broader white bands than even *perspicua*. *sanaca* appears in the early summer, is local, but common in certain places. The butterflies fly sometimes like swallows or chase each other, are fond of circling round the tops of trees, on which they settle. Their scent somewhat resembles that of certain pears. In May and June they were observed in Mussouri at elevations of from 5—8500 ft., both the darkest and lightest specimens at the same place in one morning at *surya.* open spaces in the midst of oak-woods. — As form **surya** *Mitis* an aberration with orange-coloured patches on *belladonna.* the hindwing has been described; and **belladonna** *F.* (= horsfieldi *Gray*) is the name given to specimens of medium size with a row of small white discal patches on the forewing and much larger quadrate spots on the hindwing. *hearseyi.* Nepal, parts of the western Himalayas and Sikkim. Chance aberrations with red instead of yellow stripes on *boyleae.* the hindwing have been named **hearseyi** *Btlr.*, **boyleae** *Btlr.* and those with orange-coloured spots **amarantha** *amarantha.* *Mitis*. — The name **ithiela** *Btlr.* is best restricted to the dark Sikkim race, which only varies moderately in the *ithiela.* larger or smaller extent of the white discal spots and the grey or yellowish inner margin of the hindwing. *ithiela* is extremely common in Sikkim from May to August in the hot parts from 2—4000 ft., where it flies slowly at *berinda.* the banks of rivers, often resting on moist sand-banks. — I separate here as **berinda** *Moore* the well defined, darkest Indian race, which I received in great numbers from Assam. I possess from Assam only ♂♂ with grey, or even deep-black inner margin to the hindwing above. Also the under surface of the hindwing is more melanotically coloured, the white discal spots, especially the yellow submarginal patches, being always much smaller. ♀ above almost entirely black (typical *berinda*), but even the rare ♀♀ with somewhat more white markings have always still smaller spots on the underside of the hindwing than Sikkim ♀♀. According to Elwes the habits of *berinda* are entirely different from those of *ithiela*. They fly in Assam at 4—6500 ft. on sunny days round the tops of trees, only making short excursions into the surrounding open country, to return again to the shelter of the woods. The butterflies are not shy, have a slow and graceful flight and rest on Evonymus and scabious flowers. — In Burma, thanks to the drier climate, we again meet with a very light form, which earlier authors consequently *perspicua.* determined as *sanaca Moore*, the size of which approaches that of the Chinese *patrua Leech*, = **perspicua** *subsp. nov.* (56 a). ♂ with more extended yellow border at the inner margin and larger white discal spots on the hindwing, which, however, are never so extended as in *sanaca*. ♀ with white-dusted cell to the hindwing. Upper Burma. — *patrua Leech* (see vol. I, 19 c) is the oldest name for the most variable of the known *Delias*. As a lighter form, broadly striped with white, *lativitta Leech* (vol. I, 19 d) may be placed next to it. — Besides these forms which are indigenous to China only, there also occur in China analogies to the Indian varieties of *belladonna*, *zelima.* of which the one most resembling *perspicua* has been called **zelima** *Mitis*. — *adelma Mitis* (vol. I, 19 c) is a dark *yedanula.* race, whilst *subnubila Leech* forms a transition to *lativitta*. — I give the name **yedanula** *subsp. nov.* to a hitherto

unnoticed local form from the Omi Shan, which, like *sanaca Moore* and *perspicua m.*, is characterised by a pure white cell and much widened discal stripes on the hindwing. The yellow stripes of the under surface similar to those of *adelma*, but with white edges. Larva on Loranthus. Pupa elongate, brown with black spots and white tip. Head with two-pointed process, sides with short, but pointed spines. — **chrysorrhoea** *Voll.* (56 d) is the only island race yet known, nearest to *perspicua*, without white cell on the hindwing and habitually very small. Rare on the highlands of Sumatra at elevations of 4—6000 ft. *chrysorrhoea.*

d. Hindwing with thin, long, yellow basal streak.

D. albertisi *Oberth.* (= discus *Honr.* ♀) is among the most notable species, which always occur singly. OBERTHÜR'S ♂-type has the upperside of the forewing entirely blackened, with only 5 small yellow submarginal spots. The proximal part of the hindwing above is yellowish, the distal part black-brown. On the under surface a large transcellular black spot is noticeable. Dutch New Guinea. — **neyi** *Ribbe* (54 b) represents the local race from British New Guinea, above with the exception of the apical spot completely white and beneath without the black median spot on the hindwing. The ♀ is still unknown. *albertisi.* *neyi.*

D. niepelti *Ribbe.* ♂ above white with broad, black distal margin. Forewing in the ♂ with 5 obliquely placed white subapical patches, which are yellow in the ♀; ♀ above throughout chrome-yellow, anal half of the hindwing with greenish tinge. The under surface alike in both sexes, base and subapical spots of the forewing orange-yellow, all the rest black. Hindwing with peculiar fine grey-yellow submarginal lines, from which 7 delicate grey stripes run out to the terminal margin. British New Guinea. *niepelti.*

D. meeki *R. & J.* Somewhat smaller than the preceding, above very similar, but the under surface of the ♂ with paler yellow, more sharply defined basal part to the forewing and the hindwing with a large, triangular, pure white costal spot. The ♀ has likewise straighter black distal margins and the white costal spot on the under surface of the hindwing is oblong. British New Guinea. *meeki.*

D. callima *R. & J.* (56 e), which is here figured for the first time, is above white with uniform, moderately broad, black distal margin to both wings. ♀ different, has the upper surface black with yellowish green basal part to both wings and a chrome-yellow median band in the disc of the forewing. Beneath this band is somewhat broader. The under surface of the hindwing as in the ♂, the red submarginal band varying in extent. *callima* is very similar to *bornemanni*, from which, however, it differs in the white basal stripe. British New Guinea. *callima.*

D. blanca *Fldr.* has the rounded wings in common with *battana*. above throughout black-grey. with lighter central area on both wings and with very distinct whitish submarginal patches. Only 2 ♂♂ are known, from North Luzon. — **apameia** *subsp. nov.*, of which only ♀♀ are known, with the submarginal spots blue-grey instead of whitish and placed further from the distal margin. The yellow discal region of the hindwing is more extended in North Philippine specimens. Mindanao, Davao; discovered by Dr. PLATEN — **nausicaa** *Fruhst.* (54 f). The upper surface is very similar to the figured under surface, only on the hindwing the basal region is less sharply defined and somewhat lighter. The submarginal spots of both wings indistinct and the yellow region more restricted than in *blanca*. Very rare, only the one pair in coll. FRUHSTORFER known, which WATERSTRADT found on the Kina Balu. *blanca.* *apameia.* *nausicaa.*

e. Under surface of the hindwing with large, red, pointed basal spot.

D. descombesi *Bdv.* (52 b). Described from Cochin China, where a darker race, particularly in the ♀, occurs than the Himalayan subspecies which passes under this name. Moreover, the distal margin and the submarginal band of the Indo-Chinese *descombesi* are more broadly black, but the white submarginal spots of the forewing in the ♀♀ much smaller, so that the *descombesi*-♀♀ approximate to **eranthos** *Fruhst.* (52 c), from the Malay Peninsula, which is characterised by almost entirely black forewing with obsolescent white markings. — As **leucacantha** *subsp. nov.* the Sikkim race is here introduced, of which the figured dry-season-form (52 b) is especially typical in the white instead of yellow marginal spots on the hindwing beneath and the much larger submarginal patches, especially also in the ♀♀. There are three forms of the ♀: the one figured, with broadly white-grey veins on the forewing and light yellow upper surface to the hindwing; ♀-f. **auriga** *form. nov.*, with almost black forewing with the veins very finely white, yellow submarginal spots and yellow hindwing; and ♀-f. **leucogaea** *form. nov.*, with black forewing but white spots and reddish white upper surface to the hindwing. All three ♀-forms occur in Sikkim, the last also in Assam. The butterflies are common in the whole region, fly all the year round, in Siam in January in enormous numbers, and adorn even the parks in the large towns, such as Bangkok and Saigon, with their bright colours and the dazzling white of the upperside, floating slowly underneath the shady trees in company with *Delias hyparete ciris*. Although natives of the plains they ascend in Burma to an altitude of 7000 ft. It is curious that the species does not occur on the large Sunda Islands; it is there replaced by *belisama* and *eumolpe*, but appears again quite unexpectedly on the lesser Sunda Islands. *descombesi.* *eranthos.* *leucacantha.* *auriga.* *leucogaea.*

D. oraia *Doh.*, from Sumbawa, Pura, ♂ above as *descombesi*, only with somewhat broader grey apex. The ♀ likewise resembles the ♀ of *descombesi* above, the cell of the hindwing is also dusted with black and the *oraia.*

submarginal distal margin sends out rays into the middle of the wing. The ♀♀ bear on the wing a certain resemblance to Danaids and *Pareronia valeria*-♀. The ♂♂ fly round high tree-tops and bamboo bushes, but come down from their aerial heights in the early morning hours and form an ornament to the landscape on account of their numbers, their majestic flight and their large snow-white wings. On Lombok they inhabit elevations of 1500—6000 ft. The larvae live in large colonies on various kinds of trees and the pupae after 2—4 weeks produce
lydia. the butterflies, which emerge early in the day. — **lydia** *Fruhst.* (52 d) is a local form with pointed yellow-white apical spots on the forewing and narrower black bands on the underside of the hindwing. The cell of the ♀♀ pale yellow without black dusting, the wings are more rounded, all the submarginal spots orange-yellow instead of light yellow, the distal margin of the hindwing more sharply defined. Taken by EVERETT on Flores in numbers
vasumitra. in November. — The race figured (52 d) as *oraia* I now call **vasumitra** *subsp. nov.* It differs from *oraia* in the darker colouring and the reduced submarginal spots of both wings. Lombok.

D. belisama, a characteristic butterfly of Java, where it occurs everywhere, is separated on the island itself into two geographical races and one alpine, shows a strong tendency to variation and occurs locally in enormous numbers. In the Tengger Mountains once in April whole rows of bamboo bushes along a bridle-path were covered with them and when the thicket was struck with the whip literal clouds of butterflies arose, which after fluttering about a little while settled again. In the mountains the ♀♀ are commonly taken feeding at the flowers of Cinchona (Peruvian bark tree), often in company with *Delias crithoë* and *Prioneris autothisbe*, a marvellously beautiful sight! The larva lives on a Dioscorea and is very common from December to February. The pupa
nakula. yellowish with brown dorsal projections. — **nakula** *Gr.-Sm.* (= vestalina *Stgr.*) is the smaller East Javan race, which is paler beneath in both sexes. The figured (52 d) ♂ belongs to an aberration with the upper surface of
auratilis. both wings yellowish instead of white (**auratilis** *form. nov.*); there is a rarer form with uniformly dark ochre-
atisha. yellow upper surface (**atisha** *form. nov.*) or with reddish tinge (**erubescens** *Stgr.*). The ♀ appears in two principal
erubescens. forms, forma **nakula** *Gr.-Sm.* (52 e) with dark yellow proximal part (rainy-seasonform) and **yogini** *form. nov.*
yogini. with whitish or light yellow basal part on the upper surface, white instead of yellow subapical strigae on the forewing and light lemon-yellow under surface to the hindwing (dry-seasonform). ♀♀ without red basal spot on the hind-
depicta. wing beneath (ab. **depicta** *ab. nov.*) are very rare. — The larger West Javan race, **belisama** *Cr.* (52 d), is less
belisama. liable to variation. It is especially common in the neighbourhood of Sukabumi at elevations of 2—3000 ft. —
aurantiaca. In the alpine localities of the volcanoes of East Java from 4—6000 ft. occurs **aurantiaca** *Doh.* (= belisar *Stgr.*), with brilliant orange-coloured upper surface, large cell-spot on the forewing, and also a handsome extended
angaja. orange-yellow tint at the base of the forewing beneath, whilst the West Javan mountain form, **angaja** *form. nov.*,
balina. differs from it in the whitish yellow tinge of the forewing beneath. — **balina** *Fruhst.* is a smaller race with broad light yellow hindwing without margins above and the apical border more deeply incised. The under surface of
glauce. the forewing is more extended white at the inner margin. Bali. — **glauce** *Btlr.* (52 e), described from Borneo, a strongly darkened, distinct subspecies of larger size with almost entirely black under surface to the forewing which bears only slight traces of white or yellow submarginal spots. The butterflies are commonly met with on the tablelands of Sumatra at the brilliant red flowers of Erythinaea (Dadap trees).

eumolpe. **D. eumolpe** *Gr.-Sm.* (53 b) is the representative of the *belisama* and *descombesi* group on Borneo, where as yet it has been found exclusively on the Kina Balu at an elevation of about 4000 ft., not being rare.

zebuda. **D. zebuda** *Hew.* (52 d), the representative of *descombesi* on Celebes, where it flies almost all the year round and ascends from the edges of the woods at the sea-coast to about 6000 ft. The species is distinguished from all its allies by having the wings pointed instead of rounded, the ♂ above white with the apex broadly powdered over with grey-black; the ♀ grey-brown with large white cell-spot. South, Central and North Celebes.

diaphana. **D. diaphana** *Semper.* ♂ above scarcely distinguishable from *descombesi*, but beneath entirely black with abnormally large cell-spot on the forewing and similarly large submarginal patches on both wings. ♀: upper surface of the forewing yellowish with black discocellular and black distal margin with yellow spots; hindwing white with whitish submarginal patches. The under surface with broad black postdiscal bands on both wings. A magnificent, large species, only found as yet in South-East Mindanao, where it is not rare.

D. aruna, one of the largest and most strikingly coloured species of the genus, inhabits the Papuan region and may be broken up into a series of well-defined local races, of which three are already known from the main
aruna. island of New Guinea. **aruna** *Bdv.* (52 c), from Dutch New Guinea, with light yellow basal region on the hind-
madala. wing above. — **madala** *Fruhst.* Distal margin narrower, the ground-colour above orange, whilst on the under surface the red costal and discal spot are considerably larger and hence the black distal margin is reduced. German New Guinea, where it is not common, always flying singly, mostly met with in July in open woods. The butterflies are fond of visiting the flowers of Jambosa, on which they have been found even at elevations of 1000 ft.
irma. (HAGEN). — **irma** *Fruhst.* (53 b) is the darkest known race; ♂ beneath almost entirely black, also above with broader margins than *inferna*. The upper surface of the ♀ is often still darker than in the figure. Milne Bay,

British New Guinea. — **inferna** *Btlr.* (53 a), from Australia, has also above in the ♀ no yellow transverse spot at the discocellular of the forewing, which, however, appears again beneath. Otherwise the butterflies are beneath very similar to *irma*. Queensland. — **rona** *Rothsch.* is a race from Ron in Geelvink Bay which is unknown to us. — **bajura** *Bdv.* (53 a), from the island of Waigeu, differs from the continental forms of the species in the pale yellow basal part of the hindwing above and the sharply defined and narrower white transverse spot before the cell of the forewing. The species is not very rare on Waigeu; it most nearly approaches **seriata** *Fruhst.*, from the North Moluccas, the ♂♂ of which bear above a row of 6 white strigae on the forewing and 3 small submarginal spots on the hindwing. Batjan, Obi. *inferna.* *rona.* *bajura.* *seriata.*

D. madetes *Godm. & Salv.* (53 a) is clearly proved by its under surface to belong to the *descombesi*-group and is one of the most attractive species of the genus. The upper surface of the ♂ resembles that of *aruna*. ♀ above black with the orange-coloured discocellular patch which also occurs in *aruna* and 6 whitish submarginal spots. The central part and the inner margin of the hindwing dirty yellowish white. The distal margin broadly black, enclosing 6 washed-out yellowish patches. New Mecklenburg. — **honrathi** *Mitis*, a distinct island race from New Pomerania, where it is very rare, is distinguished by the whitish instead of yellowish spots on the under surface, the likewise whitish strigae of the forewing and the reduced submarginal spots on the hindwing beneath. *madetes.* *honrathi.*

D. harpalyce *Don.* (53 c) belongs with the following species to the most ornamental *Delias*. The ♀ is above black with grey-brown base and a continuous row of 6—7 yellowish submarginal spots on the forewing. Mostly flies high, but congregates in the spring (beginning of October) round flowering fruit-trees and is then easy to catch (Seitz Ms.). South Australia, Victoria, New South Wales. *harpalyce.*

D. aganippe *Don.* (53 c), beneath for the most part black with white longitudinal bands and submarginal spots on the forewing, red submarginal patches proximally bordered with white and yellowish discal spots on the hindwing. Likewise in South Australia, but distributed northwards to Queensland. *aganippe.*

D. nigrina *F.* (53 c), with orange-yellow subapical spots on the forewing, which are somewhat lighter in the ♀, on a black ground, base of both wings grey-blue, hindwing with sinuous red submarginal and black median and terminal bands. Flies even in the winter (June), when there are scarcely any other butterflies in South Australia. The ♂♂ appear entirely white when flying, as somewhat singularly hardly anything of the bright under surface is visible; only when the butterfly drops down onto a flower from the height at which it mostly flies, and in so doing closes the wings, the beautiful under surface becomes distinct (Seitz Ms.). *nigrina.*

D. splendida *Rothsch.*, above similar to *descombesi* and *oraia m.*, with narrower, but deep black, distal margin to the forewing. The underside of the forewing is entirely black, with a black spot at the end of the cell, the apical patches orange-yellow, the hindwing similarly coloured, only bearing 5 rudimentary submarginal spots. ♀: upper surface black, with large light yellow submarginal spots on both wings, large yellowish cell-spot on the forewing and yellowish basal area on the hindwing. A distinct species, only known from Timor, where it was discovered by Doherty. *splendida.*

f. Under surface of the hindwing with segment-like, red basal spot.

D. aglaia is the first-known representative of a group, the species of which as a rule occur in great abundance, are mostly found in the plains, and even venture onto the sea. There are only a few mountain species, which do not descend below 4000 ft. Larvae red, each segment with long hairs, of which the lateral ones are black and the dorsal yellow. On young leaves of Nauclea rotundifolia, where they rest close together in large numbers. Pupa blackish, as in the other species with dorsal points. — **curasena** *Fruhst.* ♂ black with yellow inner margin to the hindwing and with blue-grey stripes and spots on both wings. ♀ similar to that of *grisea* (56 c), but with the upper surface somewhat lighter. ♂ beneath with yellow hindwing, which is intersected by broad black vein-stripes connected by transverse streaks. Formosa. — **porsenna** *Cr.* Somewhat larger than the preceding, ♀ with yellow median band on the forewing beneath. South China, Hong-Kong, Hainan (?). — **tonkiniana** *Fruhst.* Smaller than the preceding and the ♀ with finer stripes. Median band of the forewing beneath yellowish, the upper surface darker than in specimens from Northern India. Tonkin. Found in the rainy season. — **thyra** *Fruhst.* (56 c), in both sexes the albinotic extreme of the preceding. Forewing of the ♂♂ more extended blue-grey. Hindwing of the ♀♀ in many examples almost pure white. Annam, Siam. Only taken in the dry season. — **beata** *Fruhst.* is the race from the Mergui Archipelago and South Tenasserim, a connecting link between Indian and Sumatran specimens. ♀ with yellowish cell-spot on the forewing above — **aglaia** *L.* (= pasithoë *L.*, dione *Don.*), one of the commonest Indian species, occurring from Nepal to Assam and Upper Burma, especially in the hot valleys and except in the cool January very abundant. Visits flowers. Ascends in the Shan States to 5000 ft. ♀ of the rainy-season-form with grey-black, that of the dry-season-form with whitish median band on the forewing. ♀ very variable, every specimen different. — **parthenope** *Wall.* (= distanti *Stgr.*). A very interesting, rare form. ♂: forewing with pointed, long grey patches, ♀ with almost white median band occupying a third of the wing. Malay Peninsula, Singapore. — **goda** *Fruhst.* (56 b) is the race from Sumatra, which mostly *eurasena.* *porsenna.* *tonkiniana.* *thyra.* *beata.* *aglaia.* *parthenope.* *goda.*

keeps to the mangrove thickets at the shore. ♂: forewing almost without grey strigae, with strongly darkened, blue-grey median spot. ♀ darker than that of *parthenope*, with dark instead of pale yellow under surface to the
grisea. forewing. — In **grisea** *Fruhst.* (56 c), from Nias, the melanotic differentiation has progressed furthest. The grey median spots of the forewing reduced to a narrow band at the submedian, hindwing without a trace of yellow, ♀ with the upperside of the hindwing entirely brown-black and beneath with the yellow interneural areas restricted
pandecta. by the widened black veins. — **pandecta** *Stgr.* is a similar race, but the ♀ has still traces of a yellow median band on the forewing and in the ♂♂ the inner margin of the hindwing above is broadly spotted with yellow. Palawan, North Borneo (?).

pandemia. **D. pandemia** *Wall.* (56 b), an interesting transitional form, which connects *aglaia* with *egialea* by the intensively dark canary-yellow anal spot on the hindwing, which in the ♀ enters the cell. The ♂♂ with blue-grey strigae on the forewing as in *aglaia*. North Borneo, Palawan.

thysbe. **D. thysbe.** Distinguished by the fact that the under surface also bears a broad, intensively red basal spot. CRAMER'S subspecies **thysbe** is described from China and probably also just this form occurs in Tonkin. But
pyramus. the form best known as one of the commonest Himalayan butterflies is **pyramus** *Wall.* (56 a), distributed from Nepal to Burma and the Malay Peninsula. In the deeper valleys in Sikkim the species is common from April to December and has even been observed in Burma at an elevation of about 1000 m. The ♀ is similar to that of *alluviorum*, it has, however, also grey in the cell of the forewing, but the hindwing less tinged with yellow. —
kandha. **kandha** *Doh.*, taken at 3—3500 ft. in the Madras Presidency of South India, is distinguished by a pale yellow subbasal part on the upper surface and lighter and more lemon instead of ochre-yellow colour on the underside of the hindwing.

ninus. **D. ninus** *Wall.* Smaller than *pyramus* with blue-grey instead of black colour on the upper surface and
alluviorum. narrowed, black subbasal band on the hindwing beneath. Malay Peninsula. — **alluviorum** *Fruhst.* (56 a), somewhat larger with more extended red basal spot and much broader black subbasal band on the hindwing beneath.
parthenia. Sumatra. — **parthenia** *Stgr.*, a distinct island race with broader black margins to both wings and light yellow discal region on the hindwing. Rare on the Kina Balu, North Borneo.

D. crithoë, an ornament of the Javan timber-forests, which we meet with everywhere where there are plantations at elevations of over 4000 ft. The butterflies are especially attracted by the flowers of Cinchona ledgeriana, at which they feed, hanging on them with the wings closed, and are commonly found in company with *Prioneris autothisbe*, which is similarly coloured beneath, a striking sight, as the yellow and red hindwing
bromo. stands out so sharply against the dark green of its surroundings. We have to enumerate five local races: **bromo** *Fruhst.* (= dymas *Nicév.*) (56 c), from East Java, where it is principally found on the volcano Bromo and in
crithoë. the Tengger Mountains. — **crithoë** *Bdv.*, from West Java, with darker forewing, which in the principal form has only a slight blue-grey discal dusting, hindwing in both sexes much more broadly margined with black. Very
fastosa. variable, no two specimens are identical. — **fastosa** *form. nov.* has in the ♀ a broad grey-blue transverse band recalling *henningia*, which extends from the costal margin through the cell and terminates at the median of the
funesta. hindwing. — **funesta** *form. nov.*, with the forewing in both sexes entirely black without grey discal dusting. I found this form on the plateau of Pengalengang, 4000 ft. high, at that time still covered with dense woods, in the interior
chrysendeta. of the Preanger Residency of West Java. — **chrysendeta** *subsp. nov.*, with narrower black distal margin than *bromo* and with the hindwing tinged with darker orange-colour. Mount Haruhasa on Sumbawa. In coll. OBER-
tobahana. THÜR. — **tobahana** *Rogenh.* (= derceto *Nicév*). Larger than *crithoë*, the red basal spot of the hindwing not showing
villia. through above. Discovered at Lake Toba, North-East Sumatra. — **villia** *subsp. nov.* (56 a), a local race from the Padang Bovenlanden in West Sumatra, with pure white instead of yellowish subanal region on the hindwing, which is distally densely powdered with blackish, and more sharply defined white crescents on the forewing.

egialea. **D. egialea** *Cr.* (56 b), a species showing striking sexual dimorphism, very local on Java, on the other hand abundant in the dry season on the island of Bawean. Under surface of the forewing of the ♂♂ with very broad, almost pure white median area, which in the ♀♀ is dark yellow. Is also recorded from Banka, Billiton and Sumatra by VOLLENHOVEN. Larva chestnut-brown with darker head and first segment, and with a yellow transverse band on the following segments, which are adorned with some long yellow hairs.

henningia. **D. henningia** *Ersch.* (56 b), a very variable species. ♂ above with broad blue proximal half to the forewing and large, blue-grey costal area on the hindwing. Forewing without grey subapical strigae. ♂ beneath with 2 subbasal yellow patches in and above the cell and relatively large spot at the apex of the cell. An accidental
ochreopicta. hemera. or seasonal form with darker orange spots has been described by BUTLER as **ochreopicta.** Luzon. — **hemera** *subsp. nov.* is a darkened island race, probably from Mindoro, with black basal area on the forewing above, almost without the blue-grey tinge at the costa and with smaller, dark orange-coloured anal spot on the hindwing. Under surface: white median of the forewing narrower; hindwing: red basal spot shorter, all the black markings extended, the yellow patches beyond the cell reduced to minute dots. The orange-coloured submarginal region strongly nar-

rowed. — **voconia** *subsp. nov.*, from Bohol, very similar to the preceding, but with the blue median area on both surfaces of the forewing in ♂♂ and ♀♀ even less developed. — **camotana** *subsp. nov.*, with pure white, relatively broad median band on the forewing, from Camotes, forms a transition to **ottonia** *Semp.*, of which the ♂♂ are distinguished by the dark blue-grey, more sharply defined median area of the forewing and the ♀♀ by the pure white median band of the forewing and by the median spot on the underside of the hindwing filling up almost the whole of the cell. Mindanao. — **lucerna** *Btlr.*, with the uncertain locality Mindanao, is the name of a local or seasonal form with the median bands on the forewing even narrower than in *hemera* and *henningia* and pure white in the cell. — **saturnia** *form.* (or *subsp.*) *nov.* differs especially on the hindwing beneath in the stronger development of the black basal spots, in consequence of which the yellow patches in and around the cell and also the submarginal area are reduced. East Mindanao. *voconia. camotana. ottonia. lucerna. saturnia.*

D. kummeri *Ribbe* (54 c). ♂: above pure white with the broad black apical border which is typical of so many New Guinea *Delias*, which in the ♀ is also continued on the hindwing. Forewing of the ♀♀ somewhat shorter than in the ♂♂. — An interesting form, in which the red submarginal line of the hindwing beneath is continued from the anal angle to the costal margin, has been named by Rothschild and Jordan **ligata** (56 f). Locality the Aroa River, British New Guinea. *kummeri. ligata.*

D. weiskei *Ribbe* (= mirifica *Gr.-Sm.*) (56 f). Above like the preceding. The ♀ has likewise a broader black distal margin and 2 or 3 white subapical dots on the forewing, which are absent in the ♂. Locality as the preceding. *weiskei.*

D. bornemanni *Ribbe* (56 e). The upper surface in both sexes as in the preceding except that the black distal border of the forewing is widened to beyond the margin of the cell. On the under surface the red spots are somewhat reduced in the ♀. British New Guinea. Common. *bornemanni.*

D. microsticha *R. & J.* (56 e). This species belongs to the *mysa*-group according to the character of the pattern of the under surface, but is included here on account of having the basal spot of the hindwing beneath red instead of yellow. The ♀ is still unknown. British New Guinea. *microsticha.*

6. Genus: **Prioneris** *Wall.*

The species of this genus, which is distinguished by the dentate costal margin of the forewing in the ♂♂, approach *Delias* in their habitus and the character of the markings. But the butterflies are altogether more robust and are more rapid fliers than the *Delias*. Forewing with four subcostal veins, of which two arise before the end of the cell, as in *Pieris*. The genus differs from the likewise allied *Tachyris* by the absence of the anal tufts of hair. Larvae blue-green, laterally adorned with soft white hairs and with blue tubercles, those at the head and sides with black dots. On Capparis. Pupa light green, head with sharp tip, the dorsum keeled with a yellow line, laterally armed with 2 strong spines. Butterflies on the mainland of India in the warmer valleys, but in the Malay Archipelago preeminently inhabitants of the mountains. Some species rare, but sometimes occurring in many thousands. The very resistant dentitions of the forewing, with the points directed towards the apex, can easily be recognised even with the naked eye. The small, close teeth are so strong that they are capable of catching the finger and causing the wing to bend when the tip of the finger is moved along from the apex to the base. Wallace regards the „rarer" *Prioneris* as a mimetic form of the „commoner" *Delias*. But I cannot accept his view, since mimicry among the in all respects harmless Pierids appears no sort of protection, and properly speaking the smooth-margined *Delias* should rather copy the armed *Prioneris*, if there is assumed to be mimicry at all.

P. thestylis *Dbl.* (57 e), a characteristic butterfly of the Indian fauna, distinguished by its size and its tendency to horodimorphic variations. The under surface of the rainy-season-form black, with large white spots on the forewing and long, light to dark yellow patches and similarly coloured cell on the hindwing. — The ♀♀ of the rainy-season-form, **seta** *Moore*, are also beneath predominantly black, with narrow yellow cell-stripe and reduced submarginal spots on the hindwing beneath. The dry-season-form, **watsoni** *Hew.* (57 a), to which many transitional forms lead over, is beneath tinged with black only at the apex, at the costal margin of the otherwise white forewing and round the cell of the otherwise light orange-yellow hindwing. Only the under surface of the forewing of the ♀ is entirely black like that of the rainy-season-form. The *thestylis* are fond of open country; they fly high and jerkily and congregate at sand-banks or moist places, sometimes to the number of many hundreds. The ♀, however, exclusively visits flowers. In the Himalayas the butterflies ascend to 5000 ft. — The Sikkim form is somewhat lighter than the melanotic specimens from Assam. *thestylis* has also been observed recently in the West Himalayas. — **jugurtha** *subsp. nov.* is a larger race with more extended white subapical and sub- *thestylis. seta. watsoni. jugurtha.*

marginal spots on the underside of both wings and also in the rainy-season-form with light sulphur-yellow under
malaccana. surface to the hindwing. Siam, Tenasserim, Tonkin, Annam. — **malaccana** *Fruhst.* (57 b), a smaller, strongly darkened local form from the Malay Peninsula, in which, however, the cell of the hindwing beneath is only quite narrowly bordered with black. Of the ♀ only one specimen in OBERTHÜR'S collection is known, smaller than *seta*-♀ from Sikkim: hindwing with very narrow black distal margin, otherwise almost entirely orange-coloured. —
hainanensis. **hainanensis** *subsp. nov.* is in size a still less developed island race with lighter yellow hindwing in the rainy-season-
mamilia. form also. **mamilia** *form. nov.*, the dry-season-form of the preceding, in contrast to Sikkim specimens, has also
formosana. in the ♂♂ the cell of the forewing beneath entirely tinged with black. Hainan. — **formosana** *Fruhst.* Upper surface yellowish instead of white, the black markings of the forewing reduced, hence the subapical spots extended. Under surface: apex of the forewing more broadly suffused with greenish yellow. Hindwing with much larger light canary-yellow spots than in Indian *thestylis*. Formosa, at elevations of 4000 ft. at Lake Lehiku and near Chip-chip, in June-July very common.

cornelia. **P. cornelia** *Vollenh.* (57 d), belonging to the *thestylis*-group on account of the absence of the red basal spot on the underside of the hindwing, is a mountain species. The veins on the under surface are finely edged with grey; hindwing dark yellow with grey costal and rarely also median antemarginal spots, without any white postdiscal tinge. North Borneo.

sita. **P. sita** *Fldr.* Above white with black veins, beneath very similar to *Delias eucharis*, but with quadrate instead of roundish red submarginal spots on the hindwing beneath and yellow instead of white apex to the forewing. *sita* flies always in company with *eucharis*, of which it is considered a mimic, rests just like the latter on the red flowers of the Lantana with closed wings, but may be distinguished by the more jerky, rapid flight. ♀ similar to the ♂, only with black transverse lines between the veins of the hindwing. Ceylon, South India, ascending to 5000 ft., rare. Flies in January. Larva on Capparis tenera according to BELL and GREEN.

autothisbe. With **P. autothisbe** *Hbn.* begins the series of species with red basal spot on the hindwing beneath. Two forms of the ♀ occur, one with almost entirely black forewing and the other with 3 large whitish discal patches
albiplaga. orientalis. on the forewing: **albiplaga** *form. nov.* (57 c). West Java. — **orientalis** *Fruhst.* (57 c) is a smaller race with narrower black border, especially on the hindwing, and as a rule with the apical part of the forewing more plentifully dotted with white. The under surface of the hindwing is lighter yellow, the black submarginal bands weaker.
albifera. Specimens also occur with entirely white under surface (**albifera** *form. nov.*) and more commonly examples with
mucida. the upper surface of the hindwing completely dusted with grey-brown even in the cell (**mucida** *form. nov.*). The latter form occurs also in West Java, but there, in accordance with the darker general colouring of typical *autothisbe*, this dusting is almost deep black and is interrupted by large yellow and grey submarginal spots. — *autothisbe* is a mountain species, which inhabits exclusively altitudes of between 4000 and 6000 ft., but is distributed over the whole island. I observed these *Prioneris* most commonly on the Tengger Mountains, at the volcano Gedé and near Bandong, where they visit the sweet-scented flowers of the Cinchona (Peruvian bark) trees, always in company with the similarly coloured *Delias crithoë*, and fly all the year round. They are apparently most abundant in the months of June and July, during the dry season, when these companions can occasionally be surprised drinking at moist places.

hypsipyle. **P. hypsipyle** *Weym.* (67 c) differs from the preceding in the entirely black under surface of the forewing and the absence of the red cell-spot on the hindwing. The very rare ♀ is very similar to the ♂, with only slightly broader black margins to the roundish wings. Mountains and highlands above 4000 ft. Sumatra, on damp river-banks sometimes in hundreds.

philonome. **P. philonome** *Bdv.* (57 a), with white under surface to the forewing and light-yellow tinted hindwing, which is traversed by a relatively broad black submarginal band. Only known from East Java, where I met with it near Lawang at about 2000 ft.; it is not very rare, especially in April, and is fond of visiting flowers at the edges of fields and roads. Of the ♀♀ I found 3 forms: similar to the ♂, with yellowish white upper surface to
herennica. both wings, another with greenish yellow upper surface (*form.* **herennica**) and a very rare form with blue-white
lactaria. upperside (= **lactaria** *form. nov.*). Of the ♂♂ a form with white instead of yellow basal part and white cell on
nivescens. the hindwing deserves mention (= **nivescens** *form. nov.*).

vollenhovi. **P. vollenhovi** *Wall.* (57 d). Apex of the forewing more pointed than in the preceding; distal border of the upper surface more broken up. Hindwing dark yellow with black anal tinge and white spots round the cell on the under surface. Only known from Borneo, where it replaces *philonome*.

clemanthe. **P. clemanthe** *Dbl.* (57 b, d), beneath with chrome-yellow hindwing, which anally is somewhat darker. Under surface of the forewing in the ♀ black, that of the hindwing entirely yellow, whilst the ♂♂ have a white distal margin. Rare in Sikkim, common in Assam; a frequenter of flowers, fond of the open country and

the edges of woods. — **helferi** *Fldr.* is a darker local race, in which the veins on the underside of the forewing are connected by distinct black transverse bands. Ascends in Burma to a height of 7000 ft. Tenasserim, Tonkin, Siam, Shan States. — **saenia** *form. nov.* is a smaller, lighter race or seasonal form, without a trace of a submarginal band and with a lighter yellow basal tinge on the hindwing; South Annam, January, February. — **euclemanthe** *Fruhst.* Hindwing beneath light lemon-yellow, without a trace of darker colour in the anal area. Colouring of the veins on the upper surface of the forewing much thinner than in continental specimens; Hainan. — **themana** *Fruhst.* (57 b), on the contrary, has the veins broadly striped with black, a darker apical and anal tinge on both wings and a more extended white area on the hindwing beneath. Sumatra, Malay Peninsula.

helferi. *saenia.* *euclemanthe.* *themana.*

7. Genus: **Anaphaeis** *Hbn.*

This well-defined genus is always united with the African *Belenois Hbn.*, which contains only one species. *Anaphaeis* differs from *Huphina* in having the subcostal veins which arise before the apex of the cell united (anastomosing) at their distal extremity with the costal, and the middle discocellular much longer, but still always shorter than the lower discocellular. From *Belenois*, however, *Anaphaeis* is distinguished by the shorter middle discocellular of the forewing.

The few species are almost of the same size; they occur abundantly, often congregate in great numbers and are of migratory habit. One species is so to speak always on the way betweeen Africa and India (*mesentina*) and in Kashmir and Palestine enters the Palaearctic Region. Larva on Capparideae; pupa pointed, with lateral spines.

A. mesentina *Cr.* Dealt with in the Palaearctic part (vol. I, p. 50, pl. 21 d, e). Two seasonal forms of this variable species have been named: **lordaca** *Wlkr.*, beneath pale yellow, that of the dry season, and **aurigena** *Btlr.*, beneath dark to orange-yellow, that of the rainy season. Although inhabiting the hot lowlands, the species commonly ascends to 6 and 8000 ft., and has been sporadically found even at elevations of 3000 m., perhaps carried up by the wind. Eggs in clusters, larva always gregarious on Capparis. Baluchistan to Sikkim, once also met with on the Nicobars. — **taprobana** *Moore* (= fervidior *Fruhst.*) (63 f) is above more broadly black and beneath a magnificent orange-yellow. A slow flier; is fond of resting on the ground. Time of appearance uncertain; sometimes only twice in the course of five years; but when they occur they unite in migratory swarms. In June, July and then again in November, December.

mesentina. *lordaca.* *aurigena.* *taprobana.*

A. java *Sparrm.* (63 d), a variable species, which is distributed as far as the Fiji Islands, appears everywhere in two seasonal forms, and in Australia under varying climatic influences is divided into a number of forms described as separate species. The butterflies are sluggish, fluttering slowly and heavily from flower to flower and are often seen resting together in hundreds, immediately after emergence, in the thick bushes at the edges of the woods. On Java they do not ascend above 2000 ft., but in Lombok I met with them in large numbers on the flowery plateau of Sambalun at 4000 ft., MARTIN has found the larva on Celebes. On Java itself there are two seasonal forms: ♀ with grey-violet base to the forewing above and black distal margin extending to beyond the middle of the cell (rainy-season-form); — and **coronea** *Cr.*, ♀ with half the wing white, distal margin only extended to the apex of the cell. On the under surface no special variations are noticeable in specimens from Java to Sumbawa. But the further we go towards the east, the more marked becomes the influence of the dry season, which sometimes lasts for nine months. On Sumba the black distal margin of the forewing already begins to become narrow, so that the black spot at the apex of the cell stands separate (**magniplaga** *Fruhst.*). The base of the under surface of the forewing in the ♀ is yellow instead of dark ochre-colour; the cell of the hindwing white. — On the island of Savu occurs next a specialised race, = **savuana** *Fruhst.* (63 e). The black distal margin is reduced also in the ♀♀ and on the hindwing leaves the black transverse spot in the cell isolated; the forewing remains ochre-coloured only in the cell; the costal area remains white and the hindwing bears a row of white spots round the cell. — **ina** *Fruhst.* is the race from Kisser and Babber, with the upper surface of both wings still lighter, a less yellow tint on the under surface and white cell to the hindwing. Some ♂♂ already approach *teutonia* in having the hindwing entirely white with the exception of the black distal margin. — **anita** *Fruhst.* (63 d) is an intermediate form, from the island of Wetter, with the basal area of the under surface in the ♀♀ tinged with yellow. — **teutonia** *F.* is the Australian race of the species, which has found its way from this continent as far as Java. The principal form is figured at 63 f; together with it there occur also ♀♀ with black distal margin to the upper surface, which only bears small white submarginal spots or none at all, and whose base is yellowish instead of white (♀-f. **clytie** *Don.*). A still more melanotic summer form on both surfaces is **peristhene** *Bdv.* (63 f), with the hindwing entirely black beneath. — **niseia** *Mc. Leay* (63 e) is a very beautiful intermediate form with the veins on the hindwing above broadly striped with black and long white circumcellular areas on each side of the likewise white cell, which form a pleasing contrast to the black ground. — Egg light straw-yellow, larva on Capparis lasiantha; cylindrical, narrowed at both ends. Head black, with a V-shaped spot on the frons, otherwise olive-brown sprinkled over with small yellow dots, venter yellow-green. When full-grown the larva spins itself up on a leaf and changes within 24 hours into a green, somewhat angular pupa. The butterflies fly

java. *coronea.* *magniplaga.* *savuana.* *ina.* *anita.* *teutonia.* *clytie.* *peristhene.* *niseia.*

picata. swiftly, often rest on flowers, and gather together for large migrations across the sea. — **picata** *Btlr.* (63 e) is a race which is chiefly white also beneath, with thin black bands and vein-stripes on the under surface; Bis-
micronesia. marck Archipelago. — **micronesia** *Fruhst.* (63 e) is the subspecies from the Fiji Islands which is adorned with
vitiensis. dark orange-coloured submarginal spots beneath; of this **vitiensis** *Fruhst.*, analagous to *peristhene*, represents
clarissa. the darkest seasonal form and **clarissa** *Btlr.* an aberration corresponding to *nisea*, with handsome light yellow submarginal-patches on the hindwing beneath.

8. Genus: **Baltia** *Moore.*

In the short, club-shaped antennae the few species of this genus approximate to *Synchloë* and *Euchloë*; the course of the subcostal veins associates it with *Huphina*, but the genus is completely isolated through the absence of the middle discocellular. The radial veins arise from the subcostal. *Baltia* approaches *Aporia* in the shape of the scales, which are roundish, broader than long. All the species are high-alpine and inhabit altitudes of 4500—5500 m., which are already destitute of all vegetation. There they fly near the ground, except when they play in the sun or run with half-opened wings over the sandy soil, thus sometimes traversing long distances and, if disturbed, quickly hiding among the inequalities of the ground.

butleri. **B. butleri** *Moore* (vol. I, 23 b). ♂ beneath with fine brown longitudinal stripes at both sides of the veins. Ladak. Kashmir, Karakorum, at altitudes of 15—18000 ft.

shawi. **B. shawi** *Bates* (vol. I, 23 b). Rarer than the preceding, under surface of the hindwing grey-violet with black vein-stripes. North-West Himalayas, Kashmir, Karakorum.

sikkima. **B. sikkima** *Fruhst.* (50 e). Differs from the preceding species in the submarginal band, which also in the ♂ traverses the entire forewing and is continued on the hindwing. Under surface brighter than in the other known species; apex of the forewing and the whole hindwing traversed by long yellow stripes; cell likewise yellow instead of white. Kamba-jong (South Tibet), at the border of Sikkim, reported from elevations of 12—16000 ft.

9. Genus: **Aporia** *Hbn.*

The typical representatives of this genus do not differ essentially in neuration from *Pieris s. str.*, nevertheless their habitus is entirely different. The membrane of the wing is stiffer, resembling paper; in the ♀♀ the scales are partly absent, leaving transparent places, and the flight is altogether distinct from that of the other Pierids, more resembling that of the Parnassiids. That is to say, whilst the other Pierids move forwards by striking the wings up and down, *Aporia* commonly holds the wings stiff and immoveable, using them like a parachute. The position of the second subcostal vein varies somewhat; it often arises from the upper angle of the cell, or at a short distance before the angle. The untenable genus *Metaporia* has been based on the latter character. If, however, this is allowed to stand, then the genus *Aporia* only contains 2 species (*crataegi* and *soracta*), all the others, as well as *hippia* for instance among the Palaearctics, must be united with *Metaporia*. Here, however, no importance is attached to this criterion and all the species are regarded as belonging to the homogeneous genus *Aporia*. In any case *Aporia* represents phylogenetically a very old stirps, a sort of connecting link between the Pierids and the Parnassiids. With the latter they have in common the short palpi and the circular scales of the costal region. The Asiatic species, with the exception of *agathon*, only vary moderately, and are almost exclusively inhabitants of high alpine regions, being often very abundant locally, but in the large majority of cases are among the rarer species.

The larvae live gregariously under a fine web on Prunaceae and Rubiaceae, are usually of a green or red-brown colour and adorned with fine, soft hairs.

A. soracta. Occurs in the West Himalayas sometimes in great abundance, but only for a short time, in April and May, never frequents gardens or open country, but only the edges of woods, 6—9000 ft. is its favourite zone, but in Kashmir it also ascends to 14000 ft. The elongate brown larva ornamented with fine, soft hairs; pupa with obtuse horn on the head, a thoracic and an abdominal protuberance, white covered with black dots.
soracta. On Berberis lycium. Two local races deserve mention: **soracta** *Moore* (vol. I, 18 a), with broad black subapical
denigrata. and cell-band on the forewing, from Mussourie; — and **denigrata** *subsp. nov.*, forewing almost pure white, either without or with only very weak black lines. Punjaub, North-West Provinces.

balucha. **A. balucha** *Marsh.* (= sorex *Gr.-Sm.*, leechi *Moore*). Local form of *leucodice Eversm.* (vol. I, 19 a), from Turkestan, from which it differs in the broader black bands on both wings and the distinct orange-coloured stripes at the costal margin and the darker yellow under surface of the hindwing. Baluchistan.

A. nabellica *Bdv.* (vol. I, 19 b) is an interesting Pierid, above black, on the underside of the hindwing dark yellow. I have it from Mardan in the North-West Provinces and it is also known from Kashmir and Kunawur,

where it occurs at elevations of 9—13000 ft., flies slowly and heavily and is fond of settling on Umbelliferae, which tower above the thick masses of flowers that ornament the clearings in the wooded mountain glens (Lang). Specimens from Kashmir are lighter than those from Kunawur.

A. harrietae *Nicév.*, an interesting, highly specialised local form of *larraldei Oberth.* (vol. I, 18 d), and distinguished from it by a complete, concave row of white oblong transcellular spots on the forewing and predominantly white-yellow under surface to the hindwing. Very local, hitherto only known in a few specimens from Bhotan. *harrietae.*

A. larraldei f. **nutans** *Oberth.*, unknown to me in nature. Occurs in Yunnan.*) *nutans.*

A. genestieri *Oberth.* (57 a) approaches *bieti Oberth.* (vol. I, 17 c), but the distal margin of both wings is more extended smoke-brown. *genestieri.*

A. hastata *Oberth.* is a very large species resembling *larraldei*, with 3 large, white submarginal spots in the middle of the black distal region of the forewing. Hindwing white with a few black submarginal streaks. Yunnan. *hastata.*

A. agathon, which is the most variable species of the genus, is broken up into several local races and moreover varies strongly individually. **agathon** *Gray* was described from Nepal, is very rare there and in Sikkim, but very common in Assam, in North Yunnan (Tse-kou) at about 2000 m. It is above predominantly black with broader grey stripes in and below the cell and two rows of whitish spots in the submarginal region of both wings. Hindwing beneath with large, round, yellow basal spot. — **phryxe** *Bdv.* (vol. I, 19 a) is the lightest extreme of the species and the subspecies of the West Himalayas, known from Simla, Kangra, Kashmir and Tibet. Ground-colour white with black vein-stripes, which are sometimes widened so as to form reticulate markings (f. **caphusa** *Moore*). When these reticulations are still more thickened they suppress the white ground-colour, and a form is produced which is only a little lighter than the East Himalayan *agathon*. The latter form is **ariaca** *Moore*. — The species has recently been discovered also in Formosa at 8000 ft. and described as **moltrechti** *Oberth.* — Larva on Berberis nepalensis, gregarious, dirty brown, head black, dorsally with dark brown stripes, sparsely adorned with soft white hairs. Before pupation the colour changes into a light green. They make a thick web and then lie up to the number of 10 or more in one web. But for pupation they go under the dry leaves of their food-plant. Pupa like that of *soracta*, but greenish yellow with black spots. *agathon. phryxe. caphusa. ariaca. moltrechti.*

10. Genus: **Pieris** *Schrk.*

This group contains the species which have been longest known, some of which are distributed over three-quarters of the world and in some places are well known and feared on account of their great abundance and the damage they cause. The principal characteristic is the oblique middle discocellular of the forewing, which is only half as long as the concave lower discocellular. The precostal of the hindwing always curved distad.

P. brassicae. L. is distributed everywhere in India, from Afghanistan to Sikkim, Bhotan and South Tibet, where cabbage is grown in gardens. It is there abundant at alpine heights of 10,000 ft., and has even been repeatedly taken at 17,000 ft. The Indian subspecies has been designated **nepalensis** *Gray* (vol. I, 17 e), and occurs, as with us, in two generations. The rainy-season-form differs essentially from the European race in the more broadly black apex and the darker yellow under surface of the hindwing. Specimens of the dry season, from Kashmir, are scarcely distinguishable from those from Smyrna and Rome. *nepalensis.*

P. deota *Nicév.* (vol. I, 20 a), distributed from Kashmir to the Lob-Nor and Pamir, is distinguished by the uniform black distal margin of both wings, which is deeply dentate proximally, and the peculiar blue-grey tinge of the under surface. The species inhabits desolate plateaux, only sparsely overgrown with Carex and Astragalus, where it occurs quite singly, is very rare and usually flies swiftly. *deota.*

P. canidia *Sparr.* (vol. I, 20 b), a variable butterfly, which occurs all the year round, ascends from the plains to 12,000 ft., always remains in the neighbourhood of gardens and in Tonkin even flies about on the grass-plots before the hotels in the town of Langson. There occur specimens without black discal spots on the forewing (f. **claripennis** *Btlr.*), others with yellowish under surface and small black discal patches on both wings (f. **gliciria** *Cr.*), ♂♀ scaled with dark grey or yellowish above (f. **sordida** *Btlr.*). I possess a winter brood (Novbr.) from China with grey-black under surface to the hindwing. Luzon examples bear beneath broad black-grey streaks, Tonkin specimens of June and July are the lightest, being beneath pure white. The species is distributed from the North-West Himalayas to Hainan, Formosa and the Loo Choo Islands. — A very small race from Tibet has *canidia. claripennis. gliciria. sordida.*

*) According to the figure in Oberth., Ét. d'Ent. 16, pl. I, fig. 3, it is distinguished above from *A. phryxe* (vol. I, pl. 19 a) by much more black-brown, which forms an irregular submarginal band on both wings and is confluent with the oblique discocellular band on the forewing.

minima. been named **minima** by VERITY. South Indian specimens are especially strongly spotted with black. — Pupa yellowish brown with projecting wing-cases, laterally on the abdomen some dark brown points.

naganum. **P. naganum** *Moore*, from the Naga Hills in Assam and Upper Burma, has only been brought to Europe as yet in two specimens. Upper surface pale yellowish white, apical spot of the forewing as in *brassicae*, at the end of the cell a black spot, another spot as in *canidia* between the anterior median veins. Hindwing above white, beneath pale yellow. Forewing with pale yellow apex and the two black spots of the upper surface reproduced.

rapae. **P. rapae** *L.* (vol. I, 29 c), distributed from Afghanistan to Kashmir in the Indian region and not rare at altitudes of 7—12,000 ft., occurs in a form which most nearly approaches the European *metra Steph.* and is noteworthy for the finely divided apical spot of the forewing.

melete. **P. melete** occurs in India in two pronounced local forms, of each of which two generations are known. A smaller, pure white subspecies, above scarcely striped with black, inhabits the North-West Himalayas and *ajaka. ajuta.* Kashmir; it is **ajaka** *Moore* (summer form) (vol. I, 20 g), the spring generation of which has been named **ajuta** by RÖBER. — In Sikkim, Bhotan and Assam occurs a more stately race, distinctly striped above, with yellowish ♀♀. *montana.* Under surface in both sexes dark grey instead of whitish; this is **montana** *Verity* (summer or rainy-season-form). — The South Chinese race is called *alpestris Verity*, being somewhat larger even than *montana*; — and *melaine.* that from Tibet has been named **melaina** *Röb.* (vol. I, 20 g); this presents in the ♀ a strongly darkened, distinct *mandarina.* subspecies, which, however, is in size inferior to the Himalayan race; *erutae Pouj.* occurs in Se-chuen, **mandarina** *Leech* in the mountains of China. — *melete Mén.* (vol. I, 21 b) is an Asiatic continental form of unknown locality (probably Manchuria or China), which was erroneously ascribed by its author partially to Japan, in *massiva.* which all the more recent authors have followed him. — In Japan occur three island races: **massiva** *subsp. nov.*, very large, ♂ with grey diffuse apical spot and indistinct submarginal patches; in the ♀ basal part and cell of the forewing as in *alpestris Verity* dusted with red-brown, hindwing with the vein-colouring unusually widened *juba.* distally. Main island of Japan. — **juba** *subsp. nov.* ♀ above pure white, cell only inappreciably dusted with *aglaope.* grey, approaches *montana Verity* above and beneath. Island of Tsu-sima. — **aglaope** *Motsch.* (= megamera *Btlr.*) is dark yellow beneath, above with broad stripes, very similar to *napi*, without the large interneural spots of *transiens.* the southern subspecies. Yesso. — **transiens** *Verity* is an almost entirely white form of the ♂ with less developed *dulcinea.* apical spot on the forewing; island of Askold. — **dulcinea** *Btlr.* is a form from Korea with white underside — *orientis.* and *veris Stgr.*, a spring form from Amur; — on the other hand **orientis** *Oberth.*, from Askold, was referred by its author to *napi*, but by VERITY more recently to *melete*. — It is an interesting fact, in any case, that in North Japan and Amur dark *napi* and *melete* forms are so intermingled that they can only be separated with difficulty. According to VERITY the scales of the two species are different.

devta. *P. krueperi Stgr.* (vol. I, 20 b) occurs in India in the well defined form **devta** *Nicév.* (vol. I, 20 b). This interesting species was discovered by DE NICÉVILLE in Ladak in 1879 on artificially-watered meadows; it is also not very rare in Kashmir, where it occurs at about 3000 m. Northwards it is distributed to Kashgar and Samarkand.

11. Genus: **Parapieris** *Nicév.*

Differs from *Pieris* only in the longer upper discocellular, which is due to the second subcostal vein of the forewing arising somewhat more proximally to the apex of the cell. High mountain butterflies, of rapid, irregular flight. — All the species are very shy; they prefer to remain on grassy places among blocks of rock, over which they fly away impetuously when anyone approaches them. On cloudy days they only appear when the wind drives away the clouds before the sun.

kalora. *P. callidice Esp.* (vol. I, 21 e) appears in the Indian region in the geographical race **kalora** *Moore*, which is more strongly black above, more densely and deeply spotted with green beneath. It is very local, flies only at the edges of glaciers or high snow-fields in company with Parnassiids, sometimes at elevations of 14,000 to 15,000 ft., whilst in Kashmir it seldom ascends above 3000 m.

chumbiensis. **P. chumbiensis** *Nicév.* (vol. I, 20 e), a rare species of Native Sikkim, which has some allies in West China, already dealt with in the Palaearctic part (vol. I, p. 50).

12. Genus: **Pontia** *F.*

For this long-known genus, resuscitated by SCUDDER and MOORE, RÖBER has introduced the name *Leucochloë* on p. 49 of vol. I of this work, in treating of the Palaearctic part of the butterflies. Very nearly approaches *Parapieris* with two subcostal veins branching off before the end of the cell. The fourth subcostal vein near the apex of the forewing is absent; it has apparently been pushed out beyond the margin of the wing in the course

of evolution. The egg is acorn-shaped. Larva and pupa described in the Palaearctic part (vol. I, p. 49). Only two species in India.

P. daplidice L., of which the local race **moorei** *Röb.* (73 a) inhabits Tibet, Kashmir and Baluchistan. *moorei.* A village butterfly, occurring commonly in those artificially watered oases of the Indian sterile mountain-valleys in which buckwheat, oats and millet are cultivated at elevations of about 3000 m. — **praeclara** *Fruhst.* is a much *praeclara.* larger race from South-West China. — **nubicola** *Fruhst.* is a small, dark mountain form from Kashgar, — and **aridia** *Fruhst.*, a strikingly black race, spotted with light green, from Shantung, North China, which is also known from Shanghai.

P. glauconome *Klug* (= vipasa *Moore*) (vol. I, pl. 20 f) I should regard as a local race of the preceding *glauconome.* if the larva and pupa were not described as different. Occurs in Afghanistan and the Punjaub on rocky, uncultivated slopes of the mountain valleys, where its food-plant grows.

13. Genus: **Synchloë** *Hbn.*

According to Scudder we must regard as type of this genus *belemia*, which is dealt with in detail in vol. I, p. 51 (as *Euchloë*). The genus is very nearly allied to Hübner's *Euchloë* (= Anthocharis *auct.*). In some species the fourth subcostal vein of the forewing is present; but it may also be absent and has probably, as in *Pontia*, been moved to beyond the margin of the wing.

S. lucilla *Btlr.* Upper surface lemon-yellow. Forewing with a black transverse spot at the apex of the *lucilla.* cell, apical area edged with black. Hindwing unspotted. Under surface pale yellow, costal margin ornamented with white dots. Hindwing black-scaled, with white costal spots and a white spot at the apex of the cell. ♀ somewhat larger with more extended black markings. Punjaub; is rarely brought to Europe.

S. belia L. (vol. I, 22 a) is represented in this region by **daphalis** *Moore*, a race with very fine greenish *daphalis.* yellow reticulate markings on a white ground and the apex of the forewing beneath suffused with brownish. Occurs from Chitral to Kashmir.

S. chloridice *Hbn.* (vol. I, 20 f), distributed through the whole of Asia, extends from Baluchistan *chloridice.* to Ladak, also occurring in the Indian region; inhabits altitudes of 15—17,000 ft.

14. Genus: **Huphina** *Moore.*

Costal of the forewing somewhat more curved than in *Appias*, hence the wing more rounded, cell broader and shorter than in true *Pieris* and *Delias*. The tufts of hair in the ♂♂ on the last abdominal tergite are wanting.

The colour of *Huphina* is always duller than in *Appias*; patches with mother-of-pearl or silky gloss never occur in them. Most of the species are white above with grey or black stripes and margins, only a few species are bright yellow or orange-colour on the under surface; on the other hand all nuances occur, from white to black, from yellow to red, not rarely green or yellow-green, and some species rival by their varied under surface the most brilliantly coloured *Delias*. All prefer the hot lowlands, although some species occur up to 5000 ft. at suitable places in the mountains. Like *Appias* they are fond of feeding at moist and dirty places and congregating in large crowds. They are unwearied fliers, but mostly move slowly, only the species of the *lea*-group darting through the air with great rapidity during the hot hours of the day. All show a tendency to local variation, are very susceptible to climatic influences, but less inclined to individual aberrations than *Appias*. Many species, however, are sexually dimorphic.

Larva on Capparideae, elongate, anal segment slightly bipartite, white-haired, mostly green. — Pupa with pointed head, thorax laterally and dorsally angled and raised, abdomen slightly ribbed, the last segments with small dorsal points.

H. nerissa is the longest known and most widely distributed species. The name-typical subspecies **nerissa** *F.* (= amasene *Cr.*) (64 b China; 64 c, d, e, 63 b Tonkin) is always larger than continental *nerissa.* Indian specimens. Cramer has figured the rainy-season-form as **coronis.** — For the North Indian local form it *coronis.* is best to employ the name **phryne** *F.* (64 a, b). **copia** *Wall.*, described from Bengal, is regarded as the name *phryne.* for its dry-season-form. — **dapha** *Moore* (64 a) is a local form from Tenasserim, Burma and Siam, distinguishable *copia.* by the greenish tint of the cell of the forewing and yellowish basal spot of the hindwing beneath, of which *dapha* itself constitutes an extreme dry-season-form with grey instead of yellow stripes beneath, while the rainy-season-form has as yet no name. — In South India and in Ceylon a very marked local race is developed: **evagete** *Cr.*, *dapha.* *evagete.* the rainy-season-form, and **zeuxippe** *Cr.* (64 a, b), its dry-season-form. The ♀♀ of this local race commonly *zeuxippe.* bear yellow-red submarginal spots on the forewing, such as are never found in North Indian *phryne.* — **cibyra** *cibyra.*

subsp. nov. is a race with the underside of the hindwing finely striped with grey also in the rainy-season-
lichenosa. form and with finely interrupted, very light apex to the forewing beneath; Formosa. — **lichenosa** *Moore* (63 a), from the Andamans, has the under surface to the hindwing almost entirely greenish, slightly marked with white. —
sumatrana. **sumatrana** *Hag.* (63 a), with predominantly yellowish under surface, only narrowly striped, and conspicuous by reason of its size. Sumatra. — The Javan race, **corva** *Wall.* (64 c), as is often the case, aproaches the continental Indian *phryne* much more nearly than its Sumatran sister race. — In East Java occurs a dry-season-form
corvina. with few markings, **corvina** *form. nov.* (64 c), which has the hindwing light yellow also beneath, without distinct stripes along the veins and with an isolated black spot between the anterior median veins. — The larva was already known to HORSFIELD in 1828, it is green with fine dorsal transverse lines. Pupa green with long lateral thoracic
dissimilis. points, striped with white. — **dissimilis** *Rothsch.* is a race very nearly allied to *corvina*, with pale yellow under
vaso. surface to both wings. Bali. — **vaso** *Doh.* (64 b), the opposite of the preceding, is strongly darkened above
physkon. also, cell of the hindwing beneath in the ♂♂ and the central areas broadly white. Sumbawa. — **physkon** *subsp. nov.* is much smaller than the preceding, with still darker stripes, the hindwing with the cell entirely green-brown or only narrowly striped with white. All the submarginal spots smaller, duller white. Very common on Lombok from the sea-shore up to the flower-covered plateau of Sambalun (4000 ft.). I met with the ♂♂ exclusively on wet sand, the ♀♀ only at flowers, on which they hang with folded wings, drinking greedily.

pactolicus. **H. pactolicus** *Btlr.* (64 c) replaces *nerissa* on Borneo, where the species occurs exclusively in alluvial land, but is very local and only found commonly in the south-east of the island, whilst I only obtained one ♂ from the north. ♀ still unknown. Forewing beneath as above, hindwing with the exception of the submarginal region beautifully light yellow, becoming darker towards the base. The white oblong submarginal spots separated from the yellowish area by a black band.

eperia. **H. eperia** *Bdv.* (64 d) has a white under surface to the hindwing, with the basal areas yellowish. A broad black submarginal band encloses moderately long, partly rounded, white spots. ♀ very rare, above and beneath
fora. somewhat darker. North and South Celebes, on wet sandbanks. — **fora** *Fruhst.* (64 d) is a smaller mountain form, in which the submarginal band of the hindwing is already marked above. Under surface slightly tinged with light yellow. Type taken at 4000 ft. at the peak of Bonthain, also from East Celebes in my collection.

eurygonia. **H. eurygonia** *Hpff.*, from the Toga Islands in Tomini Bay, in North-East Celebes, appears to be a transitional species from the *pitys* to the *phryne* group. Upper surface white, forewing with 7 triangular white spots in the reticulate black distal margin, hindwing with 3—4 similar patches. Under surface of both wings white, with sulphur-yellow base. Black distal margin of both wings with larger white spots than above; veins lightly marked with black.

celebensis. **H. celebensis** *Rothsch.* (64 d). Forewing at the end of the cell without the black tooth which extends to the distal margin. Under surface as in *eperia*, but with long, radiate white submarginal streaks. The black border of the hindwing distally broken up into black dusting. ♀ as in *eperia*, but with the submarginal stripes of the hindwing longer. South Celebes; also taken by me in December at Toli-Toli in the north of the island and always found in company with *eperia*.

H. nadina occurs nearly always in company with *nerissa*, but is less widely distributed and is wanting on Java and the small Sunda Islands. The rainy-season-form as in *nerissa* larger, above more broadly black, that of the dry season beneath grey instead of greenish yellow. Larva and pupa on Capparis, scarcely distinguish-
nadina. able from those of *nerissa*. — **nadina** *Luc.* (63 b) is founded on the rainy-season-form; **nama** *Moore* designates
nama. somewhat lighter specimens of the intermediate form, less broadly margined with black in the female; and **amba**
amba. *Moore* (64 a) is the name for the extreme dry-seasonal form, whose ♀♀ are above almost as light as the ♂♂ and beneath grey or yellowish sand-colour. Between the extremes there are transitions of various grades. Sikkim to
remba. Tonkin and Hainan, Burma, Siam, Annam. — **remba** *Moore* differs in the black distal margin of the forewing extending to the cell and in having the upper surface of the hindwing distally dusted with blue-grey. Apex of the forewing and the upper surface of the hindwing greenish yellow with smoke-brown spots. ♀ beneath as the ♂ and above with a more obliquely placed, somewhat narrower, white central area on the forewing than *cingala*. The
liquida. dry-season-form **liquida** *Swinh.* is beneath lighter grey-green and both wings correspondingly more narrowly
cingala. margined with black. *remba* is a forest butterfly, and occurs all the year round. — **cingala** *Moore* (63 b) has a regular dark apical border on the forewing and beneath darker green ground-colour, which, however, is covered with light brown spots; ♀ with whitish instead of greenish yellow basal spot on the upperside of the hindwing.
andamana. At 2—4000 ft., a quick flier and difficult to catch, rather rare; Ceylon. — **andamana** *Swinh.* approaches the rainy-season-form of *nadina*, but has a less broad black distal margin to the forewing. The ♀ above predominantly white, but more distinctly spotted with black than *amba*-♀♀, the under surface of the hindwing somewhat darker
fawcetti. green with more conspicuous postdiscal bands. Andamans. — **fawcetti** *Btlr.* is a more specialised island race with sharply defined, deep black distal margin on the upper surface of the hindwing also. Under surface deep moss-green with dense black dusting. The very rare ♀ on the upperside of the hindwing partly scaled with blue. partly with yellow-green, the black margin on the forewing extending to the cell. Sumatra, from 2—5000 ft, —

andersoni *Dist.* (65 c) is beneath so different that it can only be recognised as belonging to *nadina* by the yellow-green dusting at the apex of the forewing; the hindwing is light orange-colour with a beautiful yellow longitudinal spot which extends beyond the cell. Malay Peninsula, apparently very rare. — **eunama** *Fruhst.* (65 c), above of a milky instead of yellowish white ground-colour, beneath with light moss-green tinge, without yellowish admixture. Formosa, ascending to 4000 ft., common.

H. perimale must be accepted as the oldest name for a widely distributed, extremely variable species, the forms of which are figured in the three lower rows of plate 65. There are nearly 30 island races known, a remarkable instance of the wide severance which is effected by a few knots of salt water of the ocean which isolates butterflies whilst uniting peoples. The butterflies, so far as is known, always live near the coast, where they are fond of visiting flowers not very high above the ground and when startled hide in the eucalyptus and thorn bushes with which the small Sunda Islands are so luxuriantly overgrown. Godart in 1819 described a *perimale*-race as *Pieris pitys* from Java. Two decades later (1836) Boisduval transferred the locality of this to Timor and mentions a „*P. rachel*" from Java. Although I have not myself found it there, its occurrence on Java is not improbable, so much the more as I have received it in large numbers from Bawean. As Godart's description agrees very well with a form from Timor, we begin here with **rachel** *Bdv.*, from Java. — **aeliana** *Fruhst.* (65 d), from Bawean, doubtless nearly approximates to it. The ♂ beneath has the cell and two median areas light yellow, but both sides of the submedian pure white; base dusted over with greenish; the subapical spots, white on the upper surface, a beautiful yellow, varying in number from 2 to 5. Hindwing a beautiful light yellow. Distal margin moderately broad, more extended than above, with the yellow dot also mentioned by Boisduval in *rachel* between the radial veins. ♀: under surface of the forewing white also in the cell, hindwing light ochre-yellow. Flies in July-September. — **aelia** *Fruhst.* is a larger race, still more broadly margined with black above, with two yellowish white subapical patches. Under surface as in *aeliana*, but more broadly margined with black-brown. Island of Kangean. — **mentes** *Wall.* has in the ♀ above the white basal area of the forewing already somewhat darkened by dense black scaling; the ♂ differs from *aeliana* in the broader distal margin and the presence of only two subapical patches. Under surface: forewing of the ♂ greenish yellow, hindwing dark lemon-yellow, ♀ light ochre-yellow. Lombok, only taken near the coast. — **synchroma** *Röb.* has somewhat narrower black distal margin, moreover the underside of the forewing is again white posteriorly; Flores, Alor, Lomblen. — In **lucia** *Fruhst.* (65 e) the upper surface of the ♀ is often powdered over with grey-brown almost throughout and the whole of the cell of the forewing becomes black-brown. Beneath the distal margin extends proximally beyond the edge of the cell. Sumbawa. — **pitys** *Godt.*, from Timor, differs according to the figure from all the preceding in the uniform yellow tinge of the under surface and in the equally broad black distal margin of both wings above and beneath. — **wetterensis** *Gr.-Sm.* is the rainy-season-form, and **ellina** *form. nov.* (65 e) the dry-season-form, from the island of Wetter. The under surface of the forewing in both is white; that of the hindwing a beautiful yellow in the wet season form, earth-coloured in that of the dry period. Often the apex of the forewing beneath is also suffused with grey and in both the ♂♂ and ♀♀ of the intermediate form the distal band of the hindwing begins to be broken up or to assume a grey-brown colour. — **pygmaea** *Röb.* is a dwarf form from the island of Letti, from which **babberica** *Fruhst.* differs by a somewhat broader black marginal band; island of Babber. — **pityna** *Fruhst.* is another dwarf form with the most broadly diffuse black border to both wings; island of Dammer. — **kuehni** *Röb.* inhabits the remote island of Kabia, south of Celebes; it has the narrowest black distal margin and the lightest yellow under surface to the hindwing of all the known races. The border of the forewing is more deeply emarginate and before the apex are placed three yellow patches, whilst in *pityna* these are usually entirely absent. — **consanguinea** *Btlr.* is above marked exactly like *bolana*, except that the apical spot is reduced; Tenimber. — **bolana** *Fruhst.* (65 f) forms by its size a transition from the dwarf forms of Micromalayana to the more imposing races of the Papuan region. The subapical spots of the forewing beneath very large, beautiful yellow, as well as the upper surface of the hindwing of the ♂, that of the ♀ light ochre-yellow. Key Islands. — **perictione** *Fldr.* is nearly allied, with the black distal band on both wings more deeply excised proximally. Underside of the hindwing in the ♂♂ light ochre-yellow, tinged with orange in places. Aru. — **wallaceana** *Fldr.* is unknown to me in nature. The underside of the hindwing is said to be saffron-yellow, the distal margin with violet sheen; Waigeu. — **dohertyana** *Gr.-Sm.*, similar to the figured *mithra* except that the black marginal band is straighter, and the ♀ is still more intensively tinted with greenish; Dutch and German New Guinea. — **latilimbata** *Btlr.* (= hartei *Ribbe*) has a narrower and still more sharply defined black distal margin to both wings. Under surface of the hindwing in the ♂♂ light-yellow. British New Guinea. — **mithra** *Fruhst.* (65 e) has in the ♂ white, in the ♀ yellow subapical dots on the forewing. Underside of the hindwing in the ♂♂ dark yellow, that of the ♀♀ orange-yellow; the black distal margin broader than in New Guinea specimens; Fergusson Island. — **chrysopis** *subsp. nov.* approximates to *mithra*, but is of smaller size, ♀ above entirely white, distal border straighter, ♀ almost without subapical dots. Under surface also in the ♀ lemon-yellow, hindwing with a yellow dot between the radial veins; Mefor. — **leucophorus** *Gr.-Sm.* (65 d) has beneath on the forewing three yellow and three white submarginal spots and 2—3 on the very narrow distal border of the hindwing. Kiriwina. — **smithi** *Btlr.* (= pallida and pallescens *Gr.-Sm.*) very closely approaches it; it bears four white oblong patches in the distal band of the hindwing. Biak Island in Geelvink Bay. — Oberthür mentions a race from the neighbourhood of Yule Island, in which the ♀ is sulphur-yellow beneath. This form

rachel. aeliana. *aelia.* *mentes.* *synchroma.* *lucia.* *pitys.* *wetterensis. ellina.* *pygmaea.* *babberica.* *pityna.* *kuehni.* *consanguinea.* *bolana.* *perictione.* *wallaceana.* *dohertyana.* *latilimbata.* *mithra.* *chrysopis.* *leucophorus.* *smithi.*

scyllara. belongs perhaps to *latilimbata Btlr.* — **scyllara** *McLeay* (65 d) is a subspecies so rich in forms that it has received a whole series of names. The figure shows the extreme rainy-season-form (*scyllara*), with white under surface to the hindwing. A second form, without a name, has this pale lemon-yellow. *nabis.* **nabis** *Luc.* denotes one with narcissus-yellow, and *lanassa.* **lanassa** *Btlr.* one with saffron-yellow ground-colour. *periclea.* **periclea** *Fldr.* is an intermediate form with light brown apical tinge on the forewing and basal area of the same colour on the hindwing, under surface with very broad black submarginal bands. Finally, *narses.* **narses** *Wall.* (65 d) is the extreme dry-season-form, with grey, sand-coloured under surface, on which the black submarginal bands are narrowed. Australia, especially *perimale.* from Norfolk Is. in the north. — **perimale** *Don.* is a relatively small subspecies with very narrow distal border to both wings, which on the forewing bears a row of 6 white subapical patches. The first described is the extreme dry-season-form, similar to *narses*, but beneath darker earth-brown with very broad black transverse bands, traversing the entire forewing. ♀ broadly margined with black, with 5 white submarginal spots on each wing. *amarella.* Wallace has described a transitional form as **amarella** and that of the wet season has a light yellow ground-colour on *acrisa.* the hindwing beneath. New Caledonia. — **acrisa** *Bdv.*, erected on the rainy-season-form, has a white under surface to the hindwing. A second form has the hindwing and the apex of the forewing sulphur-yellow. An intermediate form has a light brown hindwing, and the extreme dry-season-form, with earth-brown under surface *terranea.* recalling *perimale*, has been named **terranea** *Btlr.* The ♀ of the rainy-season-form is yellow also above, with very broad distal margin to the hindwing, especially towards the costa, which only contains traces of whitish *perithea.* dusting. Island of Lifu, east of New Caledonia. — **perithea** *Fldr.* (= inopinata *Btlr.*) has been described from the ♀ of the rainy-season-form, with light yellow ground-colour on the hindwing, which is basally suffused with *agnata.* darker yellow. Unknown to me in nature; Fiji Islands. — **agnata** *Gr.-Sm.* again approaches the Papuan type in the character of the markings, in many respects resembling *mithra*, from which it differs principally in having the black distal margin on the underside of the hindwing only half as broad anally; Rubiana and Guadal- *maedonaldi.* canar, Solomon Islands. — **macdonaldi** *Ribbe*, described as *Tachyris*, has beneath a more extended distal margin, *discolor.* which is ornamented with small, indistinct yellowish spots. Bougainville (Solomons). — **discolor** *Godm. & Salv.* (63 c) is above in the ♀ light yellow; in the black distal border, which extends to the cell, are placed in both sexes 3—6 white oblong spots. Unknown to me in nature; figured from the types in the British Museum. Ugi and Ulana (Solomons).*)

quadricolor. **H. quadricolor** *Godm. & Salv.* (65 f) possibly represents *perimale* in the Bismarck Archipelago. ♀ above essentially darker than the ♂. The butterflies were found flying over the damp sea-shore, occasionally settling on a yellow composite; the ♀♀ rare, about as 4: 100 to the ♂♂. New Pomerania, New Mecklenburg, New Lauenburg and Nusa-Laut. There occur, but very rarely, also specimens without the row of yellow submarginal spots on the underside.

maculata. **H. maculata** *Sm.* is a peculiar, isolated species, which from its pointed forewing might be a *Tachyris*, were it not that the hair-pencil of the abdomen is wanting. Upper surface pure white, with narrow black sub, apical band on the forewing and 4—5 small black intermedial streaks on the hindwing. Evidently very rare since it was not found by Ribbe and Dahl. ♀ still unknown. New Pomerania.

affinis. **H. affinis** *Vollenh.* (58 b) appears to replace on Celebes the *pitys* of the small Sunda Islands. The butterflies fly slowly and heavily at the edges of the woods. There are two seasonal forms, a small dry-season-form which is dull grey above and a larger rainy-season-form with pure white bands. The ♀ is very rare, larger, with rounder wings, and with a grey-scaled median area on both wings. Beneath the forewing is white except for the sharply defined black distal border, the hindwing dull yellow. North and South Celebes. De Nicéville has based on *affinis* the untenable genus „*Aoa*" (sic).

boisduvaliana. cirta. semperi. balbagona. **H. boisduvaliana** *Fldr.* (65 f) represents *pitys* on the Philippines. The typical form has been described from Luzon. — As **cirta** *subsp. nov.* I designate the island race from Bohol, which has a much narrower black distal border. — **semperi** *Stgr.* (65 f) on the other hand is a form from Mindanao with very broad border; — **balbagona** *Semp.* is a much darkened island race with smaller whitish discal spots on both wings. Camiguin de Mindanao. The under surface of all the races is white on the forewing, on the hindwing light yellow to orange-yellow, the black distal bands on both wings slightly scaled with violet or yellowish. The species is nowhere rare and flies all the year round with the exception perhaps of January to March.

With **H. lea** begins a well defined group of beautifully coloured species, which without exception are characterised by a white forewing and in contrast to it, a yellow or orange-coloured hindwing. All the species inhabit the edges of forests or open woods and fly restlessly, in the rainy season fluttering slowly from flower to flower and being then extremely easy to catch, but in the dry season or on very hot days shooting along wildly, so that it is only with great difficulty that even one of them can be captured. In spite of the commonness *lea.* of the species nothing is known with regard to the early stages. — **lea** *Dbl.* (64 e). Under surface of the forewing white with black-margined cell, moderately broad black apical dusting, which includes three white

*) It is not impossible that one or other of the 36 *perimale*-forms here recorded may be really a separate species; but this can only be proved by breeding from the larva or by an examination of the organs of copulation, for which at present there has been no opportunity.

discocellular stripes and is ornamented with 2—3 yellow patches. Hindwing entirely light yellow, anal margin orange-coloured, the distal band, which in the ♀ is somewhat broader, moderately wide, brown-black adorned with some yellow spots. — **malaya** *Fruhst.* is above somewhat more broadly margined with black, hindwing with *malaya.* the anal half entirely dark orange-yellow. Forewing of the ♀ predominantly black with oblong white areas, hindwing in the cell a beautiful light yellow, anally brown-red. Under surface much more extended orange-colour than in the allied races. Malay Peninsula. — **siamensis** *Btlr.* is a much lighter race, upperside of the hindwing *siamensis.* in the ♂ extended yellow and only posteriorly light orange-colour. The greater part of the forewing of the ♀ white, hindwing lighter yellow and more yellow-brown than *lea* and *malaya*. Siam, common from December to April, often associates with the crowds of *Huphina dapha* and *Appias libythea* at wet places on the ground. — **amalia** *Voll.* inhabits Sumatra. Veins of the forewing more broadly black than in *lea*, the brown-red colouring *amalia.* of the hindwing in the ♀♀ more restricted. The black reticulation on the under surface more extended than in *lea*. — In **montana** *Fruhst.* (65 a) the reddish tinge of the hindwing has almost entirely disappeared and the *montana.* black transverse striping is essentially reduced. Kina Balu. — **meridionalis** *Fruhst.* is the race from South-East *meridionalis.* Borneo, in which the black distal border of the hindwing extends to the cell, the cell itself being suffused with light yellow. Under surface of the hindwing with large white spots beyond the cell, which are absent in *montana*. — **hespera** *Btlr.*, from Sarawak and Labuan (Borneo); the ♀♀ with very broad brown tinge on the upperside of the *hespera.* hindwing and broad, confluent transverse stripes on the underside. — **natuna** *Fruhst.* (64 e) has very narrow *natuna.* black distal borders to both wings, the ♀ above with a finer black reticulate pattern than Borneo specimens. Yellow subapical spots on the forewing, a yellow anterior part to the hindwing, which in the posterior half is suffused with light chestnut-brown. Hindwing beneath almost without black distal margin, but there is a moderately broad submarginal band instead, distally bordered by large yellow subterminal patches. Natuna Islands.

H. judith *F.* (65 a, b) replaces the preceding species on Java; it is common everywhere up to 2000 ft. *judith.* where there are open or dense woods, at the borders of which, as also in the coffee plantations, it is to be met with all the year round, sometimes in innumerable swarms. The species is continuously on the wing from 9 o'clock in the morning till about 5 in the evening and especially visits flowers. East and West Java, Bali.

H. selma *Weym.* (65 b) is perhaps only a local race of the preceding; the ♀ is very rare. Nias. *selma.*

In the midst of the area of distribution of *judith* and *selma* occurs on the island of Engano a distinct species, **H. ethel** *Doh.* (65 b), whose ♀ has curiously a much closer resemblance to *zisca* from the Philippines than *ethel.* to *judith* and *selma*, and beneath is noteworthy for the large yellow subapical spots on the forewing and a broad black submarginal band on the dark yellow ground of the hindwing.

H. naomi *Wall.* is the predominant butterfly of the island of Lombok, where it occurs at elevations of *naomi.* from 2—4000 ft. The plateau of Sambalun especially, which at the end of April presents one expanse of flowers, is enlivened by this species. The ♂♂ rest at the sandy edges of the brooks, only rarely moving, whilst the ♀♀ flutter from flower to flower. Two seasonal forms of the ♀♀ may be differentiated: that of the rainy season similar to the *aga*-♀ figured, but still more broadly striped with black and beneath with reddish orange-coloured discal spots, and **pseudamba** *form. nov.* with predominantly grey-white upper surface narrowly margined with black *pseudamba.* and yellow and grey-yellow, even whitish under surface. — **aga** *Fruhst.* (64 e, f) is a local race from Sumbawa, *aga.* darker in the ♂, in the ♀ with more extended reddish yellow tinge on the hindwing above. — **oberthueri** *Röb.* *oberthueri.* is very nearly allied to it, but with larger yellowish patches on the black distal margin of the hindwing beneath in the ♂♂ and light lemon instead of reddish yellow hindwing in the ♀♀, only narrowly bordered with black. Flores. — **eirene** *Doh.* has likewise lemon-yellow under surface to the hindwing and in the arrangement of the *eirene.* black markings approximates much more to *judith* from Java than to *naomi*; Sumba.

H. aspasia is the name-type of a collective species distributed from the Philippines over the Moluccas to Waigeu. It is very susceptible to climatic influences and is consequently divided into a large number of local races. — **olga** *Eschsch.*, from Manila on Luzon, is the most northerly branch. ♂ above similar to *zisca*, but *olga.* smaller and with less prominent black transverse stripes on the forewing. — In North-West Luzon it has developed a pronounced winter and local form, **anaitis** *subsp. nov.*, with slight blackish dusting; the ♀♀ light yellow *anaitis.* on the hindwing above, with the forewing almost entirely white. The ♂♂ of the summer rainy-season-form, **tergelia** *form. nov.*, from Central Luzon, have somewhat more extended black dusting; the hindwing assumes a darker tone, the ♀ has on the upperside of the forewing broad black stripes and large yellow patches; the hindwing is darker yellow, densely scaled with black and margined with black almost to the cell. — According to SEMPER *anaitis* owes its existence to the very considerable variations of temperature in North-West Luzon, where the dry period is at the same time the coldest, whilst at Manila, where *olga* occurs, the temperature is subject to less change. Between these stands *tergelia* with rich colours, which on Mindoro and Negros increase still more; there, especially in the ♀, the yellow of the hindwing is deeper, the black dusting more extended: this is **rhemia** *rhemia.* *subsp. nov.*, type from Mindoro. Seasonal forms also are developed on these islands, especially on Bohol, where

the seasons are less sharply separated and the temperature varies still less, indeed scarcely at all (SEMPER). — On Camiguin de Mindanao occurs another noteworthy island form, which differs from *zisca* in the more sharply
poetelia. defined distal border of the hindwing in the ♀ and the darker yellow ground-colour: = **poetelia** *subsp. nov.* — On Mindanao itself, particularly in the east, where the full force of the monsoons is experienced, enormous volumes of water being discharged over the woods of the island, the dark colouring attains its greatest intensity:
orantia. **orantia** *subsp. nov.* The yellow of the hindwing has an orange tinge, the white areas of the forewing are still further
zisca. suppressed by black. — This tendency to darkening exists also in **zisca** *Fruhst.* (65 a), from Bazilan, but in this the areas of the forewing are white instead of yellowish, as in *orantia*, and the hindwing lemon-yellow instead
irma. of orange-coloured. — **irma** *subsp. nov.* (64 f) has also on the hindwing white interneural areas; Jolo Archipelago. —
olgina. **olgina** *Stgr.*, from Palawan, has still more extended and more milky white stripes on the forewing and the hindwing
phokaia. is only in the cell slightly tinged with yellowish. — **phokaia** *subsp. nov.*, from the island of Balabac, is in both sexes even lighter than *olgina*, the black veins and the distal margin appreciably narrowed, the hindwing beneath
emma. strikingly pale. — **emma** *Voll.* (64 f) shows especially broad black stripes on the forewing, which, however, still leave room for relatively large white subapical spots. ♀ beneath predominantly black, with yellow submarginal spots and green-dusted, otherwise light ochre-yellow under surface to the hindwing; Batjan, Halmaheira, Moro-
aspasina. tai. — **aspasina** *Fruhst.* (65 a), smaller and much darkened; in the ♂ the white subapical patches of the forewing are suppressed, the hindwing above and beneath more reddish yellow than in *emma*. ♀ above predominantly yellow, without whitish areas; under surface of the hindwing light yellow with red-yellow submarginal patches.
hester. Veins in both sexes without black colour; Obi. — **hester** *Voll.* (63 a) approaches it most nearly, but the under
aspasia. surface of the hindwing in both sexes is light lemon-yellow. Waigeu. — **aspasia** *Stoll* (64 f) is the nymotype of the whole group; the ♂, very similar to *hester*, has rather broadly black-edged veins on the forewing and dark orange-tinted hindwing; ♀ on the under surface of the hindwing without the black reticulate markings of *emma*; forewing also beneath with very fine black reticulation, hindwing with only the vestiges of a submarginal band,
jael. otherwise light yellow with darker margins; South Moluccas. — **jael** *Wall.* approximates to *aspasia*, but the ♀ is still more narrowly margined with black and both sides of the hindwing are light lemon-yellow with a slight admixture of reddish; Buru.

bathseba. **H. bathseba** *Snell.* is a *mixtum compositum*. The ♂, above scarcely distinguishable from *aspasia*, only like *jael* with yellow instead of black costal margin to the hindwing, unites on the under surface the pattern of the forewing of *judith* with that of the hindwing of *naomi* and *leal* The ♀ is beneath intermediate between *naomi* and *ethel*, and above resembles on the hindwing *orantia* from the Philippines and on the forewing *aga* from Sumbawa. Also zoogeographically considered *bathseba* is an enigma, with its *aspasia*-colouring of the ♂♂ between Java, which produces the light yellow *judith*, and Lombok, where occurs *naomi* with the hindwing half white and half yellow! Hence in *bathseba* we have a „missing link" between *lea* from the western part of the Archipelago and *aspasia* from the Moluccas. Island of Kangean, to the north-east of Java. It is most interesting how a local race of *aspasia* could be developed on Kangean, whilst only a few miles to the south, on Bali, the Javan *judith* and to the south-east *naomi Wall.* occur. The unexpected occurrence of an *aspasia*-race so far west of its proper region, the Moluccas, might give rise to the supposition of importation by the wind or some other migration. But here, as with so many other island races, it is quite out of place to suppose migration or importation as an explanation of their occurrence. The butterflies are something certain, which probably already existed when the whole of South Asia presented a compact mass of land. Hence when by tectonic causes some islands are divided off, the butterflies and other insects, mollusca, etc., remain at the same place. But on these fragments of an earlier continent, or island as large as a continent, varied climatic and atmospheric influences are now at work, which act on the *a priori* present species, incline them to variation and in the course of innumerable ages mould them into that which we to-day recognise in the Archipelago as a geographical form or an island race, and in some cases even regard as a good species.

aspasia is wanting in the Celeban subregion, where it is apparently represented by **H. timnatha,** a species of which five subspecies are known, and of which quite a series may still be looked for, as each of the five
timnatha. islands around Celebes produces a separate race. **timnatha** *Hew.* (64 d) is described from North Celebes. The under surface as the upper, except that the black vein-stripes are deep black and rather sharply defined. The hindwing is very similar to that of *celebensis*, with broad black distal margin, which encloses six whitish spots. The base is tinged with dark yellow. The strongly dimorphic ♀ resembles that of *sorror*, but has the spots on the upper surface of both wings narrower and yellowish. Minahassa, ♂♂ common, ♀♀ very rare. In Gorontalo
filia. on the east side according to VOLLENHOFEN a smaller and darker local form occurs. — **filia** *Fruhst.* is a larger and much lighter race with the black bands and blue-grey dusting on the hindwing reduced. Base of the hindwing tinged with light yellow, extended white areas beyond the cell, the submarginal spots of both wings larger, those
sorror. of the hindwing light yellow instead of whitish. South Celebes, waterfall of Maros. — **sorror** *Fruhst.* (64 e) is a smaller island race. Forewing more blackened, the blue-grey distal margin of the hindwing lighter and intersected by thinner vein-stripes. Under surface with broadened black bands, hindwing with reduced dark yellow basal area, white cell, distal margin extended to the cell, ornamented with smaller white-yellow patches. Sula

Mangoli. — **filiola** *Fruhst.* is still smaller, beneath only darker, with strongly restricted white areas. Hindwing with green-yellow basal tinge and submarginal spots of the same colour. Sula Besi. — **aurulenta** *Fruhst.* closely approximates to *sorror* above, but differs from it and other island forms by the intensively orange-coloured tinge of the hindwing beneath and from *timnatha* by the reduced submarginal spots of both wings. Bangkai. *filiola.* *aurulenta.*

With **H. temena** begins a series of species which exclusively inhabit Micromalayana; they are above without exception white in the ♂ and have a moderately broad black distal margin, but beneath rival the most magnificent *Delias* by their brilliant combination of black, red and yellow, either laid on in sharp contrast or delicately merged into one another. Four subspecies are known, which all inhabit the hot coast-districts, thickly overgrown with thorns, of their isolated native islands and in my experience never ascend even to 300 m. — **H. tamar** *Wall.* (55 e) has above the broadest black distal margin to the forewing, is beneath a beautiful yellow and spotted with black; very rare, described from Bali, but has also been observed in single migratory specimens in eastern Java. — **temena** *Hew.* (63 d), from Lombok, has a much lighter basal area above, more broadly striped with white on the forewing and more extended yellow on the hindwing, than **lenitas** *subsp. nov.* (63 d), from Sumbawa, in whose ♂♂ beneath the forewing is traversed by broader black transverse stripes and the hindwing tinged with much darker red-orange-colour and traversed by a stronger black submarginal band, produced basad into a longer point. The ♀ is almost entirely black on the forewing, the veins of the hindwing more broadly black, but the cell of the forewing in the ♂ much lighter than in *temena*. — **hyele** *subsp. nov.*, from the island of Lomblen, represents the albinistic extreme of the *temena*-series; hindwing of the ♀ above light yellow, ♂ on the underside without a trace of black colour on the veins, in the light orange-yellow basal area of the hindwing with very reduced black proximal bordering to the red submarginal spots, which as in the ♀ are more extended. — On Lombok I found *temena* exclusively at somewhat overshadowed, marshy pools, befouled by grazing cattle or horses, where the ♂♂ rest with the wings folded, displaying to the onlooker the gorgeous under surface, and drink greedily. They are, however, very shy, difficult to catch and very lively in the net. The ♀♀ are met with in company with those of *Ixias reinwardti* in the thickest thorny Euphorbia-bushes, in which, when frightened, they disappear near to the ground. *tamar.* *temena.* *lenitas.* *hyele.*

H. julia *Oberth.* (65 c) is beneath a faithful copy of *Delias faseiata Rothseh.* from Sumba; ♂ beneath similar to that of *temena*, but with narrower black transverse bands and lighter yellow subapical spots. Hindwing as in *temena*, but with light yellow basal area, which contrasts vividly with the broad fiery red costal margin and the red submarginal patches with their thin black bordering. ♀ beneath as the ♂, but with whitish streaks along the veins. Sumba, discovered by Doherty. — **calliparga** *subsp. nov.* is larger, ♀ above on the forewing predominantly black with narrow white subapical patches. ♂ beneath with feebly indicated black submarginal band, the whole of the apical area tinged with light yellow; ♀ beneath likewise with more extended yellow apical tinge and darker hindwing, less shaded with white. Sumbawa. *julia.* *calliparga.*

H. laeta *Hew.* (65 c), described from Timor, but apparently also not very rare on the island of Wetter. ♀ beneath as the ♂, but with lighter yellow apical spots on the forewing and light yellow under surface to the hindwing, on which the scarlet marginal spots are proximally bordered by a complete narrow black submarginal band. *laeta.*

H. abnormis *Wall.* (63 b) has in common with **euryxanthe** *Honr.* (63 c) an isolated light red spot in the cell of the forewing. Both inhabit Dutch and German New Guinea. — **ornythion** *Godm. & Salv.* is an allied form from British New Guinea with broader, more obliquely placed, almost triangular apical spot on the forewing, which in the ♀ extends to the cell. Hindwing of the ♀ dusted over with blue-grey above. *abnormis.* *euryxanthe.* *ornythion.*

H. ladas *Gr.-Sm.* (63 b) has beneath yellow instead of red spots; the red longitudinal spot of the forewing is absent, on the other hand the base of the hindwing has a distally pointed yellow triangular patch. *ladas* inhabits elevated localities, and it is the only Pierid which occurs in the midst of the gloomy primeval forest on Mt. Gelu in German New Guinea at about 1500 m even during the height of the rainy season and settles on the sandy banks of the water-courses. *ladas.*

H. persephone *Stgr.* (= odyssia *Fruhst. i. l.*) (63 d) was formerly only known in one defective male specimen and described as *Delias*. I have ♂♂ and ♀♀ from Waigeu. ♂ above like *ornythion*, ♀ the same but with still broader black distal margin to both wings. Beneath both sexes are alike except that in the ♀ the yellowish apical spot on the forewing of the ♂ is absent. *persephone.*

H. dohertyi *Oberth.* is an allied but distinct species. ♂ above only with a very narrow black apical margin, otherwise pure white. Under surface of the forewing likewise white with black apex and a more extended yellow subapical spot. Hindwing as in *persephone*, only somewhat lighter and sprinkled with some grey scales before the distal margin. Ansus on the island of Jobi. *dohertyi*

15. Genus: **Appias** *Hbn.*

The genus *Appias*, better known under the newer name of *Tachyris*, approximates to the true *Pieris*, but may be distinguished from these by the narrower, longer cell of the hindwing and the presence of a thick hair-pencil on the abdomen of the ♂♂ and by the apex of the forewing being sharply pointed in most species, sometimes even considerably produced. The wing-contour and the style of colouring vary more than in *Pieris s. str.*; likewise the sexes show a tendency to excessive dimorphism. Moreover most of the species are liable to climatic variations to a considerable extent. — Larvae long, mostly green, slightly impressed, posteriorly somewhat narrowed and with two points at the anus. Pupa fastened closely to leaves; the wing-cases without keel. Head with short snout, dorsum slightly raised, laterally with 2 spines; duration of the pupal stage about a week. All the *Appias* are strong, restless fliers, which hurry about everywhere, even near human habitations, gardens, fields and edges of woods, seldom rest on flowers, but are fond of congregating in large numbers on moist places; migratory swarms of *Appias* have been several times observed in Ceylon. — The larvae of *A. libythea* and *taprobana* eat one another when short of food; they also attack pupae of their own species, larvae which are moulting, and larvae and pupae of other Pierids.

A. libythea. A widely distributed species with striking sexual dimorphism. It presents one of the clearest examples of the variation of the Pierids through climatic influences. I have been able unmistakably to observe the gradual modification of the darker markings of the rainy season into the lighter colouring of the dry season.

libythea. Two local races may be distinguished in the Indian region: **libythea** *F.* (= rouxi *Bdv.*) (58 a), indigenous to the Punjaub, Bengal, West and South India and Ceylon, which is somewhat smaller. The rainy-season-form

zelima. ares. of the ♀ is **zelima** *Cr.* (= retexta *Swinh.*), the dry-season-form of the ♀ being **ares** *Swinh.* (58 a). But in

zelmira. Tenasserim, Annam, Indo-China, also in Assam and Sikkim and even sometimes in the plains of Bengal, **zel-**

olferna. irvini. **mira** *Cr.* (58 a) (rainy-season-form) is met with. An intermediate form is **olferna** *Swinh.*, while **irvini** *Swinh.*

sopara. is a white-yellow, extreme dry-season-form without markings (58 a 1). **sopara** *form. nov.* is a rainy-season-form similar to fig. 7, pl. 58 a, but with yellowish instead of whitish areas on the upper surface of both wings; Siam,

peducaca. Assam. — **peducaea** *subsp. nov.* ♂: apical area of the forewing strongly darkened, so that the white strigae are sometimes reduced to thread-like lines. ♀ of the rainy-season-form above and beneath with narrower black markings than in the continental specimens; Luzon, Mindoro, common. — Larva on Crataeva and Capparis; pupa often producing the butterfly in only four days. The eggs are laid singly. The butterflies ascend to 3000 ft.

hombroni. **A. hombroni** *Luc.* (59 e) appears to represent *libythea* on Celebes. The contour of the wings is somewhat similar to that of the genus *Prioneris*. — In East Celebes specimens occur in which the apical colour is broken

lombugensis. sulanorum up into grey spots; this is **tombugens's** *Fruhst.* Tombugu, Kendari; flies in December, January. — **sulanorum** *Fruhst.* (59 e) on the other hand is much darkened in both sexes, so that in the ♀ the white distal spot of the forewing is almost suppressed.

lyncida. **A. lyncida** *Cr.* is the oldest name of a widely distributed collective species, which in addition to the climatic varieties occurs in a large number of island races, some of which are based upon slight, some upon more

hippoides. material variations. — **hippoides** *Moore* (pl. 58 d called *hippo*) appears in three seasonal forms: that of the rainy season with the ♀ as in *formosana* (58 e), but narrower white transverse bands, that of the transitional period, to which the ♀ figured belongs, as it occurs in Siam and Annam in January and February — and that of the

vacans. dry season, **vacans** *Btlr.* (= epicoena *Swinh.*) (58 d, as *epicoena*). In the latter the under surface commonly varies also, assuming an orange instead of light yellow colouring. There occur very rarely also ♀♀ with yellow

lurida. instead of white areas on the forewing above; these are **lurida** *form. nov.* According to Doherty the ♀♀ are found exclusively in the deep shade of the forest, where they sit about on leaves as if lost and from time to time fly

latifasciata. up and down on sunny paths. *hippoides* is distributed from Bengal to Tonkin, Annam and Siam. — **latifasciata** *Moore* is distinguished from *hippoides* by the dense and extended black dusting at the anterior cell-wall and the subcostal of the hindwing beneath and by the broader, strongly dentate black distal margin of both wings. The eggs are laid in clusters. Larva on Crataeva religiosa. Ascending from the plains to 4000 ft. Occurring

taprobana. in South India from Kanara onwards. — **taprobana** *Moore* is a smaller race from Ceylon, with somewhat broader and more deeply dentate distal margin to both wings and dark ochre-yellow tinge on the hindwing beneath. The

aperta. paler dry-season-form is **aperta** *Btlr.* Larva dark green with small black dots, a whitish sublateral line and light green ventral side, lives on Crataeva religiosa. Pupa olive-green, head with sharp point, wing-cases keeled; thorax and last abdominal segment angled. Butterfly a swift flier, frequently returning to its starting-place

nicobarica. and only common in certain years. — **nicobarica** *Moore*, in general smaller and darker, but differing much less

hippo. from *hippoides* than the preceding. Nicobars. — **hippo** *Cr.*, a very distinctive form, rarely represented in collections, the ♂♂ of which approach *enarete Bdv.* from Borneo beneath in having the black-brown distal margin of the forewing widened to beyond the apex of the cell. ♀ with very broad white transverse bands on the fore-

hippona. wing; occurs in West Sumatra. — **hippona** *subsp. nov.* is the much smaller form from North-East Sumatra, always

with narrower black margins and in the ♀ also with reduced transverse bands. Dr. MARTIN saw the ♀♀ frequently rest on the same flowers, such as Udaiana cynis. — **purana** *subsp. nov.* Larger than *hippona*, ♂ more broadly *purana.*
and strongly marked with black, beneath lighter yellow. ♀ darker with broader white streaks. Island of Engano. —
A ♀-form, which occurs in all the island races from the Nicobars to Palawan and Formosa and which is
distinguished by olive- or moss-green-scaled upper surface and light or dark yellow instead of pale green tinge
on the upperside of the hindwing, I call **galbana** *form. nov.* — **vasava** *subsp. nov.* Likewise larger than *hippona*; *galbana. vasava.*
♂ beneath darker green than Indian *hippoides* and *hippona*; Malay Peninsula. — The larva of *hippona* lives on
a small bush which grows on the banks of rivers, superficially resembles that of *Catopsilia*, but is of more
slender shape. The pupa is however quite different, with stellate inpression on the thorax. The butterfly emerges
after about seven days and on Sumatra shows very little tendecy to seasonal dimorphism. — **enarete** *Bdv.* (58 e). *enarete.*
♂ more deeply and broadly marked than *enaretina*, beneath with black-brown distal margin extending to
the cell and as in *latifasciata* with black-scaled subcostal. ♀ scarcely different from those of the Malay Peninsula
and Sumatra; North and South Borneo. — **enaretina** *Fruhst.* (58 f). ♀ with pure white transverse bands on the *enaretina.*
forewing, sometimes with violet reflection. I have only specimens before me belonging to ab. *galbana*. Palawan,
Balabac, and according to SEMPER on some other small islands of the Philippines. — **andrea** *Eschsch.* (58 e). *andrea.*
♂ very similar to that of *enaretina*, but beneath with dark ochre-yellow tinge and uniform distal margin. The ♀
figured represents the form of the wet season, that of the dry season (= **aternia** *form. nov.*) has the cell of the *aternia.*
forewing almost entirely white, without the black transverse band at its apex. Larva on a species of Gynmo-
sporia; above green, beneath whitish, with black spiracles; on the dorsum four blackish dots. Thoracic legs
rose-coloured. Pupa grey, dotted with black, with pointed head, dorsal plate broad, with 3 black spots at
each side. In Manila the pupal stage lasted 8 days. Luzon, Mindoro (?). — **lepidana** *subsp. nov.* ♀ even lighter *lepidana.*
than that of *aternia*, with very narrow black distal margin to both wings. Under surface of the hindwing varying
from light yellow to deep yellow. Guimaras, Negros, Panay. — **formosana** *Wall.* (58 e), one of the most *formosana.*
variable local races, the ♂♂ of the dry season from the plains with almost white under surface to the hindwing,
on which the yellow is only very faintly indicated, whilst in the mountain form examples occur with dark
to ochre-yellow tinge. In the ♀ specimens with grey-white under surface predominate, whilst ab. *galbana* is
very rare. From the plains up to elevations of 5000 ft. Formosa[1]). — **inornata** *Moore*, of which only ♂♂ with *inornata.*
dark ochre-yellow underside to the hindwing are known, flies on Hainan. — With the name-typical subspecies
lyncida *Cr.*, from Java, begins the series of those island races whose ♂♂ have the hindwing pure white beneath *lyncida.*
also; only very rarely in West Java occur atavistic specimens with the hindwing suffused with light yellow. The
butterfly is common everywhere in Java up to elevations of 3000 ft. As long ago as 1791 STOLL knew and described
the dark green larva ornamented with yellow-green rings and black hairs, and also the light yellow, black-dotted
pupa, which after 8 days assumes a red-brown colour, and from which the butterfly emerges after 8 days. Accord-
ing to him it lives on the cotton tree. The ♀ has above broad whitish yellow transverse stripes. An aber-
ration with yellow areas above (f. **lurida** *form. nov.*) is rare; it also occurs in India. Java, Bali. — On the island *lurida.*
of Bawean, very close to Java, the ♀ is already essentially darker: = **fabiola** *Fruhst.* (58 d). — On Lombok *fabiola.*
occurs a very interesting race, **icilia** *form. nov.*, with beautiful light yellow transverse streaks and basal area on *icilia.*
the hindwing in the ♀♀, whilst the under surface is grey-violet with the exception of the broadly yellow costal
margin. Ascending from the plain to 2000 ft. Very common in April and May, a true „campong" (village)
butterfly, which prefers to fly along the roadside and garden-hedges and during the hot day-time also remains
at the edges of woods close to the ground. — **papissa** *subsp. nov.* is larger than the preceding and more broadly *papissa.*
margined with black. Sumbawa. — **floresiana** *Btlr.* (58 e), with both sexes very narrowly margined with black *floresiana.*
and bearing dark yellow areas on the upper surfare of both wings; Flores, Alor, Sumba (?). — **dohertiella** *Btlr.* (59a) *dohertiella.*
is a modified, very small form, with sharply defined deep black distal margin to both wings, large whitish
distal areas lightly dusted over with grey on both wings and almost pure white under surface to the hindwing
in the ♀♀; Wetter. — **lynceola** *Fldr.* (= timorensis *Btlr.*), with broader and yellowish stripes in the ♀♀; Timor. — *lynceola.*
lycaste *Fldr.* (58 f, only fig. 1) inhabits southern Celebes. The ♀ has white discal patches on the forewing and *lycaste.*
a lighter basal area on the hindwing, as in *formosana.* — In North and East Celebes there is a race with the ♀♀
entirely black above (58 f, fig. 2), which I now call **gellia**; the ♂♂ differ from those of *lycaste* from the south *gellia.*
of the island in having the black distal margin of both wings twice as broad. — **lutatia** *subsp. nov.*, from the *lutatia.*
island of Tana Djampea to the south of Celebes, is a very interesting race, being quite isolated, on account
of the yellow underside of the hindwing, among the forms of the neighbouring islands, whose ♂♂ without
pxception show a white hindwing. In the ♂♂ the black distal margin of the hindwing above is a little more strongly
ɔentate than in *gellia*-♂♂.

On the Moluccas and in the Papuan region *lyncida* is represented by **A. ada,** which is distributed to the Carolines, Mariannes and Solomons. There are already 15 island forms known, and without doubt a large number still remain to be discovered. As in *lyncida* there also occur in its Papuan sister-species ♀♀ with yellow and others with grey basal half to the hindwing beneath. But the latter appear to occur in inverse proportion, i. e. more

[1]) cf. addenda.

cana. rarely (forma **cana** 59 f). — In almost all the island races we meet with a further form (that of the dry season?)
tristitia. without or with very little black colour on the distal half of the hindwing above (f. **tristitia** *form. nov.*). Larva
ada. unknown, as well as details concernig the habits. The name-type from the South Moluccas is called **ada** *Cr.* (59 f),
leucosticta. not very rare on Ceram, Amboina and Saparua. — BUTLER has separated as **leucosticta** the form from Buru, which is unknown to me in nature, but is perhaps identical with specimens which I have before me from Obi, and which
stenia. bear a white instead of yellow apical spot on the underside of the forewing; a very inconstant character. — **stenia** *Fruhst.* is a rarer race with broad grey submarginal spots on the upper surface, showing through from beneath, very large, but nevertheless with only narrow black distal margin. The whole apical area and almost the entire cell of the forewing deep black, with a very large white subapical spot and a still broader quadrate white spot at the end of the cell. Hindwing light yellow with orange-coloured tinge at the proximal edge of the very uniform terminal band, which extends to the terminal margin and is distally ornamented with yellowish fringes.
bandana. Locality unknown; probably Halmaheira. — **bandana** *subsp. nov.* approximates to *ada*, but with narrower black
cilla. distal margin to the hindwing beneath and richer orange-coloured tinge. Banda. — **cilla** *Fldr.* (59 f) is the race
clavis. inhabiting the Aru Islands and **clavis** *Wall.* (60 a) the very similar form from the Key Islands, which has the
thasia. characteristics of the dry-season-forms, but reduced black margins. — **thasia** *Fruhst.* (60 a), with relatively broad distal margin in the ♂♂ and narrower black discal area in the ♀♀, has the distal margin of the forewing in the ♀♀ broken up into streaks and beneath very slight orange tint. Type from the island of Roon, also known from
nerva. Mafor and Dutch New Guinea. — **nerva** *subsp. nov.* has the black distal margin in the ♂♂ somewhat narrower again; the darker ♀♀ more uniformly margined with black and more extended orange tinge on the hindwing
herennia. beneath. Waigeu, Salawatti. — **herennia** *subsp. nov.* has the ♀♀ above of the deepest and most beautiful greenish yellow and beneath of the richest orange-colour. Moreover the apical spot of the forewing beneath in the ♂♂ is
plotina. reddish instead of light yellow or white. British New Guinea; North Australia: Cairns. — **plotina** *Fruhst.*, with the upper surface of the ♀♀ almost pure white, has the hindwing beneath almost entirely orange-coloured in
solstitialis. both sexes. Fergusson Island. — **solstitialis** *Btlr.* is a race without the black subapical transverse band on the forewing, a characteristic which is common to all the branches of *ada* from the Solomons. The black marginal
florentia. band of the hindwing only moderately broad. New Pomerania. — **florentia** *Gr.-Sm.*, from Guadalcanar (Solomons), has beneath a short black distal area on the hindwing, only extending to the lower radial, which is proxim-
vana. ally bordered by a large, quadrate orange-coloured spot. — **vana** *Fruhst.* is the most brightly coloured form known. Hindwing anteriorly light sulphur-yellow to the middle of the cell, and then gradually changing into a fiery orange. The black-brown marginal area becomes lighter distally and is ornamented with golden-brown
ribbei. scales. Bougainville. — **ribbei** *Fruhst.*, from New Georgia, is again duller-coloured with broad, uniformly black-brown distal area on the underside of the hindwing, which posteriorly is only margined with orange for a short
monna. distance. — **monna** *Fruhst.*, from the Solomons, without exact locality, appears to approach *solstitialis Btlr.* and has like the latter a very narrow black marginal border to the hindwing, especially above. *monna* further differs both from *ribbei* and from *vana* in the very narrow black apical tinge on the forewing. The under surface of the hindwing is characterised by the light sulphur-yellow ground-colour, in which all the basal and apical orange is absent. Only in the anal angle a very narrow reddish yellow shade is noticeable, whilst according
ardens. to BUTLER *solstitialis* shows a still more extended orange area than *florentia*. — **ardens** *Btlr.* (60 a, b), from the Mariannes and Pelew Islands, is one of the smallest *ada*-races; the ♂ beneath dull yellow, ♀ dull grey with the
ella. distal margin of the forewing sharply dentate proximally. — Finally, **ella** *Btlr.*, from the island of Yap (Carolines). is again somewhat more brightly coloured, with the whole of the black distal area of the hindwing narrowly bordered with the orange colour.

A. nero with its vivid red introduces a bright element into this otherwise dull-coloured genus and is the only bright red butterfly of Asia except a few of the Lycaenids. In spite of the wide distribution of the species and its abundance nothing is known as to the life-history. *nero* is a rapid flier, which is occasionally met with on sunny paths in the woods, where it is said to have a certain resemblance to withered leaves on account of the undecided colour of its under surface. FORBES even observed that amorous ♂♂ took leaves driven slowly by the wind for ♀♀ and swarmed round them to no purpose. In Java I observed large crowds of *nero* at puddles in the primeval forest, at which both sexes appeared together, to suck up the moisture in company with
hainanensis. *Saletara panda.* — **hainanensis** *Fruhst.* (58 c) is the most northerly of the local forms; it very nearly
galba. approaches **galba** *Wall.*, from North India, Burma and Tonkin, of which **nebo** *Gr.-Sm.* represents a light yellow
nebo. dry-season-form. Rare in Sikkim and Tonkin, at the extreme limit of its range, *galba* occurs very commonly
figulina. in Assam and Burma. In Sumatra and the Malay Peninsula appears **figulina** *Btlr.* (58 c), a black race, especially in the female, which extends northwards to Tenasserim, where it passes gradually into *galba*. In all the island forms there occur, though very rarely, light yellow or pale red specimens, such as the ♂ figured under 58 b
ramosa. as *figulina*, which may be distinguished as forma *sufflava form. nov.* — **ramosa** *Fruhst.* differs from the general type in the black-dusted interneural areas of the forewing above; Nias; an appearance which is repeated, though
neronis. in a weaker form, in **neronis** *Fruhst.*, from the island of Kangean. — On the Batu Islands, south-west of Sumatra,
pulonus. flies a form of which the ♀ with its light red upper surface somewhat recalls Javan specimens: this is **pulonus**
nero. *Fruhst.*, from Pulo Tello. — **nero** *F.*, from Java to Bali, is the first-known subspecies; the ♀♀ bear in the disc

of the forewing an isolated black spot instead of a band coincident with the discocellular as in *figulina*. Both sexes vary only in the more extended or denser black dusting of the under surface. In the whole of Java, up to elevations of 2000 ft. — **baweana** *Fruhst.* (58 b) is a distinct local form, which has become differentiated on the small island of Bawean in spite of the short distance from Java, and whose ♀♀ more nearly approach the Celebes race than any other form of the Macromalayan region. There is also a darker ♀ than the one figured, with only 2 red discal patches on the forewing. There also occur on Bawean, as in all the places where *nero* is found, light and dark red specimens (on 58 b, third and fourth figure). The dark red specimens have mostly been longer on the wing than the light ♂♂. — **chelidon** *Fruhst.* ♂: upper surface of the forewing dusted with black much as in *ramosa*, larger than Javan specimens; ♀ with the black distal margin of both wings almost twice as broad as in *figulina*-♀♀; North and South Borneo. — **flavius** *Gr.-Sm.* is a much lighter form, light red-yellow in the female, with narrow black margins; Taganac Islands, north of Borneo. — **palawanica** *Stgr.* has in the male only very little black dusting on the forewing. Of the ♀ there are 3 forms: one similar to the ♂; a second, **coelita** *Fruhst.* (58 c), with white-blue median area; and thirdly **helvola** with light yellow-red disc and submarginal spots of the same colour. Palawan, common in January. — On the Philippines occur races which collectively are characterised by a broad black, sharply defined distal margin. The broad central area varies in colour from light yellow to orange. The darkest of the known races is **zamboanga** *Fldr.*, from Mindanao, the ♂ of which has been described by Butler as *mindanensis* — **soranus** *subsp. nov.* is based upon specimens from Cebu, whose ♀ has the central area, which is white on the forewing and yellow on the hindwing, twice as broad as in South Philippine ♀♀. — **domitia** *Fldr.* (♂ = asterope *Fldr.*) is a form with narrow black distal margin, which is mostly dark red in the male and commonly almost white in the female; North Philippines, Luzon. — **tibericus** *subsp. nov.* (♀ by an oversight described on pl. 60 f as *mariae*) is a light vermilion form with the distal margin of both wings in the ♂♂ finely dusted with black, less interneural scaling on the forewing and broad black discal bands on the hindwing beneath. Bazilan, February-March. — This form approaches the somewhat smaller **acuminata** *Snell.* in the copious black dusting of the forewing and a brown-black submarginal band which traverses the whole of the under surface of both wings. Tana Djampea, south of Celebes, flies in December. — With **zarinda** *Bdv.* (58 c) begins a series of forms which are conspicuous by the falcate, very pointed shape of the forewing and the absence of the black vein-colouring on both wings. 58 c, first figure, represents an aberrant ♂ with the veins on the forewing slightly tinged with black distally. Two forms of the ♀ are known, one with red median bands and submarginal spots on the upper surface and the other with these markings white: f. **fatima** *Voll.* (58 c). The ♀♀ of *zarinda* have a more extended black-grey tinge beneath than the other races. — In South Celebes occurs an aberration of the ♂ with light yellow wings; this is ab. **aurosa** *Fruhst.* As is the case with *nero*, I also observed in Central Celebes that the ♂♂ settled in dense crowds on moist sand-banks or on mud-banks in the river. — **phestus** *Westw.* is a small dark form from the attendant island of Talisse, North Celebes. — **sulana** *Fruhst.* is a large form with darker underside from the Sula Islands. — Finally, **bouruensis** *Wall.* is a race very similar to *zarinda* in the male, but with light vermilion ♀, which differs from all the allied forms in a narrow deep black basal area and a continuous light red-yellow submarginal band on both wings. Doherty also discovered a ♀-form with white discal area on both wings, analogous to *fatima Voll.* from Celebes. Kühn found the species not rare in eastern Ceram.

baweana. *chelidon.* *flavius.* *palawanica.* *coelita.* *helvola.* *zamboanga.* *soranus.* *domitia.* *tibericus.* *acuminata.* *zarinda.* *fatima.* *aurosa.* *phestus.* *sulana.* *bouruensis.*

Where on the Moluccas the red *nero* disappears, occurs a representative of chocolate-brown ground-colour, **A. placidia** *Stoll* (60 e). In this species the ♀ is not dichromatic, but coloured like the ♂ (60 e), with a few washed-out yellow submarginal spots on the forewing. Amboina, Ceram. — On the North Moluccas, Batjan, Halmaheira and Obi, flies a local form, **maculata** *Stgr.*, which is distinguished in the female by somewhat more intensive yellow spots on the forewing.

placidia. *maculata.*

In the Papuan region the brown species disappears and in its place occurs as representative of the Indo-Malayan *nero* a blue-grey-scaled collective species with partly polychromatic ♀♀, of which **A. celestina** *Bdv.*(61d), from Waigeu, must be regarded as the name-type. Of all the races of *celestina* there are ♀♀ with whitish central area on both wings (**lileia** *form. nov.*) and others with the central area yellowish (**aurifera** *Fruhst.*, 61 e). — The subspecies which is most brightly coloured beneath we meet with on the Aru Islands; it is **barea** *subsp. nov.*: ♂ above with narrow black transcellular band; under surface for the most part brilliant lemon-yellow, tinged with canary-yellow, especially on the hindwing. ♀ above either white or light orange-yellow (= **flava** *Ribbe*). — **galepsus** *subsp. nov.* (61 e), with stronger submarginal bands on the forewing and broader black distal margin to the hindwing; the ♂ is characterised beneath by a sand-grey tinge on the apical part of the forewing and the whole of the hindwing. Key Islands. — **sekarensis** *Ribbe* (61 d) has in the male only a narrow black distal border on the upperside of the forewing, without a trace of a submarginal spot, and a broad grey tinge on the underside. The ♀ approximates to that of *celestina*; the basal half of the hindwing is, however, mostly yellow-brown instead of whitish. A ♀-form from Kapaur with grey-yellow tinge on the hindwing I call **limia** *form nov.* Dutch South and West New Guinea. — In German New Guinea occurs a specialised race, **galerus** *subsp. nov.* (61 d), with light blue upper surface in the ♂♂, which beneath assume a whitish blue colour, without the least tinge

celestina. *lileia.* *aurifera.* *barea.* *flava.* *galepsus.* *sekarensis.* *limia.* *galerus.*

of grey-brown. The ♀ is beneath likewise very light, forewing with broad black submarginal band, but with white instead of black tone. Hindwing without black distal band, which, however, shows through distinctly from the upper surface. According to HAGEN drinking at the gravelly, shady banks of brooks, on moist sand, and not rare. — **delicata** *Btlr.* very nearly approaches *celestina*; but it is above darker blue and beneath has the submarginal band narrow but traversing the whole of the forewing. New Pomerania. — **eumelis** *Bdv.* probably also belongs here; the description: „Forewing white, the base black and also the costa and apex; hindwing white with broad black marginal band, beneath at the median saffron-yellow" seems to refer to a ♀. New Mecklenburg. — **korridona** *Gr.-Sm.*, only the ♀ known, with yellowish white upper surface, has a very broad brown-black distal margin to both wings and the apex of the forewing beneath is tinged with purple-white, the band of the hindwing covers a third of the upper surface and has a slight blue-red sheen. *Korrido* on the island of Mysore.

delicata. *eumelis.* *korridona.*

A. asteria *Misk.* (= cerussa *Fruhst.*) (61 e) is a sharply separated species, in the ♀ with still stronger black bands on the upper surface. Beneath in both sexes a saffron-yellow tinge fills up the whole cell of the forewing. Hindwing of the ♂ uniformly light grey, that of the ♀ grey-violet with black-brown median band. Queensland.

asteria.

A. clementina is a small species, of which only two races are known: **agar** *Fruhst.* (61 e). ♂ beneath with blue-grey basal area on the forewing and smoke-brown apex, the underside of the hindwing also smoke-brown; ♀ beneath grey-violet with black submarginal bands on both wings. The rainy-season-form of the ♂♂ is darker blue-grey than the figured dry-season-form. Dammer, Babber, Tenimber. — **clementina** *Fldr.* has a purer white ♀ with narrower black longitudinal bands. Amboina; is said also to occur in Australia.

agar. *clementina.*

A. ithome *Fldr.* (60 b), with black wings, which have a broad vermilion median band on the upper surface and are lighter yellow beneath as far as the base, occurs only in Celebes. The ♀ recalls *Huphina affinis* (58 b) in the dull grey-white median band. I found *ithome* at the edge of the forests on the coast of Toli-Toli in November and December drinking at dirty places by the road, and Dr. MARTIN even took it in the immediate neighbourhood of Macassar.

ithome.

A. nephele belongs exclusively to the Philippines, where the species as one proceeds from north to south presents a striking example of the tendency of many Pierids of the Philippine Archipelago to assume a more melanotic colouring in the south than in the north and north-west. — **nephele** *Hew.*, from Luzon, is traversed by very broad white bands on the forewing, which on the hindwing of the ♀ are replaced by yellow ones, with orange-coloured bordering to the narrow black distal margin. — In **invitabilis** *subsp. nov.*, from Mindoro, the white median areas are narrower and in the ♀ there is a grey-white instead of a yellow basal area. — In **aufidia** *subsp. nov.*, from Bazilan, the bands are still narrower, but the ♀ has a yellow basal area on the hindwing. — In Mindanao the basal area of the hindwing in the ♀♀ is darkened and the white band of the forewing in the ♀♀ is only a few millimeters in width, hence the black distal margin is extended, = **elis** *subsp. nov.* — According to SEMPER the melanotic darkening reaches its maximum on the Sulu Islands, where **hostilia** *subsp. nov.* occurs, with the black distal margin of both wings twice as broad as in Luzon specimens. — Finally, **dilutior** *Stgr.* (59 f) must be regarded as a lighter form, in which in the ♀♀ the basal area of the forewing in many specimens begins to be broken up into brown atoms, and the black distal margin in both sexes is still narrower than even in *nephele* from Luzon.

nephele. *invitabilis.* *aufidia.* *elis.* *hostilia.* *dilutior.*

With **A. indra** begins a series of forms which by some authors have been grouped together under the untenable generic name *Hyposcritia Hbn.* In it and its allies we observe the maximum of climatic influence, which affects the colouring and pattern as well as the size; moreover, there occurs extreme sexual dimorphism in colours, forms of the hot valleys and rain-laden mountains, and insular isolation, so that the specific identity of the forms was formerly not known and many were erected as separate species. The rainy-season-form **indra** *Moore* (59 a) has in Sikkim specimens a pure white colour, in the larger Assam examples a yellowish tone, which in **mahana** *Moore* (= imbecilis *Moore*) (59 a) becomes sand-coloured, and also the black apical spot on the upper surface begins to be broken up. The ♀ is extremely rare, scarcely one to 1000 ♂♂, above almost entirely black, with grey-scaled, white discal area on the forewing, beneath with very broad black transverse band on the forewing and greenish yellow tinge on the hindwing. The species only very rarely migrates into the Bengal plain, but is common in Sikkim, Assam and Burma at elevations of 1000—4000 ft. — In the Indian plague-district near Poona, north of Bombay, occurs a small subspecies, with very pointed forewing: **shiva** *Swinh.* (59 d). — In South India, in Travancore and the Nilghiris, there is a form with somewhat broader black

indra. *mahana.* *shiva.*

apical spot on the forewing, **statilia** *subsp. nov.*, figured as *narendra* on pl. 59 d. But the latter name designates exclusively the distinct race from Ceylon, where **narendra** *Moore* occurs very rarely at elevations of from 2—4000 ft. and has the under surface of the hindwing beautifully marked with dark yellow-grey. — **thronion** *subsp. nov.*, from Siam, above like *indra* from Sikkim, differs beneath by a broad black subapical band on the forewing and thin red-brown transverse bands on the hindwing. Found in February drinking with closed wings on wet sand-banks at the edges of rivers. Here belong probably also specimens from Annam and Tonkin. — **menandrus** *subsp. nov.* is a larger island race, with lighter underside to the hindwing, only lightly marbled with red-brown, and the subapical band of the forewing narrower and more broken. Hainan. — **aristoxemus** *Fruhst.* (50 f) is a seasonally dimorphic and highly specialised island form; ♂ above as *indra*, apex of the forewing and the surface of the hindwing beneath yellow, sprinkled with dense brown scales; ♀ above with black dot at the apex of the cell of the forewing, hindwing with light green basal area and long black teeth to the distal margin. Flies in May, in the mountains of Formosa. — **thrasea** *form. nov.* (50 e and f) is the form of the plains, occurring in July and August, with light grey under surface recalling *lucasi* from Java. ♀ without black cell-spot, hindwing white with narrow black distal margin. Formosa.

statilia. *narendra.* *thronion.* *menandrus.* *aristoxemus.* *thrasea.*

A. lucasi *Wall.* (59 e), hitherto only known from the volcano Gedé in West Java, where the species occurs very rarely at an elevation of 4000 ft. The ♀ is above slightly yellowish, with black cell-dot on the forewing, otherwise like the *thrasea*-♀, only deeper black.

lucasi.

A. nupta *Fruhst.* (60 e), which I formerly took for a *paulina*-race, I think should also be inserted here. Under surface as upper, only with the apical area on the forewing and the whole hindwing yellowish. Very rare; only one specimen known, in my collection. Nias.

nupta.

A. lalage *Dbl.* (59 b) is even more variable than *indra* and even within the empire of India three races may be differentiated. — **durvasa** *Moore*, of which a ♂ of the dry-season form is figured 59 b (third figure), an intermediate form as *pseudolalage Moore* 59 a and a ♂ of the rainy-season form from Sikkim 59 b (first figure). The hindwing of the dry-season form is beneath whitish or grey, that of the rainy-season form yellow. The very rare ♀♀ have in the form of the dry season a white upper surface with mother-of-pearl gloss on the basal area and very broad black apical border. The distal margin of the hindwing only lightly spotted with black. The under surface of the hindwing dark greyish sand-colour. This form is the only one which goes as far as the West Himalayas. In Nepal and Sikkim the rare ♀♀ ascend to 10,000 ft., whilst the common ♂♂ scarcely reach beyond 6000 ft. In the rainy-season form of the ♂♂ from Sikkim an aberration is not rare in which the black spot at the apex of the cell of the forewing is united with the black distal margin: = ab. **confluens** *nov.* — In Assam occurs the larger **lalage** *Dbl.*, whose extreme dry-season form is not distinguishable from the corresponding form of *durvasa* from Sikkim, but on the other hand the ♀-form with yellow under surface to the hindwing figured 59 b is never in my experience found in Sikkim; nor is the Assam intermediate form 59 b (second figure, under surface). The ♀ of *lalage* occurs also in the intermediate form with grey-white under surface and is not rare at times and moderately variable. Assam up to 6400 ft. — **argyridina** *Btlr.* is the third race, which recent English authors erroneously unite with *lalage*. The dry-season form is scarcely larger than *indra shiva Swinh.* and has the apex of the forewing and the hindwing dark grey beneath. The intermediate form has larger white subapical spots on the forewing. Burma and Siamese Shan States. — **mutina** *subsp. nov.* (59 c) has in the male a narrower black distal margin to the forewing. The white subapical spot of the ♀ is shorter and broader than in *lalage*; the basal area of the hindwing almost pure white, the distal border violet. Tonkin, rare in April at elevations of 4000 ft. — In **lageloides** *Crowl.* the black spot before the apex of the cell reaches to the base of the forewing and is distally confluent with the distal margin, enclosing a very broad white subapical spot. Under surface of the hindwing with red-brown undulate submarginal line. Hainan. — The species will pretty certainly yet be discovered also on Formosa. — At the point where *lalage* ceases in Burma, begins a race which closely approximates to *lageloides*, **lagela** *Moore*, with still broader black transverse band, which emanates from the cell of the forewing. Under surface somewhat darker than in *lucasi*, nearly approaching that of *pandione*. Lower Burma to Perak, taken at elevations of 3—6000 ft.

lalage. *durvasa.* *confluens.* *lalage.* *argyridina.* *mutina.* *lageloides.* *lagela.*

A. pandione is the Macromalayan continuation and representative of the continental *lalage*. Three island races are known. — **ozolia** *subsp. nov.* (59 c), whose ♂♂ often occur in hundreds on the plateaux of Sumatra, but whose ♀ is still unknown. — **whiteheadi** *Gr.-Sm.* is a larger race, with still broader black margins and smaller white subapical spots; under surface of the hindwing almost black-violet with yellowish costal area and an oblong patch at the apex of the cell. Kina Balu, North Borneo. — **pandione** *Hbn.* (59 c) is very common in all parts of Java at elevations of over 4000 ft. and is one of the first butterflies which the natives bring the collector, because it can be easily taken at puddles on the roads. Some ♂♂ have the upperside to both wings yellowish (form **eburnea**). The ♀ is rare, and may be recognised by the broader distal margin and the darker, violet-tinged under surface of the hindwing. I found *pandione* also in Lombok, on the plateau of Sambalun at a height of 4000 ft., hence it must also occur in Bali.

ozolia. *whiteheadi.* *pandione.* *eburnea.*

phoebe. **A. phoebe** *Fldr.* represents *lalage* on the Philippines. Three local forms are known; the type from Luzon: forewing with the apex broadly black, a large quadratic spot at the apex of the cell and two white submarginal spots Hindwing without a trace of a border. Under surface whitish yellow, often also
montana. grey-sand-coloured. — **montana** *Rothsch.* is a very fine mountain form, taken at an elevation of 6—7000 ft.
zamorra. on the island of Negros, beneath dark yellow with the black spots of the forewing broader — **zamorra** *Fldr.*, with three large white subapical spots on the forewing and beneath with the black markings reduced. Mindoro.

lalassis. **A. lalassis** *Gr.-Sm.*, a very interesting local species, on which NICÉVILLE has erected the „genus" *Lade* on account of the absence of the anal pencil of the ♂♂; occurs only in Lower Burma and Perak. —
indroides. **indroides** *Honr.*, with broader black apex to the forewing, is the rainy-season form. Both resemble *lalage* with the black marking strongly reduced and the forewing still more pointed. Under surface of the hindwing yellowish with red-brown dusting.

The following species form a natural group, which is treated by English authors as a separate genus under the old Hübnerian name „Catophaga". But the neuration does not at all justify the separation and as moreover quite a number of new names have to be introduced for forms of this variable butterfly, we are glad to drop a name.

A. albina is a dimorphic species, distributed from Anterior India to the Moluccas and Philippines, in which the ♂♂ do not vary at all locally. But the ♀♀ are polychromatic. with a tendency to the formation of horodimorphic and individual forms, as well as insular races, which are all connected by transitions. On pl. 60 c and d we represent 11 ♀♀-forms and still without exhausting all that are known. The ♀♀ are most constant on the continent, where 3 forms predominate, whilst on the islands, especially in Micromalaya, a bewildering variety has been observed. Larva found in South India on Hemicyclia venusta, a Euphorbiacea, of a light green colour with yellowish white longitudinal bands, ornamented with very fine hairs. Pupa dirty white to greenish, with black dots, broadest in the middle with 2 wing-like processes. Butterfly locally common, according to my experience exclusively frequenting flowers, occurring all the year round, but, e. g. on Lombok, sometimes suddenly appearing in immense numbers. They are particularly fond of scabious, are by no means shy and allow themselves to be taken with the fingers. Elevations of from 2—4000 ft. are specially favoured by them, but they are also met with in the hot plains at the edges of woods and even in gardens, for instance at Haiphong in Tonkin in company with *Papilio helenus*, as one of the first butterflies when in March the winter mists begin to disperse. Uncus long, scalpel-shaped, without dorsal thickening, medially widened, distally with obtuse point. Valve broad, with long hairs, sack-shaped, distally ovally rounded. The valve of the island races broader than that of the conti-

confusa. nental subspecies. — With **confusa** *nom. nov.* (= darada *auct.* nec *Fldr.*) (60 d, as *darada*) begins the most northerly branch of this collective species, in which the ♂♂ of the rainy-season form are occasionally slightly tinged with black at the apex of the forewing. Two forms of the ♀, which are found wherever
principalis. *albina* occurs: ♀-f. **principalis** *form. nov.*, beneath blue-white, markings as above without the black distal border
semiflava. of the hindwing; predominates in the dry season. ♀-f. **semiflava** *form. nov.*; apex of the forewing and the whole of the hindwing pale ochre-yellow. *confusa* is rare in Sikkim, common in Assam, Siam and
swinhoei. Tonkin. — **swinhoei** *Moore.* ♀ above with the black distal margin of the hindwing somewhat narrower and
venusta. more broken up. South India. The larva full-fed in 13 days, pupal stage lasts 9 days. — **venusta** *Moore*,
flava. from Ceylon, with 4 ♀-forms, of which the third (60 d, as *neombo*) must bear the name of **flava** *Röb.*, with the under surface of the forewing entirely yellow. Together with it occurs also on the island the ♀ with white under surface and ♀-form *semiflava*. *venusta* is common everywhere in Ceylon in the first months of the year, between 2 and 4000 ft. at open places in the woods, and participates in the annual migrating swarms in company with *A. paulina Cr.* — In East Java, Bawean and on the small Sunda Islands flies
micromalayana. a race, **micromalayana** *subsp. nov.*, whose ♀♀ occur in as many as 10—12 forms. The normal ♀♀ are as a rule only narrowly margined with black. In addition there are ♀♀ exactly like the ♂, en-
virilis. tirely white (second figure) except for the black distal margin: this is **virilis** *form. nov.* (60 c ♀).
punctata. A commoner form has a black dot between the anterior extremities of the medians (ab. **punctata,** 60 c, third figure). When this dot is connected by fine black lines with the distal margin we have ab.
ambigua. **ambigua** *Gr.-Sm.* (60 c, sixth figure). A ♀-form with the forewing dusted with grey throughout I have
saweloides. described as **saweloides** (60 c); these are rare and only occur on Lombok and Sumbawa. The type from the latter island is much darker even than the ♀ figured from Lombok. ♀♀ with sharply defined, broad,
agatha. uniform black distal margin are called **agatha** *Stgr.* (60 d); described from Palawan, but also in my col-
umbratilis. lection from Bawean to the islands of the Teninber Group. — **umbratilis** *Fruhst.* has the same distribution of the black bands, but an ochre-yellow instead of white basal area on the hindwing beneath; from Lom-
citronella. bok, rare. The same form, but with the basal areas of both wings yellow above and beneath, is **citronella,**
citrina. *Fruhst.*, whilst 60 c (fifth figure) represents ♀-f. **citrina** *form. nov.*, yellow on both sides, in all intergrades from the form figured, which recalls *punctata*, to ♀-f. *flava*, with broad black subapical bands. Finally occurs a ♀-aberration corresponding to *punctata*, above white, beneath with light ochre-yellow apex to the
subochracea. forewing and hindwing of the same colour: this is **subochracea** *form. nov.* — The local race from Sumbawa
infuscata. is **infuscata** *subsp. nov.*; in this all the ♀-forms are essentially more broadly margined with black than the corresponding forms from Lombok, Wetter and Java. The specimens which resemble ♀-f. *flava* and ♀-f.

semiflava are darker ochre-yellow beneath than those forms. — **albina** *Bdv.* is the name-type from the South and North Moluccas, where the ♀♀ do not vary so much as in Micromalaya. — According to Ribbe, this species was very common at Illu on Ceram. Ribbe writes of it: „When I came to the river in the forenoon whole clouds of these insects flew up in alarm, they were to be found in thousands wherever there was running water. With one stroke of the net I once succeeded at a favourable spot in covering about 150 specimens. Unfortunately the ♀♀ were very rare." — **pancheia** *subsp. nov.* is the race from Palawan, with the cell of the forewing almost entirely black-brown, the upper surface of both wings finely powdered with black. Only 4 ♀-forms, namely *principalis, semiflava, neombo* and *agatha*, are known from Palawan, all of which fly in January. *albina* probably reappears on the South Philippines in races very similar to *pancheia*. — Boisduval has described a white and a yellow ♀-form of his **neombo;** the locality of this insect is uncertain, but according to a statement of Moore's is to be looked for in Sumatra or Borneo. The white form must naturally be regarded as the typical one, although the yellow form was figured by Moore in 1857 as *neombo*, from Ceylon, an error which I have only just discovered. Hence for the *neombo* of pl. 60 d must be substituted the name ♀-f. **flava** *Röber*, which occurs on all the islands from Ceylon to Palawan and Obi, although the other ♀-forms present local varieties, and the Macromalayan subspecies of *albina* must be called *neombo*. — **semperi** is the name given by Moore to the *albina*-race from the North Philippines, as figured by Semper. *albina.* *pancheia.* *neombo.* *flava.* *semperi.*

A. melania *F.* (61 c) has very much in common with *albina*, a wide distribution, numerous ♀-forms, its occurrence in large numbers; but it differs from it in the development of much more sharply separated local races, which are produced at very short distances, even within continental areas. The ♂ has always a relatively broad grey or black apical border, sometimes even a broad subapical reticulation or in its place some large diffuse spots, which are always absent in *albina*, the under surface is commonly orange- or ochre-yellow. Valve as in *albina*, but broader, shorter, rounder, the uncus short, more robust, with a dorsal median thickening. — **darada** *Fldr.* nec *Moore* is the name of the most northerly offshoot of this interesting species, which is rather rare in Sikkim, Assam and West China and only occurs sporadically (I have never been able to obtain a single ♀). — **adamsoni** *Moore* (61 a) is a local form from Burma, Tenasserim and Tonkin, distinguished by its dark ♀♀. — **pseudoleis** *subsp. nov.* (61 a), very common in Siam, is conspicuous by the broad black margins of the forewing and is characterised by a very light, partly yellow-tinted upper surface to the hindwing. In the dry-season form of the ♂♂ these black markings are almost entirely suppressed. — **distanti** *Moore*, from the Malay Peninsula, approaches it very closely, but the ♀♀ have broader margins. — **galathea** *Fldr.* (= roepstorffi *Moore*) (60 d) occurs only on the Nicobars and Andamans; an island race with the ♂ very little marked, yellow-tinted beneath; the ♀ appears to be still unknown, for what Moore figures as such in Lep. Ind. VII. t. 553 belongs to *albina* and its ♀-ab. *semiflava*. — **paulina** *Cr.* (vol. I, 20 g) occurs in Ceylon in two seasonal forms, that of the rainy season, beneath suffused with ochre-yellow, **lankapura** *Moore*; in addition a subordinate form with black submarginal band on the hindwing beneath: forma **fasciata** *form. nov.* (61 a as *lankapura*). The dry-season form **galene** *Fldr.* is light yellow beneath in the ♂, ♀ with white apex to the forewing and white under surface to the hindwing with mother-of-pearl gloss. Both are very common, but the early stages are still unknown. *paulina* occurs from the plains up to 6000 ft. mostly at the edges of woods and has a rapid and long-sustained flight. Sometimes perfect clouds of Pierids appear, composed half of *paulina*, which begin their flights on sunny days and towards their close drop down in large groups on wet places on the ground. — As **pione** *subsp. nov.* I designate the race from Sumatra, whose ♂ approaches the *leis*-♂ and *distanti Moore*. ♀ above essentially more broadly margined with brown-black than that of *leis*, hindwing recalling *sawela* by the dense grey-green dusting. Under surface of the forewing with yellowish apex, hindwing yellow with prominent, sharply developed, dark brown submarginal band, distal margin powdered with brown. — **leis** *Hbn.* (60 f) occurs only on Java. The ♂♂ (60 f) differ but little in the extent of the black apical colour on the forewing, but the ♀ occurs in many forms, one of which is here described as new. The typical *leis*-♀♀ are white beneath, with mother-of-pearl gloss, without black distal margin to the hindwing. ♀-f. **obscurior** *nov.* (60 e, f) the same, but with black distal margin to the hindwing; occurs also with whitish-tinged apex to the forewing beneath or with the black distal margin variegated with yellow. East and West Java, common up to elevations of 2000 ft.; Bawean, rare. — In Borneo, however, the species is very much modified, the most broadly black-margined ♀♀ occurring there: this is **athena** *Fruhst.* (61 b). I possess only ♀♀ with ochre-yellow underside to the hindwing, some with sharply expressed black-brown marginal bands, others with these bands powdered over with yellow. ♂ above more copiously ornamented with black than that of *leis*. Kina Balu. — **sawela** *Fruhst.* (61 b, c) is a considerably modified geographical race. ♂ with a distal row of black teeth on the forewing, beneath yellowish white with round black subapical spot. Of the ♀ scarcely two specimens are alike, and besides the figured principal form (61 c) there are also examples with the forewing almost completely black and the hindwing dusted over with blue-grey (f. **furia** *form. nov.*). The colour of the under surface varies from light lemon- to dark orange-yellow, with broad red-brown distal margin to the hindwing, which is sometimes variegated by yellowish sagittate spots, but is mostly absent or is replaced by a strongly curved *melania.* *darada.* *adamsoni.* *pseudoleis.* *distanti.* *galathea.* *paulina.* *lankapura.* *fasciata.* *galene.* *pione.* *leis.* *obscurior.* *athena.* *sawela.* *furia.*

submarginal band, as in our figure (61 c). I took my first specimens of *sawela* on the 25. May 1896 on Lombok, some weeks after the end of the rainy season, quite unexpectedly in the middle of the day between 1 and 3 o'clock, the butterflies settling on scabious flowers in company with *Appias albina*, sometimes 5 on one flower, much as we occasionally find *Argynnis pales* in similar clusters in the Engadine. The butterflies can then be taken up with the fingers. — In Sumbawa the black sagittate marking on the forewing of the ♂♂ is enlarged and extends also onto the hindwing, likewise the black and blue-grey dusting of
tambora. the ♀♀ is increased; this is **tambora** *Fruhst.* (61 c). — In the Micromalayan district and the Papuan
emilia. region we find further a whole series of *melania*-races. On Sumba we meet with **emilia** *Fruhst.* ♀ approaching *sawela* in size, but differing from this and *tambora* in having the white apical spots of the forewing much widened, so that they form a continuous band. The ground-colour of both wings is moreover purer
paula. white and more extended, the hindwing is more narrowly margined with black. — **paula** *Röb.*, from Wetter, is a very small race. ♂ with minute dentition on the forewing, ♀ with very narrow, sharply defined distal margin to both wings and small yellow subapical patches on the forewing. Entire under
eurosundana. surface of the forewing suffused with yellow. — **eurosundana** *Gr.-Sm.* ♂ almost without black markings on the forewing, ♀ like that of *paula* with yellow basal area to the forewing. Under surface almost like the
urania. ♀ of *sawela*, only smaller. Timor. — **urania** *Wall.* is a very distinct race. ♂ similar to *zoë*, but with more extended black areas on the forewing in the rainy-season form, without a trace of subapical spots in
albata. the dry-season form (= **albata** *Hopffr.*). ♀ (= *dohertyi Rothsch.*) beneath similar to that of *lankapura Moore*, but lighter yellow with still broader black subapical band on the forewing. Upperside of both wings black with white discal area on the forewing, yellow on the hindwing. Both sexes very rare in
zoë. Celebes, ♀ first discovered by Doherty. — **zoë** *Voll.* (61 b) differs from all the known races in having always two quadrate black subapical spots on the forewing of the ♂♂ beneath. In the rainy-season form
uranides. **uranides** *form. nov.*, which corresponds to *urania Wall.* from North Celebes, these spots are united by a narrow black band and the apical tinge of the forewing as well as the under surface of the hindwing are ochreous instead of light sulphur-yellow. Of the ♀, in addition to the form *principalis* with the hindwing
limbata. yellowish white beneath, may be mentioned further a form **limbata** *form. nov.*, with broad black distal
melanides. margin to the hindwing, and a form **melanides** *form. nov.* The latter is very similar to *melania F.*, but with still narrower black distal margin and whitish instead of ochre-yellow basal area to the hindwing. Such ♀♀ have misled English authors into sinking *zoë* as a synonym of *melania F.* and recording *melania* as
cynisca. occurring also on the Moluccas. Batjan, Halmaheira, Obi, not rare. — **cynisca** *Wall.*, very similar in the female to *zoë*, but with narrower white discal area to both wings and light yellow-green instead of ochre-yellow basal area and brown-black distal margin, not marbled with yellow, on the under surface of the
antoniae. hindwing. ♂ as in *albata Hopffr.* from Celebes. Buru, rare. — **antoniae** *subsp. nov.* is lighter than the preceding. Subapical spots of the forewing larger, yellowish. ♀ with narrower black distal margin, basal
saina. area of the hindwing light yellow. East Ceram, Saparoea. — **saina** *Gr.-Sm.* is a rare subspecies found in New Guinea. ♂ similar to *melania* and *zoë*, but with less black. ♀ similar to that of *zoë*, but with yellow instead of black apex to the forewing and ochre-yellow basal area on the hindwing beneath. Dutch
falcidia. New Guinea. — **falcidia** *subsp. nov.* is a still darker island race; ♀ with very large white subapical spots on the forewing, hindwing beautiful light yellow with a very broad black distal margin which is powdered
melania. over with yellow. Island of Biak, in Geelvink Bay. — **melania** *F.* (= ega *Bdv.*) (61 c, d) is the Australian form of this widely distributed species and varies very little. All the ♀♀ give the impression of occurring only in the rainy season: the upper surface is dazzlingly white with deep black borders, the under surface of the forewing pure white. Apex with blue-violet sheen, hindwing yellowish with red-orange-coloured
jacquinoti costal and anal margins. Australia, from Cape York to Sydney. — Of **jacquinoti** *Luc.* (♂ = athama *Luc.*), ♀ described from Balau (Palau?), English authors have erroneously referred the ♂ to Ceram, the ♀ to Samoa. The latter may possibly be correct. ♂ smaller than that of *melania*, above yellowish white, costa and apex finely margined with brown, beneath pale yellow with large yellow apical spot on the forewing. ♀ above yellowish white, with broad black margin and 3 yellowish subapical spots. Forewing beneath sulphur-yellow, with brownish apex, hindwing yellow, with broad black distal margin powdered over with
wallacei. pearl-grey. — **wallacei** *Btlr.* is a well defined island race; ♂ above pure white and with black-brown costal margin, ♀ of a beautiful dark lemon-yellow, forewing with broad black distal margin, which is moderately incised distally and bears three yellow patches. Terminal margin of the hindwing yellow, submarginal band
calidonica. uniformly black. Mallicollo Island, in the New Hebrides. — Felder has described as **calidonica** a race
psyche. from New Caledonia nearly allied to *wallacei*, of which **psyche** *Fldr.* is probably only the ♂. — Under the
agave. name *agave* passes a whole series of island races, of which the typical form **agave** *Fldr.* (61 b) bears a relatively broad black distal margin on the hindwing of the ♀, the forewing being always white. The colour of the hindwing varies from pale ochre-yellow to light lemon-yellow, and also sometimes remains
nikomedeia. white. Luzon. — As **nikomedeia** *subsp. nov.* I designate the race from Bazilan; ♂ with extended blackish apical margin to the forewing, and darker yellow under surface to the forewing than *agave Fldr.* from Luzon, ♀ white, with broad black distal margin, which has a violet sheen on the hindwing beneath.
terentilia. Similar ♀♀ occur also on Mindanao. — As **terentilia** *subsp. nov.* I describe the Palawan race, whose ♀♀

undergo a large number of modifications. ♀-f. **iria** *form. nov.* (61 b), above white, with isolated, rounded, brown discal patches on the hindwing; beneath, the apex of the forewing and the hindwing ochre-yellow without a trace of bands or borders. ♀-f. **flaminia** *form. nov.* has the hindwing similarly marked, but is above yellow, as are the subapical spots of the forewing. **horatia** *form. nov.* has yellow upper surface to the hindwing, which bears a broad black distal margin on both sides. In **aegina** *form. nov.* the upper surface is white, hindwing with narrow black border above, under surface light yellow; **marginata** *form nov.*, hindwing on both surfaces broadly margined with black, ground-colour of the hindwing beneath dark ochre-yellow. All the five forms occur in the month of January in the same locality on Palawan. — **plaetoria** *subsp. nov.* is the race from Balabac, where the species is not rare in December. ♂ beneath darker yellow than specimens from Luzon, Bazilan and Palawan. ♀: forewing white with small white subapical spots, hindwing above yellowish green with broad distal margin. Apex of the forewing and the whole of the hindwing beneath milk-white, with violet and yellowish tinge, without black distal border, but with slightly indicated submarginal band. — **minato** *Fruhst.* is the finest geographical offshoot of this species. Only the ♂ known, the forewing with the veins finely black, and with diffuse spots. Apex of the forewing and the whole hindwing beneath pale straw-yellow, the former with round black spot between the first two medians. Ishigaki, one of the most southerly Loo Choo Islands.

iria. *flaminia.* *horatia.* *aegina.* *marginata.* *plaetoria.* *minato.*

A. wardi *Moore* (60 f) replaces *paulina* in South India, and is probably a separate species. Fig. f 2 represents the rainy-season form, f 3 an intermediate form, whilst in the dry-season form the black apical margin is even more restricted, and also the distinct subapical band on the forewing beneath in the rainy form almost disappears. The ♀ closely approaches that of *paulina*, but the subapical band of its forewing is nearly twice as broad. The larva lives on Capparis heyneana Wall., South India, Nilghiris. — Finally, **yaksha** *subsp. nov.* is a very small race from the hot lowlands with pointed wings and fine, black-grey teeth to the distal part of the forewing. Under surface of both wings almost entirely white. Poona, Deesa, Bombay district.

wardi. *yaksha.*

A. nata *Kheil* (60 e), one of the most noteworthy species from the small island of Nias, above blue-grey instead of white, forewing with fine black teeth. Beneath the apex of the forewing and the hindwing have a yellowish tinge, on a grey-blue ground. Very rare.

nata.

A. cardena (60 b) is distinguished by the relatively short black hair-pencils on the penultimate abdominal tergite and the black-latticed apical part of the forewing above, which is darkest in **hagar** *Voll.* from Sumatra, whose underside, however, has in the basal area of the hindwing lighter yellow spots than **cardena** *Hew.* from North Borneo. An intermediate in the character of the pattern and colouring is **perakana** *Fruhst.* (60 b), which has the apex of the forewing somewhat more copiously decorated with white than in *hagar* and narrow, but dark orange-coloured basal margin to the hindwing beneath. Malay Peninsula.

hagar. *cardena.* *perakana.*

A. leptis *Fldr.* (60 b), a common and inconspicuous species, which occurs everywhere in Java up to 2000 ft. where remains of the virgin vegetation still exist and in many places enlivens the grassy borders of deserted coffee-plantations to the number of hundreds. Most nearly allied to the name-type is **balinus** *Fruhst.*, with essentially narrowed black subapical bands on the forewing and reduced black distal margin to the hindwing. Bali. — **vadus** *subsp. nov.* (59 d) is much larger, with more extended black bordering to both wings and very large white subapical dots on the forewing. Lombok, in May—June, very rare at this most easterly limit of its range. — **plana** *Btlr.* (59 c), described from the Malay Peninsula, and occurring in identically the same form on Sumatra, has the hindwing entirely without black distal margin, which is likewise absent in **aemilia** *subsp. nov.* from Borneo, in which also the white subapical spots of the forewing are smaller and the black subapical band is wider. — **massilia** *subsp. nov.* (59 d) is characterised by the yellowish instead of white upper surface. Palawan, common in January. — **festrada** *subsp. nov.* (59 c sixth figure) is the smallest of the known races, beneath more richly suffused with yellow than Sumatra specimens, however without assuming the almost ochre-yellow colour of *massilia* beneath. Common on Nias.

leptis. *balinus.* *vadus.* *plana.* *aemilia.* *massilia.* *festrada.*

A. maria *Semp.*, from Luzon, is a very rare species, always only occurring singly, of pure white ground-colour, almost the same in both sexes. The white ground-colour projects into the black distal margin of the hindwing in the form of a nose-shaped incision, which occurs in no other species. *maria* has the black margin of the hindwing only 2 mm. broad. — In specimens from Bohol and Bazilan, **dolorosa** *subsp. nov.* (50 f), it is widened to 3 mm.; moreover the three white subapical patches of the forewing are increased in size. — In **adorabilis** *subsp. nov.* the border of the wing is widened to 4—5 mm, so that it reaches the cell. Mindanao. In all three races there is proximally to the violet-tinged distal border of the hindwing a beautiful yellow tone, which spreads over the whole wing and shades off imperceptibly into the yellowish white basal area.

maria. *dolorosa.* *adorabilis.*

16. Genus: **Phrissura** *Btlr.*

A Philippine genus, which has extended southwards to Celebes. Only one species known, of which a number of island races still remain to be discovered. The butterflies fly slowly at the edges of woods,

rest on projecting twigs and leaves in the undergrowth and occur sporadically, but are sometimes, as for instance on Palawan, very abundant.

aegis. **Phr. aegis** *Fldr.* (62 c), described from Mindanao, has beneath a rather broad black sub-
illana. apical transverse band, which in specimens from the North Philippines, **illana** *Fldr.*, is even more strongly
caepia. developed. — In the much smaller **caepia** *subsp. nov.* (62 c) this band is partly effaced. The ♀♀ vary strongly, no two are alike, and together with the dark principal form there are specimens with almost entirely white hindwing and still more extended, almost pure white median band on the forewing, ♀-f.
nivata. **nivata** *form. nov.* (62 d). Underside of the hindwing dark straw-yellow. Palawan, common in January;
gerasa. Domoran. — **gerasa** *subsp. nov.* has a broader wing than *caepia* and an almost triangular black apical spot
polisma. on the forewing without white strigae, which projects into the cell. Sula Mangoli. — **polisma** *Hew.*, from
aegina. North Celebes; in this form the black apical border of the forewing is repeated beneath. — **aegina** *Fruhst.* (62 c), from South Celebes, is somewhat larger than *polisma*, with long thin streaks in the apical area of the forewing, which beneath is distally only slightly tinged with white-grey.

17. Genus: **Ixias** *Hbn.*

The members of this genus have the same habits of flight as *Huphina*; in neuration they differ from *Pieris* and *Appias* chiefly in the shorter and broader cell of the hindwing. But judged by the shape of the valve they would have to be placed next to *Appias*. — Head rather large and like the thorax adorned partly with bristly, partly with silky hairs. Palpi with strongly curved basal joint and very small terminal one. Antenna comparatively short with pear-shaped club. Forewing with four-branched subcostal, of which the first two veins arise before the end of the cell, the third and fourth forming a longer fork than in *Appias*. Upper radial coincident with the subcostal to about $^1/_5$, in which *Ixias* differs essentially from *Teracolus*.

Larva on Capparis; head small, segments 2, 3 and 4 the broadest, the rest narrowing posteriorly, colour uniform transparent yellowish green. Each segment from 4 to 11 bears inconspicuous reddish spots. Pupa canoe-shaped, strongly curved upwards and especially at the anterior end very pointed, of light ochre yellow colour, with a narrow, dark dorsal stripe and a fine line on each side. Pupal stage of *pyrene* 14—15 days. Larvae of all sizes were found on the same bush, which was in places eaten bare by them (Lang). — The butterflies fly rapidly in the heat of the day from flower to flower, on which the somewhat more sluggish ♀♀ live exclusively. In districts with but little vegetation the ♂♂ are fond of congregating at wet places, where they introduce a pleasing variety of colour into the large crowds of white Pierids. Most species inhabit the hot plains, and I always found them in the greatest abundance not far from the sea; some species, however, prefer mountainous districts, but appear never to ascend above 4—5000 ft. Most of the species are common, some very local, such as *venilia* and *balice* from Java, and only a few races, as *undatus* on Borneo, really rare. Almost all the *Ixias* are on the wing throughout the year and there seems to be a continuous succession of broods; all show a tendency to form climatic varieties; both sexes are moreover very variable and subject to local as well as insular variation, hence until quite recently a considerable number of mere forms were regarded as separate species.

I. pyrene is the most widely distributed, the most variable and at the same time the largest
insignis. species of the genus. — **insignis** *Btlr.* (72 b) is the most northerly race known, and is distinguished from all the allied forms by the orange-coloured subapical spot, which extends far into the cell of the forewing. The ♀♀ resemble those of *pyrene* (71 c), the cell is densely dusted with grey-black, but the white subapical band also crosses the apex of the cell, at the discocellular is placed a large isolated black patch, which is present also in the ♂♂ though much smaller, but is absent on the figure, which was taken from the type in the British Museum. Hindwing finely powdered over with grey and with very broad black distal margin, deeply dentate proximally. Not very rare at elevations of 4000 ft. in July and
hainana. August. Formosa. — I characterise as **hainana** *subsp. nov.* a form in which the orange band only covers the first third of the cell of the forewing, but is still always essentially broader than in the continental races. The subapical band is not red-orange but a peculiar ochre-yellow, much as in *salangana* (72 c).
pyrene. Hainan. — As **pyrene** *L.* we must regard the Chinese race, which Linné has named from a ♂ of the dry-season form (71 c), whilst Cramer figured the ♀♀ belonging to it as *aenippe* (71 c). The rainy-season form is much larger, all the black margins are broader and in the ♀ the white subapical band of the forewing is narrower, being sometimes nearly entirely replaced by black (71 c). The rainy-season form passes in collections under the names *rhexia F.*, *scsia F.*, *evippe Drury.* — In Yunnan occurs a specially
yunnanensis. fine and handsome race, with the base of the hindwing above suffused with red-yellow, **yunnanensis** *Fruhst.*, which is also distinguished by reddish instead of yellowish bands on the forewing of the ♀♀. — In Tonkin we meet with a further local form with especially broad black margins to the wings and
tonkiniana. relatively narrow, dark orange-coloured subapical spot in the ♂♂, = **tonkiniana** *Fruhst.* (71 c). The ♀♀ are smaller than those of *yunnanensis*, but have in common with them the reddish tinge of the subapical band

of the forewing and the upper surface of the hindwing, which in *tonkiniana*, however, is less conspicuous; but the difference in tone from the more westerly races is still always distinctly evident. The dry-season form of the Tonkin race I have called **denigrata** (71 e). — In Annam flies a smaller *pyrene*-race; in its northern provinces a yellow, in the southern districts a white-winged form, whose ♀♀ I call **annamitica** (72 a), and which form a transition from *pyrene* to *verna*. — In Siam occurs a smaller race, **verna** *Druce* (71 e), of which the ♂ of the rainy-season form with yellow upper surface (71 e, 6) and the ♀ of the dry-season form with white upperside (71 e, 5) are figured. *verna* was formerly regarded as a separate species, but the examination of the genitalia proved its complete identity with *pirenassa* from India. *verna* is one of the commonest butterflies in Central Siam, especially in January and February. There, however, I took the ♂♂ only at wet places, whilst in Annam in the previous year at the same time I captured both sexes exclusively at flowers. — In Tenasserim and Burma *pyrene* has developed again into a somewhat larger race, of which the rainy-season form has been described as **moulmeinensis** *Moore* (= meipona *Gr.-Sm.*) (72 a) and the dry-season form as **latifasciata** *Btlr.* (= pallida *Moore*, citrina *Moore*) (71 e). — On the island of Salanga occurs a race which has not yet been named, **salangana** *subsp. nov.* (72 c), with much widened and very dark subapical bands on the forewing. — In the Anterior Indian race, **pirenassa** *Wall.*, the variability of the species reaches its maximum, so that we have devoted 10 figures to this race, of which **rhexia** (71 b, 2) represents the ♂, 71 c, 2 *rhexia*-♀ the rainy-season form — 71 c, 1, 3, 4, 5 intermediate forms — 71 c, 6 and 71 d (*aenippe*) dry-season forms. *pirenassa* is distributed to Assam and Burma, where it is supplanted by *latifasciata*. Together with *pirenassa* occur in the hot lowlands of Bengal and of the Bombay district other especially extreme forms of the rainless period, which have been named *kausala Moore* (71 d), *satadra Moore, ganduca Moore, pygmaea Moore*, also *frequens Btlr., watti Btlr.*, and finally *jhoda Swinh., colaba* and *alena Swinh.* Some of these forms are apparently local, but this question cannot be settled on the continent without studying the material in the British Museum; sharp boundaries, however, can nowhere be laid down. In spite of this superfluity of names the South Indian race, which might have been named with some amount of justice, seems to have been quite ignored. It closely approaches the Ceylon race, which by modern English authors with the exception of Butler has been erroneously united with *pirenassa*; **cingalensis** *Moore* (71 d) differs from all the continental forms in the narrower orange band of the forewing in the ♂♂ and the distinctly angled subapical band in the ♀♀. *cingalensis*-♀♀ again vary considerably among themselves, besides examples with the band on the forewing slightly tinged with red (71 d, 5) there are others with light yellow band (forma **connectens** *form. nov.* 71 d) and even with entirely white upper surface and white transverse band (forma **nivescens** *form. nov.* 71 d, 72 c). — **andamana** *Moore* is another well differentiated race, which on account of its washed-out colouring was united by Bingham with *verna Druce*. Its extreme dry-season form is called **lena** *Swinh.* — From Borneo **undatus** *Btlr.* (71 b) is known, with strongly angled orange band on the forewing. The butterfly is rare, the ♀ being still altogether unknown. — **birdi** *Btlr.* is a nearly allied form from the Malay Peninsula, likewise very rare; the ♀ is also still to be discovered. Essentially smaller and beneath densely streaked with black in contrast to the altogether unmarked *undatus*.

denigrata. *annamitica.* *verna.* *moulmeinensis.* *latifasciata.* *salangana.* *pirenassa.* *rhexia.* *cingalensis.* *connectens.* *nivescens.* *andamana.* *lena.* *undatus.* *birdi.*

I. ludekingi *Vollenh.* (72 c) closely approximates in the ♂ to *andamana*, but the yellowish tinge on the submarginal area of both wings above is completely suppressed and the subapical band of the forewing is yellowish instead of dark orange-colour. The ♀ has only a very slight yellowish tinge on the band of the forewing. The ♀♀ are very rare; scarcely one is found to 100 ♂♂. The headquarters appear to be in western Sumatra; in the north-east of the island it is only found occasionally.

ludekingi.

I. malumsinum *Thieme* (72 c) is hitherto only known from Nias, but allied races may also be looked for from Siberut and the Batu Islands. The ♂ differs from the figured ♀ in the fiery red orange spot, which is extended to the base of the forewing and posteriorly reaches the submedian. Hindwing as in the ♀, only with somewhat narrower black marginal band.

malumsinum.

I. balice *Bdv.* (72 c). Noteworthy on account of the peculiar plain colouring of the exceedingly rare ♀♀, which only bear a narrow black irregular stripe at the apex of the cell, not reaching the costal. The rather broad orange spot of the ♂♂ shades off proximally into the ground-colour of the basal area, from which it is not separated by any black band. I found the ♀ only on the plateau of Pengalengan, but I have recently also seen ♂♂ from the neighbourhood of Batavia.

balice.

I. flavipennis *Gr.-Sm.* (72 b, d) is a completely isolated but not rare species, of which no near allies are yet known. The sexes are strikingly different, the ♀ entirely white, with strongly dentate black distal margin to the hindwing. The ♂♂ are fond of congregating in small clusters on the sand-banks of the mountain-streams, but the very rare ♀♀ are inhabitants of the woods. The species occurs all the year round. Sumatra.

flavipennis.

I. marianne *Cr.* (72 a). Originally described from the Coromandel Coast of South India, where it almost agrees with the specimen figured from Ceylon. — **cumballa** *Swinh.* (72 b) is the name given in collections to a handsome, extreme rainy-season form with broad black margins from Bombay and the adjoining districts, of which **agnivena** *Moore* (= depalpura *Btlr.*, meridionalis *Swinh.*) (72 b) is a dry-season

marianne. *cumballa.* *agnivena.*

form. — Finally, an especially extreme form of the rainless period, from Mahableswar in northern Bombay,
nola. has been described as **nola** *Swinh.* (72 b).

venilia. **I. venilia** *Godt.* (72 d) occurs exclusively on Java and is even there very local, being met with in numbers only in the south of the province of Kediri. The ♀♀ vary somewhat; besides the form figured, with yellow upper surface and red-orange-coloured subapical spot, there are also some which have the upper surface pure white, with a deep yellow transverse band, in which at the discocellular there are only traces of a cadmium-yellow tinge. These ♀♀ are also beneath predominantly white, with yellowish margins.

piepersi. **I. piepersi** *Snell.* is the only species of the genus which I have not before me; it is intermediate between *venilia* and *reinwardti*, but is larger than the former. *piepersi* occurs at Loka at the Peak of Bonthain and at the Waterfall of Bonthain and is even there very rare. There are 2 ♂♂ in the Berlin Museum; the species is still wanting in the British Museum.

vollenhovii. **I. vollenhovii** *Wall.* (72 d) inhabits the islands of the Timor Group and Timor itself. The ♂ figured belongs to the rainy-season form; the dry-season form is only a little inferior in size. In it the black distal margin of the hindwing is suppressed and the under surface assumes a pale white-yellow tone.

reinwardti. **I. reinwardti** *Vollenh.* (72 e) occurs on all the islands from Kangean and Bali to Timor and Alor, and is everywhere common. It forms an ornament of the coast districts in which, on Lombok, it flies in large numbers. The ♂♂ are swift fliers and visit flowers, but on specially hot days congregate at moist river-banks in small groups. The ♀♀ flutter through thorn-bushes and are fond of hiding among thorny,
kangeana. arborescent Euphorbiaceae. — **kangeana** *subsp. nov.* (72 d) differs from the more easterly races in the much smaller yellowish red discal spot, the very thick black veins of the forewing and the specially deeply dentate distal border of the hindwing. Under surface of both wings very sparsely marbled with brown.
baliensis. Kangean. — **baliensis** *Fruhst.* (= pulchrior *Btlr.*) is the form from Bali, hitherto only known in 2 ♂♂, but which may probably also occur in eastern Java. The ♂ is characterised by a very large blue-dusted basal area, a very light discal spot posteriorly bordered with intensive yellow, and by fine black transverse
lombokiana. stripes on the forewing. — **lombokiana** *subsp. nov.* (72 e) differs from the name-type (which was probably described from Timor or Flores) in the smaller dark red median spot and the large roundish submarginal patches of the forewing. The ♀ occurs in three forms: the one figured (72 e) with yellow upper surface;
noctula. an intermediate form **noctula** *form. nov.* (72 e), almost entirely black, occurring in the wet season; and a
reinwardti. variety with white upper surface, belonging to the dry period. — **reinwardti** *Vollenh.*, of which we figure the dry-season form (72 e). has the underside of the hindwing in the ♂♂ pale yellowish white. The brood of the rainy season is a little larger, more broadly striped with black; the ♂♂ beneath yellow, with strong brown submarginal spots. The ♀ recalls *noctula*, but is larger, the forewing beneath with greenish yellow cell, broad yellow-grey stripes beyond the cell, base of the hindwing dark ochre-yellow with very broad
pagenstecheri. violet-black distal margin variegated with yellow. Flores, Timor, Sumbawa, Alor. — **pagenstecheri** *Röb.* differs in the ♀, of which only the white dry-season form is known to me, in the broader black discocellular band of the forewing; Sumba.

kuehni. **I. kuehni** *Röb.* (72 d ♂, 73 a ♀) is a completely modified *reinwardti*, whose ♀ exhibits a retrogression to the *pyrene*-group in the bright orange-coloured transverse band on the forewing above. The cell of the forewing is entirely black. There are two ♀-forms, the one figured with entirely white upper surface to both wings and one with the wings light yellow above, which latter was already known to the author of the species. Wetter.

18. Genus: **Dercas** *Dbl.*

The principal characteristic of this genus consists in the short but very broad cell of the forewing, which scarcely reaches to ⅓ of the wing. The second subcostal vein arises exactly at the apex of the cell and the third and fourth veins form a large fork. Precostal vein of the hindwing relatively long, straight. Antenna short, gradually thickened. Forewing either deeply dentate or with the apex much produced. — Only a few species, of rapid flight; they are nowhere very rare, without, however, occurring in great abundance. In contrast to their nearest allies, *Gonepteryx* and *Catopsilia*, they are divided at very short distances into geographical races. All the species occur in the mountains but at medium heights and have scarcely been observed above 4000 ft.

D. verhuelli, described from China, where it occurs in Hong-kong and in the Canton district, not being very rare. I met with the species also in Tonkin, where it occurs in three forms: namely as forma
verhuelli. **verhuelli** *Hoev.*, which was figured in the Palearctic part (vol. I, 27 e). ♀-form **rufolineata** *form. nov.*
rufolineata. (67 c), in which the red longitudinal stripes are even more strongly expressed than in the principal form,
skertchlyi. but the black distal margin is much narrower; and a ♀-form which Nicéville has described as **skertchlyi** (67 c), with likewise reduced distal margin but without a trace of reddish longitudinal bands. —
doubledayi. In India proper two local races may be separated: **doubledayi** *Moore* (= menandrus *Fruhst. i. l.*) (67 d,

under the *i. l.* name *menandrus*), from Sikkim and Bhotan, whose ♀♀, as far as known to me, are always light sulphur-yellow, whilst in Assam, Manipur and Tenasserim a subspecies occurs with exclusively pure white ♀♀: this is **pallidus** *subsp. nov.* (67 d). *pallidus.*

In the Macromalayan district occurs **D. gobrias,** whose ♀♀ are analogous to the continental Indian races, being pure white in **gobrias** *Hew.* (67 e) from Borneo and Nias, whilst I have only yellow ♀♀ before *gobrias.* me of **herodorus** *subsp. nov.* (67 d), which is common in West Sumatra. *herodorus* was also once taken on *herodorus.* Java, but has apparently not been observed there for the last 20 years.

D. lycorias is the older name for the species better known as *wallichi,* which is divided into two geographical races, both showing a parallel dimorphic tendency in both sexes: **difformis** *Nicév.* (= enara *difformis.* *Swinh.*) (67 e), the larger Chinese subspecies, whose ♀♀ either bear a large black transcellular spot or are without it; and **lycorias** *Dbl.* (67 e), from Sikkim and Assam, with round discal spot on the forewing, *lycorias.* which in examples from Assam is commonly absent: forma **decipiens** *Nicév.* (= brindaba *Swinh.*) (67 e). *decipiens.*

19. Genus: **Gonepteryx** *Leach.*

This prominent Palearctic genus is only represented in the Indian Region by three species. The representative Chinese forms are dealt with in detail in the Palearctic part (I, p. 60 and 61), to which the reader is also referred for the generic description. *Gonepteryx* differs from *Dercas* in the much longer cell of the forewing and the much shorter precostal of the hindwing, which is reduced to a knob.

G. rhamni L. (vol. I, p. 60, pl. 24 c), a butterfly frequently noticed in European newspapers, appears also in continental India, where it forms a local race as **nepalensis** *Dbl.* (vol. I, p. 61, pl. 24 c), which can *nepalensis.* easily be distinguished by the deeper yellow of the ♂♂, the larger orange-coloured round patches, especially in the ♀♀, and the more robust subcostal and median veins of the hindwing beneath in both sexes. *nepalensis,* which is distributed as far as Nepal, is very common in North-West India and Kashmir and is a typical garden butterfly, favouring inhabited places up to elevations of 10,000 ft.; it has also been observed singly in Sikkim, Assam, Burma and the Shan States.

G. zaneka *Moore* (73 a) is a very distinct species with sharply dentate hindwing, the ♂♂ have the *zaneka.* forewing a beautiful sulphur-yellow and the hindwing white; the ♀♀ are white throughout. Not rare in some parts of the North-West Himalayas, but in contrast to their allies only occurring in dense woods at elevations of from 6—8000 ft. The butterflies are strong fliers and like our *rhamni* long-lived and tenacious of life,, so that they are mostly taken in worn condition. — **zanekoides** *Nicév.*, which is rarely *zanekoides.* brought to Europe, is somewhat larger, with rounder wings, and the ♂ also on the hindwing yellow towards the base. Upper Burma, found at elevations of 7000 ft. — **chitralensis** *Moore* is the most westerly form, *chitralensis.* in which the yellow on the forewing is reduced to the proximal half, whilst the hindwing shows a slight yellowish basal tinge; Chitral, in July and August, observed at between 9 and 14,000 ft.

G. amintha Blanch. (vol. I, p. 62, pl. 24 e). This magnificent species, hitherto only known from West China, has been recently discovered also in Formosa, where it has developed a race, **formosana** *Fruhst.*, *formosana.* with the forewing still darker and deeper orange-yellow, and the red discal patches on the hindwing almost twice as large as in continental specimens. The species appears to be very local on Formosa, as I have hitherto only received 6 ♂♂, all taken in April in Taihanroku near the southern point of the island.

20. Genus: **Catopsilia** *Hbn.*

The species of this widely distributed genus, without being particularly numerous, play a prominent part in the landscapes of four continents. They follow man everywhere, and appear so much the more abundantly the more energetically the primeval woods of the tropics are cleared for cultivation. Nearly all the species occur all the year round, the broods appearing to follow one another continuously. The larvae consequently occur in enormous numbers, sometimes destroying valuable plantations in the course of a few days and being thus only a little less injurious than the dreaded scourge of locusts. The butterflies commonly fill the air like snowflakes, crowding out other species from the districts attacked by them. More than any other Pierids they follow the migratory tendency already mentioned in the introduction to this family. 75% of the flights consist of ♂♂, but the ♀♀ often lay their eggs during migration, so that their food-plants are so covered with them that it looks as if handfuls of sago had been scattered over them. The migratory swarms prefer the sea-shore or broad roads leading through the forest, according to Dr. Manders simply to avoid obstacles. The original cause of these migrations may have been the necessity of searching out new food supplies for their offspring. — Both sexes are fond of feeding at flowers, but are equally partial to wet places in gardens or roads or on river-banks. They possess the

most fully developed scent-apparatus of all the Pierids. In neuration they approximate most nearly to *Dercas*, but the cells are longer, the fourth subcostal vein shorter and the second arises at the end of the cell. Precostal reduced to a thick knob.

Egg very pointed on both poles, mostly yellowish white. — Larva cylindrical, green with a pale lateral stripe and shagreened upper surface; on species of Cassia. Pupa canoe-shaped.

Most species are very variable; on the continent all race-characteristics are obliterated by the migrations, but on the eastern groups of islands local forms have been developed. Some species are armed like *Prioneris* with costal teeth; a character which, however, is not so constant as in the Neotropical species, since in *catilla* and *crocale* for instance examples occur with and without such armature. Uncus moderately small, narrow, but long rostrum-shaped, valve distally not rounded and uniform, but deeply incised, bipartite, furnished with long bristles.

pyranthe. **C. pyranthe** *L.* is above white, with black distal margin to the forewing, the intensity of which varies according to the time of year. In the dry-season form it is scarcely indicated, in the rainy-season form strongly widened (♂ = cluryseis *L.* [69 e], ♀ = alcyone *Cr.* [69 e, 2 and 3]). The dry-season form (gnoma *F.* [69 e] = philippina *Cr.* [69 e, 1 and 2]) may also be recognised by the fact that on the underside of both wings there are large silver discal spots and a confusion of reddish dots, much as in *florella F.*

The species is widely distributed, from Formosa, Hong-Kong and the Philippines through the whole of South Asia to Ceylon and Macromalayana.

Egg shiny white. Larva dark green, laterally with yellowish white stripes, which are bounded above by black-dotted lines. The dorsum and the head densely spotted with black. On species of Cassia. Pupa green with the angles marked with yellow. Pupal stage lasts 7 days. SEMPER mentions the interesting fact that the duration of the pupal stage lasts a longer or shorter time according to the season. It continues in April and May six or seven days, in September eight and in December nine. SEMPER explains this on the ground that the life-cycle of the individual is completed in a shorter time in pro-
evangelina. portion as the climate becomes more uniformly warm and moist. — **evangelina** *Btlr.* (69 e), characterised by the rounder shape of the wings and the smaller black dots at the apex of the cell of the forewing, is the geographical form from Micromalayana, originally described from Flores, but also occurring in Sumbawa
lactea. and westwards as far as Bali. — **lactea** *Btlr.* is a race from Australia and the Solomon Islands, which is unknown to me in nature.

florella. **C. florella** *F.* (69 d) differs from *pyranthe* in having the distal border of the forewing always broken up into separate black spots, the antenna red instead of black, the forewing also tinged with yellow and the under surface always yellow instead of greenish white and copiously marbled with red in both seasonal forms. The rainy-season form (on 69 d designated by error as *philippina*) differs in the larger size and the more extended black markings on the upperside, whilst the markings on the under surface do not differ. — Larva pea-green, with distinct orange-coloured lateral stripe, lightly sprinkled with black; horn on the head reddish brown. In Asia distributed from China over the whole of India to Ceylon, then over Persia to Aden and indigenous in the tropical districts of Africa. For its occurrence in the Palearctic Region see vol. I, p. 59.

crocale. **C. crocale** may perhaps be called the commonest butterfly of the East Indies, and forms together with the following species those enormous periodical flights of butterflies whose individuals number hundreds of thousands. But even when not thus congregating, they predominate in the plains wherever there is open country covered with vegetation, fluttering restlessly from flower to flower or settling in enormous numbers on the banks of rivers, so that they sometimes even startle the horses of passing travellers when they suddenly fly up in alarm with a buzzing noise and disappear in all directions, only to return again to the drinking places after a short time, when the danger is over. The species is widely distributed, from southern China over the whole of South Asia and from Ceylon to the Solomons, where, however, it becomes rare. — Egg yellowish white, pointed at both ends. Larva on species of Cassia, when just hatched light green, full grown deep grass-green, darkest dorsally with a cream-yellow lateral stripe. Pupa green, sharply angled, with yellow lines and black tubercles. — The imagines are very variable,
flavescens. the ♂♂ appear in two principal forms, namely with the upper surface entirely yellow (**flavescens** *form. nov.*)
alcmene. (69 c) or with yellow basal but white distal half to both wings (**alcmene** *Cr.* ♂ 69 c). The width of the black distal border of the forewing appears to vary according to the time of year. The under surface of both wings is without eye-spots, the antennae in both sexes black. The large majority of the ♂♂, like those of *Prioneris*, bear at the costal margin of the forewing strong, chitinous, red-brown teeth, distinctly perceptible with the finger, obliquely placed, laterally again provided with points, which are perhaps only modified scales. Out of 45 ♂♂ examined in the collection FRUHSTORFER 21 bear these probably secondary
jugurtha. formations. — In the Indian faunistic region and in Macromalayana occur only 2 ♀♀-forms, namely **jugurtha** *Cr.* (69 c), with predominantly white upper surface and slight yellowish basal tinge on the hindwing,

indistinct black submarginal bands and whitish under surface; and **crocale** *Cr.*, which varies from pale to dark yellow, changing into ochreous especially often in examples from Macromalayana, and has sharply marked black submarginal bands and dark or reddish yellow under surface. — ♀-f. **latilimbata** *form. nov.* (69 c, second figure, as *crocale*) is the predominant form on Java, which bears also beneath black or brown-violet bands on a white ground with mother-of-pearl gloss. Specimens from Anterior India are never so intensely black as the specimen figured and mostly much larger. — **micromalayana** *subsp. nov.* is the name given here to the form from the lesser Sunda Islands, which is distinguished by the uniform yellow tint of the upper surface of both wings in ♂ and ♀. In it occurs for the first time on the way towards the east a ♀-form similar to the ♂, without a trace of black subapical spots on the forewing; this is ♀-form **virosa** *form. nov.* (68 e). Among the ♂♂ the half white, half yellow aberration (= *alcmene Cr.*) is very rare. True ♀-f. *virosa* is known from Sumba and Alor, but a similar form also occurs in Celebes and in New Guinea. — **celebica** *subsp. nov.* (68 e, 69 a), as is nearly always the case in Celebes butterflies, is the largest of the *crocale*-races, and is further characterised by the occurrence of an almost entirely black ♀-form, **ostentata** *form. nov.* (69 a), which, however, is connected by all transitions with the lighter ♀♀-forms and even with ab. *virosa Fruhst.* Celebes, Saleyer, Kalao. — **flava** *Btlr.* (68 d, e) approaches *celebica*, but is mostly somewhat inferior in size; also no darker specimens are known than 68 d 4, a ♀-form for which the name **rivalis** may be introduced; whilst 68 d 5 may be designated as ♀-form **crocalina** and 68 e 2 as **jugurthina.** Moluccas, New Guinea, Australia, Bismarck Archipelago, Solomons.

crocale. *latilimbata.* *micromalayana.* *virosa.* *celebica.* *ostentata.* *flava.* *rivalis.* *crocalina.* *jugurthina.*

C. pomona *F.* (69 b) differs from the preceding species in the red instead of black antennae, the occurrence of white silver dots in the disc of the underside of both wings, the lesser variability of colour in the ♀♀, greater rarity, and according to Martin and the Anglo-Indian collectors in the fact that it always keeps to the woods and is never found in open country. Also the sexual organs of *crocale* and *pomona* are different; in the former the distal parts of the valve are roundish, almost equally broad, and the penis is non-dentate ventrally; in *pomona* the upper valvular process is very small, pointed, and like the larger wings acutely angled, and the penis is distinctly dentate ventrally. But in opposition to these morphological differences is the fact that both de Nicéville and Hagen state that the two species have been bred from the same brood of larvae. Moore regards *pomona* as a pale seasonal form of *catilla*, which I cannot endorse, as all the forms fly at the same time on Java. The question therefore still remains to be settled, and for the sake of simplicity we follow here the majority of entomologists and treat *pomona* as a separate species. Of the ♂♂ before us from Java 33% belong to the form **aserrata** without serrations of the costal margin of the forewing, whilst 20 out of 30 specimens of the form **serrata** are armed with such costal-marginal points. The ♂♂ vary still further, like those of *crocale*, most of them belonging to the form **hilaria** *Cr.* (69 c), with yellow base and white distal part on the upper surface of the wings; the ♂♂ with entirely yellow upperside might be called **citronella.** They are the predominant form on the lesser Sunda Islands. For the ♀-form named *pomona* on 69 b, with the surface of the wings white on both sides, we introduce the name **nivescens;** beautiful dark yellow ♀♀ with broadly diffuse blood-red spot on the under surface of the forewing are **catilla** *Cr.*; this aberration occurs also, but much more rarely, on a white instead of yellow ground; this is **siscia** *form. nov.* A further noteworthy aberration consists of those specimens in which the hindwing bears beneath only 2 large round patches at the subcostal veins (= **bidotata** *form. nov.*), which do not form a continuous spot as in *catilla*. It occurs especially in Micromalayana. The local differences are not so pronounced in *pomona* as in *crocale*, and only the Celebes form deserves further mention as **perspicua** *form. nov.* (69 b). Here both sexes are considerably larger than the other Malayan examples; ♀ distinguished by the black-brown submarginal band being complete and traversing also the hindwing. ♂ above only a little lighter distally than the ♂♂ of *crocale celebica Fruhst.* — **hinda** *Btlr.* is the Australian race, above a peculiar cream-colour, beneath a magnificent ochre-yellow; from Queensland.

pomona. *aserrata.* *serrata.* *hilaria.* *citronella.* *nivescens.* *catilla.* *siscia.* *bidotata.* *perspicua.* *hinda.*

C. scylla is a purely Malayan butterfly, which has spread northwards from Macromalayana to Tenasserim and Siam, and towards the east has reached the Moluccas. The ♂♂, with the exception of insular differences, are very constant; in the ♀♀ the influence of the seasons is noticeable in the occurrence in the Micromalayan region of distinctly paler dry-season forms (♀-f. **ascylla** *Fruhst.* [68 a]) and on Celebes of a wholly darkened ♀ in the rainy season (♀-f. **minacia** *form. nov.* [68 b]). The name-type **scylla** *L.* (68 a) comes from Java, where the species is not rare up to elevations of 2000 ft. and occurs everywhere in gardens and open country. It is also found on Bawean, Bali and Lombok. — In Sumatra, the Malay Peninsula and Siam occurs a race which has somewhat less black (68 a, fig. 3 and 4 from Sumatra). — **sidra** *subsp. nov.* (68 b ♂; 68 c ♀, on the plate as *scylloides*) is the larger and darker race from Sumbawa. — **scylloides** *Fruhst.* (68 b ♂, 68 c 2 ♀), originally described from Babber, which also inhabits Tenimber, Wetter and other islands east of Timor, is a smaller geographical race, with paler colouring in the ♀. — **asaema** *Stgr.* (68 b), the largest of the known forms, is distributed over the whole of Celebes, and like *crocale celebica Fruhst.* tends to form melanotic aberrations (♀-f. **minacia** *form. nov.* [68 b]). — **bangkeiana** *Fruhst.* has the black distal margin even more extended than in *asaema*, with still more distinctly marked sub-

ascylla. *minacia.* *scylla.* *sidra.* *scylloides.* *asaema.* *minacia.* *bangkeiana.*

moluccarum. marginal bands on both wings; Bangkei. — **moluccarum** *subsp. nov.* (68 c) is inferior in size to *asaema*; also the black submarginal marking on the hindwing beneath is reduced; Northern and Southern Moluccas.
etesia. — **etesia** *Hew.* is a small form (apparently even smaller than *scylloides*) from Australia, with the upper
praerubida. surface of the hindwing tinged with yellow; only known to us from Hewitson's figure. — **praerubida** *subsp. nov.* has in the ♀ above washed out black spots and beneath strikingly large light carmine-red submarginal patches and extended distal tinge of the same colour on both wings. Flores. — The larva according to Martin is velvety green, with a yellowish white lateral stripe and some very small black spots, the whole upperside finely ringed and incised, as in a leech. Pupa with pointed head, similar to that of *crocale*, but shorter and more convex than the slender pupa of the latter. — A further race, which we have not seen in nature, is known from Luzon in two specimens only.

gorgophone. **C. gorgophone** *Bdv.* (68 d), distributed from Cape York to Sydney, is apparently rarely brought to Europe; the ♂ differs from the figured ♀ in the absence of the black submarginal spots of the forewing. The under surface is as in *scylla*.

21. Genus: **Colias** *F.*

Of this important Palearctic genus we have here only a few species to deal with, which are frequently only offshoots of Transhimalayan species and differ but little in their southern localities.

Like *Parnassius*, *Colias* forms one of the most homogenous genera of all the Lepidoptera; they are certainly among the oldest extant and their origin can be traced back to the middle of the tertiary age. The similarity of some species to *Pieris callidice* suggests a direct development from that genus. But in spite of all the superficial resemblance of the species one to another, the pattern and colouring are extraordinarily inconstant, and most species are inclined to .local variation, also hybridisation seems to occur rather commonly (an exceptional thing among the butterflies). It has been proved that the membranous scales, that is those which are placed on the larger interneural areas, may be employed as a pretty reliable character for differentiation. The marginal scales (fringes) are with a few exceptions light red or rose-coloured. Besides the vein-scales there are often also highly specialised scent-scales, which in the ♂ are placed at the base of the hindwing. But as the ♂ pursues the ♀ for copulation they can scarcely be of value for purposes of attraction. and we are therefore inclined to regard them as stimulating organs.

Colias differs from *Catopsilia* in the second subcostal vein arising beyond the cell and in the still less developed precostal; on the forelegs the claws are entirely without the appendages (paronychia) which are present in all the other Pierids.

C. hyale (see vol. I, p. 65. pl. 25 g), one of the commonest European butterflies, inhabits those districts of North-West India which belong to the Palearctic zone, from whence it has extended to Bhotan in
poliographus. the east and the Nilghiris in the south. **poliographus** *Motsch.* (= simoda *Orza*) (I, p. 65, pl. 26 a) is the principal form of Japan, which reaches the tropical region on Ishigaki and Formosa and is also occasionally taken as an immigrant on Luzon. In Japan and on Tsushima *poliographus* is one of the predominant butterflies, the first messenger of spring, which already begins to appear when the snow is still lying, and that not in hibernated specimens but freshly emerged from the pupa. On Tsushima I met with *hyale* as late as the middle of October — a handsome form, mostly with white ♀♀ — where it still enlivened all the meadows in hundreds. — From the extreme north of Japan a form deserves mention which has very
napata. fine, dot-like yellow subapical spots on the forewing, usually of very small size (f. **napata** *form. nov.*). Similar examples to those figured by Leech pl. 24, fig. 14 seem to occur occasionally, as I brought one
murina. with mouse-grey instead of black apical tinge on the forewing from Nagasaki (f. **murina** *form. nov.*). In Kioutchou flies a relatively small dark race, which approaches *crate* in the broad black apical tinge of the forewing. — In the high mountains of West China appears to occur exclusively a gigantic form with
pyxagathus. particularly bright light lemon-yellow colouring (**pyxagathus** *form. nov.*). — Specimens with gold-yellow tinge on the forewing in the Fruhstorfer collection from Japan recall the variety *radiiformis Schultz*,
glicia. known from Europe. — **glicia** *subsp. nov.* (72 f) is the not rare and apparently constant form occurring in Kashmir, which is conspicuous by the continuous, relatively large yellow subapical spots on the forewing
lativitta. and recalls *sareptensis Stgr.* from South Russia. Known from elevations of 14—15,000 ft. — In **lativitta** *Moore* (72 f), from North-West India, these small yellow spots are absent, in which this form approaches
nilagiriensis. *crate*. — **nilagiriensis** *Fldr.* (72 f) is a very small race with very broad black distal margin, particularly in the ♀, which on the forewing has scarcely any trace of whitish dusting. Nilghiri Hills, South India, known from elevations of 5000 ft. — As belonging to the Palearctic fauna, but allied to the Japanese
palidis. forms, we mention here *hyale* **palidis** *subsp. nov.*, from the Vilui district, characterised by a light cream-coloured upper surface in the ♂♂ and pale yellowish white, very small ♀♀. The distal border of both wings shows a tendency to fade into light grey, likewise the discal spot of the hindwing is paler. Also
naukratis. the under surface of the wings has very fine black markings. — As **naukratis** *subsp. nov.* we introduce a further form, approximating to Staudinger's *alta*, of delicate yellow ground-colour, which in size is

intermediate between Central European ♂♂ and those from Japan, with very extended yellow subapical patches on the forewing. Habitat Siberia.

As *C. aias Fruhst.* (73 a) is figured the single island race of the Palearctic *palaeno L.*, which has already been discussed in the first volume, p. 63. It differs from all the known forms in the broadened distal border of the forewing. The ♀ is pure white, with the distal border of the forewing twice as broad as in European specimens. Main island of Japan. [1])

C. ladakensis Fldr. (= shipkee *Moore*) is above brilliant sulphur-yellow, the black distal margin ornamented with large oval yellow spots, hindwing densely dusted over with black, likewise yellow-spotted. Known from Ladak and Kashmir, to which it occasionally wanders from Tibet.

C. berylla Fawcett (= nina *Fawcett*) (I, 26 c, p. 66), from southern Tibet, is a light yellow local race of the preceding.

C. thrasibulus *nom. nov.* for the name *elwesi Röb.*, preoccupied since 1881, a rare local form of *cocandica Ersch.* from Central Asia, figured on pl. 72 c as *leechi Elwes*, known from Ladak from altitudes of 15—17,000 ft. *thrasibulus.*

C. alpherakii Stgr. (I, p. 64, pl. 25 e, f) passes over the Indian boundary at Chitral.

C. dubia *Fawc.* (I, p. 67) is a species allied to the northern *sulitelma Aur.*, which was taken in southern Tibet at about 10,000 ft. and is also reported from Native Sikkim. *dubia.*

C. wiskotti Stgr. (I, p. 70, 27 d) has likewise been observed in Chitral at the Kandur Pass at an elevation of 11,000 ft.

C. eogenê Fldr. (I, p. 67, 26 c), a magnificent species, with a strong tendency to the formation of local races, is also known from the Indian empire, where it occurs in Kashmir, Ladak and Chitral — always at elevations of over 9000 ft. Of the ♀ specimens have been discovered in India with yellowish and in Baltistan with whitish upper surface.

C. miranda *Fruhst.* (72 f) was recently discovered in South Tibet, near the border of Sikkim, and is a small species varying somewhat in colour from ochre- to red-yellow; it was originally described as a local race of *eogene*. The ♀ (30, f. 5) is light ochre-yellow with broad, black submarginal band on the forewing, pale yellow distal border to both wings and a yellow oblong spot on the otherwise blackish hindwing. Kamba-Jong, from 15—17,000 ft. *miranda.*

C. stoliczkana *Moore* (72 f) is a species described from Changla in Ladak, of light ochre-yellow ground-colouring, whose ♀ approximates to *miranda*, but apart from the lighter upper surface it has also a cell-streak traversing the hindwing to the base. The ♂♂ bear moreover a black terminal margin on the hindwing which extends to the hindmargin. Flies likewise at elevations of from 4—5000 m. *stoliczkana.*

C. fieldi *Mén.* (I, p. 68, pl. 26 g) is divided into two races. *fieldi* from China is essentially larger than **edusina** *Btlr.* from India, where it is distributed from Kashmir to Bhotan and Assam. The ♀ occurs in two forms, a dark rainy-season form without yellow, and in the smaller dry-season form with yellow spots at the costal margin of the forewing. The species extends from 5—12,000 ft. and is in many places very common. BINGHAM has recently discovered it also in Upper Burma. *fieldi.* *edusina.*

22. Genus: **Terias** *Swains.* [2])

The species of this almost cosmopolitan genus come in such abundance in consignments from the tropics that together with *Catopsilia* and certain Danaids they are a bugbear to the collector, but very unjustly, for they deserve perhaps more than other more attractive butterflies an exact study, which on account of the tendency of the species to develop horodimorphic, local and insular forms is as difficult as it is interesting. Although in general very variable, some apparently insignificant characters remain strikingly constant, such as the occurrence of only one, two or three black dots in the cell on the underside of the forewing. The subapical marking of the forewing beneath is repeated in diverse species in the most deceptive manner (*hecabe, sari*). — In neuration they approach *Colias* in the rudimentary precostal and the short and broad cell of the hindwing, but differ in two subcostal veins arising before the end of the cell of the forewing, in this cell being broader, and above all in the weak and delicate wings.

The flight of the species varies greatly; they mostly only move slowly and without energy, fluttering from flower to flower, and everywhere in the tropics enliven open places, gardens, the edges of

[1]) *C. phila Fruhst.* (73 a) was sent to me from Kashmir, but it has just been proved that the collector had by oversight mixed a faintly coloured European specimen, which he had obtained in exchange, among genuine Kashmir butterflies. Hence the name sinks as a synonym of *phicomone Esper.*

[2]) *Terias* 1820—21 is about 6 years older than the better known name *Eurema Hbn.* of 1826.

woods and open woods. Only *harina* prefers more shady forest-paths and *libythea* whirls along rapidly in the dry season. But all the species are attracted by wet places, they also congregate in swarms and their larvae are injurious to Cassia plantations.

a. ♂ without sexual spot on the forewing.

libythea. **T. libythea** *F.* may easily be distinguished from all other species of *Terias* by the extended black costal margin of the forewing and the proximally uniformly dentate and almost equally broad distal *rubella.* border of both wings. The dry-season form **rubella** *Wall.* has on the hindwing an essentially narrower distal border, which is commonly broken up into separate spots and bordered by a brilliant rose-red *senna.* terminal margin, recalling the fringes of *Colias*. The whole of India, Ceylon and Burma. — **senna** *Fldr.* is an unimportant local form from the Malay Peninsula, described from specimens of the rainy season. — *fruhstorferi.* **fruhstorferi** *Moore* (73 d), from Further India, differs from Anterior Indian specimens in the somewhat narrower distal border and more copious grey-black dusting on the upper surface of the wings. In Assam the butterflies ascend to 5000 ft., and keep by preference to dry, grassy places, shaded by pines. — *drona.* **drona** *Horsf.* is based on examples of the rainy season and might best be employed as the name of the Javan-Sumatran local form, which somewhat surpasses the Indian specimens in size. I met with it also on Lombok, at elevations of 4000 ft., where it especially frequented the wet banks of brooks. On Java and Lombok there is futher a dry-season form, smaller than that of the wet season, with very fine black, *herlina.* uniform, marginal line on the hindwing and finely undulate brown or black transverse bands on the hind- *zoraide.* wing beneath (**herlina** *form. nov.*). — **zoraide** *Fldr.* (= australis *Wall.*) belongs to the rainy-season form of *sinta.* the Australian local race, whilst **sinta** *Wall.* and **immaculata** *Misk.* denote the dry-season form. *immaculata.*

b. Under surface of the forewing with an androconial spot at the median.

venata. **T. venata** *Moore*, a comparatively rare species, very similar to *drona* and *libythea*, but with more pointed forewing and linear distal border to the hindwing. The dry-season form differs but little and has *pallitana.* narrower black margins = **pallitana** *Moore.* Kashmir, West and Central India. — In Northern India and *rama.* Ceylon occur specimens with more copious black powdering on the upper surface of the wings = **rama** *sikkimica.* *Moore.* — **sikkimica** *Moore* is the name of the somewhat more darkly margined ♂♂ from Sikkim and Bhotan, where the form occurs at elevations of 6—9000 ft.

laeta. **T. laeta** *Bdv.* (73 d) likewise has an extensive range and has the same habits as *libythea*, in whose company it is mostly found. The forewing is distinguished by its sharply produced apex, and the angled hindwing makes this one of the most easily identified species of *Terias*. The rainy-season form is beneath *pseudolaeta.* plain yellow powdered over with black. As **pseudolaeta** *Moore* is known a dry form from Tenasserim with reddish tinge and sand-grey dusting. The species is distributed over the whole of India, very common *annamitica.* in Kashmir, extending southwards to the Nilghiri Hills and eastwards to Annam and Tonkin. — **anna-** *semperi.* **mitica** *Moore nom. nud.* is probably an untenable name. — **semperi** *Moore*, erected from SEMPER's figures designates a relatively small race from the Philippines, which came from the Benguet Mountains in Luzon, whilst ♂♂ in FRUHSTORFER's collection from the neighbourhood of Manila agree more with Assam *vagans.* examples. — **vagans** *Wall.* is the Formosa race with strikingly light yellow ♀♀. — **hainana** *Moore*, a form *hainana.* from Hainan, is unknown to us in nature. — **bethesda** *Jans.*, already dealt with in the Palearctic part *bethesda.* (p. 58), is the summer form, and **subfervens** *Btlr.* the winter form of the Japanese subspecies, which *subfervens.* passes in cellections as *jaegeri Mén.* and also occurs on Tsushima and in Corea. — **herla** *Mc Leay* (= *herla.* lineata *Misk.*), which appears to be very rare, replaces *laeta* in Australia, Queensland.

sana. **T. sana** *Btlr.*, according to a figure which was drawn at the British Museum, appears to be a *venata*-race, with no marking except a distal margin, which is broader on the forewing and narrower on the hindwing. Very small.

smilax. **T. smilax** *Don.* is according to WATERHOUSE the smallest South and East Australian *Terias*, which is unknown to us in nature, very variable, so that the names *casta Luc.* and *ingana Wall.* have been introduced for the rainy-season form, *varius Misk.* for an intermediate form and *parvula Hew.* for that of the dry season. According to the figure of *ingana Wall.* the species, which BUTLER places in a separate group, appears to form a transition to *hecabe L.*

c. ♂ with two stripes of short, thick scales at both sides of the median of the forewing beneath.

The best known species of this group is **T. hecabe** *L.*, which of all the butterflies has probably received the most names, so that their correct differentiation is one of the most difficult problems of oriental entomology. The species is divided in many of its localities into 3 seasonal forms, which are connected by transitions. The most extreme of these forms can be artificially produced at the same time

by breeding, if some of the pupae are kept in a cold and others in a warm place, an experiment which PRYER has carried out in Japan. The examples of the dry season are beneath mostly ornamented with red spots, of which one sometimes covers the entire apex of the forewing beneath (f. **sodalis** *Moore*), and such specimens may easily be confused with *sari*. The ♀♀ are always larger than the ♂♂, paler, but more or less densely sprinkled over with black dots. Dwarfed and giant forms occur in the species as commonly as miscoloured ones. The eggs are laid singly, but sometimes also a larger number are deposited on a leaf in rhomboidal form. In the latter case the larva likewise lives gregariously and even the pupae are fastened near to one another in large numbers. Larva green, lightly haired, with large black head and yellowish white lateral streak. When the pupae hang from leaves, they are green, when near the flowers of Cassia, yellow, and when the larvae leave the food-plants and spin up on high grasses, they become black-brown like the seeds in their vicinity. The pupae are in this case arranged in rows at regular intervals, which completes the illusion. The butterflies leave the pupal shell after only 6 days (MARTIN). — *anemone*, already mentioned in the Palearctic part (p. 59) as a synonym, is the form which has advanced furthest towards the north. Two races are known to us: **anemone** *Fldr.*, described from Ningpo and probably distributed over the whole of Central and Northern China to Corea; *mandarina Orza*, from Japan, whose name-type is based on the remarkably poorly coloured dry-season form, whilst the rainy-season form has been named *marriesi Btlr.*, and *hybrida* and *connexiva Btlr.* refer to intermediate forms. On Tsushima I took all the forms together in October. On Okinawa there is a local race in which a summer brood occurs with large, obliquely placed red subapical spot on the hindwing beneath, which according to FRITZE has not yet been observed in Northern Japan, but of which I have seen a less pronounced form from Nagasaki and Tsushima. On Ishigaki, the most southern Loo Choo Island, occurs a *hecabe*-race which can scarcely be distinguished from specimens from Formosa and South China. — **hecabe** *L.* (73 f), the name-type of which perhaps came from China, is here dealt with as being distributed from Southern China to Anterior India. Nearly 25 names have been given to the many forms which inhabit the Indian empire alone. BINGHAM has recently lumped them nearly all together, but a number of them appear to deserve recording, as the ensemble of specimens always shows a local character, though the differences are so subtle as to be more easily comprehended with the eye than described with the pen. Thus I would retain for the products of the hot, almost rainless lowlands of India the name **fimbriata** *Wall.*, to which belong *pulla Moore*, *excavata* as rainy-season form and *narcissus*, *asphodelus* and *irregularis Btlr.* as intermediate forms, whilst *aesiopaeoides* and *swinhoei Moore* denote races of Central and Western

sodalis.

anemone.

hecabe.

fimbriata.

India, and **merguiana** *Moore* is based upon relatively large specimens from the Mergui Archipelago with deeply emarginate distal border to the forewing, of which *fraterna* and *patruelis Moore* constitute the dry-season form. — **simulata** *Moore* designates the dark yellow Ceylon race, — **nicobariensis** *Fldr.* the subspecies from the Nicobars. — **blairiana** and **andamana** *Moore* the race of the Andamans which has but few markings. — **grandis** *Moore* is founded upon specially conspicuous examples from the mountain region of Sikkim. — **simplex** *Btlr.* is based on ♂♂ with strongly reduced black, uniform distal margin — and **apicalis** *Moore* upon the most extreme form, with only a black apical spot, and as **sarinoides** *form. nov.* is here described the dry-season form with the large red apical spot on the forewing beneath, similar to that of *sari Horsf.* — **subdecorata** *Moore* designates a local race from Hainan — of which **attenuata** *Moore* is a dry-season form. — **hobsoni** *Btlr.* is the form from Formosa, which appears to differ from Tonkin and Hong-Kong examples in the more uniformly pale colouring of the ♀♀ and the darker yellow ♂♂ and also occurs on the southern Loo Choo Islands, such as Ishigaki. — On the Philippines there is a very great difference between the insects from the northern and southern islands. The race from Luzon is **luzoniensis** *L.*, small, of dark yellow colour, closely allied to the Hong-Kong specimens; ♀ plain pale yellow, without black dusting and hence very similar to *hobsoni*. — **sintica** *subsp. nov.* inhabits Mindoro. Forewing with large black spot at the apex of the cell, black-brown distal border of the hindwing relatively narrow. The whole upper surface of the wings lightly powdered over with black. — **tamiathis** *subsp. nov.* (= diversa *auct.* nec *Wall.*) is the most southerly and the darkest geographical subspecies, with very broad distal margin; upper surface of the wings densely scaled with black, apex of the cell adorned with a small, indistinct black spot. Mindanao, Bazilan, Jolo. — **jalendra** *subsp. nov.* surpasses even *tamiathis* in size; the black powdering of the ♀♀ is absent, the distal border becomes somewhat narrower in both sexes. Palawan, Balabac. — **borneensis** *subsp. nov.* (73 e) has especially in the ♀ a strongly marked distal border. North and South Borneo. — **locana** *subsp. nov.* is characterised by having the marginal bands scarcely a third as broad; Natuna Islands. — **latilimbata** *Btlr.* is the oldest name for the specially large race from Sumatra, which differs in both sexes from *borneensis* by the narrower margins. **bidens** *Btlr.* is based on a dark ♀ of the rainy-season form and *semifusca Btlr.* on a ♀ with half black, half yellowish upper surface to both wings. **toba** *Nicév.* is a small mountain form, pale whitish yellow in the ♀. North, East and West Sumatra. — **satellitica** *subsp. nov.* is a new name for the small Nias form, whose ♀♀ are powdered over with black like those of *tamiathis*. — As **sankapura** *subsp. nov.* are included the whole of the insular forms which inhabit Bawean, Java, Bali and Lombok, recognisable by the narrow black distal border, whose edge is pretty even on the forewing. — **enganica** *subsp. nov.* has on the contrary very deeply

merguiana.
simulata.
nicobariensis.
blairiana.
andamana.
grandis.
simplex.
apicalis.
sarinoides.
subdecorata.
attenuata.
hobsoni.
luzoniensis.
sintica.
tamiathis.
jalendra.
borneensis.
locana.
latilimbata.
bidens.
toba.
satellitica.
sankapura.
enganica.

chemys. incised marginal bands on both wings. Island of Engano. — **chemys** *subsp. nov.* is the race from Alor and Sumba, in which the ♂♂ are deep yellow and the ♀♀ have the basal area powdered over with dull grey.
brevicostalis. — **brevicostalis** *Btlr.*, a smaller form from the islands of the Timor Group, with the distal bands deeply incised proximally; Timor, Wetter, Babber, Dammer, Kisser and Key. — On Sumba occurs a similar,
dendera. kalidupa. somewhat modified race, scarcely dentate proximally: **dendera** *subsp. nov.* — As **kalidupa** *subsp. nov.* is here introduced one of the most sharply characterised island forms, whose ♂♂ recall *brevicostalis*, but are deeper yellow and bear a narrow black distal border. The ♀ is, however, densely powdered over with black throughout and the veins broadly covered with black. Kalidupa, discovered by H. Kühn. —
dentyris. **dentyris** *subsp. nov.* is a small form, with very narrow marginal band, the ♂♂ deep dark yellow but the ♀♀
asanga. without dusting on the upper surface; Tanah-Djampea, Saleyer. — **asanga** *subsp. nov.* is the race from the Northern Moluccas, which Butler unites with his *brevicostalis* from Micromalayana, to which it approxim-
sinda. ates very nearly, but differs in the more greenish yellow ♀♀. Halmaheira, Batjan. — **sinda** *subsp. nov.* is a mountain form from South Celebes, with relatively narrow black distal border to the hindwing of the ♂♂ and very large, strikingly pale yellow ♀♀. Under surface with very large red-brown apical spot; hindwing with four diffuse patches. The ♀♀ differ from the ♀♀ of *latimargo Hopffr.*, which occur with them, in the absence of black dusting on the upperside of both wings and the much reduced marginal
oeta. band on the hindwing. Peak of Bonthain, February, 5000 ft. — As **oeta** *subsp. nov.* are united all the *hecabe* occurring in New Guinea; they differ from *sulphurata Btlr.* in the darker yellow ground-colour, the
kerawara. narrow black distal margin of both wings and the deeper colouring of the under surface. — **kerawara** *Ribbe* is the name of specimens from the Bismarck Archipelago, with green-white upper surface in the ♀♀
magna. and only slightly yellow tinge on the hindwing; New Pomerania. — **magna** *Ribbe* is a similarly coloured
nivaria. race, but of larger size. Mioko. — **nivaria** *subsp. nov.*, from the Solomons, has almost entirely white ♀♀, which recall those of *biformis*, but only show traces of a yellow tinge, while the hindwing is scarcely
sulphurata. perceptibly margined with black. — Under **sulphurata** *Btlr.* its author has recently grouped together all the Australian specimens and quite a number of island races, such as *hebridina*, *aprica* (Tonga-tabu), *maroensis*, *laratensis Btlr.*, a course which will need to be tested. The Australian race is in general, in
diversa. spite of the occurrence of seasonal forms, less variable than Indian *hecabe*. — **diversa** *Wall.* is a very interesting subspecies with white instead of yellow ♀♀. The type comes from Buru; recently examples
biformis. have also been discovered on Obi. — **biformis** *Btlr.* (73 c) is the name for the little larger and somewhat
bandana. more broadly black-margined race from Amboina and Ceram. — **bandana** *subsp. nov.* has in the ♂ the same marginal pattern as *biformis*, but a light yellow ♀ with very weak black distal border.

tecmessa. **T. tecmessa** *Nicév.*, described from Penang and North-East Sumatra, in Fruhstorfer's collection from Perak and West Sumatra, is a highly specialised form, distinguished by elongate instead of rounded forewing, very sharply defined black margins to the greenish yellow upper surface of the wings and an apical spot on the forewing beneath reminding one of *sari* and *sodalis*, which is red-brown but traversed by a yellowish zone. But its specific distinctness remains nevertheless doubtful.

T. latimargo *Hopffr.* (= anguligera *Btlr.*) forms a transition to the *tilaha*-group inasmuch as the anal margin of the forewing above extends in North Celebes specimens to the middle of the wing; on the other hand such a close relationship to *hecabe* is shown by the colouring of the ♀♀ (of which some recall South Philippine and others Malayan races) and the presence of 2 cell-dots on the forewing beneath,
nesos. that its specific right is still an open question. Four forms deserve mention: **nesos** *subsp. nov.* (73 e, f), with narrower black distal border and weaker black dusting on the upperside of the forewing. ♂ very large, much lighter yellow than North Celebes ♂♂. *nesos* inhabits the peak of Bonthain, where in February
sophrona. and March the two seasonal forms overlapped at an elevation of about 4000 ft. — **sophrona** *form. nov.* is the form of the plains, common near Macassar and at the waterfall of Maros; ♂♂ of smaller size, ♀ dark
latimargo. yellow without any dusting. — **latimargo** *Hopffr.* is the mountain form from North Celebes, darker in both
pylos. sexes. — **pylos** *subsp. nov.*, a well-defined island race with broader and more deeply excised margins to
othrys. both wings. Sula Mangoli. — **othrys** *subsp. nov.* has also a very broad, proximally pointed anal spot on the forewing and uniform distal margin, imperceptibly incised on the hindwing. This is the form which Semper figured as *vallivolans ab.* Philippines.

blanda. **T. blanda** *Bdv.* (73 e), whose specific right has often been questioned, is a distinct species, characterised by narrower wings and less broad distal margin throughout, and distinguishable from *hecabe* by 3 instead of 2 small transverse streaks on the under surface of the forewing. The latter is indeed somewhat inconstant, in specimens of the rainy season sometimes scarcely to be recognised, but on the other hand the form of the genitalia defines the species with precision. The valve of *hecabe* is distally (apart from three finger-shaped appendages) only provided with one long-produced, rounded point, but that of *blanda* bears a small corona of four sharp teeth. In the character of the pattern *blanda* varies as much as *hecabe*, the specimens of the rainy season beneath almost unmarked, those of the dry period sprinkled with red. Also the form *sodalis* occurs, and thus it came about that *hecabe* and *blanda* have been often confused, and even a part of the figures of *hecabe* in Moore's Lepid. Indica belong to *blanda*. — The larva is

likewise different from that of *heeabe*, lives on another food-plant, Wagatea spicata, and is of a green colour with strikingly large black head and an indistinct yellow lateral stripe. The pupae lie closely ranged together upon twigs, are darker than those of *hecabe* and almost entirely black. *blanda* is almost as widely distributed as *hecabe*, appearing only to be wanting at the eastern and northern limits of the latter's range. — **arsakia** *subsp. nov.* is the most northern offshoot as yet discovered. Both sexes very *arsakia.* large; distal border of the hindwing of the ♂♂ comparatively narrow; ♀ pale green-yellow with broad distal margin, deeply and uniformly dentate proximally. The dry-season form **aphaia** *form. nov.* is smaller *aphaia.* than the wet form, particularly in the ♂; ♀ almost without black bordering on the hindwing above and without the dense black powdering of *arsakia*. Distal margin of the forewing in the ♂♂ almost rectilinear; the under surface sprinkled with reddish. *arsakia* is not rare on Formosa in July and August, *aphaia* in March and April. — **acandra** *subsp. nov.* is the form from Hong-Kong, of which I have before me only the *acandra.* dry-season form taken at the end of October, which shows a darker yellow colouring and even narrower margins on the forewing than *aphaia*. — The Philippines produce a series of island races, of which **viselliia** *visellia.* *subsp. nov.* is the Luzon form, pale yellow, with the hindwing somewhat more broadly margined than *acandra*, — **mensia** *subsp. nov.* that of the central Philippines, of darker colour and with broadened bands; *mensia.* Samar, Leyte, Bohol. — **vallivolans** *Btlr.* is founded on the dark yellow, broadly black-margined dry- *vallivolans.* season form from Mindanao, of which **simulatrix** *Stgr.* constitutes a very large rainy-season form, broadly *simulatrix.* shaded with black. — **natuna** *subsp. nov.* is a race with almost uniform and only moderately broad distal *natuna.* margin and a quite light ♀, recalling that of *harina* in its colouring. — **silhetana** *Wall.* (73 c) was described *silhetana.* from specimens of the dry season; Butler named the rainy-season form, with somewhat broader black margins, especially on the hindwing, **heliophila;** Assam, Sikkim. — **davidsoni** *Moore* (73 c, 2, erroneously *heliophila.* *davidsoni.* named *silhetana*) is the race from South India, which most closely approaches certain *hecabe* in the striking extension of the marginal colouring. Examples from Tenasserim and Tonkin to Siam and Annam differ somewhat from South Indian specimens in the narrower markings on the wings. — **citrinaria** *Moore*, *citrinaria.* based on specimens of the dry season, designates the small, very similarly marked Ceylon race, of which *templetoni.* the names **templetoni** *Btlr.*, **uniformis** and **rotundalis** *Moore* refer to examples of the rainy season. — *uniformis.* **snelleni** *Moore* (*nom. nud.*) is here adopted for a stately, broad-margined race from Sumatra, Perak and *rotundalis.* probably also Borneo. — **blanda** *Bdv.*, whose name-type came from Java, has the markings almost *snelleni.* identical in both seasonal forms, narrow and almost rectilinear. ♀♀ are rare; one from Bawean has the *blanda.* distal marginal dusting on the upperside of the hindwing extended. Java, Engano, Bali. — **sanapati** *sanapati.* *subsp. nov.* is smaller, darker yellow, the black colour on the forewing almost confined to the apical part. Sumbawa, Lombok, Alor, Sumba (?). — **roepstorffi** *Moore*, based on specimens of the dry season, differs *roepstorffi.* from the Ceylon race in its larger size; and **cadelli** *Moore* is an extreme dry-season form without black *cadelli.* distal margin on the hindwing above. Andamans, Nicobars; the ♂♂ of both were originally described only from the Andamans and the ♀♀ only from the Nicobars. Should the Nicobar race differ it must be named anew. — **cantideva** *subsp. nov.* is a very small race of a dark yellow colour with much broadened *cantideva.* and very deeply excised distal margin to the forewing. Wetter. — With **cungata** *subsp. nov.* begins a *cungata.* series of forms which again approximate to the Philippine type *vallivolans Btlr.* in their specially elongated wing-contour. The marginal band is narrow and very regular; ♀ differing but little from the ♂, basally only lightly dusted over with black. Amboina. — **indecisa** *Btlr.* is the deeper yellow, somewhat more *indecisa.* broadly margined race from the Northern Moluccas: Halmaheira, Ternate, Mangoli; Waigeu, New Guinea. — From Celebes no representative of *blanda* is yet known, but one may be confidently looked for, as also from Palawan.

T. moorei *Btlr.* is an interesting island form belonging to the *blanda*-group. Following the example *moorei.* of Bingham, it is here treated as a species; it is, however, not impossible that it is only a modified rainy-season form of *blanda*, so much the more as a dry-season form of it has not yet been found. In any case it occurs together with the above-named *roepstorffi* and *cadelli* on the Nicobars, is of medium size, dark sulphur-yellow with moderately broad, proximally finely dentate distal margin to the forewing. The hindwing bears only a narrow distal band. — **amplexa** *Btlr.* is only a local form of the same with the *amplexa.* marginal band somewhat narrowed on the forewing and widened on the hindwing. Christmas Island.

With **T. andersoni** *Moore* begins a series of species which only show a black ring-spot on the under- *andersoni.* side of the cell of the forewing. *andersoni* has the wings shaped like those of *blanda*, but is at once recognised by the much broader, deep black distal margin of both wings, which is proximally especially sharply dentate, and by its peculiar dark green-yellow coloration. Beneath it approaches *tihala Horsf.*, from Java, in the strongly expressed black dots and a row of submarginal spots united into bands. The species is everywhere very rare; the name-type comes from the Mergui Archipelago. Bingham knows it from Tenasserim and the Andamans and there is a ♀ from Assam in his collection. — **godana** *subsp.* *godana.* *nov.* is the most northerly branch known; larger than the type, more narrowly margined with black, somewhat paler yellow. ♀ but a little paler than the ♂, with delicate brown tinge on the hindwing beneath, especially in the dry-season form of April with sharply defined black marginal dots on the fore- wing. Rainy-season form taken in July, near Taihanrohu, Formosa. — **udana** *subsp. nov.* is the most *udana.*

southerly race, similar to the type in size, but the ♀ has the black-brown margins of the wings nearly three times as broad. The under surface of both sexes even more distinctly spotted with black than in the more northern forms. West Java, very rare.

lacteola. **T. lacteola** *Dist.* (73 d) is closely allied to the preceding species in the pattern of the under surface, which in the dry-season form, especially in Javanese specimens, shows almost as large a red apical spot on the forewing beneath as *sari*, so that it is not inconceivable that *lacteola* is only an extreme form of *sari*. But as proof of this is still wanting on account of the rarity of this insect, *lacteola* is here treated as a species. The typical subspecies, described by DISTANT from Perak was taken by me in Annam and *toba.* Siam. — **toba** *Nicév.* may represent the Sumatran race, unless indeed it was only erected on a mountain *varga.* form of *hecabe*. Only 3 or 4 examples are known, among them one from West Sumatra. — **varga** *subsp. nov.* is the race from West Java, normally larger than the figure, but both sexes with narrower black *yaksha.* distal margin. — **yaksha** *subsp. nov.*, a well differentiated island form, with very narrow black distal margin to the forewing and the upper surface of both wings basally powdered over with black; Natuna Islands. — *ada.* **ada** *Dist.* is the name of the Borneo form, very nearly allied to the Malayan race; the ♀ is figured on *prabha.* pl. 73 d. — **prabha** *subsp. nov.* differs from it in having the margins of both wings twice as broad and a richer yellowish tinge on the upper surface of the hindwing. Palawan.

T. sari is a species easily recognisable by its rounded wings, the large red-brown subapical spot in the cell of the forewing beneath, and by the single black ring-spot near the base. Its area of distribution is much less extended than that of *hecabe* and *blanda*, and scarcely extends beyond the true Malayan countries. The species is said also to occur in South India and Ceylon, but we have not received specimens *sodalis.* from there. — **sodalis** *Moore* is a local race with pale yellow ground-colour, the black distal margin of the ♀♀ being narrower than shown in the figure. Mergui Archipelago, Tenasserim, Malay Peninsula, Lingga *sari.* Archipelago, Sumatra. — **sari** *Horsf.* (73 f) is the typical subspecies, which occurs on Java, especially at elevations of 1000—2000 ft. in coffee-plantations overgrown with weeds or at the edges of woods. — *thyreus.* **thyreus** *subsp. nov.* is a specialised race with more extended black distal margin to both wings and especially copious red-brown ornamentation on the under surface of both wings. Island of Engano, common, *obucola.* in April. — **obucola** *subsp. nov.*, from South Borneo, Natuna and Palawan, has still broader black-brown *sarilata.* margins on the hindwing. — **sarilata** *Semp.* (= mindorana *Btlr.*) is a pale yellow race with moderately *crinatha.* broad margins from the central Philippines. — **crinatha** *subsp. nov.*, from the South Philippines, is, like all the forms from there, essentially darker: ♀ densely dusted with black and the distal margin still broader *curiosa.* than in Borneo examples. Mindanao. — **curiosa** *Swinh.* is according to BINGHAM an aberrant form of *sari* with unusually broad black distal margin. Bombay district.

lombokiana. **T. lombokiana** *Fruhst.* (73 d) recalls *sari* in the colouring, the shape of the wings and the black markings of the under surface, but the red apical spot is wanting on the underside of the forewing, the terminal margin of which has a complete black border, while in *sari* there are only red isolated distal dots. Lombok, May—June at elevations of 2000 ft.; Flores, in November. Everywhere rare, and may certainly be looked for also from Sumbawa and perhaps Timor.

invida. **T. invida** *Btlr.* is a species of uncertain position, which is rare in collections. BUTLER has since united it with *alitha Fldr.* as a dry-season form, SEMPER, who had larger material at his disposal, calls attention to its relationship to *tilaha Horsf.* and *latimargo Hopff.* Certain it is that *invida* occurs on Mindanao in two seasonal forms, and that it may perhaps be taken as the Philippine representative of *samarana.* *tilaha Horsf.* — **samarana** *subsp. nov.* is distinguished by a roundish, isolated patch at the hindmargin of *leytensis.* the forewing, such as is shown by no other *Terias*. Island of Samar. — **leytensis** *subsp. nov.* very nearly approaches *tilaha* in the continuous black anal margin of the forewing and the blackish basal tinge of the median vein of the hindwing. Island of Leyte.

T. tilaha is the most conspicuous of the Malayan species of *Terias*, which, although it also occurs near the coast, is found as a rule only at elevations of 1000—3000 ft. and prefers natural vegetation *tilaha.* rather than cultivated land. Three subspecies are known: **tilaha** *Horsf.* (= eumide *Fldr.*[1]) (73 g), of light yellow ground-colour; distal margin of the hindwing of the ♀ scarcely appreciably broader than in the ♂: *nicevillei.* ground-colour somewhat paler. East and West Java. — **nicevillei** *Btlr.*, of dark yellow ground-colour; *gradiens.* distal margin of the ♀ distinctly broader than in the ♂. Sumatra. — **gradiens** *Btlr.* (= rahel *Stgr.* nec *Fabr.* nec *Btlr.*). Distal margin of both wings very broad in both sexes. Hindwing of the ♀ distinctly *garama.* rounded off anally; North Borneo. — **garama** *subsp. nov.* has more elongate forewing, light yellow ground-colour and very narrow bands. Sulu Islands, Jolo Archipelago.

tominia. **T. tominia** *Vollenh.* (= tondano *Fldr.*) is perhaps only the strongly modified Celebes local form of the preceding species; the two have in common the black anal margin of the forewing beneath which is not found in any other *Terias*, and is apparently a secondary sexual characteristic, as it is otherwise common in ♂♂. But the shape of the uncus and valve is well differentiated, the distal valvular process

[1]) Confirmed by comparison of the types.

bearing in *tominia* two sharp points, whilst in *tilaha* (*gradiens*) it is rounded off laterally. Quite a series of local forms are already known and a large number may still be looked for from the small islands near Celebes. — **mangolina** *subsp. nov.* (73 h) has the border at the hindmargin of the forewing only somewhat narrower, whilst the ♀ only differs from *tominia* in having less yellow on the hindwing. Sula Mangoli. — **besina** *subsp. nov.* is a much smaller melanotic island race, with still more rounded wings and even more darkened in the ♀. Sula Besi. — **talissa** *Westw.* only differs slightly from *tominia* in the female, the ♂♂, however, bear a much broader and more obliquely placed band. Island of Talisse, off the north point of Celebes. — **tominia** *Vollenh.* has its name from the Gulf of Tomini in North-East Celebes, where, as well as in Minahassa and southwards to Toli-Toli, it is not rare, and was observed by me at the edges of the woods near the coast. The ♂♂ are apparently very constant, ♀♀ of the rainy-season form very large, with the yellowish band on the forewing sometimes very much narrowed. ♀♀ of the dry-season form as they occur in Central Celebes and in the south of the island, essentially smaller, with the yellow oblique band only slightly dusted over with black. — In South Celebes occurs a further distinctly defined mountain form: **battana** *subsp. nov.* (73 g), which is noticeable for the considerable reduction of all the black marginal bands and the predominance of the yellow ground-colour without black dusting. Peak of Bonthain, February, March, not rare at about 5000 ft. — **toradja** *subsp. nov.* is an intermediate form, in which the yellow oblique bands of the forewing are almost entirely suppressed by the black distal margin and the yellow band of the ♂♂ is much more obliquely placed. East Celebes. Named from the Toradja, the natives of the island. — **halesa** *subsp. nov.*, from Saleyer, may be recognised by a black anal border extending to beyond the middle of the cell of the forewing and a shorter yellow oblique band. — **faunia** *subsp. nov.*, from Binungka, approaches *besina* in its smallness and in the very narrow distal border of both wings, but has a paler ground-colour than all other named subspecies. — Finally, **arsia** *nom. nov.* (= snelleni *Fruhst.*), from Tanah-Djampea, again approaches *battana*, from which it differs by the black anal border encroaching more deeply on the cell. — **horatia** *subsp. nov.* (73 g) apparently replaces *tominia* on Borneo. This is one of the rare cases where Borneo and Celebes have a species of butterfly in common. Butler believed that he had identified *horatia* with *rahel F.*, a conclusion which cannot be justified from the inadequate diagnosis of Fabricius. Pontianak, South Borneo.

mangolina. *besina.* *talissa.* *tominia.* *battana.* *toradja.* *halesa.* *faunia.* *arsia.* *horatia.*

T. alitha *Fldr.* approximates to the figured *marosiana* and is easy to separate from the *tominia*-series by the elongated, narrow wings. According to Sempfr the ♂♂ remain very constant, whilst the ♀♀ are somewhat variable in the breadth of the distal border and also in the intensity of the ground-colouring. Observations as to seasonal forms have not yet been made. Sempfr figures a ♀ almost entirely black above. — As **bazilana** *subsp. nov.* we introduce here an island race with very broad distal margin to both wings, proximally very sharply defined. The anal border of the hindwing reaches nearly to the cell. Together with it occurs a form of the ♂ with the terminal band of the hindwing much narrowed anally and ending in a fine point at the submedian (f. **aebutia** *form. nov.*). Bazilan. — As **sangira** *subsp. nov.* I characterise a race in which the yellow oblique band of the forewing is reduced to half the width of that of *bazilana* and the hindwing shows a basal black tinge as extended as in *zita Fldr.* (73 h). Sangir. — **lorquini** *Fldr.*, from North Celebes, of which I have been able to compare the type, remained unknown to me in the field. The ♂♂ are smaller than those of **marosiana** *subsp. nov.* (73 g), whose ♀♀ have the upper surface of the wings finely dusted with grey-brown. — In **djampeana** *Fruhst.* the black distal border of the forewing enters the cell and also the hindwing is more broadly margined with black. Tanah Djampea.

alitha. *bazilana.* *aebutia.* *sangira.* *lorquini.* *marosiana.* *djampeana.*

T. zita *Fldr.* (73 h) so closely resembles *lorquini* in the male that we leave the question open whether they do not represent respectively the rainy-season and dry-season forms of a single species. The shape of the wings and the different scheme of marking in the ♀♀ are, however, very distinctive. On the island of Lutangan, near Toli-Toli I took a ♀ with the forewing entirely black and a remarkable dwarf form with yellow transverse bands, but almost entirely covered by black dusting, on both wings (**zamida** *Fruhst.*), which appears to form a transition to *lorquini Fldr.*

zita. *zamida.*

T. norbana *Fruhst.* (73 h) is noticeable for the sharply dentate bordering of the wings, which on the hindwing is proximally broken up into fine atoms. The species is very common at the borders of the woods at the coast of Toli-Toli, North Celebes. The ♀ only differs slightly from the ♂ in having the cell of the forewing lightly dusted with red-brown. — **odinia** *Fruhst.* (73 h) is a local form from southern Celebes, of larger size, but nevertheless with less and much lighter brown margining, in the ♀♀ of which the distal border of the hindwing begins to be broken up into spots already behind the middle of the wing, moreover on the forewing there is no dusting of the grey-brown scales. *odinia* occurs from the plain up to 5000 ft., from November to March. — **salegos** *subsp. nov.* is but a little more narrowly margined with black on the forewing than *norbana*, but the hindwing bears only a slight distal border, which is sharply defined proximally. Northern Moluccas: Halmaheira, Batjan. — In **anios** *subsp. nov.* the distal border is again somewhat widened and has on the hindwing distinct undulate excisions. Obi. — In **depicta** *subsp. nov.* the bordering of the forewing at the hindmargin scarcely reaches to the middle of the

norbana. *odinia.* *salegos.* *anios.* *depicta.*

wing and on the hindwing it is only distinctly noticeable near the median vein. Amboina. apparently everywhere rare.

T. celebensis is a pretty species, distinguished by the almost round hindwing and by the black margining in the ♂ occupying almost the whole distal half and in the ♀ commonly entirely suppressing the yellow on the upper surface. Rather rare and apparently inhabiting only the plains. It is divided into four geographical races: **exophthalma** *subsp. nov.* (73 f). Forewing also beneath with a submarginal row of strong black dots. Sula-Mangoli. — **poetelia** *subsp. nov.* ♀ with yellowish disc on both wings, which, however, is densely powdered over with black-brown. Sula Besi. — **celebensis** *Wall.*, from North Celebes. The black distal margin of the ♂♂ extends nearly to the apex of the cell on the forewing. ♀ entirely black-brown. Toli-Toli, November and December, rare. — **toalarum** *subsp. nov.* The distal margining is far from the apex of the cell on the forewing and extends on the hindwing to the cell-wall. ♀ with large discal yellow patches. South Celebes, named from the primitive inhabitants of the island — the To-ala — who to-day still live in caves.

exophthalma. poetelia. celebensis. toalarum.

T. candida, a well defined species, inhabits exclusively the Papuan region and the Moluccas with an offshoot towards Micromalayana. Boisduval mentions it also from Celebes. — **libera** *subsp. nov.* (73 d) is the largest known race. The ♀ differs from all the known forms in the light greenish yellow tinge on the upper surface of both wings. On 73 h *puella* is printed by oversight instead of *libera*. Northern Moluccas: Halmaheira, Batjan, Ternate. — **dindymene** *subsp. nov.* (73 c) may be recognised by the proximally strongly widened black anal margin of the hindwing, which near the cell is broken up into separate clusters of scales, and by the more extended black basal dusting on the forewing. Obi. — **candida** *Cr.* is the typical subspecies of the Southern Moluccas. Distal margin only a little narrower than in *dindymene*. ♀ white with dense brown dusting in the basal area of both wings. Amboina, Ceram, Buru, Saparoea. — **goramensis** *subsp. nov.*, from Goram, has much narrower black distal margins and forms a transition to **virgo** *Wall.* — The latter is a form with the ♀ entirely white. Aru Islands. — **papuana** *Btlr.*, with somewhat broader black distal margin than *virgo*. Misol. — **octogesa** *subsp. nov.* Distal border somewhat narrower than in *libera*. ♀ with intensively lemon-yellow tinge proximally to the black marginal band. Waigeu. — **puella** *Bdv.* has a white distal band, much widened especially towards the costa. Dutch New Guinea, from Humboldt Bay and Dorey to Etna Bay and Merauke. — **diotima** *subsp. nov.* ♂ lighter yellow than in the preceding, ♀ even purer white with appreciably narrower distal border to both wings. German New Guinea and Vulcan Island. In Australia and on the Fergusson Islands occurs a further subspecies of somewhat larger size. — **xanthomelaena** *Godm.* approaches *dindymene* in the ♂ through the anal margin of the hindwing extending to the cell. The ♀ is on the forewing densely dusted with brown-black to about the middle of the cell, on the hindwing in the entire distal half. Bismarck Archipelago. — **digentia** *subsp. nov.* differs from specimens from New Mecklenburg and New Pomerania in the much broader black distal margin of both wings (which forms a transition to *salomonis*) and the slighter black tinge on the hindwing and the lighter ♀♀. — **salomonis** *Btlr.* has relatively narrower black distal margin to both wings than the preceding. Length of the forewing 22—27 mm. Fauro and Alu Islands. — **woodfordi** *Btlr.* is said to have a yellowish instead of white ♀ and to recall *candida Cr.* in the shape of the distal margin. Length of the forewing 17—25 mm. Guadalcanar, Maleita and Florida; Shortlands. — Finally, **micromalayana** *subsp. nov.* is a very broadly black-margined race from the small Sunda Islands, of almost the same size as *libera* from the Northern Moluccas, which Boisduval already knew from Timor and which is represented in my collection from Flores. A representative of *candida* also occurs in Celebes according to Boisduval and Ribbe, but the species has not been recently found there. — According to Hagen the butterflies are common in New Guinea the whole year round, but only in the woods, never in open fields. Weak, unsteady flight, not far from the ground. *candida* differs from the other *Terias* by the longer fork formed by subcostals 3 and 4 on the forewing.

libera. dindymene. candida. goramensis. virgo. papuana. octogesa. puella. diotima. xanthomelaena. digentia. salomonis. woodfordi. micromalayana.

23. Genus: **Gandaca** *Moore.*

Moore founded on the collective species *harina* the above-named genus, without giving any differential characters, only erecting it *brevi manu* on the wing-contour, which differs somewhat from that of other *Terias*. Although the neuration of the forewing presents no difference worth noticing, on the hindwing the elongate instead of short and broad shape of the cell is conspicuous and the subcostal arises far before the apex of the cell, so that a very long upper discocellular is formed, which in the rest of the Indian *Terias* is absent resp. shortened. Moreover, the cell-wall is bent distad and not proximad. The genus embraces only one known species.

G. harina *Horsf.* (73 c) has the same habits as *candida* and is met with only in woods, never in abundance, visiting flowers, and sometimes resting on the same flowers with Zemeros- and Lycaenid-♀♀. *harina* flies all the year round, from the sea-shore up to 2—4000 ft. The species has about the same

harina.

range as *hecabe*, but is very constant in any one locality, yet almost more inclined than even *hecabe* to local variation at short distances. — **hainana** *subsp. nov.* has the ♀ entirely pure white with very narrow black distal border to the forewing. Hainan. — **gardineri** *subsp. nov.* Both sexes lightish yellow, ♀ with very broad apical margin to the forewing, deeply dentate proximally. February, March. Island of Bazilan. — **mindanaensis** *Moore* (*nom. nud.*) has like the ♀ of all the other Philippine races a tendency to vary from yellowish white to light ochre-yellow and that independently of the locality. The variation is most probably seasonal. Flies principally in May and October. South Philippines. — **palawanica** *Moore* (*nom. nud.*) has, according to specimens in my collection, a somewhat more restricted black apical tinge on the forewing than *gardineri*. Palawan, January, February. — **elis** *subsp. nov.* has a white ♀ with strikingly broad, strongly dentate border on the forewing. North Borneo. — **distanti** *Moore* (*nom. nud.*) with light yellow ♀♀, which of all known races bear the broadest and at the same time the least dentate distal border. Malay Peninsula, Sumatra, Nias (?). — **burmana** *Moore* (= annamica *Moore i. l.*), distributed from Tenasserim to Siam and South Annam, is in the ♂ not even seasonally variable (January and then again August, September), with moderately wide apical border; ♀♀ yellowish white and proximally scarcely dentate. — **assamica** *Moore* may be at once recognised by the black colour on the forewing being narrowed to a fine distal border, which is also not widened in the white ♀♀. Sikkim, Assam, Bengal. — **andamana** *Moore* is a large race with moderately broad marginal colour in both sexes. Andamans, Nicobars. — The typical **harina** *Horsf.* (73 c) is described from Java. ♀ white, similar to the form from the Andamans. In the east and west of the island up to 3000 ft., never common. — **austrosundana** *subsp. nov.* has in both sexes a narrower distal border, which in ♂♂ of the dry-season sometimes almost disappears. Lombok, May and June in dense woods at elevations of 2000 ft. — **samanga** *subsp. nov.* (73 c), as is so often the case in Celebes races, is the largest known subspecies, ground-colour slightly greenish yellow with the distal margin of the forewing broken up into fine teeth. November, South Celebes. — **auriflua** *Fruhst.* (73 c), of orange-coloured tint, is peculiar to the Sula Islands, where the yellowish *Salatara panda* of all the neighbouring islands likewise assumes a reddish tone. Together with reddish resp. dark yellow ♂♂ there occur also both on Sula Mangoli and Sula Besi light sulphur-yellow specimens. — **aiguina** *subsp. nov.* appears to be distributed from Obi, in the Southern Moluccas, to Waigeu and New Guinea. The ♂♂ have but little more apical black than those of *auriflua*, the distal border of the ♀♀ contains numerous indentations proximally on the forewing and is continued on the hindwing as a distinct marginal band. — **butyrosa** *Btlr.* has an unusually narrow black distal border on the forewing. Aru Islands.

hainana. *gardineri.* *mindanaensis.* *palawanica.* *elis.* *distanti.* *burmana.* *assamica.* *andamana.* *harina.* *austrosundana.* *samanga.* *auriflua.* *aiguina.* *butyrosa.*

G. impura *Voll.*, described from Timor, is unknown to us in nature; according to VOLLENHOVEN'S figure it may possibly be placed here. *impura.*

24. Genus: **Teracolus** *Swains.* 1823 [1].

A bicontinental genus the home of which is Africa, and which has reached Anterior India along the Persian Gulf, and perhaps across a Lemurian bridge of the Tertiary period. 8 species occur in South India as against about 60 or 70 in Africa and not one of them extends further east than Ceylon and Central India. In neuration *Teracolus* approaches *Terias* and just as in the latter there are groups of species with longer or shorter upper discocellular according as the 1st subcostal arises before or at the apex of the cell. The subcostal of the hindwing is sometimes closely approximated to the costal. Larva very similar to the *Terias*-larvae. The apex of the precostal of the hindwing as in *Pieris* and *Hebomoia* bent outwards, prolonged into a fine point. The hot lowlands of India with their long dry period and some districts of northern Ceylon with their paucity of vegetation offer them suitable conditions; all the species are horodimorphic, and most also sexually dimorphic; geographical and insular races likewise exist, but the former are not easy to define.

T. amata *F.* Very common in India with the exception of Bengal, in the whole of Arabia, Madagascar and eastern Africa as far as the Congo. — Larva cylindrical or laterally slightly compressed, the upper surface rough owing to numerous small tubercles bearing small points. Ground-colour grass-green with blue dorsal line and a yellowish lateral line. Pupa with keeled wing-cases, brownish or dirty green, otherwise similar to those of *Terias*. — **modesta** *Btlr.* (73 b) is the race from Ceylon, widely distributed in collections, whose ♀♀ occur in 2 forms with salmon-coloured and whitish upper surface. The species is nowhere rare at the artificial lakes in the north of Ceylon along the main road towards Trincomali at the edge of the woods, tireless in flight, but like all its congeners only flying in hot sunshine. Larva on Salvadora persica.

amata. *modesta.*

T. protractus *Btlr.*, a species first figured in 1898, is above coloured similarly to *amata* with black distal border to both wings, which are ornamented with blue-grey patches. Under surface gorgeous green-yellow. From Baluchistan, Punjaub to Cutch. *protractus.*

[1]) *Colotis Hbn.* 1816 has priority. Synonyms are *Callosune Dbl.*, *Idmais Adv.*, *Madais Swinh.*

phisadia. **T. phisadia** *Godt.*, already discussed in the Palearctic part, p. 57, and figured pl. 23 a. — Pupa pale brown, spotted with darker brown, head with very sharp point, wing-cases only slightly keeled. Very rare in the Punjaub, where it only appears now and then, like a wandering bird of passage.

vestalis. **T. vestalis** *Btlr.* (73 c), nowhere rare at the Persian Gulf, occurs in two sharply separated seasonal forms, that of the summer (rainy season) light yellowish, that of the winter (dry season) reddish with *peelus.* sand-coloured powdering on the hindwing beneath. — **peelus** *Swinh.* is an aberration with light canary-yellow upper surface.

fausta. **T. fausta** *Oliv.* This magnificent Palearctic butterfly (vol. I, p. 56, pl. 23 c) inhabits the countries around the Persian Gulf from Baluchistan to Bombay, and in Central India passes gradually into the race *fulvia.* **fulvia** *Wall.* (= tripuncta *Btlr.*), which is somewhat darker yellow. — The larva has not yet been found in India. The butterfly is very rare in Ceylon, where it flies near Trincomali and Manaar in January, is *palliseri.* very shy and does not settle again when once it has been frightened. — **palliseri** *Btlr.* is an extreme dry-season form.

etrida. **T. etrida** *Bdv.* approaches the African *daira Klug.* The rainy-season form **etrida** *Bdv.* (73 b, to which belongs also the ♂ figured as *purus*, 73 b 3) has the usual broad black bordering to the red sub-*purus.* apical spots of the forewing and the ♀ is above strongly dotted with black. The winter form **purus** *Btlr.* (73 b 4) with paler red on the forewing and the black on the upperside of both wings obsolescent. — Larva strongly prolonged anally, uniformly green with yellowish or variegated lateral line above the legs and does not fasten the anal end to a twig (Davidson). Pupa with the snout curved upwards, first greenish, then grey-white, very beautifully sprinkled with brown. Baluchistan, Kashmir, the whole of *limbata.* Anterior India with the exception of Bengal. — **limbata** *Btlr.* is the race from Ceylon, which is somewhat more prominently marked with black. The butterfly is fond of floating with the wind over the plains covered with high grass; it occurs all the year round and is not rare near Trincomali.

danaë. **T. danaë** *F.* is the most imposing of the Indian *Teracolus*, yet cannot compare with the magnificence in colouring of its African relatives. The variability of the species exhibits interesting gradations; we have figured the rainy-season form; but there are also ♀♀ almost without red on the forewing and others with yellow bordering proximally to the black submarginal band of the forewing. ♀♀ of the dry season have no proximal black bordering to the ornamental spot of the forewing and this is also reduced in the dry-season ♂♂. The latter are also without the black dots, sometimes with beautiful red centres, on the underside of the hindwing, which assumes a sand-coloured tone, slightly tinged with rose-colour *subroseus.* (**subroseus** *Swinh.*). An intermediate form Butler named **sanguinalis** and the extreme dry-season form *sanguinalis. taplini.* is **taplini** *Swinh.* Persia, West and South India, common; very rare and local in Ceylon.

eucharis. **T. eucharis** *F.* (73 b) may be easily recognised by the yellow instead of red subapical spot of the *pallens.* forewing. ♀ of the rainy season with strong, that of the dry season (= **pallens** *Moore*) with weak, black dotting and rose-red instead of yellowish underside to the hindwing. — Larva on Cadaba indica, a Capparidea. The butterfly appears in Ceylon in June, then again in December, and flies in warm sunshine, also on the bare, wind-swept sea-shore. Common in Bengal, also distributed from Central India to Kanara.

25. Genus: **Hebomoia** *Hbn.*

The largest Asiatic Pierids constitute this genus, which unites in itself the characters of three genera, *Catopsilia*, *Antoeharis* and *Eronia*, having in common with the latter the form of the palpi and the two free radials. Antenna long, entirely without club and only thickened gradually towards the tip. Four subcostals, of which the last two form a short fork. Precostal as in *Teracolus*; cell of the hindwing elongated, upper discocellular long. — Larva on Capparis, very similar to those of *Catopsilia*, thick, narrowed at both ends, green with pale lateral stripes and shagreened upperside. Pupa canoe-shaped, produced at each end into a long point. The genus only embraces two species, which are distributed over the whole of South Asia and show a tendency to the development of well separated island races. Of especial interest zoogeographically is the contrast between the *glaucippe*-branches of the Andamans and Nias, which are of a relatively uniform colouring, contrasting sharply with the continental Indo-Sumatran region, and the wide differences between *leucippe* from the Southern and *glaucippe* from the Northern Moluccas. The former phenomenon might be explained by the connection of the Andamans, Nias and Mentawej in tertiary times. The snow-white or yellow butterflies with brilliant red spot are quite an ornament to the tropical landscapes. The ♂♂ mostly fly in the morning and remain at the edges of paths and woods and in open thickets. In Ceylon, Java and Tonkin I found them drinking at Lantana flowers. Not until the middle of the day do they settle on moist sand. The ♀♀ do not usually fly far and are rather sluggish; they prefer to remain in the thickets, from which, for instance in Celebes, I beat them out

early in the morning with a stick. The ♂♂ also congregate at wet places, particularly at river-banks, and can be attracted by making artificial pools at the edges of woods. When the Hebomoias are resting they push the hindwing forwards so that the whole base of the forewing is entirely covered and the grey-scaled apex adjoins the margin of the hindwing with its uniform sand-coloured powdering. In this way the butterflies are well adapted to their surroundings.

H. glaucippe *L.* occurs everywhere in two seasonal forms, the winter form (dry season) consisting *glaucippe.* mostly of much smaller specimens (70 b ♂♀) with pointed apex and light sand-coloured under surface in both sexes. The summer brood (rainy-season form), of more imposing size, has a broad, black proximal bordering to the apical spot of the forewing, moreover the hindwing as a rule is strongly dotted with black and the veins before the marginal band are black. In the dry-season form the black subapical band is narrowed and even commonly replaced by a yellow border, and the black colouring on the hindwing is reduced, if not altogether suppressed. In my largest ♂ of the rainy season the length of the forewing is 95 mm, in the smallest of the dry season 57 mm. *glaucippe* has a distally narrowed harpe with widely projecting upper point, at the base of which a relatively deep sinus is noticeable. The lower end of the harpe recedes strongly, producing a shape which recalls the head of a bird of prey. The species inhabits China, the whole of Further India and British India, and extends southwards to the Nilghiris. Also known from Hong-Kong and Hainan. — **liukiuensis** *Fruhst.* must be regarded as the most northerly geographical *liukiuensis.* branch of the species, and as on Okinawa the seasons are more noticeable than in the other subtropical and tropical localities of *glaucippe,* the most pronounced seasonal forms of the species are found there. The winter brood (70 c) is like a ♂ in colouring and distinguished by the sharply produced apex of the forewing. Time of flight February to March. Expanse up to 95 mm. f. **conspergata** *Fruhst.* (70 c), the *conspergata.* summer generation, is larger, has a usually broad, black distal margin and very large, wedge-shaped submarginal spots and the whole upper surface of the wings densely scaled with grey-blue. Time of flight from June to August. Expanse up to 112 mm. Okinawa, Loo Choo Islands. — **cincia** *subsp. nov.* differs *cincia.* from the preceding in the smaller black wedge-spots in the red patch of the forewing, which is much less bordered with black and recedes widely in front of the apex of the cell, so that a white transcellular area is formed, which is lightly powdered over with black and which no other race possesses to the same extent. Most southerly Loo Choo Islands, Ishigaki. — **formosana** *Fruhst.* is usually smaller than the *formosana.* preceding races, the ♀♀ approach the Chinese and Himalayan race, but appear to differ constantly from continental *glaucippe* in the dark greenish yellow colour of the upperside of the wings and the extremely broad, black subapical band on the forewing. Two broods, that of the dry season with the ♀♀ only lightly coloured with yellow above, and moderately black scaling. The rainy-season form (70 c) is in extreme specimens even darker yellow than the figure, with the forewing almost entirely blackened and still more extended black wedge-spots on the hindwing. The lightest examples taken at Taihanroku near the south coast of Formosa, one in March, the darkest in April. — **australis** *Btlr.* is the South Indian *australis.* race, from the Malabar and Coromandel Coasts; larva living on three species of Capparis and a Crataeva, dark green with a blue lateral line and a row of red spots. Pupa spindle-shaped, with strongly curved dorsum, likewise green with narrow ochre-coloured lateral band and a spot of the same colour on the wing-cases. Abdominal segments and wing-coverings further sparsely sprinkled with black. The butterfly has less black at the apex of the forewing than the typical subspecies from North India. — **ceylonica** *ceylonica.* *Fruhst.* (70 a) may be separated from *australis* by the much more delicate interneural black subapical streaks on the forewing and by having the ♀ widely suffused with a beautiful yellow in the discal part of the forewing. Larva green, covered with numerous small tubercles, strongly narrowed at both ends, hitherto only observed on Capparis. Pupa greenish, with pointed head and strongly curved dorsally. Butterflies common in the hill-country of Ceylon, also on sand-banks, and in Colombo and Kandy even a common visitor in the gardens. — **roepstorffi** *Wood-Mas.* (71 a) is the interesting race from the Andamans, *roepstorffi.* with yellowish tinge on the distal part of the hindwing in the ♂♂. — **vossi** *Maitland.* Nias, *Batu* (?) *vossi.* (71 a). It gives quite the impression of a separate species on account of its yellow colouring. But it is highly probable that on the satellite islands of Sumatra forms also occur which like *roepstorffi* are half white, half yellow. The yellow colour cannot be used as a specific character, for in *Ixias* there occur at a single locality all the transitional stages from white to yellow. „The whole insect looks on the upper surface like a large specimen of the Timor form, which has been dipped in a yellow dye and in which only the black parts of the wings, the antennae, the eyes and the brownish hairs of the head and patagia have retained their original colouring. I consider it not impossible that this yellow colour may be traceable to the food of the larva; an analogous case, among others, would be that of *Vanessa io L.*, of which it is said that by feeding with a certain plant, said to be a Solanum, a peculiar aberration inclining to bluish may be produced" (FRITZE). „*roepstorffi Wood-Mas.* from the Andamans and *vossi Maitland* from Nias are the only West Malayan *glaucippe*-forms with yellow upper surface to the wings. Both form a contrast to continental Indian and Sumatran races". This curious fact may possibly be explained, apart from climatic and ontogenetic influences, by the former connection of the Nicobars, Simalur, Nias and Engano. — **sumatrana** *Hagen* has the proximal black bordering of the orange spot considerably narrower *sumatrana.*

than in *borneensis*, the apical spot itself broader, adorned with somewhat larger wedge-spots. Not rare at about 1000 m. in the Padang Bovenlanden and in North-East Sumatra. ♀♀ are rarely brought to Europe.

borneensis. Flies principally in May, also March to August. — **borneensis** *Wall.* (70 d) is the most extended black race,

aturia. and its ♀♀ are much sought after as rarities. North and South Borneo. — **aturia** *subsp. nov.* is intermediate between continental and Sumatran specimens and differs from examples from Anterior and Further India in the more extended black distal colouring of the forewing and the darker red apical spot with more intensively violet sheen, the red colour of which reaches much further into the cell of the forewing. The black submarginal wedges on both wings larger, under surface darker. From Singapore to Tenasserim,

javanensis. where it passes gradually into *glaucippe*. — **javanensis** *Wall.*, a well defined island race, relatively small, wing-contour more rounded than in eastern and western allied forms. Distal margin broadly and sharply black, apical spot as in *aturia* extending far into the cell, submarginal patches of the hindwing in the ♀♀ very small. The species is common in East and West Java. Scarcely ascends above 3000 ft.; the ♀♀ are less rare than continental ♀♀, and especially than those from Sumatra and Borneo. Bali. — On

lombokiana. Kangean flies a race with much reduced red apical spot on the forewing of the ♀♀. — **lombokiana** *Btlr.* (70 c and d) is distinguished from *javanensis* by larger black circumscription to the red spots of the forewing, in the place of which there is a light yellow tinge. In Lombok I found both sexes at elevations up to 4000 ft. on the plateau of Sambalun. There the butterflies sailed along in the most brilliant sunshine and hung for minutes at a time on the most various flowers, seldom, however, settling on low

timorensis. plants, but this beautiful butterfly occurred also even near the seashore. — **timorensis** *Wall.*, from Timor

flavomarginata. and Alor, and **flavomarginata** *Pagenst.*, from Sumba, are distinguished by the complete absence of a black

anaxandra. submarginal band on the forewing, also the black wedge-spots are reduced. — **anaxandra** *subsp. nov.* has also no black bordering to the red ornamental spot, but very large submarginal wedge-spots on the forewing, and the red spot projects especially deeply into the cell of the forewing. Island of Kalao. —

celebensis. **celebensis** *Wall.* (70 d), by far the largest *glaucippe*-race, the ♂♂ of which surpass in expanse both *liukiuensis* and *leucippe Cr.* ♂♀. It is at the same time the only local race with polychromatic ♀♀. They are

icteria. as follows: ♀-f. **icteria** *Fruhst.*[1]) South Celebes, November, taken at the end of the dry season. Wings bluish white, apical spot pale sulphur-yellow. Hindwing narrowly margined with grey-brown. Under surface grey-white and with a yellowish subapical area on the forewing. Length of wing 50 mm. ♀-f.

principalis. **principalis** *Fruhst.* North Celebes, November—December 1895. Both wings broadly margined with brown-black. Cell of the forewing slightly tinged with violet-brown. Apical spot white with orange streaks or red-orange as in Indian ♂♀. Underside of both wings dusted with dark brown in the apical part. Length

sublustris. of the forewing 54 mm. ♀-f. **sublustris** *Fruhst.* Toli-Toli. Under surface and central part of the forewing like ♀-f. *principalis*. Cell covered with yellowish brown and grey. Hindwing blue-white with slight orange sheen at the costal margin. Apical spot white with red or yellow streaks. The latter form is before me both from North Celebes and from Sangi on Taruna (Talaut Islands). ♂♂ up to 111 mm expanse in the rainy form, ♂ of the dry form 95 mm. ♂♂ of *celebensis* enliven flowers or rest on moist sand to drink, whilst the ♀♀ remain hidden in the low brushwood. When I beat the bushes at the coast of Toli-Toli with the net-handle in the morning, especially on rainy days, ♀♀ came tumbling out shily from their hiding-places and could then easily be caught without exertion. North and South Celebes, Dongala,

sulaënsis. August—September. Dry form: Taruna, Talaut Islands. — **sulaënsis** *Fruhst.* ♂♂ with broader black distal

philippensis. margin on the forewing, ♀ with smaller submarginal spots on the hindwing. Sula Mangoli. — **philippensis** *Wall.* is a collective name for various island races, the differentiation of which has not yet been worked out. The divergence of the several forms from typical *glaucippe* is correlated to the geographical position.

erinna. North-West Luzon, West Mindoro, Babuyanes produce a *glaucippoid* race (**erinna** *subsp. nov.*), which occurs in a broadly black-margined rainy form (approaching *borneensis*) and a yellowish-tinged dry form (approaching *javanensis*). Mindanao and its satellite islands produce typical *philippensis*. Specimens from

sulphurea. Domoran, Bohol, Camotes and Mindanao form the transition to **sulphurea** *Wall.* from Batjan, whilst those from North-West Luzon, Mindoro and Babuyanes are closely allied to continental *glaucippe*, especially Chinese. Other ♂♂ again have the proximal black bordering of the orange apical spot almost as broad as in *borneensis Wall.*, facts which do not come as a surprise when we remember that the Philippines have been in close connection and interchange of species both with the continent and with Borneo and the

reducta. Moluccas through the bridges of land that intervene. — **reducta** *Fruhst.* is a race from Polillo, in which the ornamental spot of the forewing is reduced by almost half the extent which we find on other Phi-

palawensis. lippine forms. — **palawensis** *Fruhst.* ♂: the orange-coloured apical spot extends further into the cell of the forewing and is proximally almost without any black bordering. The submarginal spots smaller and more delicate than in *philippensis*. ♀: distal dentate band of the hindwing very narrow, deeply incised, becoming obsolete anally, the black submarginal spots placed before it more indistinct than in *philippensis Wall.*; orange

cuyonicola. spot of the forewing proximally without a trace of black bordering. Palawan, January. — **cuyonicola** *Fruhst.* The specimens from the small island of Cuyo differ most, as the under surface in the ♂♂ is not sprinkled with grey on a white ground, but quite as yellowish as in *rossi* from Nias, except that the proximal half is not so

[1]) Icterius = the jaundice.

sulphur-yellow as in the latter species. Some ♂♂ have above a yellowish tinge over the whole of the white ground, thus forming a transition to *vossi* (SEMPER). On the island of Cuyo, which lies between Palawan and Panay and is separated from the rest of the Philippines by deep channels. The fauna of this island contains a large percentage of Malayan elements, which reached the Philippines from Borneo by a former Borneo-Mindoro bridge of land, whilst conversely the Philippines have likewise furnished a number of species to Borneo and Celebes across the Mindanao-Sulu bridge. — **sulphurea** *Wall.* (70 b) is the geographical subspecies which is furthest removed from the true *glaucippe* and may almost lay claim to specific rank. Batjan. — **felderi** *Voll.*, from Halmaheira and Morotai, judging from the figure, we regard as a good local race, as Batjan examples show a much broader black border to the orange apical spot of the forewing than Halmaheira ♂♀. The ♀ from Batjan, moreover, appears to have always a yellow instead of red-yellow apical spot on the forewing. — **aurantiaca** *Fruhst.* differs from *sulphurea* in having the orange spot on the forewing almost twice as broad and enclosing only the rudiments of three isolated black wedge-spots, which in *sulphurea* are so large as to touch each other and form a dentate band. The distal black border of the forewing considerably narrower than in *sulphurea*, the costal margin yellow instead of black as far as the apex of the cell. Upper surface of the hindwing darker and more uniformly yellow. Obi. *sulphurea.* *felderi.* *aurantiaca.*

H. leucippe *Cr.* (71 a), a magnificent species, of which we know three subspecies. The shape of the harpe differs essentially from that of *glaucippe* and may best be described as canoe-shaped; the lower point is but little shorter than the upper, resp. the upper point only projects imperceptibly, and the depression at its base is scarcely noticeable, so that the outline is more simple and regular. *leucippe* inhabits Amboina and Saparoea. — On Ceram appears a branch-race, **daemonis** *Fruhst.* (71 b). Upper surface of the forewing much darkened, cell scaled with black to the middle, the area between radials and 1st median entirely black, as well as the whole anal region. Red submarginal spots much reduced, only the central ones distinct. Distal border and submarginal spots of the hindwing more extended black, underside of the hindwing whitish instead of yellow. — **leucogynia** *Wall.*, from Buru, is only represented in a few collections and one might be tempted to regard it as possibly a transition from *leucippe* to *sulphurea* and *aurantiaca*. The orange patch extending over the entire wing, which is so characteristic of *leucippe*, already begins to diminish in *leucogynia*, leaving the whole anal border and the base of the cell on the forewing of the original yellow ground-colour. The dark canary-yellow upperside of the hindwing of *leucippe* is likewise here lighter, and has even lost the brilliant yellow distal border peculiar to *aurantiaca Fruhst.* from Obi and *sulphurea Wall.* from Batjan. The under surface of the wings in *leucogynia* assumes altogether the character of the colouring of *sulphurea*, so that *leucogynia* apparently constitutes the transition from *leucippe* to *sulphurea*, whilst by its wing-contour and the different type of colouring from all the Hebomoias, *leucippe* gives the impression of a distinct species. *leucogynia* is, however, specifically far removed from *glaucippe sulphurea*, possibly a result of the geological isolation between the Southern and Northern Moluccas. *leucippe.* *daemonis.* *leucogynia.*

26. Genus: **Pareronia** *Bingh.*

This genus differs from all other Pierids in the five-branched subcostal of the forewing, but has the radials free as in *Hebomoia*. The precostal of the hindwing is rather steeply vertical, not bent outwards as in *Hebomoia*. The discocellulars of the forewing vary much in the different species, thus *avatar* has the middle discocellular strongly produced distally and sharply angled, whilst in *argolis* and *pingasa* it is gently rounded. Also the shape of the cell of the hindwing is somewhat variable, being very long and pointed in *avatar* and much shorter and narrower in *pingasa*.

The ♂♂ of some species are copiously provided with secondary scent-organs, those of *argolis* even recall Euplocas in the convex hindmargin of the forewing. All the ♂♂ have on the upperside of the hindwing at the subcostal and the central veins indistinct, dull mouse-grey patches of androconia, which in *tritaea Fldr.* and *jobaca Bdv.* especially form a broad furry coating, and in the latter are also present on the under surface of the forewing. These scent-scales are inserted by means of round knobs and belong to the *plumulae* (feather-scales) known to exist in many Pierids.

The ♂♂, although almost all of dull, pale blue-green colour, form, as a glance at pl. 66 and 67 shows, an assemblage of diverse forms as regards wing-contour, and in most of them there is a glossy area on the hindwing, which again recalls Euploeids. But however various the external shape of the ♂♂ may be, the pattern of the ♀♀ is throughout of the Danaid type, and there is no difficulty in assigning to each species a model whose colouring it has assumed. As, moreover, the neuration of *Pareronia* approaches the Danaids most nearly of any Pierids in the five-branched subcostal, the genus might also be regarded as a kind of connecting link between the two families.

The ♀♀ are as a rule dimorphic, sometimes even trimorphic, and species with trimorphic and monomorphic ♀♀ alternate geographically in a mixed and irregular succession, as e. g. in Anterior India

and on Java polymorphic ♀♀ occur, whilst in Malacca and Sumatra there is a species with monomorphic ♀.

Larva on Capparideae, cylindrical with two anal points, green with fine hairs and lateral white spots. Pupa pale green, wing-cases strongly projecting, snout very pointed. The ♂♂ have an erratic flight, hurrying from flower to flower, but never frequenting puddles. ♀♀ sluggish and so Danaid-like that they again and again deceive even the most experienced eye.

In the form of the genitalia *Pareronia* approaches *Catopsilia* in the broad, deeply incised valve; the form of the uncus is the same as in *Prioneris*.

According to the observations of Dr. Piepers the eyes of the living butterflies are blue-grey, at least in *valeria Cr.* from Java.

The genus has some brilliantly coloured allies in Africa and is distributed over the whole Indo-Malayan region and part of the Papuan territories.

P. avatar is entirely without androconia on the hindwing above; the ♀ recalls *P. nenocles Dbl.* in
tarina. the scheme of marking. The species occurs in two broods, of which the spring one, **tarina** *Fruhst.* (66 a), is characterised by the pale yellowish green ground-colour and occurs in March-April, whilst that of the
avatar. summer, **avatar** *Moore* (66 a), occurring from June to November, is noticeable for the broader black borders and larger size. The ♀ of the rainy-season form (pl. 66 a 3 misprinted *sumbawana*) is densely dusted with black especially on the forewing, a transitional form has the veins less broadly black and the ♀ of *tarina* is still unknown. All have in common a specially bright mother-of-pearl gloss on the under surface of the hindwing and the apical area of the forewing. Sikkim, Assam ascending from 1000 to 5000 ft. —
paravatar. **paravatar** *Bingh.* (66 a) is remarkable in the ♂ for the broader black distal border of the hindwing, in the ♀ for the larger white submarginal ovals on both wings around the extended black-grey tinge on the upperside. The under surface of the hindwing is likewise darker. Tenasserim.

P. valeria is a widely distributed species, with an incredible capacity for forming modification within short geographical distances and on all the islands where it occurs from the Philippines to the Andamans and Micromalayana. The ♀♀ occur in 2—3 dimorphic forms, very rarely in one only. The species is everywhere common, yet the earlier stages have apparently not yet been described, but are known of a closely allied South Indian form (*pingasa*), which has hitherto been allowed specific rank, but is perhaps only a highly developed rainy-season form. The ♂♂ are tolerably constant. They are swift fliers and do not rest long, but are fond of frequently changing the place where they settle. But the ♀♀ by their sluggish flight resemble the Danaids to such an extent that in Tenasserim I was constantly taking them for *Danais grammica*, often as they had already deceived me. In Sumatra and Java the yellow ♀♀ mimic the likewise yellow *Danais aspasia* and *philomela*, but yellow ♀♀ also occur in South India, where there is no yellow Danaid model, and we observe an analogous case in *luceria* from Waigeu, in which grey and yellow ♀♀ likewise occur, to which latter the Danaid model is wanting on that particular
hippia. island. — **hippia** *F.* is the continental branch of the species, which occurs very commonly on the southern peninsula, but becomes more rare towards the north and in Sikkim-Terai (the hot outlying valleys of the Himalayas) is only found in very small numbers. We have figured an extreme dry-season form (66 c ♂; b ♀), which Felder has described as *gaea*. In addition a rare form of the ♀♀ was already made known by Fabricius and Donovan, with brilliant, intensive orange-yellow tinge on the cell and anal part
philomela. of the hindwing (**philomela** *F.*). Distributed from South India to Assam, Burma and Siam. Swinhoe has recently figured the larva and pupa, which were discovered by Aitken and Bell. Larva on the same plants as that of *pingasa Moore*, green, but the tails more widely separated by a quadrate interspace. Pupa of very remarkable shape, with the dorsal distal margin shaped like an enormous sun-helmet, snout pointed, at its base a black patch, the segments ventrally striped with black, finely dotted with black. —
persides. In Tonkin occurs a larger race, with broader black bands in the ♀: **persides** *Fruhst.* (66 b), of which the
livilla. yellow ♀-form (**livilla** *Fruhst.*) shows a slight yellowish suffusion on the hindwing only in the basal portion of the cell. In Annam I obtained further an intermediate form, similar to *Pap. macareus*, with relatively broad whitish stripes on the upper surface of both wings, which approaches the *hippia*-♀ (66 b), similar specimens also occurring in Lower Burma, whilst *livilla* is occasionally found also on the Malay Peninsula.
lutescens. There *livilla* occurs together with **lutescens** *Btlr.* (66 c), originally described from Borneo, but also found in Perak and the whole of Sumatra. The yellow colour on the forewing of the ♀♀ often enters the cell. The ♀♀ of *lutescens* are rare, not being known as yet from the Malay Peninsula; the ♀♀ from Sumatra a
niasica. little lighter yellow than those from Borneo. — **niasica** *Fruhst.* has in the ♂ scarcely any yellowish tinge on the underside of the hindwing, on the other hand the much broader transverse bands — also on the forewing — are without exception light yellow and only the very large submarginal dots remain white. Nias;
valeria. a similar form may probably be looked for also from Batu and the Mentawej Islands. — **valeria** *Cr.* (66 b) bears broad white transcellular bars on the forewing. The yellow tinge does not enter the cell of the forewing in the typical race from East Java. West Java produces a larger *valeria*-race than the east of the

island. I formerly regarded this West Javan subspecies as a rainy-season form of true *valeria*. But I have since convinced myself that *valeria* does not differ in East Java seasonally, but remains constant all the year round, and hence I have given the western form a name as „**leona** *Fruhst.*". As already mentioned, *leona* is larger than *valeria*, with narrower wings, moreover the ground-colour of the ♂♂ is lighter on both sides. The hindwing in comparison to its size is more narrowly margined with black. The principal character, however, is in the subcostal vein of the hindwing, which is scarcely blackened, while in *valeria* it is broadly and densely covered with black scent-scales. *valeria* has this character in common with all the more easterly races, *sundana*, *sumbawana* and *tryphena*, whilst the *valeria* of the more westerly islands of Borneo, Sumatra and Nias and from Malacca show a scaleless subcostal vein. In the South Indian *pingasa* and especially in *octaviae* on the other hand the massing of the scales is still more distinct. The yellow ♀♀ of *leona* differ from East Javan yellow ♀♀ in having the circumcellular spots also intensively yellow, whilst in East Javan examples they always remain white. Also in *leona* the discal area of the hindwing beneath is characterised by a more prominent yellow. Such differences are indeed trivial, but make the study of the Javan fauna doubly interesting to the careful observer. We may add that the underside of the hindwing in *leona* is still more richly tinged with yellow than even that of *lutescens* from Borneo, Sumatra and Malacca. Moreover, on the median veins and the cell-wall beneath the black massing of scales is absent in *leona*, which *valeria* shows. Together with yellow ♀♀ there also occur in Java some with the upper surface uniform grey, which on account of their resemblance to *Radena juventa Cr.* may be designated forma **juventina** *nov.* Exclusively in East Java there is further a third, very rare ♀-form with the transcellular bars of the forewing entirely suffused with yellow as in *niasica* (**aureivena** *form. nov.*). ♀♀ of this description are a splendid mimic of *Danais philomela F.* — **baweanica** *Fruhst.* bears in the ♂♂ a very narrow black distal border to both wings: in the ♀♀, which are much lighter than even those of *leona*, the white-grey transverse bands are almost twice as broad as in Javan examples. Bawean. — **kangeana** *Fruhst.*, on the contrary, has a strikingly broad black distal border in the ♂♂, which are also noteworthy beneath for the broadly brown-grey veins. ♀ darker than that of *baweanica*. Kangean. — **sundana** *Fruhst.* (67 c) in the ♂ recalls East Javan *valeria* in the broad covering of scales at the subcostal of the hindwing beneath, but is distinguished from all known races by the almost black ♀♀, which bear only narrow white interneural streaks. Not rare in Lombok, and ascending from the coast to the plateau of Sambalun at 4000 ft. April—June. — **sumbawana** *Fruhst.* (66 ♂, ♀ called by oversight *austrosundana*). Bali (?). — **tryphena** *Fruhst.* Like almost all the Sumba butterflies (with the exception of *Pap. merapu Doherty*) smaller than its nearest allies from Sumbawa and Java. The black distal border of both wings is considerably narrower and also the black scent-patches on the underside of the hindwing much reduced. I do not possess the ♀; it probably differs even more from Sumbawa-♀♀ than the ♂♂. Sumba, Flores, perhaps also on Timor. On the islands of Kalao and Tana-Djampea, to the north of Flores, *valeria* is wanting. It is there replaced by an offshoot of the Celebes *triaea Fldr.* But there still remains one interesting *valeria*-race to record. — **palavana** *Fruhst.* (66 d), distinguished by the light colour of the upper surface, the very narrow black distal border, the strong, almost quadrate submarginal spots of the hindwing. There occurs also a somewhat darker form of the ♀ than the one figured. Common in January—February on Palawan. — **gulussa** *subsp. nov.* is a race with still further reduced black distal border, without a trace of white submarginal dots on the forewing, which is strongly rounded. ♀ similar to *juventina* from Java, but darker than *palawana*. Island of Cuyo. — **calliparga** *subsp. nov.* is the name of a form which approaches *lutescens Btlr.* from Borneo in the more extended, darker, yellowish tinge of the hindwing beneath, but differs from it in the more pointed wings and the brownish yellow under surface of the hindwing in the ♀♀. Islands of Domoran and Paragua.

leona. *juventina.* *aureivena.* *baweanica.* *kangeana.* *sundana.* *sumbawana.* *tryphena.* *palavana.* *gulussa.* *calliparga.*

P. pingasa, whose larva lives on Capparis heyneana, is characterised by the broad black distal border of both wings, which on the hindwing is provided with a slightly glossy layer of densely placed scent-scales. Larva long, cylindrical, with large head, abdomen terminating in two points, body covered with fine hairs, ground-colour green with a lateral row of conspicuous white spots and some smaller black dots. Pupa fastened by the tail and an unusually long thread, wing-cases strongly projecting, keeled and so thin as to be transparent. Ground-colour pale watery green (AITKEN). Three well differentiated local races belong here. — **pingasa** *Moore* (66 e), whose ♀♀ approximate to large ♀♀ of *hippia*. South India to Kanara and Mysore. — **ceylanica** *Fldr.* (66 e), founded on a rainy-season form, of which **fraterna** *Moore* (66 d) [1]) is the dry-season form, whose ♀ is much more broadly striped with blue-green, **spiculifera** *Moore* being an intermediate form. Ceylon. — The ♀ of **naraka** *Moore* has the grey-white transverse bands somewhat broader than *pingasa*-♀. Otherwise the under surface with its broadly black veins more nearly approaches South Indian specimens than *ceylanica*-♂♀, which have a bright mother-of-pearl sheen on a ground which is minutely dusted with brown-black. Andamans. — The specific distinctness of *pingasa*, as

pingasa. *ceylanica.* *fraterna.* *spiculifera.* *naraka.*

[1]) According to SWINHOE *fraterna* also occurs in exactly the same form in South India. SWINHOE regards it as a distinct species; it is, however, not impossible that *fraterna* is a highly specialised subspecies of *valeria*. NICÉVILLE on the other hand refers all three forms to one species.

already mentioned, is somewhat doubtful, but the genitalia show rather important differences. The uncus of *pingasa* is straighter and distally less curved than that of the *valeria* series of forms, the valve much broader, more rounded and distally less pointed.

P. boebera. A species of somewhat doubtful validity, parallel to *pingasa* in the broad scent-patch of the hindwing, but on the other hand in the very variable ♀♀ so closely allied to *valeria* that it may perhaps be regarded as only its most northerly branch. But as the forms of *boebera* form a natural group, they may here be provisionally treated as belonging to a collective species. Like the continental *hippia* and *persides boebera* varies on the Philippines both according to the locality and the season, the latter, on account of the greater climatic variations, more on the northern than on the southern islands. All the ♀♀ of the dry cold season are entirely white-spotted, those of the rainy season somewhat yellow with more extended black markings. Transitional forms have a bluish white sheen. As we go from north to south the black distal border of the ♂♂ increases in width, so that the *boebera*-♂♂ of the South Philippines approximate to those of *phocaea* (66 e) and according to SEMPER it is even difficult to separate the ♀♀ of the two species. **boebera** *Eschsch.*, of which we figure the ♂ and ♀ of the rainy-season form (**phazania** *form. nov.*) (66 c), has both sexes of the dry-season form essentially smaller, with larger white subapical spots on both wings, the ♂ lighter blue, the ♀ dull green-white. Luzon. — **hemara** *form. nov.*, found in North-West Luzon at Vigan, is an intermediate form, which SEMPER figured (Schmett. Philipp. pl. 42 fig. 7) and which differs from the cold-season brood in having the bands narrower and yellowish instead of whitish. — **arsamota** *subsp. nov.* is smaller than even the winter form of *boebera* and is beneath only slightly suffused with blue-grey with very long but narrow transcellular stripes on the hindwing. Island of Negros. — **bazilana** *Fruhst.* approaches *pingasa Moore* from South India in the broadened black margins of both wings. The ♂♂ are suffused with dark green instead of light blue, the forewing bears either no spots at all or only one subapical white patch. The ♀♀ beneath blue-black almost to the middle of the wing. Three forms of the ♀ are united in the FRUHSTORFER collection, that of the rainy season together with a transitional form with blue-violet sheen on both wings (f. **lilacina** *form. nov.*) and an apparently extreme dry-season form, recalling *hemara* from Luzon and *persides*-♀ from Annam, with reduced white-grey transverse stripes on both wings, which are densely dusted over with black (f. **persidina** *nov.*). Bazilan, near Mindanao. — **elaitia** *subsp. nov.*, the darkest of all the known races, distal border of the hindwing extended to the middle cell, subapical spots of the forewing entirely absent. Island of Panaon.

boebera. phazania. *hemara.* *arsamota.* *bazilana.* *lilacina.* *persidina.* *elaitia.*

P. tritaea is the largest species; its origin is perhaps to be traced to Mindanao, at the head of the ancient bridge of land connecting the Philippines with Celebes, unless conversely it was rather its representative *phoeaea* which came from Celebes to the zoologically allied Mindanao. On Celebes itself the species is split up into two essentially modified subspecies, of which **tritaea** *Fldr.* (67 a) is characteristic of the edges of the woods in Northern Celebes. In Central Celebes and in Gorontalo at the eastern arm of the island flies in the months of August and September a smaller dry-season form with somewhat purer and larger white streaks and spots and lighter grey-brown tinge on the under surface of the ♀♀ (f. **caecinia** *form. nov.*). In Southern Celebes not only the pattern is different but also the shape, especially the forewing being more rounded, in the ♀♀ the brown-violet tinge on the upperside of both wings is absent, and the submarginal spots are almost twice as broad, being particularly prominent on the underside of the hindwing in the shape of beautiful, white star-shaped patches. We name the South Celebes race **bargylia** *subsp. nov.* Common at the waterfall of Maros. — On Bangkai occurs a similar, still smaller race, **hermocinia** *subsp. nov.*, with darkened stripes in the cell of the forewing, reduced submarginal dots and obsolete circumcellular spots on the hindwing. — **bilinearis** *subsp. nov.*, in size a transition from *tritaea* to the next island form, differs from both in having the black stripes of the cell prolonged to the base of the forewing, being hence almost as long again as in *tritaea*, whilst in *oetaviae* they are absent. Hindwing almost without basal, i. e. much abbreviated blue-green longitudinal stripes inside the cell. Salayer, discovered by Dr. MARTIN. — **octaviae** *Snell.* (67 b) has ♂♂ with or without short black stripes before the apex of the cell of the forewing. The ground-colour lighter blue than in *tritaea*, ♀ approaching that of *bargylia Fruhst.* from South Celebes, with lighter transverse bands and shorter black lines in the cell of the hindwing. Under surface of the ♂♂ without a trace of black tinge, brilliant blue-white and with a strong mother-of-pearl gloss. Subapical stripes of the ♀♀ on the underside of the forewing essentially broader than in the Celebes *tritaea*-races, hindwing margined with lighter brown. Common on Tana-Djampea and Kalao, especially in December.

tritaea. *caecinia.* *bargylia.* *hermocinia.* *bilinearis.* *octaviae.*

P. phocaea *Fldr.* from the South Philippine region must perhaps be regarded as a subspecies of the gigantic *tritaea Fldr.* from Celebes, a question, however, which can only be decided with the help of larger series, especially of ♀♀. The genitalia, for instance, are somewhat different, the uncus of *phocaea* decidedly shorter than that of *tritaea Fldr.* *phoeaea* is very constant according to SEMPER, who was able to examine almost 900 specimens. The ♀♀ always bear in the cell of the hindwing above a black longitudinal streak, which is but rarely present in the *boebera* and *valeria* races. The strongly convex costal

margin of the forewing proves its relationship to *tritaea*, from which it only differs essentially in the darker smoke-brown under surface, particularly of the hindwing. — Two island races may be mentioned: **phocaea** *Fldr.* (66 e), known from the whole of Mindanao, and **ariamena** *subsp. nov.*, usually a third smaller, with still more reduced greenish blue strigae on both wings, of darker blue colour and with somewhat lighter brown under surface. Bazilan. *phocaea.* *ariamena.*

P. argolis combines the character of two species, the colouring of the upper surface appears to be borrowed from *phocaea* from the Philippines, that of the under surface from the Papuan *jobaea*. The ♀♀ in their general appearance more recall *jobaea*, but their upper surface shows also points in common with *valeria Cr.* — Two local forms: **argolis** *Fldr.*, from Batjan and Halmaheira. ♂: hindwing beneath black with inconspicuous thin green stripes in the cell and obsolete dots of the same colour before the distal margin. The ♀ appears in the form figured (67 a), which was already known to Snellen Van Vollenhoven and which is a close mimic of the yellow *Danais cleona*. But a grey form is commoner, recalling *Radena sobrina* from the Northern Moluccas (f. **radenoides** *form. nov.*). — I have before me from Buru an apparently very rare subspecies, **argolina** *Fruhst.* On the underside of the hindwing there are 2 costal, greenish longitudinal bands, which in *argolis* are entirely absent. The whole cell is whitish green and there are 5 large circumcellular spots, which in *argolis* from Batjan are likwise absent and in *argolis* from Halmaheira are scarcely indicated. Instead of very small dots *argolina* has a row of 6 distinct submarginal spots. *argolis.* *radenoides.* *argolina.*

P. jobaea *Bvd.* differs from *phocaea*, *tritaea* and *argolis* in the absence of black stripes on the upperside of the wings, but especially in the still shorter, though very broad scent-area of the hindwing, which does not extend beyond the radials. The costal margin and apex of the forewing as well as the surface of the hindwing beneath are deep velvety black throughout. — A series of insular races deserves mention: **elsa** *Fruhst.*, from Ceram, differs from *jobaea* from New Guinea in its small size and in the somewhat narrower black distal border of the wings. The uppermost whitish green spot of the forewing beyond the cell is longer and broader than in *jobaea*. On the underside of the hindwing is placed a row of 6 pure white, rather large, prominent submarginal dots. Vollenhoven figures a form of the ♀ with pale ochre-yellow upper surface, which bears on the forewing a light lemon-yellow stripe above the submedian and in which also the submarginal dots of the hindwing appear light yellow beside some white circumcellular patches. — **aeboja** *Fruhst.*, rare on Buru, is even smaller than *elsa*-♂ from Ceram, with the forewing only 32 mm long, and the black distal border of the wings is considerably narrower. On the upper surface of the forewing there are distinct, elongate, green subapical streaks, which break up the green-black distal border, and on the underside of the hindwing we find instead of the dots likewise 5 thin greenish submarginal interneural streaks. — **obiana** *Fruhst.* (67 b) is known by the rounded shape of the wings in both sexes. ♂♂ not rare on Obi, of the ♀ as yet only the yellow form similar to *Danais cleona* is known. — **luceria** *Fruhst.* (67 c) approaches true *jobaea* in its size; together with the yellow ♀ figured occurs also a form with grey-green bands above, which, however, on account of its relatively narrow transverse bands is not closely approximated to the Danaid model from Waigeu (*Radena purpurata Btlr.*). — **jobaea** *Bdv.* (67 b) is apparently rare in New Guinea, only known from North-West Dutch New Guinea, and does not extend beyond Humboldt Bay, since there is no record of its occurrence in Kaiser Wilhelm's Land. — **aviena** *subsp. nov.*, without exact locality, possibly from the Key or Aru Islands, differs from the preceding in a row of strikingly large white submarginal spots on the hindwing beneath. The subapical streaks of the forewing beneath very pronounced. The black distal border of the forewing above is somewhat narrower, so that the blue band beyond the cell is broader. — The early stages of the collective species are unfortunately not yet known and of the imagines we only know that they occur everywhere on the Southern Moluccas and that their flight is so rapid that they are difficult to catch. *elsa.* *aeboja.* *obiana.* *luceria.* *jobaea.* *aviena.*

27. Genus: **Saletara** *Dist.* [1])

This genus, which is defined by its facies, only differs essentially from *Appias* in the neuration in that subcostals 3 and 4 arise quite near the apex of the forewing and that subcostal 4 is always absent in the ♀♀ of the Malayan species and in all the species of the Papuan region and is mostly wanting in the Philippine races. The ♂♂ are also characterised by a long tuft of hairs on the last abdominal tergite above the anal claspers and by the two ventral hair-pencils being also composed of longer hairs than in *Appias*. The genus is however not yet very stable, and the tendency of the Pierids to drop some of the veins is here so much in evidence that sometimes examples are met with in which the right wing has the normal number of veins and the left wing one more or one less. The species exclusively inhabit the plains and are found without exception at wet places on the banks of rivers or at puddles in the woods. The flight is swift and steady. The early stages are not known.

[1]) This and the following genus should have been placed after *Appias*, but have been inserted here by mistake.

S. panda, distributed from the Philippines to Celebes, Sumatra and the Nicobars, occurs especially
nivaria. in the Macromalayan district almost always in 2 male and 2 female colour-aberrations, one pale whitish
sulphurea. (f. **nivaria**) and one sulphur- to lemon-yellow (**sulphurea** *Voll.*). — **nathalia** *Fldr.* is the most northerly race
nathalia. of *panda*; ♂ whitish yellow, ♀ with black distal border and black submarginal band on the forewing
martia. beneath, which is only indicated on the underside of the hindwing. Luzon. — **martia** *subsp. nov.* (61 f, 3) has in the ♂ a broader black margin to the forewing, in the ♀♀ the basal area of the hindwing is also tinged with black and the hindwing bears on the under surface an extended submarginal band on a yellowish green ground. Two forms, one with sulphur-yellow and another with hyaline blue-white central
erebina. areas on both wings. Bazilan, Mindanao. — **erebina** *Fruhst.* (61 f ♂, the ♀ belongs to *martia*), from Palawan, has three ♀-forms: central area of both wings light sulphur-yellow, or with light yellow forewing and lemon-yellow hindwing, or with the upper surface of the wings lemon-yellow throughout. All three fly in
hostilia. January. — **hostilia** *subsp. nov.* is larger, darker yellow, the distal margin of the hindwing more deeply dentate proximally, under surface of the forewing more greenish yellow, submarginal band of the fore-
nigerrima. wing narrower than in *erebina*. Balabac. — **nigerrima** *Holl.* (62 a) inhabits Celebes; the almost entirely black ♀ resembles the ♀ of *Appias urania Wall.* above, but has the whitish yellow central areas of the forewing somewhat more extended. Contrary to the general rule, the under surface of the forewing is white with the exception of the cell and the apical area; ♀ with very broad black subapical band on the forewing, cell of the forewing suffused with greenish yellow, hindwing without markings, dark ochre-yellow. Hitherto only known from Southern Celebes, from the waterfall of Maros, where it occurs from August to
aurantiaca. January. — **aurantiaca** *Stgr.*, from the Sula Islands, has the hindwing brilliant fiery red-yellow. The forewing resembles that of *chrysea*, but the black distal border is more finely divided and runs further into the
panda. cell along the veins. — **panda** *Godt.* (61 f) is the name-type of the species, from Java, where besides the
nivaria. dark yellow examples figured pale yellow specimens of both sexes also frequently occur (f. **nivaria**). The butterflies were not rare in East Java at certain times, particularly in January—February, but do not ascend above 2000 ft. I doubt the correctness of the locality of examples from Sumba and Sumbawa in
balina. my collection. — **balina** *Fruhst.*, which is essentially smaller, has the black margins on the upper surface
distanti. much narrowed and the subapical band on the forewing beneath obsolete. Bali. — **distanti** *Btlr.*, from the Malay Peninsula and probably occurring in very similar forms also on Sumatra and Borneo, has light yellow wings, ♀ on the forewing with a deeper black border, on the hindwing with a narrower one, than
schoenbergi. Javan ♀♀. — **schoenbergi** *Semp.* (61 f), with canary-yellow ground-colour and pale yellow costal margin to
engania. the forewing, has the ♀♀ sometimes lemon-yellow, sometimes light ochre-yellow. Nias. — **engania** *Fruhst.* (62 a) has the ground-colour of the delicate cream-colour above only, the under surface of both wings being
aurifolia. as brightly and uniformly orange as in *schoenbergi*. ♀ unknown. Engano. — **aurifolia** *Fruhst.* (62 a). Forewing light, hindwing darker orange-yellow, forewing with uniform, narrow black submarginal band, which
chrysea. is only distally slightly tinged with violet. Island of Pulo-Tello in the Batu Group. — **chrysea** *Fruhst.* approaches *schoenbergi*, but has a proximally more uniform and more sharply defined distal border to the forewing, which is light yellow apically. Under surface fiery orange-yellow. ♀ similar to that of *aurifolia*, but with the black border almost twice as broad. Nicobars.

S. liberia replaces *panda* on the Moluccas; but the yellow ground-colour of the upper surface is changed to grey-blue, only the yellowish under surface reveals the relationship. — The typical subspecies
liberia. **liberia** *Cr.* (62 b), from the Southern Moluccas, has the under surface of the forewing light yellow-green and the hindwing dark orange-colour, The ♀ is very rare and has the veins less broadly black than
eliada. **eliada** *Hew.* from the Northern Moluccas, which in its turn approaches **obina** *subsp. nov.* (62 a, b). In the
obina. latter, however, the black distal border is always broader, especially on the underside of the forewing. The
principalis. ♀♀ are polychromatic; they are as follows: f. **principalis** with the black distal border broken up and proximally running out in streaks. Under surface: both wings distally only spotted with black in parts. Base of the forewing greenish yellow; apex and hindwing ochre-yellow; forewing with a diffuse submarginal band
vada. which does not reach the costal margin. f. **vada;** distal margin of both wings broadly black, compact. Under surface: both wings greenish yellow with a somewhat more distinct submarginal band on both wings.
pseudo-corinna. **pseudocorinna** *form. nov.*; upper surface either blue-grey as in the preceding or almost white-grey as in *corinna Wall.*-♀. Black distal margin on both wings above and beneath compact, very broad. Under surface: base of the forewing greenish, central area whitish; surface of the hindwing above either light or
chryso-berylla. dark ochre-yellow. — **chrysoberylla** *subsp. nov.*, above darker blue-grey than *liberia*, with broader black distal border. Under surface of the forewing lighter grey and the apex of the forewing as well as the surface of the hindwing light greenish yellow instead of orange-coloured as in *liberia*. Buru, common.

eyeinna. **S. cycinna** *Hew.* (62 a, b) inhabits the Papuan region, from which only three island races are yet known. The typical subspecies was described from New Guinea. Dutch and British New Guinea. — The
ocina. ♀-form figured as *cycinna* was described by Hewitson as a separate species under the name **ocina.** The forewing is white also beneath with light yellow tinge in the cell, the hindwing dark canary-yellow. Its habitat is pretty certainly not New Guinea. — On the Aru Islands occurs a hitherto undescribed race:

chryselectra *subsp. nov.*, which differs from *cycinna* above in the lighter, more purple-blue colour. Under- *chryselectra.*
side of the forewing pure white, not grey-blue, cell suffused with saffron-yellow, distal border twice as broadly black, more sharply defined. Hindwing brilliant orange-coloured instead of yellow-green. Of the ♀ there are 2 forms, one above white and the other, which is rarer, yellow (**flavescens** *Ribbe*). — **corinna** *flavescens. corinna.*
Wall. is a distinct local form from Waigeu, with the hindwing similar to *cycinna*, only somewhat darker orange on the under surface. ♀ white, beneath with deep black, broader, distal border. Forewing beneath white, with the cell dusted over with greenish. Hindwing with dark yellow basal area, which in ♀-form **hastia** *form. nov.*, from Kayumera Bay, Dutch New Guinea, is light lemon-yellow and the upper surface *hastia.*
of the wings is darker scaled.

S. giscon *Gr.-Sm.*, a species from the Solomon Islands which is unknown to me in nature, is said *giscon.*
to be similar above to the ♀ of *panda* from Java.

28. Genus: **Udaiana** *Dist.*

This genus forms a transition from *Appias* to *Huphina* in the absence of the ventral tufts of hair in the ♂♂, but differs from both in the position of the second subcostal vein, which as in *Parelodina* arises quite near the apex of the cell of the forewing. Only one species is known, which inhabits Macromalayana with the exception of Java and only occurs in the plains. The ♂♂ occasionally settle on moist places in the forset-paths, the ♀♀ were observed on a green climbing plant. According to Martin they are found in Sumatra only in woods where the soil is red, never in those where it is black.

U. cynis *Hew.* (62 c). The under surface is likewise white, the apex of the forewing dusted with *cynis.*
greenish yellow, costal margin of the hindwing bordered with yellow, base with some green scales. A very light ♀-form, which in its extreme has scarcely darker margins than the ♂, Hagen has named **androides.** *androides.*
Malay Peninsula, North-East and West Sumatra. — **pryeri** *Dist.* (62 c) is a darker local form from Borneo, *pryeri.*
characterised by the more deeply incised black distal border of the forewing and by the basal area of the hindwing beneath being always broadly scaled with green. North Borneo, rather rare.

Additions and Corrections.

P. 125: **D. hyparete aurago** *Snellen*, described from Billiton in the Tijdschr. o. Entom. 33, p. 303, *aurago.*
bears gold-yellow submarginal patches on the hindwing beneath and hence approaches *hypopelia Hag.* and *jataka Fruhst.*

P. 126: **D. agostina orita** *subsp. nov.* Forms a transition from *annamitica Fruhst.* to *infumata Fruhst.* *orita.*
and differs from the Annam race in the darker upper surface of the forewing, which is somewhat lighter than in *infumata* and bears much smaller white submarginal spots than in *annamitica*, hindwing as in *annamitica*, only somewhat more densely dusted with grey. Locality Tonkin; apparently very local and rare, as I did not myself observe it.

P. 130: **D.** *diva R. & J.*, preoccupied by diva *Fruhst.* 1899, must be replaced by **sagessa** *nom. nov.* *sagessa.*

P. 132: **D. belladonna formosana** *Mats.*, described in the Ent. Zeitschrift Stuttgart 1909, p. 92, *formosana.*
approaches *lativitta Leech* in the markings, but differs from it in that the white distal spots of the forewing are not united with the proximal ones and the hindwing above is almost entirely whitish at the inner margin, with light anal yellow dusting. All the spots small, but distinct. Formosa, Horisha.

P. 140: Line 12 from above read **ajanta** instead of *ajuta.* *ajanta.*

P. 142: Under *Huphina nadina eunama Fruhst.* an intermediate form should be mentioned, **koan-** *koannania.*
nania *Mats.* (Ent. Zeitschr. Stuttg. 1909, p. 88), with grey instead of green-yellow under surface. Kanschirei and Horisha on Formosa.

P. 149: Under *Appias lyncida formosana Wall.* Matsumura has described a ♀-form as **tsurui,** *tsurui.*
which according to the description belongs to a dry-season form and was collected on December 1 at the east coast of Formosa. — **yayeyamana** *Mats.*, from the Loo Choo Islands, appears to be a local race of *yayeya-mana.*
lyncida and was described from a ♂ with an expanse of 5—9 mm. (should probably read 50—60 mm).

P. 166: **Terias libythea punctatissima** *Mats.* is somewhat larger than the Malayan forms of the *punctatissima.*
species, ♀ very pale, and occurring according to my examples in two phases, either with narrow black margin to the hindwing above or with this more extended, reaching the anal angle. Formosa.

P. 182: Under *Saletara panda* Matsumura mentions a form **kawakamii,** from Katosho, an island *kawakamii.*
close to Formosa, with lemon-yellow ♀, which is said to be spotted like *nathalia.* A very interesting discovery, unless the form is a ♀ of *Appias albina.*

Alphabetical List

with reference to the original description of the forms of the Indo-Australian Pieridae.

* signifies that the form is also figured at the place cited.

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3. Family: **Danaidae.**

By far the most of the species of this purely tropical family belong to the Indo-Australian Region and only a few reach the temperate districts of Asia. Three genera occur only in the Indo-Malayan subregion, and only the genus *Danaida* has found its way also to Africa and America. The few non-Asiatic representatives of the genus *Euploea*, it is true, inhabit some East African outlying islands, which are perhaps remains of the old Lemurian bridge, but nowhere cross over onto the mainland.

In contrast to all the other families of butterflies the Danaids are poor both in genera and species and their forms moreover show a very uniform stamp. They are only to a small extent subject to seasonal influences, especially compared with the Pierids, and a proportionately large number of species are distributed over large districts without varying locally. These conditions are only changed in those Danaids which inhabit the Archipelagos, where, though being still less inclined to form species than the Pierids, they nevertheless produce a series of sharply separated races, which in the last century were regarded as good species. Naturally the few inhabitants of the Oceanian islands have altered most; those on the islands lying off the continent less so, although occasionally on these the formation of species appears to have proceeded *per saltum*. Vulcan Island, which is scarcely 12 km. from New Guinea, already produces a species which has not so far been found either on the main island of New Guinea or in its immediate neighbourhood. By far the largest proportion of the Danaids inhabit the plains; quite a number even do not ascend above the woods of the coast and in North Celebes I observed a Danaid flying high over the sea to the neighbouring islets. Only a few species inhabit exclusively alpine regions, and even these only quite exceptionally ascend above 2500 m.

The Danaids probably belong to an old Rhopalocera-stirps, whose primitive pattern almost always follows the veins on the wings or shows remains of the ancestral stripes, and which is repeated in nearly all the other Nymphalid families and even in Pierids and Papilionids, on which account the Danaids are often regarded as models for convergent or mimetic species.

Another indication of the great age of the Danaids is the filiform shape of the antennae, which recall those of the ancestors of Lepidoptera (Protolepidoptera) and the primitive form of the genitalia, which are the most uniformly developed of all the known butterflies. On the other hand, the Danaid males are provided with the most complete secondary sexual organs, which rank among the most interesting physiological phenomena of the insect world. Besides the patches of modified scales along the inner veins of the hindwing many species possess also sack-like pouches, which are filled with androconia and only exist in the Danaids, and also moveable anal hair-pencils, which are looked upon as scent-organs.

The hair-pencils of the Danaids consist of two parts, a tubular stylus and a rosette of radiating hairs of several mm. in length. The rosette of hairs is as a rule concealed in the stylus. In some species a light pressure is sufficient to project it from the tube. In *plexippus* the flexibility of the anal pencil appears to depend on the time of year and perhaps also on the nature of the food which the butterfly is taking.

The scent-organs of the Danaids consist of elongated sacs, surrounded by a flexible chitinous membrane, and placed on each side on the abdomen from the seventh to the middle of the fourth abdominal segment. Between them lies the muscular penis, which is surrounded by chitin. The scent-organs lie free in the body, only quite lightly fastened by fine muscles, and as they are not separated by any partition from the abdomen, they are probably directly nourished by the blood and projected by the pressure of the blood (Illig). In my experience the colour of the fluid ejected by the anal pencil varies, apparently according to the food which the butterfly takes, for in some examples of the same species the stylus was green, in others again dark straw-colour. Danaids discharge a globular secretion through the anal scent-hairs, but Euploeids octahedral crystals, which in the basal part are of larger, distally of smaller size. The scent-patches appear as folds, whose opening is turned away from the vein. The interspace between the fold and vein is filled with live cells.

Haase and others believe that the anal pencils play a part in copulation as organs of attraction. But according to my observations in Hong-Kong these organs, which look so delicate, seem rather to serve as weapons of defense or for frightening the enemy, for whether Euploeids were attacked by the wings or by the thorax, in every case they projected their anal pencil, moving it in the same way as wasps do their sting. The ejection of the hair-pencil is accompanied by the exhalation of a penetrating scent, smelling of honey. The scent-pencils of the Danaids are shorter than those of the Euploeids.

Nicéville once saw that *Euploea core* when flying about in the bright sunshine bent the abdomen forwards to the thorax and in doing so projected the scent-pencils.

The fearlessness of the Danaids is pretty certainly the result of the immunity which they enjoy in consequence of their acrid juices, which protect them against the attacks of birds and reptiles. At the same time their body is hard and leathery and experiments with spiders and fowls have proved that these insects are never acceptable to them as food. In my experiments on Lombok, if ever a hen seized upon a *Danaida* or *Euploea* by mistake, the butterflies were immediately thrown away again, and the beak even carefully wiped with evident signs of displeasure, in order to remove as quickly as possible the offensive smell or taste which the body had left behind.

The egg of Danaids is large, soft, shaped like a cartridge (according to MOORE like a sugar-loaf), more than half as high as broad, yellowish, sometimes pearly. All are strongly ribbed longitudinally with delicate horizontal lines, which vary in number and development and are difficult to count. The number of the longitudinal ribs differs also slightly even in the same species. The eggs of *Hestia* show a more hexagonal reticulation and the ribs run in zigzag, and the egg agrees on the whole more with that of the Euploeids (which we find repeated in the arrangement of spines in the larvae).

DOHERTY also considered it worthy of note that the transverse lines in the Danaids *s. str.* are usually more numerous than the ribs, whilst in the Hestias and Euploeids they occur more sparsely.

Respecting the larvae of the Danaids the reader is referred to the description in vol. I, p. 75: as food-plants various Asclepiadeae are preferred; often the butterflies are even limited by these in their distribution.

The pupae are suspended, short, smooth, oval, constricted in the middle and commonly ornamented with brilliant gold and silver gloss; they are often traversed by brown stripes, which in purely metallic pupae can also be artificially produced if the pupae are kept in the dark.

As principal characters of the imagines may be mentioned: Delicate and weakly clubbed antennae, large eyes and club-shaped abdomen and the peculiarly reduced, thickened and spinous forelegs in the female. They are easily distinguished from the Nymphalids and Satyrids by the submedian of the forewing being furcate at the base and from the few superficially similar Pierids by the reduced forelegs.

Tufts of white scales on the head and thorax, which are present even in otherwise entirely black individuals, are also characteristic of the Danaids.

The wings are mostly elongated, bag-shaped, rarely rounded; in the Euploeids differing in the sexes, but never pointed, as in Pierids or Papilionids. Tails are entirely absent, as in Pierids.

The cells of both wings are closed, but that of the forewing proximally provided with two points, which probably represent rudiments of veins, and which are scarcely ever found in the Nymphalids, but appear in many Satyrids. The clasping organs of the Danaids are remarkable for the aborted uncus and the unusually broad valve. The distal shape of the valve varies in *Hestia* from one local race to another, is in *Danaida sensu stricto* very diversified, but in the Euploeids extraordinarily constant, so that in the latter it cannot be employed as an aid in the determination of species.

All the Danaids are extraordinarily tenacious of life, and in Lombok or Siam examples often flew away when I opened a paper after many days. They have also a long season of flight and one brood follows another continuously. They but rarely frequent wet places on the road, showing a preference for the smell of dried wood, and are hence occasionally found in the verandas of houses, and MARTIN observed them under covered bridges in Sumatra. All the Danaids are gregarious and their abundance is sometimes astonishing. On Ceylon and Lombok I sometimes saw thousands in neglected village gardens overgrown with flowering weeds.

Euploeids also sometimes take part in the migratory flights of Pierids. They are given to flying long distances, sailing one behind another, apparently without purpose. All the Danaids are attracted by flowering trees, round which they gambol in hundreds.

The figures on pl. 74—86 have been drawn without exception from examples in the FRUHSTORFER collection, Genf Florissant, in which are also contained the types of the new forms described here.

1. Genus: **Danaida** *Latr.*

(*Danaida Latr.* 1805, *Danaus Latr.* 1809, *Danais Godt.* 1819.)

The species of this genus are distributed over the whole of the Indo-Australian Region, but decrease rapidly beyond the Tropics, only a few species reaching the extreme limit of the region; these naturally belong to the commonest representatives of the genus and in some cases even follow the spread of their food-plants by human agency. One species (*archippus*) has been quite recently transported from North America over the Pacific Ocean by means of shipping and is constantly advancing further towards the west both on the continent and the islands.

Almost all the species have a slow, clumsy flight, prefer open grass-plots, even village gardens and localities in large towns, such as Bangkok and Hongkong, and in contrast to the Euploeas and Hestias avoid dense woods

On account of their abundance they are among the most characteristic butterflies of the East.

Inhabitants of the plains (some forms scarcely ascending above the woods at the coast), only a few species are confined to the alpine region; in Java, however, *albata* ascends to 2500 m., and is not even afraid of the sulphureous vapour of the volcanoes.

All the Danaids keep near the ground and in my experience they but rarely visit trees, even when these are covered with flowers and attract whole swarms of Euploeas.

Next to the Euploeas, the species of *Danaida* are the most copiously provided with secondary sexual characters; a phenomenon which apparently runs parallel with the most varied development of the clasping organs. The uncus, however, is always feeble, of palpi-like shape, the tegumen provided with vermiform processes and the valve unusually broad, only rarely armed with spines, all the organs less chitinous than those of the Nymphalids and even the Satyrids.

The neuration, in contrast to the constancy of the Euploeas, varies within the groups, the first subcostal vein arising either before the end of the cell, exactly at it, or soon after. But these variations are not constant, changing even in representative species and sometimes within a species, and can only with caution be utilized as generic characters (as Moore has attempted to do). Middle discocellular of the hindwing either long and obliquely inwards (*Anosia*), or short and at right angles to the median (*Ravadeba*). Precostal of the hindwing arising at the point of origin of the subcostal. Antenna gradually thickened.

Egg large, the ends obtuse, with numerous longitudinal ribs, numbering according to the species 15 (*aglaioides*) to 34 (*hegesippus*), and prominent transverse lines, of which Doherty counted 22 (*melanoleuca*) to 38 (*tytia*). Larva smooth with variegated stripes or spots and fleshy appendages, of which the anterior flexible pair according to Seitz is used as a tactile organ. The number of these filaments varies from 2 to 3 pairs according to the group. The larva grows quickly and changes into a barrel-shaped pupa, whose anal part is sometimes shaped like a wasp's nest and hung up exactly like one.

Group Anosia *Hbn.* (1816).

Larva with two pairs of tentacles, without lateral stripes. Second subcostal vein arises at the end of the cell. Hindwing with a pouch of androconia sunk in at the third median vein.

D. archippus *F.* (= menippe *Hbn.*) (vol. I, p. 76 mentioned as *plexippus L.* and figured 28 c), originally a native of North America, where it flutters about even on the pavements of the large towns, has already been naturalized as an immigrant in Australia and East Asia — as it were a symbol of the American capacity for expansion. By the English *archippus* is called the „wanderer". It was first observed in 1863 on the Tonga Islands, in 1867 on Samoa, in 1871 in Queensland and in the same year on Celebes. It has reached Java and Penang and on Formosa is already one of the commonest species. In coll. Fruhstorfer it is also represented from the Fiji Islands, the Bismarck Archipelago, Dutch New Guinea, the Moluccas, Talaut and the Fergusson Islands. From Amboina I have before me an aberrant example with whitish yellow upper surface to both wings. According to the structure of the genitalia *archippus* is morphologically the most highly specialized form and may hence be regarded as one of the most recent branches of the Danaid stirps. Penis long, awl-shaped, slightly curved distally, very narrow, chitinous, not broadly soft-membranaceous as in the other *Danaida*. Uncus distinct, but likewise only slightly chitinized, basally broad, distally with strong obtuse point. Valve broad, somewhat recalling that of *Hestia*, with black-brown sharp distal point, ventrally slightly concave. *archippus.*

Group Limnas *Hbn.* (1806).

Second subcostal vein of the forewing arises at the apex of the cell, middle discocellular of the hindwing in the ♂ strongly elbowed, in the ♀ incurved. Androconia-pouch of the hindwing far removed from the lower median vein. Larva with 3 pairs of tentacles. Uncus aborted. Valve quadrate, distally with a scarcely perceptible point, but a long spine, which is directed ventrally with the point towards the last abdominal tergite.

D. chrysippus *L.* (vol. I, pl. 28 a, p. 75—76, where also larva and pupa are fully described). Egg shaped like a sugar-loaf, yellowish. Pupa sometimes green, sometimes wax-yellow, pupal stage 6—9 days. Larval stage lasts 12—14 days. This beautiful butterfly is one of the most widely distributed species in the world, its migrations already extending over four continents, while its immigration into the fifth is certain to follow sooner or later, whenever more direct steamboat communication is established between Africa and South America. The species is distributed from continental India to the Loo Choo Islands and eastwards from Nias to New Guinea. In continental India itself the species is common everywhere from *chrysippus.*

the plains up to 7000 ft. *chrysippus* is very variable both in size and in colouring and examples with white transverse bands on the forewing occur at the same time as those without band (*dorippus Klug*). Both ♂ and ♀ may have the hindwing yellow-brown throughout or sometimes entirely suffused with white. Hagen bred the latter form (*alcippoides Moore*) in Sumatra from a dozen larvae off a single plant together with
dorippus. true *chrysippus*. — The form **dorippus** *Klug* occurs in India only sporadically in the Punjab and Ceylon; but
bowringi. it has been repeatedly taken in Aden in copula with white-banded *chrysippus*. — As **bowringi** *Moore* a form from Hong-Kong has been described with larger white spots on the forewing than normal *chrysippus*,
clarippus. and as **clarippus** *Weym.* a conspicuous and rare aberration from Nias with white cell to the forewing and
vigeli. the oblique band twice the normal breadth. Hindwing beneath with white flame-like markings. — **vigeli** *Heyl.*, from Pulo Bras, an island off the north-west point of Sumatra, is distinguished by the reduction
bataviana. of the white spots and by the dark red-brown ground-colour. — **bataviana** *Moore* is a race from the Macromalayan region, which occurs in Java and the neighbouring islands as far as Lombok and also in western Sumatra, whilst in the north-east of Sumatra occurs only the lighter yellow continental Indian *chrysippus*, which has probably only recently immigrated and supplanted the darker endemic form. Ground-colour dark red-brown instead of honey-yellow, the black distal margin of the wings somewhat more regular, the white dot at the end of the cell of the forewing inclined to obsolescence. Occasionally the black apical area of the forewing bears a red-brown patch; in a ♂ from Batavia a whitish dusting is also noticeable beyond the white oblique band, and in ♂♂ from West Sumatra the *alcippoides*-pattern occurs, which contrasts vividly with the dark brown ground. There are also examples which bear 2—3 round white patches in the postdiscal area of the forewing beneath. The latter character occurs constantly in a charming form from Central Celebes in combination with white flame-like markings on the hindwing above
gelderi. and beneath = **gelderi** *Snell.* (77 e), probably an extreme dry-season form, occurring in August and September, especially near Donggala. Particularly noteworthy is a large oblong white spot, sometimes also with rose-coloured sheen, between the median and submedian of the forewing beneath. In southern Celebes and other parts of the island *gelderi* has not yet been observed. Here occurs again a normal *chrysippus*-form recalling *bataviana*, which I have also before me from the Talaut Islands. — In the
petilea. Micromalayan region *chrysippus* appears on almost every island in a light yellow (**petilea** *Stoll*) and a dark
cratippus. red-brown colour-aberration (**cratippus** *Fldr.*). It is, however, almost impossible to draw a line between *petilea* and *bataviana*, so much the more as transitional forms are found in Sumbawa and Sumba. But as principal characteristics of *petilea* may be cited the much widened black distal border of both wings and the absence of white dots on the hindwing above. Habitat of the name-type Amboina; occurring on all the Moluccan islands to North Australia, and in my collection from all the islands of the Timor Group. — Two forms extend into the Palearctic Region: *aegyptius Schreber*, a name which I would revive for examples from Palestine and Greece. Palestine specimens, with which Egyptian probably agree, may be distinguished from all other races of *chrysippus* by the fiery red-brown of the cell and the central area of the forewing, which becomes gradually darker towards the costal margin and occasionally extends also onto the cell of the hindwing. The distal area of the hindwing, however, always remains light yellow-red. The beautiful red-brown is repeated also on the underside of the forewing. Common in Palestine, in gardens at Cairo and Khartoom, rarer in the Soudan. — *kanariensis Fruhst.* is an island form, which approximates to *aegyptius* and apparently always has the abdomen entirely black above. Common on the Canary Islands.

Group Danaida *Latr.* (Salatura *Moore* 1883).

Neuration as in the preceding group, but the middle discocellular not angled in the ♂. Androconia-pouch likewise free. Larva with 3 pairs of tentacles, somewhat shorter than in *chrysippus*, valve without ventral point turned towards the tergite, but distally with a more or less snout-shaped projecting process, which only differs very slightly in the various species.

plexippus. **D. plexippus** *L.* (vol. I, p. 76, figured under the synonym *genutia Cr.*, pl. 28 c) is a collective species, which Linné first correctly described, but erroneously transferred its locality to America, where species with white oblique band on the forewing, which Linné expressly mentions, do not occur. The species is otherwise very similar to *chrysippus*, but easy to distinguish by the broadly black veins of the hindwing and a dark brown instead of yellow apical area on the forewing beneath. Larva and habits of the butterfly are described in detail vol. I, p. 76. Common in the whole of the Indo-Australian Region, the species extends northwards to Formosa and the Loo Choo Islands. Next to *Eupl. mulciber* it is one of the most repulsive-smelling Danaids and it is accepted that it serves as a model for a series of other butterflies, such as e. g. certain species of *Elymnias*. The scent-apparatus embedded in the hindwing of *plexippus* near the submedian is 1 mm. thick and fleshy, but almost tasteless on the tongue. The scent-scales surrounding it have a smell like carrion, which according to the notes in my diary surpasses that of all the species hitherto observed by me and smells like the burying-beetles. Moreover this smell is as penetrating after 36 hours as when the butterfly is first killed. The body still smells offensive even after the removal of the hindwing. In order to squeeze out the scent-pencil of examples of *plexippus*, with

which I experimented in Hong-Kong on the 29. Oct. 1899, a strong pressure was needed. Later I found in Annam and in January 1900 in Saigon that the species has the habit of extending the scent-pencil of its own accord without any outside stimulus, in contrast to *melanippus indicus Fruhst.* The stylus itself is filled with a yellowish or reddish fluid, whose colour naturally depends on the flower-juices on which the butterfly feeds. This has an acrid taste on the tongue. Valve broad, with the centre excurved in shape of a semicrescent and little projecting chitinous tip. Two aberrations deserve mention, a melanotic one: **nipalensis** *Moore*, hitherto only known from Nepal, with the white oblique band of the forewing much narrowed, and **grynion** *Fruhst.*, an albinotic dry-season form of light yellow instead of reddish yellow ground-colour and very small size. Black distal border of the hindwing very narrow. Under surface of the hindwing whitish. Apical area of the forewing light grey instead of red-brown. Known from Annam and Sikkim and taken in February—March. In addition the following geographical races are recorded: — **intermedia** *Moore*. As a rule as large as the finest *plexippus* from China and Siam, but the cell and the interneural spots of the hindwing above and beneath pure white. Occurs on the Malay Peninsula and in Singapore as the principal form, but in Siam (Angkor), Cochin China (Saigon) and Tonkin in the dry season as an aberration together with *plexippus typica.* — **sumatrana** *Moore* (77 c) is always smaller than *intermedia* with essentially narrower white oblique band on the forewing and still more extended and purer white interneural stripes on the hindwing. Common in West and North-East Sumatra. — **niasicus** *Fruhst.* is a very rare race, of which only a few examples have as yet been brought to Europe, very nearly allied to the Javan subspecies and differing from it principally in the broader black bordering of the wings and the still more thickly black veins of the hindwing. Nias. — BUTLER has described from there a form **leucogyne** of which I have not been able to decide whether it is an aberration of *chrysippus* or *plexippus.* — **intensa** *Moore*, of the colouring and size of *partita*, but with the white bands on the forewing almost twice as broad. In general darker than *plexippus* and with reduced white markings on both wings. *intensa* occurs on Java, Bali, Bawean and singularly also both Northern and Southern Borneo, without varying much. On Java it is one of the commonest butterflies and ascends to about 800 m. — **partita** *Fruhst.* (77 c) replaces *intensa* on Lombok and is a more melanotic form of the latter. The white subapical spots on the forewing are mostly even smaller than in the example figured and are then more isolated, also in almost all ♂♂ the small white streaks at the costal margin before the apex of the cell are absent, which are found in all the other races of *plexippus*, but appear again in ♂♂ and ♀♀ from Sumbawa, Lomblen and Alor. *partita* has been described from Lombok, where it is extremely common at about 6—700 m. in the village gardens, so that the natives sometimes brought me many hundreds in one morning. — **wetterensis** *Fruhst.*, which is smaller than *partita*, bears nevertheless a strikingly broad and pure white band on the forewing on a still darker red-brown ground. The dot-like white patch between the median veins of the forewing is very large and the distal border of the hindwing as in *plexippus* adorned with a distinct double row of small white dots. Veins of the hindwing beneath accompanied by distinctly prominent whitish streaks. Wetter, common. — **laratensis** *Btlr.* has more extended brilliantly white oblique bands and a very large spot between the medians on the forewing; it is also somewhat larger than *wetterensis* and traversed by less prominent white streaks beneath. Timor-Laut Islands. — **kyllene** *subsp. nov.* A transitional form between *wetterensis* and *partita*; smaller than all the island races mentioned and with a correspondingly narrower white subapical band on the forewing. The small streaks at the end of the cell, the interneural spot on the forewing and the marginal dots of the hindwing are somewhat reduced. On the under surface the white stripes on the veins also are only indistinct. According to KÜHN the form occurs all the year round on the Key Islands at open places overgrown with alang-alang grass. The name-type comes from Dammer, I have ♂♂ and ♀♀ in my collection from Kisser also. — **conspicua** *Btlr.* (77 c), from South Celebes, is essentially modified. The white spots of the forewing are of unequal length, the cell of the hindwing assumes an almost entirely white colour, in which but rarely finely scattered reddish scales recall the original *plexippus*-colouring. The under surface of the hindwing is also characterized by a submarginal row of more or less distinct white patches, which are wanting in other races of *plexippus*. *conspicua* is one of the commonest butterflies of southern Celebes, where it flies all the year round, even in the height of the rainy season, and ascends to above 1000 m. — **leucoglene** *Fldr.*, described from Minahassa, bears somewhat broader white bands on the forewing and mostly also on the upperside of the hindwing large and distinct lunular patches. Likewise from the coast-forests up to about 1000 m., one of the ornaments of the landscape. — **tychius** *subsp. nov.* is a smaller race with the white bands on the forewing much reduced, the white dots on the upperside of the hindwing very small and the whitish submarginal patches on the underside entirely absent. Habitat: the long island of Saleyer to the south of Celebes. — **telmissus** *subsp. nov.* Above very similar to *partita*, but with still narrower white subapical stripes on the forewing and very broad black margins to both wings, which are only beneath sparsely dotted with white. The cell of the hindwing also only recalls *conspicua* beneath, above it is dark red-brown even in the ♀ with the exception of an indistinct whitish tinge. Island of Buton, discovered by Dr. L. MARTIN. Finally, there is further a *plexippus*-race from Australia to be mentioned, which I have never seen in nature, but concerning which WATERHOUSE states in the Catalogue of Austral.

nipalensis. *grynion.* *intermedia.* *sumatrana.* *niasicus.* *leucogyne.* *intensa.* *partita.* *wetterensis.* *laratensis.* *kyllene.* *conspicua.* *leucoglene.* *tychius.* *telmissus.*

Lep. that an endemic form occurs in North-West Australia, of small size and nearly identical with *laratensis Btlr.* from Timor-Laut, whilst in Queensland there is a large race which approximates to the Chinese name-type and must be regarded as a recent introduction.

melanippus. **D. melanippus** occurs together with *plexippus* on the continent and on some islands of the Macromalayan region. It has always a darker coloured body than *plexippus*, and apparently cannot project its anal pencils of itself; it needs at least a very strong pressure to squeeze them out. *melanippus* appears to be a decadent species and to make up for its want of sexual activity by intensity of colouring, especially *indicus.* the Indian race. — **indicus** *Fruhst.* (77 c) with its largely white hindwing is a beautiful butterfly. It is much rarer than *plexippus*, especially at the extreme limit of its range, e. g. at Calcutta, which it only occasionally reaches, whilst in the whole of Further India from Tenasserim to Rangoon and Cochin China it always occurs in abundance, and in Saigon even forms an ornament of the botanical gardens. — Still *hegesippus.* more common is **hegesippus** *Cr.*, originally described from West Sumatra, but also occurring on Singapore, the Lingga Archipelago, the Natuna Islands and the Malay Peninsula. SHELFORD has recently shown that it also occurs in West Borneo. It is somewhat smaller than *indicus* and constitutes a melanotic form of this with reduced white transverse bands on the forewing and broadly black veins on the hindwing, which, especially in Sumatran examples, bears beneath broad brown streaks in the basal area, whilst in *indicus* this part is pure and dazzling white. Valve very different from that of *plexippus*, more rectangular, distally strongly contracted with thin, narrow, beak-like apex. Whilst *melanippus indicus Fruhst.* scarcely varies on the continent from Burma and Tenasserim to Saigon, the species begins to lose its fixity as soon as it enters the maze of Malayan islands. A few sea miles of distance suffice there to change the races so much that their specific identity can only be ascertained with difficulty; in fact the separate island forms were regarded for decades as true species. Especially on the islands near Sumatra the capacity of the species for forming races is seen at its maximum. The otherwise constant ground-colour changes from red-brown (*pietersi* from Engano) to black-brown and black (*keteus, umbrosus, eurydice*). Two directions of variation may be recognized. The *pietersi*-branch, which gravitates towards Java, and a second (*eurydice*, etc.), which gravitates towards the Nicobars. The races of the two lines, apart from the influence exercised by the sea as a separating factor, might represent at the same time the relics of an ancient fauna. The red-brown *pietersi*, which we know from Engano, may derive its origin from the land-connection with Java, whilst the black-brown forms of the more northerly islands may be regarded as the *nesippus.* faunistic remnants of a tongue of land Mentawej-Nias-Nicobars. — **nesippus** *Fldr.*, from the Nicobars, has preserved in the cell of the hindwing and its immediate neighbourhood the white markings of *indicus* and *hegesippus*, especially on the under surface, where the red-brown submarginal patches are only a little more *umbrosus.* strongly developed than in the Sumatran name-type. — In **umbrosus** *Fruhst.* (77 d) every trace of white scaling on the hindwing above has disappeared and the red-brown on the underside of the hindwing is more extended and suppresses the white bands, of which only red-brown-powdered streaks remain. Pulo *eurydice.* Tello, near Nias. — In **eurydice** *Btlr.* even these vestiges of white disappear beneath and the hindwing is unicolorous red-brown with black-brown distal border, which bears the usual double row of white dots. *keteus.* Nias, very rare. — Finally, in **keteus** *Hag.* the white roundish subapical patches of the forewing also begin to disappear, being scarcely half as broad as in *umbrosus*, but the hindwing has beneath a slightly lighter *pietersi.* tinge round the cell. Mentawej Islands. — **pietersi** *Doh.* (77 c) has the forewing elongated instead of rounded, and the weakly developed whitish subapical patches are powdered over with grey-violet, which is unique among the Danaids, but which unfortunately is not sufficiently brought out in the figure. On the hindwing the black suffusion of the upper surface is again reduced in order to make room for a brown cell-centre and interneural stripes of the same colour, which on the under surface moreover are more *melanippus.* copiously shaded with white. Engano, common. Flies principally in April. — **melanippus** *Cr.* is somewhat smaller than *pietersi*. Forewing light yellow-brown as in *indicus* and with narrower white subapical band. Hindwing similar to that of *pietersi*, but lighter brown. The double row of white subterminal dots almost as strongly expressed as in *indicus*. Examples also occur, especially in the ♀♀, with narrow white vein-stripes on the hindwing, which especially beneath are frequently more extended. Java, especially in the *malossona.* west of the island up to about 700 m. — **malossona** *Fruhst.* is the most easterly of the known *melanippus*-races, which are wanting in some parts of the Micromalayan region. Only one ♀ has hitherto been taken, which I brought from Toli-Toli in North Celebes. Forewing with light red-brown tinge in the cell and disc, very distinct white spots at the apex of the cell and even broader white oblique band than *indicus*. Hindwing with pure white cell and very long, broad interneural areas powdered with reddish at their edges. Under surface of the forewing light red-brown with whitish patches, that of the hindwing with reddish costal margin and blue-white areas, which have distally a red-brown border of medium breadth.

haruhasa. **D. haruhasa** *Doh.* (= erebus *Röb.*) is a peculiar species, a sort of intergrade between *melanippus* and *ismare* in its projecting apex and narrow forewing. The forewing is somewhat more pointed than even in the very long and narrow-winged *pietersi Doh.* from Engano, and its ground-colour is a peculiar sepia-brown. The subapical band of the forewing, which is violet instead of white in *pietersi*, is reduced in

haruhasa to 2 white dots. Sumbawa, Flores, Lombok at elevations of 300—800 m.; very rare. — **taimanu** *Doh.* is a smaller, round-winged race with broad white oblique band on the forewing, finely divided by black veins. Ground-colour lighter yellow than in the preceding race. Sumba, at about 300 m. Very rare; DOHERTY only took 2 examples and only one is known to me from Dr. MARTIN'S collection. Both the *haruhasa*-races inhabit the mountains, in contrast to the rest of their allies, in particular *melanippus Cr.*, which frequents the sea-shore. On Lombok they did not fly like ordinary Danaids, but rested on the flowery tops of tall trees, ready to fly away in all haste at the least disturbance to quite inaccessible heights; this may be the reason why they were so seldom caught. DOHERTY believed that he had identified *haruhasa* with „Nasuma" *ismare Cr.* The arrangement of the white dots on both wings and even more the long and narrow interneural streaks of indefinite colour, however, prove that it belongs to *melanippus*: this is also indicated by the red-yellow colour of the abdomen, which is ringed above very broadly with black, beneath scarcely perceptibly with white, whilst *ismare* has the abdomen almost pure white beneath. Valve similar to that of *melanippus*, but without the beak-like curve at the tip. *taimanu.*

D. lotis approaches the forms of *melanippus* so closely that it might be regarded as the representative race from the Philippines, Borneo and Celebes (its area of distribution), were it not that *melanippus* has been recently discovered on Borneo by SHELFORD and is represented on Celebes by *malossona Fruhst.* Hence although *lotis* only differs from *melanippus* in the colouring and in having the strigae before the apex of the cell of the forewing somewhat larger and always distinct, it will most likely prove to be a good species. Probably *lotis* is a phyletically younger branch of the *melanippus*-group, which has undergone a parallel development to *melanippus*, much as *philene* occurs on the Moluccas together with *affinis F.* Valve only differing very slightly from that of *melanippus*, somewhat broader and distally not bent back. The name-type **lotis** *Cr.* was already known to that author from Borneo: it bears narrow white streaks on both wings, which are bounded by broadly black veins. The forewing has beneath a fleshy red tinge along the veins. Habitat South and North Borneo with the exception of the extreme north. — **mezentius** *subsp. nov.*, from Sandakan, which also occurs on a few neighbouring islands, such as Balabac, is distinguished by much broader white transverse and subapical bands on the forewing and more extended interneural streaks on the hindwing. On the under surface of both wings the white spots are more extended, while the black veins of the hindwing only traverse the median area as thin lines. — **edmondi** *Boug.* is a still more pronounced albinotic form from the northern Philippines, where it is very common. The subapical double row of whitish patches on the hindwing are also widened. — **philozigetes** *Fruhst.* is a darker form from the southern Philippines, in which the veins are again somewhat more extended black and the submarginal spots of the hindwing are in size about halfway between those of *mezentius* and *edmonti.* Bazilan, Mindanao, Palawan. — **celebensis** *Stgr.* (= fruhstorferi *Röb.*) is a larger form with very long but narrow subapical streaks on the forewing and especially distinguishable from all the previously mentioned races of *lotis* in having the veins of the forewing both above and beneath broadly striped with red-brown. *celebensis* was described from Minahassa and has not yet been observed further south than Toli-Toli. — **lotina** *Fruhst.*, from the Natuna Islands, forms a connecting link between all the above named geographical races in the broad subapical patches of the forewing, the reddish vein-stripes of the forewing (recalling those of *celebensis*, but weaker) and in having the streaks of the hindwing very narrow, as in *lotis.* — All the non-Philippine subspecies of *lotis* are among those winged evidences which recall to our remembrance the vanished bridges of land from Mindanao to Borneo and from Mindanao to Celebes. *lotis.* *mezentius.* *edmondi.* *philozigetes.* *celebensis.* *lotina.*

D. philene forms the natural continuation of the *plexippus-* and *melanippus*-series and begins to occur at the eastern extremity of their ranges, inhabiting the Moluccas and parts of New Guinea as well as its adjacent islands. Above the *melanippus*-marking is still present, but beneath *philene* differs from its western allies by the broad streaks of modified scales which accompany the veins of the hindwing. Some *philene*-races recall *affinis* by the presence of white cell-dots and whitish circumcellular patches. — **philene** *Cr.* (76 d), the name-type from the southern Moluccas, is very common on Ceram, Amboina and the Uliassers and extends northwards to Buru. Each sex occurs in 2 forms, a dark red-brown and a light red-yellow, the latter usually bearing also more or less distinct small white spots in and around the cell of the hindwing (f. **luxurians** *Fruhst.*) (76 d) and occurring everywhere together with the dark typical form. Valve with distinctly rounded tip, but without the beak-shaped tip of the *melanippus*-type. — **oros** *Fruhst.* (76 d), from Obi, is a melanotic race with the white oblique band of the forewing much reduced, especially in the ♀♀, being almost suppressed by the predominant black ground-colour, so that its separate spots begin to be isolated. Veins of both wings more broadly black, as also the distal border of the hindwing, from which more distinct black teeth run out into the middle of the wing. — **nubila** *Btlr.*, a larger race, inhabits the northern Moluccas and is as a rule darker red-brown than *philene*, with fewer white dots on both wings and more sharply defined distal border to the hindwing. Batjan, Halmaheira, very common. — **subnubila** *Fruhst.* is somewhat smaller. Both sexes are in size intermediate between *rubrica Fruhst.* from Palau and *nubila Btlr.* from Batjan, and in colouring approach *transfuga Fruhst.* White subapical oblique band of the forewing considerably narrower than in *nubila*, but broader than in *luxurians.* *oros.* *nubila.* *subnubila.*

oros Fruhst. from Obi, forewing with only a narrow red-brown stripe, which again is broader than in *transfuga* and narrower than in *nubila* and *oros*. Black distal border of the hindwing very broad, forming
transfuga. a transition from *transfuga* to *nubila*. — **transfuga** *Fruhst.* (= batjana *Fruhst.*), locality unknown (Morotai, Sula Islands?), is the darkest race known, in which the red-brown in the cell of the forewing is suppressed by the black apical and costal colour. Hindwing blackened as far as the cell by the confluent vein-stripes, the white patches of the forewing on account of their small size even more isolated than in *oros*. — At
obscura. the Museum in Brussels examples from Waigeu are labelled **obscura** *Capr.*, but whether the form has really been described I have not been able to ascertain. Cell of the forewing somewhat less blackened than in *transfuga*, the white oblique band of the forewing as a rule strikingly broad, much more extended than in *nubila* and *transfuga*. The form *luxurians* occurs commonly together with the red-brown typical
pseudo- form. Waigeu, not rare. — In **pseudophilene** *Fruhst.* the melanotic colouring proceeds still further. In the
philene. ♂ the upper surface of the forewing is characterized by the more extended black ground-colour, which has completely suppressed the red-brown stripe in the cell of the forewing of *philene* and its allies. The spots between the median veins of the forewing are tawny instead of red-brown. The veins of the hindwing are so broadly edged with black as to reduce the dark brown interneural stripes, on the other hand the black distal bordering of the hindwing is less distinct than in *philene Cr.* and *obscura Capr.* Under surface: apical area brown-black instead of deep black as in *philene*, the basal half of the forewing dull tawny. The veins of the hindwing accompanied by less prominent vein-stripes, which are more grey than black. The submarginal double row of white dots brighter than in *obscura Capr.* Abdomen above black-brown,
molyssa. beneath buff-brown. — **molyssa** *Fruhst.* (77 e) replaces *philene* in British New Guinea, ♂ of black ground-colour with dark chocolate-brown stripes in the cell and between the veins, over which a peculiar reddish violet sheen is diffused. The oblique band of the forewing pure white, very distinct, broader than in *woodlarkiana* and in *ferruginea Btlr.* Hindwing only with a submarginal row of white dots. Under surface: almost uniform dark tawny with only slight traces of an apical tinge. The submarginal oblique band is composed of longer white spots than in *woodlarkiana*. These spots are, however, somewhat narrower and shorter than in *pseudophilene* and *ferruginea Btlr.* The veins scarcely perceptibly accompanied by deep black scent-stripes. The submarginal double row of white spots very distinct. From Collingwood Bay or the islands off it, ♂-type bought in London. *molyssa* forms the darkest extreme of the *philene*-series and at the same time a transition to *ferruginea Btlr.*, from which, however, it may be distinguished by the
woodlar- conspicuously black colouring and the projecting apex of the forewing. — **woodlarkiana** *Fruhst.* very nearly
kiana. approaches *molyssa*. ♂: the white subapical spots of the forewing somewhat larger then in *mytilene Fldr.* from Dorey and *kiriwina Fruhst.*, narrower and more rounded than in *ferruginea Btlr.* and *molyssa Fruhst.* Hindwing: somewhat more copiously striped with dark chocolate-brown than *pseudophilene*. The black, very broad distal border more pronounced than in the Sorrong form. The submarginal white dotting very indistinct. Under surface: basal half of the forewing lighter and more extended brown than in *pseudophilene*. Hindwing: the interneural stripes shorter and lighter; beyond the cell two white spots (much as in *bonguensis Fruhst.*, *kiriwina* and *fergussonia Fruhst.*). Veins bordered by very broad, grey-black scent-
mysolica. scales. Abdomen above black, beneath pale brown. Woodlark Island. — **mysolica** *Moore*, described from Mysol, probably also occurring on Salawatti, is unknown to me in nature, according to the description it
rubrica. approximates to *obscura* from Waigeu. — Finally, **rubrica** *Fruhst.* is a dwarf form from the remote Palau Islands. ♂: smaller, wings more rounded, hindwing more broadly margined with black than in *nubila Btlr.* from Halmaheira and Batjan. The subapical transverse band of the forewing consists of 5 instead of 6—7 white spots. The upper spots are closer together, more uniform, the lowest on the other hand is removed distad further out of the row and is quite isolated. Under surface: the basal red of the forewing distally more sharply defined by the black apical border, the white dotting on the forewing reduced. Scent-stripes of the hindwing along the veins narrower, hence the red-brown spots more extended. — In
bonguensis. German New Guinea *philene* appears to be represented by **bonguensis** *Fruhst.* (77 e), which was formerly regarded by other authors as well as myself as belonging to *mytilene* (77 e), but an examination of the clasping organs has shown that it is not allied to *mytilene*, the valve being almost three times as broad and the uncus essentially more strongly built and at the proximal end of almost quadrate form, not gently rounded like the uncus of *mytilene*. In common with *philene bonguensis* produces specimens resembling the form *luxurians*, as shown in the figure. But the commonest examples are those of unicolorous tawny colour without discal spots, and even without the submarginal spots of the hindwing. According to Hagen *bonguensis* flies from December to April, then again in July and August, and ascends to about 800 m. The true *mytilene* or a sister-race has not yet been met with in German New Guinea, so that Kaiser-Wilhelmsland is poorer in species of this group than the neighbouring British New Guinea and also tho Dutch part of the island.

mytilene. **D. mytilene** *Fldr.* (= pullata *Btlr.*) (77 e) is apparently not very rare in Dutch New Guinea. It is easy to recognize by the small scattered subapical patches of the forewing and the light brown areas breaking up the dark brown ground-colour, which unfortunately do not come out well in the figure. The

under surface is like the upper, except that the basal area of the forewing is somewhat lighter and the veins of the hindwing are accompanied in most specimens by streaks of feebly glossy black-brown, modified scales. Valve strikingly pointed, almost snout-shaped, uncus elongate-cylindrical, covered with scars bearing long bristles. Dorey, probably also other localities of Geelvink Bay. — **decipiens** *Btlr.*, which occurs very commonly on the Solomon Islands, I regard as certainly belonging to *mytilene* on account of the light brown areas on the upperside of both wings; it is smaller and bears in the disc of the hindwing, especially on the under surface, large oblong, mostly rectangular white spots. Moreover, the proximal row of submarginal patches is more sharply marked, whilst the outer row is composed of small white dots. Uncus relatively short, distally sloping, valve with snout-shaped tip. *decipiens.*

D. ferruginea *Btlr.* appears to replace *mytilene* in British New Guinea. Ground-colour uniform dark brown without light patches, the subapical white oblique band similar to that of *molyssa* (77 c), only still more pronounced. Veins of the hindwing beneath nearly always without scent-stripes. Milne Bay. — **kiriwina** *Fruhst.* (77 e) has again very small, isolated white subapical patches. Also the marginal dots of the hindwing are much reduced. Both wings are somewhat lighter in the distal part of the disc, but do not show the glossy areas of *mytilene*. Under surface even lighter than above, the basal half of both wings washed-out, reddish yellow-brown. Cell of the hindwing surrounded by small white patches. Submarginal dotting more delicate than in *ferruginea* and *mytilene*. Kiriwina. Valve shorter without distinct distal beak-shaped prolongation. Uncus more uniform, without dorsal slope. — **fergussonia** *Fruhst.* Both sexes larger than the preceding and *ferruginea Btlr.*, the subapical row of spots consists of rather large, white oblong spots, which reach approximately the size of the corresponding patches in *ferruginea*. The ground-colour is even considerably lighter than in *kiriwina*, moreover the circumcellular spots in the disc of the hindwing, which show through distinctly from beneath, are larger and more numerous. Under surface of the wings paler, which is especially noticeable in the basal area of the forewing. The veins of the hindwing surrounded by more extended and lighter grey scent-rays than in *kiriwina*. Fergusson, D'Entrecasteaux Island. — **pittakus** *Fruhst.* Lighter brown than *mytilene* and *ferruginea*, but without the discal pale tone peculiar to *fergussonia*. The white subapical spots are more isolated. The submarginal white dots more prominent than in the other races of *mytilene* and more elongate. Locality unknown, probably islands in Geelvink Bay. — **jobiensis** *Gr.-Sm.* very nearly approaches *pittakus*, the white subapical band of the forewing is composed of smaller oblong patches and the veins of the hindwing are covered with broad stripes of androconia. Islands of Jobi and Roon, in Geelvink Bay. — **adustus** *Godm. & Salv.*, described from New Mecklenburg, I think should also be included here. Like *decipiens* of small size, with strongly rounded forewing, the pale brown ground-colour approximates closely to *kiriwina*. The subapical patches of the forewing are reduced to dots and the hindwing bears only beneath small white circumcellular patches. Common everywhere in the Bismarck Archipelago. — **biseriata** *Btlr.*, from New Lauenburg, is scarcely distinguishable from *adustus*, which was described four years earlier. According to the ♀ before me it appears to be a dark brown dwarf form. — **insolata** *Btlr.* is a race from the Solomons, described without more exact locality in a book of travels, and bears somewhat more distinct white spots than *adustus*. *ferruginea.* *kiriwina.* *fergussonia.* *pittakus.* *jobiensis.* *adustus.* *biseriata.* *insolata.*

D. affinis and its allies form a group in which the streaks of androconia or otherwise modified scales do not directly accompany the veins, but are partially separated from them by white streaks. Valve in the Australian races with somewhat more obtuse tip than in the superficially much modified west Malayan subspecies. Uncus extremely delicate, palpi-like, ornamented with fine cilia. The name-type comes from Australia. Altough *affinis* occurs from the Solomons to Java and the Malay Peninsula, from the Philippines to Bonerate, thus covering a wider range than *plexippus L.* and with the exception of the Moluccas, where it is wanting, flies everywhere together with *plexippus*, some authors cling to the idea that *affinis* is only a „variety" of *plexippus*. *affinis* is doubtless one of the few species which have migrated westwards from Australia and spread as far as the Malay Peninsula. — **cometto** *Godm. & Salv.* is a form from the Solomons; I found the name in the British Museum, but have not hitherto been able to trace its source. — **affinis** *F.*, the name-typical subspecies, inhabits tropical Australia, the Aru, Key and neighbouring islands and is also in my collection from Banda and Goram. ♂♂ distinguished from the figured *affinoides*-♂ (77 d) by the absence of the white cell-streak in the forewing and the paler white submarginal dots on the upperside of the hindwing. In the ♀♀ the white area of the hindwing is somewhat broader. On the Aru Islands and also in the *affinis*-race from West Dutch New Guinea melanotic examples also occur, though very rarely. f. **vorkeinus** *Röb.* (named from Vorkein, a place on Aru), in which the white areas of both wings are densely dusted with black and the one placed between the medians of the forewing below the cell almost entirely suppressed. — **galacterion** *Fruhst.* On the Fergusson Islands *affinis* is modified by having the white subapical macular band of the forewing and the circumcellular patches of the hindwing more extended. Under surface: the white in the middle of the forewing begins to be covered with reddish scales and the submarginal wedge-spots of the hindwing are red-brown instead of yellowish as in *affinis*. Hence we find in *galaeterion* lighter and more extended white markings on the upperside to- *cometto.* *affinis.* *vorkeinus.* *galacterion.*

gether with a darkening of the underside. Fergusson, D'Entrecasteaux Islands. — **strephon** *Fruhst.* are examples from New Guinea, which are intermediate between *affinis F.* from Australia and *galacterion* in the shape of the white oblique band of the forewing and in the red-brown of the wedge-spots on the hindwing beneath, which is somewhat lighter than in *galacterion*, but yet always darker than in *affinis*. Localities: Etna Bay and Kapaur, South-West Dutch New Guinea, discovered by H. Kühn and W. Doherty. In *strephon* also the form *vorkeinus* appears as an aberration. — **affinoides** *Fruhst.* (77 d) most nearly approaches *affinis F.* from Australia and Key, but differs from it in the ♂♂ by having both wings more copiously sprinkled with white, and in the broader oblique band and the broad white cell-streak on the forewing above. Under surface: the apex of the forewing is brown and not black and the hindwing shot with dark coffee-brown, not light reddish brown. Locality: Talaut Islands to the north of Celebes. Whilst *affinoides* very closely approximates to the Australian type, a race from the island of Taruna, likewise belonging to the Talaut Islands, differs so strikingly from *affinis* that we might almost think we had a separate species before us, if transitions like *decentralis* (77 d) did not prove that in *affinis* the black ground-colour very easily changes into dark red or even into light yellow-brown. At any rate **taruna** *Fruhst.*, from the harbour of that name in the island of Sangir, closely resembles *decentralis* (77 d), is much larger and bears only an indistinct white spot before the inner margin of the forewing and a shorter white spot in the cell of the hindwing. The under surface of the forewing is light red-brown without a trace of discal spots. — **sangira** *Fruhst.* is only a form of the preceding, nearly approaches *taruna* in size and has also about the same pattern, except that it bears a very long white spot between the lower median and the submedian of the forewing, larger white cell-spot and elongated white circumcellular patches on the hindwing. Sangir. — **decentralis** *Fruhst.* (77 d) inhabits all the islands of the Peling and Sula Groups to the east of Celebes, where it is very common everywhere. Smaller than *sangira*, it bears a much narrower white subapical band on the forewing, also in many examples there are white cell-streaks on the forewing, but even the specimens with the upper surface most darkened bear nevertheless a very long and broad white spot above the submedian of the forewing beneath, in which *decentralis* differs constantly from **fulgurata** *Btlr.* from southern and eastern Celebes. Many *fulgurata* have no white at all on the forewing and even the small cell-spot of the hindwing is sometimes dusted over with black. — An interesting form is **leucippus** *Röb.*, from Kisser and Wetter, whose ground-colour is predominantly white with the usual black margins to the wings and some light yellow-brown stripes on the upperside. The hindwing bears beneath large tan-coloured roundish submarginal patches, which sometimes extend in arrow-shape nearly to the cell. — **chionippe** *Hbn.* is a very nearly allied race from Timor, in which the white subapical band of the forewing and the disc of the hindwing are even more broadly white. — **coriacea** *Fruhst.*, from Alor, on the contrary is a form in which the white of both wings is changed into light tan-colour, on the forewing sometimes even completely gives place to it. The underside of the forewing shows no trace of a white patch. — Thus the race from Alor forms a transition to **tambora** *Fruhst.* (77 d), in which the forewing always remains uniformly yellow-brown. The white area of the hindwing is likewise less extended than in *coriacea* and *chionippe*. Sumbawa, Lombok. On the latter I observed *tambora* in May exclusively at the edges of the open woods at the sea-coast and indeed quite near to the sea. A few kilometers inland it seems to disappear. — **hegesippus** *Röb.*, judging by the single ♂ before me, is larger than *tambora* and the white on the hindwing confined to the cell and small patches beyond it. Island of Bonerate, between Flores and Celebes. — **litoralis** *Doh.* is a small race with more rounded wings than *tambora* and the disc of the hindwing more extended and purer white. Sumba. Apparently very common. — **fuliginosa** *Hag.* is a very variable form from Bawean with very broad white oblique band on the forewing and with the hindwing predominantly yellow-brown instead of black. The disc of the hindwing is sometimes only marked with indistinct white patches, so that the wing may be described as red-yellow with small white spots, in many ♂♀ on the contrary the white area suppresses the ground-colour except for a few streaks. An aberration apparently allied to *vorkeinus* has been described as f. **astakos** *Fruhst.* The white subapical oblique band of the forewing, as in *melanippus pietersi Doh.* from Engano, is powdered over with violet, the discal white spots of the hindwing are wanting above and beneath also are only slightly indicated. The wings are elongated and the colouring of the upper surface so much recalls *melanippus Cr.* from Java that one might think it to be a cross between this species and *affinis fuliginosa*, which is, however, naturally precluded by the fact that *melanippus* apparently does nor occur on Bawean. — **kawiensis** *Fruhst.* is a small aberration of *fuliginosa*, it is said to come from the volcano Kawie in eastern Java, but I doubt its locality, as all the allies of *affinis* frequent the coast. The type is smaller than *fuliginosa*, the cell of the forewing somewhat darker than in the race from Bawean, the hindwing bears only a row of white dots and in the disc beneath the white is reduced to a few stripes round the cell. I once saw a similar example in the collection of an amateur in Batavia. — Finally, a further geographical form certainly comes from Java, which indeed gives quite the impression of a distinct species and has been known since 1782, namely **artenice** *Cr.*, described from the neighbourhood of Batavia and Samarang. It is very local and apparently rare, for I have only seen a few examples. *artenice* is a small butterfly of only 50 mm. expanse and with entirely yellow-brown ground-colour. The discal white on the hindwing

strephon. *affinoides.* *taruna.* *sangira.* *decentralis.* *fulgurata.* *leucippus.* *chionippe.* *coriacea.* *tambora.* *hegesippus.* *litoralis.* *fuliginosa.* *astakos.* *kawiensis.* *artenice.*

above which is common to all the other races has entirely disappeared and is scarcely indicated beneath. Hence *artenice* forms the greatest contrast imaginable to **malayana** *Fruhst.* (77 d), a highly specialized form almost worthy of specific rank, of which for a decade only one ♂ was known, whose locality, the Malay Peninsula, was moreover still doubtful. But I found the species fairly numerous in Bangkok, where this beautiful form was not rarely to be met with on the right bank of the Menam on flowers and grasses in the extensive temple gardens near the canals. Thus *affinis*, the most variable of all the Asiatic *Danaida*, has also reached the continent and will certainly extend still further along the sea-coast of Siam. *malayana* bears, as may be seen from the figure, the most white on the hindwing and the median area is sharply defined posteriorly with only a slight yellowish distal tinge. Although the valve is somewhat more pointed than in *affinis*, I have not considered that *malayana* should be separated specifically from *affinis*, even in spite of the considerably different markings, which are connected by transitional forms with the Micromalayan races. — **abigar** *Eschsch.* is the only representative of *affinis* recorded from the Philippines, apparently very local and rare, as it is still unknown to me in nature. According to the figure the hindwing recalls *affinoides* and like the latter is broadly margined with black-brown and without a trace of yellowish markings. The white median area of the hindwing is almost as extended as in *affinoides*, especially on the under surface, which bears red-yellow sagittate spots. The cell itself is entirely white, whilst that of the forewing is margined with reddish and below it two almost obsolete discal spots are placed at the submedian. Only Manila is yet known as locality. A race allied to *abigar* inhabits Mindoro, but only one ♀ is recorded, of which according to Semper „the white parts of the hindwing are more broadly suffused with brown than usual."

malayana.

abigar.

Group Nasuma *Moore* (1883).

Of all the Danaid subgenera *Nasuma* possesses the most claim to be raised to generic rank. The second subcostal vein arising far beyond the apex of the cell; middle discocellular of the hindwing inappreciably concave; androconia-pouch as in *Anosia* approximated to the lower median; uncus short, relatively broad; valve of extremely bizarre form, dorsally with slightly projecting angle, ventrally with a deep sinus, recalling that of *Tirumala*, but still more incised, and sending out a thumb-shaped point ventrally.

D. ismare with its branch-races inhabits exclusively the region of the Moluccas, with a highly specialized offshoot in Celebes. Singularly no *ismare* is yet known from the Sula Islands, between Celebes and the Moluccas, and new subspecies may still be looked for from there. *ismare* has of all the Danaids the most elongated apex to the forewing and as a consequence of this peculiarity the second subcostal also arises the furthest distally to the end of the cell. The name-type **ismare** *Cr.*, originally described from Amboina, also inhabits Ceram and the Uliasser Group, from which it has been brought to Europe in large numbers by Captain Holz, especially from Saparoea. Forewing longer and ornamented with much smaller patches, which are grey-white, than the figured *fulvus*. Forewing of the ♀ somewhat rounded, all the patches and streaks more extended and lighter grey-white. Both sexes bear a very large whitish spot before the apex of the cell of the forewing, by which it can easily be distinguished from all the other known *Danaida*. *ismare* is not very common and is inclined to produce gynandromorphs, two of which have already been made known and figured by Butler and Dr. Haase. — **ismareola** *Btlr.* Both sexes smaller than *ismare*; ground-colour brown with broader white markings. Ternate, Halmaheira. — **felicia** *Fruhst.* (76 e). Both sexes are intermediate between *ismareola* and *ismare*, of smaller size. All the white markings are more extended, in the hindwing above there is not a trace of a brown-black double line, the circumcellular and submarginal spots strongly pronounced. Obi, Buru. — **goramica** *Fruhst.* differs from *ismare*, apart from its smaller size, in the presence of a white streak in the cell of the forewing and the larger transcellular spots of both wings. In the cell of the hindwing there are still the remains of a thin forked marking. *goramica* forms a transition between *felicia* and *ismare*, is lighter than *ismare*, but has much less white marking than *felicia*. Goram. — **fulvus** *Ribbe* (= celebensis *Rothsch.*) (76 c) inhabits Celebes and its satellite-islands and in my experience never extends beyond the woods on the coast. In North Celebes I observed the butterflies as they flew from Toli-Toli to the islet of Lutungan, about 2—3 km. off, sailing rapidly high over the sea, sometimes accompanied by white *Delias* and the swift-winged *Acraea dohertyi*. On Lutungan itself they led a leisurely life, visiting the flowers of low shrubs in the shade of high trees and being so little shy that they could then almost be taken with the hand. *fulvus* occurs in two seasonal forms, of which we figure that of the dry season (76 c). The rainy-season form differs in the yellowish instead of blue-white apical spots of the forewing and submarginal dots on the hindwing, also the whitish circumcellular stripes on the hindwing sometimes become yellowish. In a ♂ from Sangir in my collection the underside of the hindwing is also differently coloured, the whole surface being slightly tinged with yellowish.

ismare.

ismareola.

felicia.

goramica.

fulvus.

Group Tirumala *Moore*.

Larva with 2 pairs of tentacles (as in *Anosia*), but with lateral ventral stripe; androconia-pouch of the hindwing removed further from the lower median, much larger and produced into a long, dome-shaped appendage. Valve without horizontal prolongation, but with a spine-shaped, ventral vertical point. Lower discocellular of

the hindwing longer than the middle one. The group is bicontinental and in the tropical zone extends from West Africa to Australia and far into the South Sea and presents considerable difficulties to the systematist on account of the great similarity of the few species with their many forms. Although the species are mostly among the commonest butterflies, the complete life-history of only one is known.

D. melissa is one of the most widely distributed species of the eastern Rhopalocera, being found in an uninterrupted chain of local forms in the whole of South and East Asia, as well as the islands of Ceylon and Macromalayana to the most remote South Sea Islands. The differentiation of the forms of the species has occasioned great difficulties, as the island of Java produces two forms, of which one had been already described by CRAMER (*melissa*), and is continued in the whole eastern (Micromalayan) district, whilst a second is closely allied to the continental type (*septentrionis*). But examinations of the genitalia have shown the specific identity of these very diverse forms. Only the uncus shows a slight difference, being in *septentrionis* sharply truncate distally, in *melissa* slightly convex. The valve is likewise distally sharply truncate vertically and bears a finger-shaped spine with obtuse point, which varies somewhat in length according to the locality. — The continental **septentrionis** *Btlr.* has already been described, vol. I, p. 77 and figured pl. 28 d. It is characterized by long subapical blue-green streaks on the forewing, a thick black cell-streak, which is coincident with the cell-wall and only very rarely incurved distally, and narrow greenish interneural areas on the hindwing. The eggs are laid singly, each on a separate leaf; egg white, globular, much flattened at the point of attachment to the leaf. The larva hatches after 4 days, white with black head. After another two days the first moult takes place, after which the white larva shows black transverse lines and fleshy spines. A week later it ceases to feed, pupating shortly afterwards. Pupa green, with shiny gloss, golden dots and a golden band at the base of the abdomen; scarcely distinguishable from the green of the food-plant. Pupal stage 8 days. A rapid development for so large a butterfly (MARTIN). The butterflies common everywhere, from Kashmir to Formosa, from Tenasserim to Cochin China. Examples from the Malay Peninsula and Sumatra are smaller than North Indian ones. — In South India *septentrionis* is replaced by **dravidarum** *Fruhst.*, a somewhat smaller form, with much lighter general tone of colouring and much broadened interneural areas, which especially on the forewing begin to merge together, so as to form tobacco-pipe-shaped markings. The black streak of the hindwing scarcely half as broad as in *septentrionis*, hence the patches beyond the cell more extended. Common, especially at the Malabar Coast. — In **musikanos** *Fruhst.* (78 a) the insular melanism is revealed in a partial restriction of the white stripes, which, however, are still always considerably broader and essentially lighter than in North Indian examples, as is especially noticeable when series from the different localities are placed side by side. Ceylon. — **rufiventris** *Fruhst.* approaches *musikanos* in size, but in the markings approximates most nearly to *mierostieta* from Borneo, and like this has the dark green vitreous patches more reduced. But the principal characteristic is furnished by the entirely red-brown abdomen, which shows only a restricted black dorsal scaling. Under surface of both wings as dark as the Borneo form (almost black-green). Nias, apparently very rare. — **microsticta** *Btlr.*, from North and South Borneo, constitutes the finest Macromalayan *melissa*-race, in which, especially on the hindwing, the green stripes are reduced to fine vitreous lines. Abdomen above broadly black, beneath red-brown, ringed with white. — **palawana** *Fruhst.* is intermediate between the dark Borneo race and the very small and light one from the Philippines, but unaccountably approximates most nearly to the continental *septentrionis*, though somewhat smaller. The greenish white vitreous spots — although broader than in *mierosticta* — are narrower than in *septentrionis*, and nearly approach those of *rufiventris*. Palawan, apparently rare. — **orientalis** *Semp.* may best be described as a smaller version of *dravidarum*. The patches beyond the cell, however, are smaller, the under surface of the forewing lighter red-brown and the hindwing light yellow-green. The tobacco-pipe is very distinct in the ♂♂, but in the ♀♀ the median-stripes are as a rule isolated. According to SEMPER *orientalis* is very variable, the forms from the South Philippines essentially darker than the lighter specimens from Luzon, but this cannot be definitely settled. — But it is on Java that *melissa* shows the most interesting development. From this island comes the name-type, **melissa** *Cr.*, a smaller form than *septentrionis*, characterized by the broad white stripes on the hindwing, which recall *limniace*. The uncus is distally somewhat sinuate, shorter than in North Indian *septentrionis*, and the point of the valve is similarly modified, i. e. becomes shorter and apparently somewhat ventricose. But together with *melissa* we meet with another form, equal in size to *septentrionis*, which somewhat recalls *microsticta* from Borneo, and on that account has been hitherto confused with it. It may probably be a product of the wet season, and is here called **myrsilos** *form. nov.* The hyaline patches and streaks recall *musikanos* from Ceylon, the cell-streak of the forewing is even somewhat stronger, but the other streaks are somewhat less prominent than those of *musikanos*, being, however, still always about twice as broad as in *microstieta* from Borneo. The colouring of the underside is darker than in the Ceylon form, without, however, attaining the deep brown-green of *rufiventris* or *microsticta*. With *myrsilos* the last reminder of the continental *septentrionis* disappears, and in Micromalayana *melissa* exclusively holds the field, inhabiting all the small Sunda Islands from Bawean and Bali eastwards and occurring wherever a long-continued dry season prevails. The smallest examples are found, as always, on Sumba and Wetter. *melissa* is to

septentrionis. *dravidarum.* *musikanos.* *rufiventris.* *microsticta.* *palawana.* *orientalis.* *melissa.* *myrsilos.*

be met with in immense numbers on Lombok, especially after the rainy season (April—May) in village gardens at about 600—700 m. above the sea, sometimes 5 or 6 specimens rest on a single flower and can be taken with the fingers. — **paryadres** *subsp. nov.* is the race from the Key and Timor-Laut Islands, *paryadres.* which agrees with *ishmoides Moore* from Celebes in the narrow, unusually long subapical streaks and pointed oblong patches in the disc of the forewing. — As **singaria** *subsp. nov.* we introduce the large race *singaria.* from Dammer, recalling *hamata*, which with its large light green patches has much in common with *limniace* and differs from *hamata* in the somewhat narrower subapical streaks and the smaller median spots. — **nigra** *Mart.* was rightly separated on account of its short, thickset, rounded wings and the almost *nigra.* entirely black under surface; it comes nearest to *paryadres*, but has the hyaline patches even less developed. Ceram. — **goana** *Mart.* is a further noteworthy race, which far surpasses its allies from Java and the small *goana.* Sunda Islands in size and is distinguished by peculiar wing-contour, the typical Celebes curve of the costa, very dark ground-colour and large submarginal and marginal spots on the hindwing. Under surface of the forewing as in all the *melissa*-races a beautiful red-brown. *goana* is very rare, only 2 ♀♀ having been discovered in South Celebes, and is either dying out or is an immigrant from the south across the sea of Flores (MARTIN). — **arikata** *subsp. nov.* closely approximates to *nigra*, with which it has the rounded *arikata.* wings in common, but differs from it in the shorter, broader vitreous spots, and particularly in the ♀ in the lighter brown ground-colour. Sula Mangoli and Sula Besi. — **hamata** *Me Leay*, distributed in *hamata.* Australia from Sydney to Cape York and very common in Queensland, almost equals *septentrionis* in expanse, but approaches the races of Micromalayana in the rounded wings and large light bottle-green patches. The submarginal dots of the hindwing are smaller than in *singaria* from Dammer. In coll. FRUHSTORFER *hamata* is also represented from Milne Bay and some of the islands off British New Guinea. From several preparations it appears that *hamata* has the shortest and at the same time the most sharply pointed process of the valve, which is scarcely half as long as in *septentrionis* and *dravidarum*, being also shorter than that of *melissa* from Java. — **phrynichus** *subsp. nov.* is a form from Collingwood *phrynichus.* Bay, in the northern part of British New Guinea, with *limniace*-pattern, probably belonging to the dry season, with the light greenish patches more than twice as broad as even *singaria*. The cell-streak of the forewing in particular is widened and the light markings are reproduced on the underside even more distinctly than above. The tip of the valve shows a retrogression to *septentrionis* and is exactly as long as in this, but somewhat thicker. — **leucoptera** *Btlr.*, described from Dorey, but distributed over the whole *leucoptera.* northern area of Dutch and German New Guinea, differs from *hamata* in the darker green vitreous patches and in having the underside of the hindwing not yellowish or green-grey, but uniformly red-brown. The distal border of the hindwing above, particularly that of the ♀♀, begins to assume a pale blue colour, which sometimes even becomes grey-white. — **gariata** *subsp. nov.* is a darkened form, with the wings in *gariata.* the ♀♀ entirely brown, showing very narrow grey-green vitreous patches. The under surface of both wings is darker throughout, uniformly black-brown, with rows of much reduced submarginal dots. New Mecklenburg, but probably also on other islands of the Bismarck Archipelago and the Solomons. Examples from New Pomerania are smaller than ♂♀ of *gariata* from New Mecklenburg. — **obscurata** *Btlr.*, described *obscurata.* from the Samoan Islands without more exact locality, is unknown to me in nature, perhaps it is a synonym of *melittula H.-Schäff.*, as according to MOORE both occur on Upolu (Samoan Islands). — **melittula** *melittula.* *H.-Schäff.*, judging from a figure of SEMPER, shows some affinity to the Philippine *orientalis* and bears like the latter narrow, but apparently yellowish white stripes on both wings and is of small size, as the name already correctly indicates. Samoan Islands. — **neptunia** *Fldr.*, from the Fiji Islands, has a very *neptunia.* broad brown area in the disc of the forewing. The roundish patch before the apex of the cell and the subbasal whitish cell-streak are absent, and the cell of the hindwing is entirely blackened or dark brown except for the white apex. — **angustata** *Moore* is the race from the Tongatabu Islands and has even *angustata.* narrower white bands and more extended brown areas than *neptunia*. — **claribella** *Btlr.*, described from a ♀ *claribella.* which is said to come from the Fiji Islands, is a form allied to *neptunia* — and **moderata** *Btlr.*, from Vaté, *moderata.* in the New Hebrides, which is intermediate between *melittula* and *neptunia*, completes the series of the Oceanian island races.

D. gautama, an isolated species with *Radena*-like wing-pattern, differs both from *melissa* and from *limniace* in the two white cell-streaks of the forewing and in the black fork of the hindwing being so divided that there are 3 white longitudinal stripes in the cell. The ultracellular streaks of the hindwing are so long as to be confluent with the submarginal patches. By the red-brown tinge of the forewing beneath *gautama* recalls *septentrionis* and by the stripes of the hindwing *limniceae*, with which it has also in common the light yellow-green instead of brown flaps to the androconial pouch. **gautama** *Moore* is appa- *gautama.* rently common in the Mergui Archipelago, rare in the woods at the coast of Tenasserim and Burma. — **gautamoides** *Doh.* inhabits the Nicobars, where it is not rare and flies in company with *Radena nicobarica*, *gauta-* *moides.* presenting a miniature edition of *gautama Moore*.

D. ishmoides *Moore* (= australis *Blaueh.*?) is another island species, likewise allied to *melissa*, but *ishmoides.* distinct, which owes its name to its resemblance to *Radena ishma Btlr.* The whitish transverse streaks of

both wings very distinct, long, the median ones very broad but without being confluent. Margining of the wings dark brown, ornamented with smaller whitish submarginal spots than *melissa*, the marginal dots almost obsolete, in a ♀ from Tondano completely absent on the forewing. Scent-pouch of the ♂♂ beneath black-brown, abdomen above black, beneath predominantly white. Very rare, but occurring both in the north and south of Celebes.

D. limniace, already described vol. I, p. 77 and figured pl. 28 e, inhabits, compared with *melissa*, only a small area, and in consequence is only broken up into a few local forms, which do not extend to the east beyond Celebes, not even reaching the Moluccas. On the continent and in East Asia the range of distribution exactly coincides with that of *septentrionis*, i. e. both occur on Formosa and on the Philippines. It is, however, worthy of note that *limniace* has not hitherto been observed either in Sumatra or on the Malay Peninsula and Borneo, so that there is a gap in its distribution between the Nicobars, where it is found according to De Nicéville, and Java. Also from Nias and Engano *limniace* is not yet recorded, and that it should not have reached Palawan either is only natural, as it is wanting on Borneo, whence it might have crossed over to Palawan. *limniace* is easy to distinguish from *septentrionis* and *melissa* by the much larger, almost pure white spots and stripes on both wings, the median spots of the forewing are confluent and almost always form the tobacco-pipe figure, especially in the island races. Abdomen above lighter than in *melissa*, beneath predominantly grey. Scent-flaps of the ♂♂ beneath light yellow-brown with dark brown border. The cell of the hindwing bears only a thin fork, which may also be entirely wanting. The valve is very different from that of the *melissa*-series of forms, yoke- or side-saddle-shaped, distally not with a sharp spine, but armed with strong angular teeth. Uncus more robust, sometimes smoothly truncate distally. — The larva has been described in vol. I: it lives on Asclepias, Calotropis, Hoya; when touched it rolls itself up and feigns death. Whilst feeding it holds on by means of a fine web extending from the forelegs. — Pupa at first green, but after a day or two numerous shiny gold dots
limniace. and a raised belt of the same colour appear. — **limniace** *Cr.* occurs chiefly in the plains, but ascends in India at some places in the Himalayas to 6000 ft., is fond of resting in crowds on low bushes and often drinks at wet places on the road. Examples from China, Hong-Kong and Formosa are somewhat larger and darker, those from South India and Ceylon are appreciably lighter, so that Ceylon examples may be
mutina. introduced as **mutina** *subsp. nov.* (78 a). The black cell-streak of the hindwing is nearly always absent, the vitreous patches of the forewing are shorter but broader, likewise the submarginal dots of the hind-
leopardus. wing are enlarged. As **leopardus** *Btlr.* a colour-aberration has been described which has golden brown
conjuncta. hindwing: probably based on a specimen altered by external influences. — **conjuncta** *Moore* is a yet smaller race than *mutina*, distributed from Java to Celebes in the Micromalayan region, and as a rule shows a light red-brown tinge on the forewing beneath, recalling *melissa*. Cell of the hindwing with distinct bipartite cell-streak. There occur quite small, dwarfed examples and also forms with the cell of the forewing entirely white and supplementary transcellular spots on the hindwing almost 1 cm. in breadth
donia. (f. **donia** *Fruhst.*). On Lombok *conjuncta* is very common at altitudes of 500—700 m., always in company with *melissa*, and sometimes 3 or 4 on one flower on weeds in the village gardens, both sexes so sluggish that they can be taken with the fingers. The natives often brought me 2—300 specimens in a single morning: defective examples which one throws away are not eaten by fowls any more than *Pap. sarpedon*,
makassara. *aristolochiae*, *Delias oraia* and Euploeas. — **makassara** *Mart.* most nearly approaches *conjuncta Moore* from Java, with which it also agrees in size: but has the marginal area of both wings more copiously spotted than *conjuncta*, in which latter the black marginal bands are larger and more uniform. On the under surface of both wings *makassara* is pretty uniform blackish, whilst in most of the other *linmiace*-forms a golden brown tinge is spread over the hindwing and the apex of the forewing. Single specimens of *makassara* indeed show a slight trace of the golden brown tone, but always much less than in *conjuncta*. The hyaline spots of the under surface, which in *conjuncta* are bluish on the forewing, but on the hindwing white, especially towards base and anal margin, show in *makassara* no difference in colour, but are slightly greenish white on both wings. The scent-pouch of the ♂ is whitish grey with a dark apical border. Abdomen above grey-brown, beneath red-yellow with whitish rings and lateral small white dots and the rudi-
bentenga. ments of a white ventral line. South Celebes, neighbourhood of Macassar. — **bentenga** *Mart.* (78 a erroneously printed *bengena*), the darkest form of *limniace* known, with deep black ground-colour, in size approaching the continental forms, but with broader, shorter wings. The black marginal area of both wings very broad, with the marginal and submarginal spots much reduced, even surpassing *conjuncta* in this respect; on the upper surface of the hindwing the spot placed in the fork between the upper and middle median veins, in other forms shaped like a V opening posteriorly and distally, is so much reduced that it only appears as a small cap. In no other form of *limniace* do we observe a like reduction of this mark. As regards the hyaline spots the under surface has the uniform colouring of *makassara*; distal area of the hindwing and apex of the forewing possess the golden sheen of the other *limniace*-forms, only it is not golden brown, but of a darker gold-olive shade. The basal part of the forewing beneath is very black, more so than in any other form of the species. Scent-pouch of the ♂ light grey with broad black border;

abdomen above black, beneath brown with faint white rings and an interrupted whitish ventral stripe. Moreover, the valve of this distinct island race, which so unexceptedly intervenes between the light *conjuncta* of Kalao and South Celebes, shows differences from *limniace*. It is flatter in shape, without widely projecting ventral teeth, but more trough-shaped, with long bristles. Uncus very large, warty. — **orestilla** *subsp. nov.* is hitherto only known from Luzon and next to *donia* is the lightest extreme yet observed, the black margin of the hindwing is much reduced, the circumcellular spots are widened also between the median veins, and the discal spots of the forewing are so much enlarged as to be almost united with the submedian tobacco-pipe figure, — **ino** *Btlr.*, a pygmy form with the distal border almost entirely blue-black, especially on the hindwing beneath, the white spots before the apex of the cell of the forewing much reduced and roundish submarginal dots on both wings, so much resembles *choaspes* that 10 years ago I took it for a *choaspes*-race. But the red-brown abdomen only lightly ringed with white in conjunction with the roundish instead of elongate, pointed, subapical patches shows distinctly that it belongs to *limniace*. Very rare. Sula Mangoli. *orestilla.* *ino.*

D. choaspes (78 b) is a highly specialized species which exclusively inhabits the Celebes-Philippine region; three branch races are known to me and we may still expect new additions from the satellite islands. The species is distinguished from *limniace*, with which it has otherwise much in common, by the pure white abdomen, which bears only a narrow black dorsal line. The subapical streaks at the end of the cell of the forewing are elongate, but are mostly wanting in the ♂♂, and also in both sexes of the Philippine race. The bottom of the tobacco-pipe is also absent owing to the suppression of the 3rd proximal submarginal spot of the forewing. — **choaspes** *Btlr.* is very constant, apparently not occurring in the north of Celebes, and with no tendency to develop seasonal forms. Scent-pouch of the ♂♂ black. Flies all the year round, occurs more freely in the rainy season from October to February, but is never common. — **kroeseni** *Mart.* is smaller than the Celebes form, from which it is distinguished by the violet-black ground-colour (green-black in true *choaspes*) and by the complete absence of the brownish green tinge on the apex of the forewing and the distal border of the hindwing beneath. Only 1 ♂ from the island of Buton, discovered by Dr. Martin. — **tumanana** *Semp.* is a characteristic local form almost worthy of specific rank. The distal subapical patches of the forewing very broad and also the spot below the apex of the cell, the stripe at the submedian of the forewing removed quite near to the base of the wing. Hindwing, however, as in *choaspes*. Likewise very rare, only 2 ♂♂ known from Tumanao, an island off South-East Mindanao. *choaspes.* *kroeseni.* *tumanana.*

Group Ravadeba *Moore* (1883).

(*Ashtipa, Bahora, Phirdana Moore*). The second subcostal vein of the forewing arises before the apex of the cell. The lower discocellular of the hindwing very short, vertical, not oblique as in the preceding groups. At the lower median vein a large patch of androconia, which is not affected by chlorated water. Uncus palpi-shaped, small, narrow, in one species (*cleona*) recalling willow-catkins. Valve varying from one species to another, distally with a prolongation resembling a fox's head. Larva with 2 pairs of tentacles.

D. aspasia, a typical Macromalayan species with only one offshoot to Palawan, which in other respects is also mainly Malayan. Nowhere rare, this flower-loving species on the other hand never occurs commonly or in large companies; it scarcely ascends above 700—800 m. and favours the edges of the woods, the ♀♀ even fonder of the shade than the ♂♂. **aspasia** *F.* (= crocea *Btlr.*) (76 d), of which the type (preserved at the British Museum since 1787) probably came from Siam, where I rediscovered the species. Also inhabits Palawan and the Malay Peninsula, and extends northwards to southern Tenasserim. All the localities formerly given, such as Assam or even Nepal, are altogether incorrect. But probably *aspasia* also inhabits the extreme north-east of Sumatra. ♀ with more rounded forewing, almost entirely transparent cell and larger hyaline and yellowish patches on the forewing than the ♂. — **thargalia** *subsp. nov.* is a hitherto unnoticed form of western Sumatra, which very singularly shows much lighter, i. e. less blackened, cell on the forewing than *aspasia*. Both sexes bear moreover broadened vitreous streaks on the forewing. The elongate interneural area above the submedian of the forewing is only very slightly tinged with yellowish, its upper and distal part entirely vitreous in both ♂ and ♀. — **philomela** *Zink.-Somm.* (76 e) has the cell of the forewing completely filled up with yellow and predominantly yellowish subapical stripes, which in both sexes are much shorter and broader than in *aspasia* and *thargalia*. Also the intramedian ultracellular patches of the ♂ are yellow, in contrast to *aspasia*, where they remain white. Valve with thick snout-shaped process, armed with scattered bristles, ventrally as in *limniace* with a trough-shaped incision. *philomela* is not rare in eastern Java, where it enlivens especially the edges of the coffee-plantations and open woods at elevations of about 500—800 m. — **rita** *Fruhst.* bears again somewhat lighter and broader subapical transverse stripes and larger subapical patches, particularly on the hindwing. Island of Bawean, to the north of Java. — In **chrysea** *Doh.* there is an increase in the yellow areas, the forewing of the ♂♂ showing only yellow patches, that of the ♀♀ already yellow intramedian areas. Engano, common in April. — In **kheili** *Stgr.* the yellow colouring reaches its maximum, all the *aspasia.* *thargalia.* *philomela.* *rita.* *chrysea.* *kheili.*

vitreous patches in both sexes being a beautiful dark yellow, only the distal row of the submarginal patches and a part of the proximal row remain white, which is still more noticeable beneath than above.

shelfordi. Nias, apparently rare. — Finally, **shelfordi** *Fruhst.* presents a reversion towards *aspasia*, having the cell of the forewing in the ♂ almost completely blackened, in the ♀ vitreous, and differing from all the *aspasia*-forms in the very small amount of yellow on the forewing, which is only present below the submedian. North and South Borneo.

In the Moluccan subrégion *aspasia* is replaced by **D. cleona,** which forms a similar series of insular forms as its Malayan relative. Wings somewhat more rounded, habitus in general larger, valve with thicker tip, more densely covered with bristles. Uncus shorter, consisting of 2 rounder and more cylindri-

luciplena. cal parts, which likewise bear fine bristles. — **luciplena** *subsp. nov.*, from Celebes, nowhere rare either in the north or the south of the island, is the darkest and most uniform yellow in colour and in it the ♀

eucleona. does not differ from the ♂ except for the more rounded wings. — **eucleona** *Fruhst.* (76 a) has somewhat more extended subapical streaks on the forewing and rather more pointed circumcellular areas on the hindwing. ♀ likewise similarly coloured to the ♂, but lighter yellow (76 a ♀). The intraneural areas of the ♀

cleona. are almost confluent and on the hindwing are not pointed distally but broadly lobate. Obi. — **cleona** *Cr.*, the first described race from the Southern Moluccas, bears a very small yellow oblong spot at the apex of the cell of the forewing. All the vitreous patches of the ♂ dull yellow, those of the ♀ light yellow,

tigrana. commonly with greenish sheen. Amboina, Ceram, Uliasser. — **tigrana** *subsp. nov.* inhabits Halmaheira and Batjan. ♂ essentially darker than that of *cleona*, with narrower yellow spots. ♀ of deep lemon-yellow colour. Cell of the forewing less dusted with black, which is especially noticeable beneath, and larger

lutescens. yellow and white submarginal spots on the forewing. — **lutescens** *Btlr.* is distinguished by greenish yellow, dull vitreous spots, which in the ♀ assume a buff tone. The black marginal area of the hindwing more extended than in *cleona*, the ultracellular patches smaller and hence more isolated. Buru. — Finally,

lucida. **lucida** *Fruhst.* (76 e) is the lightest extreme of the group; the vitreous spots of the ♂ yellowish green with the gloss of horn, whitish green in the ♀, which bears in addition a double row of pure white submarginal dots. Sula Mangoli, discovered by W. Doherty.

On **D. pumila** (76 e) Moore has founded the untenable genus *Phirdana*. This charming species

pumila. exclusively inhabits New Caledonia and the New Hebrides, where it is divided into two races: **pumila** *Bdv.*, from New Caledonia, with entirely yellow diaphanous cell on the forewing, a large, very transparent discal area on both wings and fine yellow vein-stripes on the hindwing. Under surface of the hindwing with two rows of extremely small blue-white submarginal dots and a white crescent at the costal margin. Abdomen

hebridesia. beneath white, laterally red-brown and dorsally black. — **hebridesia** *Btlr.* is the race from the New Hebrides, described from Aneitum, which is unknown to me in nature.

philo. **D. philo** *Gr.-Sm.* An isolated species, of which only one ♀ is known, which its author compares to *phyle Fldr.* from the Philippines, but places in the *Ravadebra*-Group. Judging from the figure it is a distinct species of medium size, scheme of markings as in *albata sulewattan Fruhst.* (78 d), only paler, more yellowish instead of green, and with smaller spots. Sumbawa.

D. vitrina, on which Moore based the „genus *Ashtipa*", exclusively inhabits the Philippines, and is probably, except for a few *Ideopsis*, the most thinly scaled of the Danaids. Cell of the forewing vitreous, and also the rest of the upper surface of the wing, which is only narrowly margined with black. *vitrina* is divided into several not very sharply differentiated island races, of which, however, I have only

vitrina two before me. — **vitrina** *Fldr.*, not rare on Luzon, bears large white spots in the distal margin of the

odrysia. forewing, and particularly in the ♀ beneath the hindwing has a white sheen. — **odrysia** *subsp. nov.*, with blue-white vitreous areas, narrower and more pointed ultracellular patches on the hindwing, which especially beneath are divided by broad black veins. Hindwing with blue-white sheen, submarginal dots very small. Island of Samar.

D. schenki is a magnificent species, sexually dimorphic, distributed from New Guinea to the Solomons and westwards to Wetter. Concerning its habits it is only known that the species is not rare and according to Kühn flies in bamboo-thickets. But it doubtless replaces *aspasia* and *cleona* in the Papuan

distrata. region, while wanting in Australia. — **distrata** *subsp. nov.* (76 d) is the most westerly race and especially in the ♀ is characterized by large, pure white and complete rows of submarginal dots, which are still more distinct on the under surface than above. Moreover, the whitish area in the cell of the forewing is more

gloriola. developed than in more easterly forms of *schenki*. Wetter, Kisser. — **gloriola** *Btlr.* (described from Aru) I have not seen in nature, but according to Butler it bears narrower whitish subapical streaks on the

citrina. forewing than **citrina** *Fldr.*, described from Key. The specimens I have received of this are smaller than

periphas. *distrata*-♂♂ and bear beneath correspondingly reduced white submarginal dots. — **periphas** *subsp. nov.* is the race from the whole main island of New Guinea and the Louisiade Archipelago, whose ♂♂ show no distinct black connecting streak along the upper median between the spot at the apex of the cell and the

distal border of the forewing. ♀ very similar to that of *distrata*, but with reduced vitreous cell-stripe and almost always without a trace of white submarginal dots on the upperside of the hindwing. On the under surface particularly the base of the hindwing is scarcely appreciably tinged with yellow. Milne Bay, German and Dutch New Guinea, nowhere rare. — **schenki** *Koch*, whose name-type came from New Georgia, does not vary materially on the Solomons. ♂ more greenish instead of deep yellow, ♀ on both surfaces with paler disc than the ♀ of *periphas*, but with distinct series of white submarginal dots. *schenki.*

D. clinias *Gr.-Sm.*, of which only one ♂ is known, is perhaps a distinct species, it is essentially larger than *schenki*, with a short yellow cell-streak on the forewing and much reduced ultracellular patches on the hindwing. The submarginal spots of both wings above deep yellow, relatively large. New Mecklenburg. *clinias.*

D. timorica *Gr.-Sm.* is a charming species from Timor, of which only one ♀ is yet recorded. Cell of the forewing entirely black, markings otherwise as in *distrata*, all the hyaline patches deep and dull yellow, both wings with small submarginal dots, which on the hindwing are always placed in pairs at the veins. In size not much surpassing *pumila*. *timorica.*

D. kirbyi *Gr.-Sm.* is hitherto only known from New Guinea; it was discovered at the Sattelberg, but has been recently sent to me also from the Hansemann Mountain behind Friedrich-Wilhelmshafen. Two colour-forms of the ♂ occur, of which it is still unknown whether they must be regarded as seasonal or local. — **decolorata** *Fruhst.* (76 d) comes from the Hansemann Mauntain and has the basal areas on the upper surface entirely pale greenish white, without the yellowish tinge which the figure incorrectly shows. This yellow basal colouring, even more pronounced and extended than on figure 2, is indeed peculiar to *kirbyi*. The ♀ has white, pale median areas on both wings and differs from the very similar *schenki*-♀♀ in the broader, more brown-black margins and the more distinct submarginal dots on both wings. *kirbyi.* *decolorata.*

D. rotundata *Gr.-Sm.* recalls a *Pareronia* in the arrangement of the blue-green intraneural areas. The cell-streak of the rounded forewing long and narrow, cell of the hindwing without black margining, marginal area of the forewing with large round submarginal spots, hindwing without. Under surface as above, with 2 parallel rows of submarginal dots, of which those of the inner series are larger. Very rare, only a few examples known. New Mecklenburg, New Pomerania. *rotundata.*

P. garamantis *Godm. & Salv.*, similar to the preceding, but with much more elongate forewing and sharply angled instead of rounded hindwing. The blue-white markings arranged as in *rotundata* except that the cell-spot of the forewing is shorter and the cell of the hindwing broadly filled up with black, so that only a narrow stripe runs through its middle. All the streaks of the hindwing narrower, and in contrast to *rotundata* the wing bears also above a submarginal row of strong white spots. Apparently rare. Guadalcanar, Solomon Islands. *garamantis.*

D. melusine *Gr.-Sm.* was discovered on the Sattelberg in German New Guinea and has also been sent to me from the Gelu Mountain behind Friedrich-Wilhelmshafen, but appears to be everywhere rare and not to occur below 500 m. The black margining of both wings is much more extended, so that there is no cell-stripe on the forewing; the circumcellular spots of the hindwing are reduced, and the upper submarginal spots are absent; under surface of the forewing black with blue-white intraneural areas, that of the hindwing black-brown with yellowish median spots and two rows of submarginal dots becoming obsolete towards the anal angle. Abdomen black-brown with lateral white dots. Palpi black with white lateral stripes. ♀ only a little larger than the ♂, with more rounded wings. *melusine.*

Group Parantica *Moore* (1880).

A somewhat heterogeneous group, whose structural diversity has escaped Moore, for only one of its components, „*aglea*", corresponds to the „generic diagnosis", i. e. has a subcostal vein of the forewing joining the costa. Third median vein of the hindwing with a broad patch of androconia. Valve of *eryx* basally broad, then suddenly narrowed, produced into a long sharp point. Uncus consisting of two very long, narrow, delicate appendages. Larva with 2 pairs of tentacles.

D. eryx, the type of which probably came from Siam, from whence Fabricius obtained many species, inhabits the whole of Further India from Burma to Cochin China and was very common in Siam, where it reposes confidingly on the flowers in the temple-gardens of Bangkok. Several island races inhabit the Macromalayan districts. — **eryx** *F.* (= agleoides *Fldr.*) (77 b) extends westwards to the Nicobars, and is one of the commonest butterflies in North-Eastern Sumatra; it exclusively inhabits the plains and appears never to ascend even to the spurs of the mountains. The ♀ has rounded forewing, somewhat broader and whitish grey stripes. — In western Sumatra occurs a form with much narrowed cell-stripe and more delicate submarginal spots on the forewing and essentially smaller submarginal dots on the hindwing: **maenius** *Fruhst.* — A nearly allied race is found in West Java, with shorter, broader and whitish instead of grey-green intraneural areas; **furius** *Fruhst.*, which is apparently very local and probably only occurs *eryx.* *maenius.* *furius.*

borneensis. near Batavia. In the course of 20 years I have only received 3 examples. — **borneensis** *Stgr.* is a much darkened form from southern Borneo with very thin greenish subapical streaks and indistinct cell-stripes. South-East Borneo, Pontianak. — In North Borneo there occur ♂♂ in which the forewing is almost *terilus.* entirely blackened and the hindwing also shows only 3 basal lines and minute submarginal dots: **terilus** *Fruhst.* — The change which *eryx* undergoes on Nias may be regarded as an instance of the melanism of *erycina.* the satellite islands; here occurs **erycina** *Fruhst.* (77 b), in which in both sexes the cell-stripes of the forewing are scarcely visible and only the postdiscal and submarginal patches remain distinct. The under surface of both wings is deep brown-black instead of predominantly grey as in the other *eryx*-races.

D. aglea is a predominantly continental species, which sends out branches to Ceylon and Formosa and naturally extends onto a number of the neighbouring small islands. It is on *aglea* that Moore based the genus *Parantica,* which strictly speaking embraces only this species and *melanoleuca Moore,* for only in these two the first subcostal vein is united with the costa on the forewing. This anastomosis does not reappear even in *eryx,* but is probably to be regarded as only a character of secondary importance, which, although in *aglea* it remains constant, yet in other species, e. g. Euploeas, may occur as an aberration. *aglea* forms at the same time a transition to the group *Chittira* in having the submedian of the hindwing *aglea.* thickened in the subanal part. — **aglea** *Cr.* (=ceylonica *Fldr.*) is known from Ceylon and South India, extends northwards on the west of the Indian peninsula as far as Bombay and is regarded as the commonest butterfly of Ceylon. Forewing relatively narrow; apex strongly produced, cell of the forewing much darkened in the anterior part, especially in the ♂♂, hindwing not essentially different from that of the figured *maghaba* (77 b). Larva on Asclepiadeae, with 2 pairs of tentacles, of which the anterior pair are long, the posterior much shorter; colour reddish, with chrome-yellow and white spots, head and legs black. *grammica.* Pupa green, barrel-shaped, with central constriction and black and golden dots. — **grammica** *Bdv.* (= melanoides *Moore*), larger, wings more rounded than in *aglea,* with transparent cell finely striped with black and long, broad subapical streaks on the forewing. Inhabits the rainy parts of the Himalayas and is very common in Sikkim and Assam, where it occurs up to 2000 m., and becomes extremely rare at Simla and *phormion.* the dry western Himalayas. — **phormion** *Fruhst.* is a smaller local form, somewhat more broadly margined with black and consequently with all the vitreous subapical and submarginal spots narrower. Tonkin, Annam, probably also Tenasserim and the Mergui Archipelago. Common even in the gardens at Haiphong. *maghaba.* — Finally, **maghaba** *Fruhst.* (77 b) is a very large and melanotic race, likewise with the streaks of the forewing reduced and the circumcellular patches of the hindwing narrowed. Ground-colour of all the vitreous patches darker, the black postmedian area of the hindwing beneath more extended than in Sikkim and Assam ♂♀. Not rare in Formosa, where it flies all the year round.

melanoleuca. **D. melanoleuca** *Moore* without doubt represents the preceding species on the Andamans; it has the same neuration and arrangement of the spots, but is still more transparent than *aglea,* so that Moore erroneously placed it in *Ashtipa,* a group to which *vitrina Fldr.* belongs. The black distal border of both wings narrower than in *aglea,* hence the ultracellular patches of the hindwing more extended. The white subapical band of the forewing more compact, especially beneath, its black bordering more extended than in *aglea.* Inhabits the Andamans, where it flies all the year round. Bingham has apparently received it also from the Nicobars.

Group Chittira *Moore* (1880).

(*Caduga, Mangalisa, Lintorata Moore* 1883. *Badacara Moore* 1890. *Chlorochopsis Rothsch.* 1892.) The essential structure exactly as in *Parantica,* so that the group is only distinguishable by ♂-characters without generic value. Submedian and inner marginal veins before the margin widened and grooved somewhat like the eye of a needle, swollen. Submedian surrounded by a broad and subcostal by a narrow patch of androconia, the extent of which is very variable. Larva as in the preceding group with 2 pairs of somewhat shorter and more bristle-shaped tentacles. Uncus basally thickened so as to form a small knot, distally ending in a fine hairy point, forming a contour which recalls the palpi of *Tanaecia.* Valve broad, of simple build, almost triangular in shape, with chitinous, slightly flattened tip. The species of this group are preeminently inhabitants of the mountains.

fumata. **D. fumata** *Btlr.* (= taprobana *Fldr.*) (77 a), hitherto only known from Ceylon, where it prefers altitudes of 1500—1800 m., but descends to 1000 m. It differs from all other Danaids in the broad marginal area, above black and dark grey-brown, which only leaves some subapical stripes, a cell-streak and a submedian stripe on the forewing and the cell of the hindwing; ♀ larger than the ♂, with more rounded wings. Abdomen above brown, beneath whitish grey. *fumata* flies during the whole year, and is locally not rare.

phyle. **D. phyle** *Fldr.* is so similar to it in the scheme of markings that it is best considered here, although geographically far removed. Forewing as in *fumata,* but with larger hyaline intramedian patch and more strongly expressed submarginal patches on the forewing. Hindwing with a complete series of vitreous, greenish grey circumcellular spots, approaching in shape those of *nilgiriensis* (77 b). The submarginal row of dots on the hindwing distinctly present also at the hinder angle. On the under surface in the light brown

ground-colour and the slightly red-brown cell of the forewing it forms a transition from *taprobana* to *albata*. Abdomen above grey-brown, beneath white-grey. Hitherto only observed on Luzon, occurring there in the alpine districts of the north-west and at elevations of 600—1550 m.

D. albata was only known from Java until 1896, when it was discovered by me in a large race on Celebes and has recently been sent to me also from the volcano of Singalang in West Sumatra, so that there are now four geographical races known. — **adustata** *Fruhst.* ♀ somewhat lighter, more transparent, *adustata.* the vitreous areas more glossy than in *albata*. The three subapical bands of the forewing somewhat narrower, separated by broader black veins, the anterior patches between the median veins and also the submarginal spots more distinct, the latter purer white. Under surface and distal border of the hindwing black with a rather distinct red-brown tinge, cell with a forked brown longitudinal stripe, which is absent in *albata*. West Sumatra, but evidently very local, only 2 ♀♀ from 2000 m. — **albata** *Zinck.* is a character- *albata.* istic Javan butterfly, which at once attracts the attention of the traveller when he ascends above elevations of 1200 m.; it flies in almost any weather and seems quite at ease even amid the sulphureous smoke of the volcanoes, occurring up to about 8000 ft. on Mts. Tjikorai and Gedé. Somewhat smaller than *sulewattan* (78 d), but bears broader, lighter subapical bands on the forewing. Under surface of both wings earth-colour. West Java, flying all the year round. — **gilva** *subsp. nov.* is the East Javan local form, *gilva.* principally observed by me in the Tengger Mountains, smaller than *albata* and giving quite the impression of a dry-season form; under surface smoke-brown, paler than in *albata* and the cell of the hindwing almost always darkened by a more or less extended grey-brown tinge. — **sulewattan** *Fruhst.* (78 d) inhabits the *sulewattan.* Peak of Bonthain and flies about wildly at elevations of 5000—6000 ft. over the evergreen brushwood which borders some of the grassy plots levelled by the hand of man. Forewing with projecting apex; ground-colour somewhat lighter brown than in *albata*, the vitreous areas more clouded, more brown instead of whitish green. Subapical strigae of the forewing materially narrowed; the distal row of submarginal dots on the hindwing is absent beneath; the dull transparent areas grey-green, the marginal region light brown; abdomen beneath yellowish, instead of white as in *albata*. *sulewattan* is no doubt a faunistic legacy of the land-connection with Java and zoogeographically of the highest interest, so much the more as it flies in company with *Pyrameis dejeani*, *Ilerda epicles* and a race of *Pap. sarpedon*, which likewise recall the former connection with Macromalayana. — **kuekenthali** *Pagenst.* is the North Celeban representative of *kuekenthali.* *albata*, approximating in size to *gilva*, being essentially smaller than *sulewattan*; the subapical stripes even narrower, the transparent areas of both wings greenish yellow. Under surface as in *sulewattan*, washed-out brown. Abdomen above black, beneath yellowish. Discovered by Professor Kükenthal on the Rurukan at 4000 ft., later also taken by Hose near Tondano.

D. weiskei *Rothsch.* represents the *albata*-group on New Guinea, where it is likewise alpine, but is *weiskei.* smaller. The sexual spot of the hindwing is especially sharply marked. Forewing without transparent cell-stripe and with rounded instead of elongate subapical spots, hindwing with *albata*-pattern, of greenish white colour. Under surface: forewing black, hindwing umber-brown. Aroa River, British New Guinea, only 1 ♂ collected, named after its discoverer.

With **D. nilgiriensis** *Moore* (77 b) begins a series of species which betray their relationship to the *nilgiriensis.* *Parantica*- and *Radena*-type by the narrow intraneural areas. Under surface of *nilgiriensis* pale earth-brown, all the transparent areas greenish. Abdomen beneath brown. Apparently nowhere rare in the Nilgiris, but not found below 2000 ft. Principal time of flight April and May.

D. luzonensis replaces *nilgiriensis* in Micromalayana, on Borneo and the Philippines. The small Sunda Islands, which are at the greatest distance from Anterior India, produce the races most closely approaching *nilgiriensis* in the coloration, whilst the neighbouring countries (Java, Borneo) produce the most specialized. Strange to say, no branches are as yet known from the Malay Peninsula, Further India and Sumatra, so the distribution of the species must be called an entirely discontinuous one. — **luzon-** *luzonensis.* **ensis** *Fldr.* is an extremely constant race, although it occurs on all the Philippine Islands from Luzon to Mindanao and even Palawan, but appears to be nowhere common. The intraneural areas are almost as broad again as in **præmacaristus** *Fruhst.* (78 c), in which also the underside of the abdomen, which is *præmacaristus.* almost pure white in *luzonensis*, is grey, there being a distinct forked marking in the cell of the hindwing. North Borneo, very rare, hitherto only one ♂ described from coll. Fruhstorfer. — **larissa** *Fldr.*, *larissa.* on the other hand, is a subspecies ascending on the whole of Java to about 2000 ft., nowhere common, but also nowhere scarce. Abdomen beneath red-brown, otherwise much more recalling the Philippine race in the wing-pattern and bearing even more distinct and complete rows of submarginal dots on the hindwing. — **panaitius** *subsp. nov.* is an extremely rare race on Lombok at elevations of about 700 m., with *panaitius.* the abdomen grey beneath, the cell of the forewing completely blackened and the vitreous areas of the hindwing even less developed than in *præmacaristus*. Under surface of the hindwing brown-black, the cell and discal strigae lightly powdered with reddish. — **orientis** *Doh.*, described from a ♂ from Sumba and of *orientis.* which I have before me a somewhat different form from Sumbawa, is above deceptively like *nilgiriensis*

in the colouring, with dull grey-green interneural areas. Under surface paler than in *panaïtius*. Abdomen ventrally almost pure white.

melaneus. **D. melaneus** is a mainly continental species, whose races have hitherto not been sufficiently studied, so that several long-known forms still require naming. The name-type **melaneus** *Cr.* probably comes from southern China and is most likely identical with examples from Tonkin. These again, in the long-produced *szetchuanus.* forewing and the larger size, approximate much more to **szetchuanus** *Fruhst.* (78 c), which is still darker above, than to the Indian continental branch, which Dr. SEITZ has figured vol. I, pl. 28 d, and whose rounded wings contrast so distinctly with the pointed ones of *szetchuanus*. The latter is perhaps only a dry-season form, with red-brown instead of black postdiscal areas on the hindwing beneath, from the mountains of China, especially from the Omi-Shan, where according to LEECH it occurs commonly. In Tonkin I found it exclusively in the Manson Mountains at elevations of about 1000 m. and only in the *plataniston.* month of April. — **plataniston** *nom. nov.* is the round-winged race so common in the Himalayas which stands in all collections as *melaneus*. It is beneath more uniform and lighter red-brown. In Sikkim it ascends from the valleys to about 2000 m., and is very common from March to December. Examples of *neopatra.* the dry-season form, **neopatra** *form. nov.*, are essentially smaller, beneath almost entirely light red with pure white submarginal dots on both wings. *plataniston* also occurs singly in Tenasserim and Siam. — *sinopion.* As **sinopion** *subsp. nov.* we introduce the apparently very rare race of the Malay Peninsula, characterized by narrower vitreous areas and particularly by the almost entirely black ground-colour of both wings be- *swinhoei.* neath, which only show slight traces of a red-brown tinge. — **swinhoei** *Moore* is a well defined race from Formosa, of smaller size, with darker red-brown abdomen, somewhat narrower costal patches on the forewing and very broad dark red-brown marginal area on the hindwing beneath, the ultracellular patches *pseudo-melaneus.* being much restricted. Flies March to August, not rare at Lake Lehiku. — Finally, **pseudomelaneus** *Moore* is a highly specialized race which I only observed in western Java, and there only at the volcano Gedé at elevations of above 4000 ft. Forewing strongly falcate, the vitreous areas very transparent, shiny, clear, hindwing with a two-branched cell-streak, which is wanting in all the other subspecies of *melaneus*. Abdomen above light red-brown, beneath grey-white. Colour of the under surface of the wings, as in *sinopion*, with the admixture of red-brown very slight.

banksi. **D. banksi** represents *melaneus* on Sumatra and Nias, but is so modified in shape and colour that it is probably a distinct species. **banksi** *Moore* inhabits both the plains and the foot-hills, but according to MARTIN examples from the plains are paler and poorer in colour than those of the mountains. Sub- *funeralis.* median area of the forewing divided by a broad black streak, which is not the case in any form of *melaneus*, cell of the hindwing likewise with strong streak. Abdomen dark red-brown. — **funeralis** *Btlr.* has moreover, the cell of the forewing blackened, narrow vitreous interneural areas and a ventrally yellowish abdomen. Nias, apparently very rare.

crowleyi. **D. crowleyi** *Jen.-Weir.* is a giant form from northern Borneo, whose ♂♂ equal the largest ♀♀ from Tonkin with the forewing 55 mm. in length, but show the rounded wing-contour of *banksi* and have likewise in common with this the broad transverse stripes in the submedian area below the cells of both wings. Abdomen, however, ventrally white, with grey rings and dark grey dorsal line. Upper and under surface of both wings almost uniformly coloured, slightly tinged with red-brown, anterior part of the cell of the forewing black, the posterior part narrowly vitreous, intraneural areas relatively narrow considering the size of the butterfly, the submarginal dots of the hindwing very small, grey-white. This magnificent species inhabits Mt. Kina Balu in North Borneo and is rare.

menadensis. **D. menadensis** *Moore* (78 d) replaces *melaneus* on Celebes; the different colour of its stripes (yellow instead of whitish or greenish) has already won for it two generic names, namely *Lintorata Moore*, who even classified it with the African Danaids, and *Chlorochopsis Rothsch.* The species is rare both in northern and southern Celebes, exclusively inhabits the plains and is probably overlooked on account of its resemblance to the common *D. luciplena Fruhst.*, although it has a more rapid flight than this and keeps somewhat further from the ground. Most examples are somewhat lighter than the figure and brilliant yellow, especially beneath. ♀ only a little larger, wings more rounded than in the ♂, with paler, scarcely appreciably broader stripes and spots.

D. sita, better known under the name *tytia*, has of all the Danaids the most extended androconial patches on the hindwing, which are thickest at the submedian, proximally and distally extend over the inner-marginal vein and the lower median and are very variable in shape and extent. *sita* is a mountain species, only beyond the tropics descending also into the plains; it is long-lived and a tenacious flier and keeps higher above the earth than other *Danaida*. — Larva described in vol. I, p. 77, on Marsdenia roylei, one of the Asclepiadeae. From eggs laid in September the butterflies emerge in the following April. In Hong-Kong the first butterflies appear at the beginning of February. In the North-West Himalayas four broods have been observed, of which the first appears in April, the fourth in October. The species inhabits elevations of 2—3000 m., extending northwards to the island of Askold, and on Tsushima I observed ♀♀

still flying about vigorously at the end of September. — **sita** *Koll.*, known from the western Himalayas and Kashmir, is a form with pale red-brown margins, which occurs at wooded places occasionally in large numbers and ascends to 10,000 ft. — **tytia** *Gray*, a darker race with thick red cell-streak on the hindwing, which gradually disappears in examples from the eastern Himalayas, is always absent in the dry-season form from Assam and apparently does not occur at all in ♂♀ from Tenasserim. Such examples have been described as **tira** *Fruhst.* — **ethologa** *Swinh.* is a darkened geographical race from the Malay Peninsula with dark brown margins to the wings and shorter subapical patches on the forewing, of which only a few examples have hitherto been found. — **loochooana** *Moore*, a specially large subspecies, with the margins more chestnut-brown, occurring on Formosa and the Loo Choo Islands, is distinguished like **niphonica** *Moore* (vol. I, pl. 28 e ♀) by having the abdomen dark grey above and white beneath from the red-bodied *tytia*, which is only ringed with white beneath. The genitalia are described in the diagnosis of the group. — **tityoides** *Hag.* (78 d) is an essentially modified race, which might almost rank as a species. The anterior half of the cell of the forewing blackened, the subapical stripes narrower, hindwing above paler red-brown, the discal patches obsolete, hence the red entering the cell. ♀ with rounded forewing. Everywhere in the mountains of Sumatra at elevations of 1000 m., but nowhere common.

sita. *tytia.* *tira.* *ethologa.* *loochooana.* *niphonica.* *tityoides.*

Group Radena.

In neuration this group approaches *Ideopsis*, with which *Radena* has also in common the slight development of the androconia, which are scarcely visible to the naked eye and only accompany the submedian of the hindwing. According to my preparations of the neuration, the first subcostal vein is coincident with the costal, as in *Ideopsis*, a condition which is repeated as an aberration in *Parantica aglea*. But *Radena* is removed from *Parantica* and *Chittira* by the very long lower discocellular of the hindwing, which is obliquely directed proximad, whilst the longer antennae connect the group with *Ideopsis*, to which the shape of the valve also forms a transition. Uncus cylindrical, relatively short, distally rounded. Valve unusually broad, distally sharply truncate, with a beak-shaped tip, which, however, is broader basally than in *Ideopsis*. Saccus larger than in the other Danaids and Euploeas, testicle-shaped. Anal pencil according to Doherty shorter than in all the other Danaids, its hairs white at the base, grey distally. Larva with two pairs of tentacles as in *Parantica* and *Tirumala*. Pupa trunk-shaped, green with black dots.

D. similis is one of the commonest butterflies of the East Indies and is distributed from the Loo Choo Islands to Palawan and from Ceylon to Sumbawa. It is always found near human settlements, flutters heavily over flowers and grasses, is gregarious like most Danaids and emits a repulsive mouse-like smell, which emanates from the body. — **similis** *L.* is the name-typical subspecies, described from South China, and very common in Hong-Kong and Formosa. On the continent *similis* inhabits the whole of Further India without varying locally. As **aventina** *Cr.* (78 c) an aberration has been described with the postcellular spots of the forewing rounded instead of acutely wedge-shaped. — **persimilis** *Moore* belongs to the dry season and is known from Siam, where it occurs in enormous numbers near Bangkok; it is smaller than *aventina* and has correspondingly narrower grey-green interneural areas. As **hyria** *form. nov.* we designate an aberration of like habitus to *aventina*, but with the vitreous areas on both wings almost twice as broad and whitish instead of green. Some of the subapical patches are confluent. Occurs in Annam and Tonkin during the rainy season together with the type-form, but is very rare. — On the Loo Choo Islands Ishigaki and Okinawa there is a race with light green stripes, especially beneath, of almost white-green colour and with the submarginal patches much enlarged: **tragasa** *subsp. nov.* — The form from the Malay Peninsula is well known as **vulgaris** *Btlr.*, and approximates to **macrina** *Fruhst.* (78 b), from West Sumatra, which is distinguished from *vulgaris* by having the entire colouring darker and the vitreous patches reduced. Flies all the year round, one brood following another. Only in February and March, when an interruption occurs in the regular rains, worn specimens are met with, so that Martin assumes that wet weather is essential to its emergence. — **vulgaroides** *Fruhst.* is very common on Java, especially in the east, at elevations of 300—500 m. The marginal and subapical dots and strigae smaller, narrower and shorter than in *macrina*. The apical spots and the basal streak in the cell of the forewing more reduced, also the postcellular patches smaller. Under surface of the wings darker, the bands brownish instead of whitish. — **megaroides** *Fruhst.*, which is the most melanotic of the races hitherto known, inhabits Nias; smaller than *macrina*, but has in proportion to its size larger white submarginal dots on the forewing, whilst the whitish bands of the hindwing are strongly reduced. The small ultracellular wedge-spots of the forewing are shorter than in *macrina* and also in **macra** *Doh.*, from Engano, which latter differs both from Javan and Nias examples in the darker green stripes and dots, but especially in the projecting apical part of the forewing. Borneo examples and also ♂♀ from the Natuna Islands are scarcely distinguishable from *megaroides* from Nias and to some extent form a transition from Nias specimens to *vulgaroides* from Java. The name **interposita** *subsp. nov.* might be introduced for them. — Strikingly different from Macromalayan *similis* is the form inhabiting Ceylon, which is known as **exprompta** *Btlr.* (78 b); it was formerly very common at Colombo, but according to recent records has now disappeared from there. ♀ even more broadly striped and lighter than the ♂, with the forewing more rounded. — **nicobarica** *Wood-Mas.* so strongly recalls *juventa* that for years I had it placed in my collection as *juventa subsp.*

similis. *aventina.* *persimilis.* *hyria.* *tragasa.* *vulgaris.* *macrina.* *vulgaroides.* *megaroides.* *macra.* *interposita.* *exprompta.* *nicobarica.*

Forewing with very broad cell-streak, the subapical patches joined together and rounded bluish white intramedian areas. Cell-streak and discal spots of the hindwing smaller than those of *exprompta*. Nicobars, apparently very rare. — **palawana** *Stgr.* (78 c) closely resembles *Papilio macareus* in consequence of the much widened strigae and submarginal patches of both wings. Cell-streak of the hindwing distinct, distally forked, but not so strongly developed as in the preceding races. Palawan, January, not rare. — **sumbawana** *Fruhst.* (77 b), of which a ♀ is figured, erroneously described on the plate as a ♂, shows still more extended white areas and patches, on the other hand the cell-streak of the hindwing is much reduced. The ♂♂ are even lighter than the ♀♀, with the apex more produced. Sumbawa, rare. — **lesora** *subsp. nov.* is distinguished by a broad black marginal area, smaller wedge-shaped subapical spots and more isolated transcellular patches on the forewing. Under surface of both wings traversed by broad black veins, the fork in the cell more pronounced. Flores, likewise rare, and so similar to *juventa* that I have only now learnt to place it in the *similis*-group. — Finally, **kambera** *Doh.* is clearly the product of an island with a long dry season; its forewing may be described as white, with narrow black margins. The cell-streak of the hindwing is rudimentary, but the principal character of the form is the broad white subapical areas of the forewing. *kambera* is almost a distinct species and on account of its resemblance to *juventa* I formerly referred it as well as the preceding form to that species. But the valve is exactly as in *similis*, which, however, can scarcely be distinguished from the valve of *juventa*. Sumba, apparently very rare.

palawana. *sumbawana.* *lesora.* *kambera.*

D. oberthueri *Doh.* is an entirely isolated species, only occurring on Sumba, where it appears to replace the common *similis*. But apart from the shape it has scarcely any resemblance to it. Ground-colour deep black, in the ♀♀ changing on the hindwing into a light brown. Forewing otherwise as in *similis*, but without marginal patches and with the ultracellular series of hyaline spots broadened into a conspicuous band, cell of the hindwing without fork, the transcellular patches and submedian stripes more than twice as large as in *similis*. Under surface of the forewing black-brown, that of the hindwing washed-out grey-brown.

oberthueri.

D. juventa, like *melissa* and *affinis*, is one of those Danaids which occur throughout the tropics of the East, and is even more susceptible to climatic influences than these, with the result that it splits up into an almost unprecedented number of geographical races. It is interesting that *juventa* nowhere extends to the continent and is hence a typical island species. Its occurrence in Malacca and Perak has indeed been reported, but it is apparently still rare, having perhaps only migrated there quite recently, and moreover the southern part of the Malay Peninsula has so pronounced an insular character and such a thoroughly maritime climate that this coast species would be quite in its element there. In its horizontal distribution *juventa*, like *melissa*, is wanting on Sumatra, also it does not seem to occur on Nias and the Batu Islands, but it is found on Engano, which it may probably have reached from Java. — Larva of the various island races apparently differing; black on Java, Semper figures it entirely white from Manila. Legs on Java black, on the Philippines red. Larval stages on the Philippines 14—16 days, pupal stage 9—10. Semper believes he has observed seasonal forms. On Java the species flies all the year round, but only in January during the heaviest rains occurs in enormous numbers and probably does not ascend beyond 600 m. above sea-level. Valve as described in the diagnosis of *Radena*, scarcely distinguishable from that of *similis*. — **juventa** *Cr.*, the first described subspecies, inhabits Java and Bali; like all the allied races it has the forewing more rounded in the ♀ than in the ♂, differing from the figured *mincia Fruhst.* (78 b) in the shorter vitreous yellow-white spots at the apex of the cell and between the medians of the forewing. — **mincia** inhabits the island of Bawean, which though so near to Java is noted for its highly differentiated endemic forms, which sometimes might almost rank as species and hitherto in most cases have been introduced as such. As in *rita* of the *Parantica*-group *mincia* is also characterized by the enlarged and still more transparent vitreous spots of both wings. — **longa** *Doh.* on the contrary offers an excellent example of island melanism, with its sharply defined, small-dotted marginal areas and thickly black veins, which only leave narrow greenish white vitreous stripes; in this *longa* recalls *tontoliensis* (78 a) rather than *juventa*. Very common on Engano. Principal time of flight April. — If large series of *juventa* from Java and from Lombok are placed side by side, it is seen that the Lombok examples, **phana** *Fruhst.*, are larger and bear lighter and more extended hyaline patches, but a darker, black distal border to the wings. This marginal border has smaller white dots than in the Javan race. The white comma-shaped streak between the subcostal veins of the forewing is longer, the ultracellular and cellular patches of the forewing are larger than in *juventa*. *phana* occurs on Lombok up to elevations of 2000 ft. and is not rare even in the village gardens. — **stictica** *Fruhst.* is larger than *phana*, the black transverse streak before the cell of the forewing begins to disappear, so that the cell may be described as transparent throughout. All the median areas on both wings very large, the submarginal dots, especially in the ♀♀, almost always united. Sumbawa, not rare. — **kallatia** *Fruhst.*, from Kalao, quite suggests a dry-season form, perhaps a result of the long almost rainless period to which the butterflies of Kalao are exposed. All the hyaline patches purer white but less transparent than in *stictica*, submarginal patches very distinct, but both rows of subapical spots more reduced than in Sumbawa ♂♀, cell of the forewing

juventa. *mincia.* *longa.* *phana.* *stictica.* *kallatia.*

with broad transverse stripe, that of the hindwing of the ♀♀ without fork, with only the vestiges of a fine line. — **lycosura** *subsp. nov.* is the race from the small island of Bonerate; it singularly is somewhat larger than *kallatia*, but at the same time has smaller and hence more isolated postdiscal patches on the hindwing and more delicate, small subapical wedge-spots on the forewing. — **sitah** *Fruhst.*, from the Natuna Islands, is distinguished by the narrower and longer forewing, in which it differs from *juventa* and from the following races. *sitah* is a melanotic island form, with the hyaline spots reduced and the black colour more extended. All the patches are of a more greenish than yellowish white colour. The under surface of the wings is more black than brown, all the ultracellular spots shorter and narrower. The submarginal dots are however more extended, larger and more distinct. — **kinitis** *Fruhst.* North Borneo produces a further race, which approaches *manillana Moore* from Luzon. 2 ♀♀ and 2 ♂♂ in my collection differ from *juventa* from Java in the larger whitish patches on both wings, the intermedian spots especially are much broadened. The forewing is broader and shorter than in *sitah*; all the subapical streaks longer. Sandakan and neighbourhood of Labuan, North Borneo, and probably also Palawan. — **goria** *Fruhst.*, from Bazilan, is intermediate between *kinitis* and *manillana*; as in *sitah* the hyaline patches are of a more blue-green than whitish colour. The black distal border of both wings is much darker than in the allied races, the submarginal white dots smaller than in *kinitis*. The ultracellular patches are shorter, neither round, as in *juventa*, nor almost quadrate, as in *kinitis*, but distally pointed. The transcellular spots of the hindwing are very small, scarcely 1/3 as large as in *manillana* and hardly more than half as large as in *kinitis*. Bazilan, near Mindanao. — **galaecia** *subsp. nov.* is the antithesis of *goria*, very small, transparently white, with the transcellular spots on both wings sharply defined distally, more quadrate than rounded and much more extended than in *goria*, restricting the black distal border. Locality unknown, probably Mindoro or islands of the Negros Group. — **manillana** *Moore* is the very common race from Luzon, which SEMPER assumes to be seasonally variable. Although the postdiscal patches of the hindwing are well developed, they are distally pointed, scarcely half as broad as in *galaecia*. Larva on a climbing plant, legs carmine, and dorsal colouring whitish. — **luzonica** *Moore* according to SEMPER only occurs on the Babuyanes to the north of Luzon; but in conformity with the laws of the Zoological Society the misleading name has to be retained. *luzonica* is a highly specialized island form, of typical melanotic colouring, very large, with relatively small, isolated white rounded spots on the forewing, which like the pointed postdiscal stripes of the hindwing are placed in a much widened black marginal area. The black stripes at the submedian of the forewing very long and broad. — **lirungensis** *Fruhst.* is a peculiar, large-spotted geographical form from the Talaut Islands to the north of Celebes, which forms a transition to the races of this island and the Moluccas. Forewing with projecting apex, but broader than in the Philippine races, the colour of the transparent areas greenish, submedian stripe of the forewing short but thick, cell likewise with strong but much abbreviated basal streak, postdiscal spots of the hindwing very small, remote from the cell-wall. Island of Lirung in the Talaut Group. — On the many-armed island of Celebes itself *juventa* is split up into three named races: **libussa** *Fruhst.* inhabits the most northerly part of Celebes, the Minahasa, and extends to the south-east as far as Kendari, and moreover onto the islands of Peling and Bangkai, apparently without varying. Margins of the wings black-brown with greenish white transparent areas and small dull white submarginal dots. As a rule smaller and the ♀ with larger spots than **tontoliensis** *Fruhst.* (77 a), which is only known to me from Toli-Toli in north-western Celebes. The cell-stripes of the forewing, and even the intramedian areas, are darkened, being covered with black-brown scales, the submarginal dots reduced, the whitish areas on the under surface likewise shaded. *tontoliensis* is probably a product of the rainy season, as is also indicated by the size of the specimens. Very common at the edge of the woods on the coast in November to December, where the butterfly is found on low flowering bushes, always in large numbers. — Essentially different is **tawaya** *Fruhst.*, which gives quite the impression of a dry-season form, and is based on a ♀ taken at that period. The cell-stripes and also the hyaline areas of both wings are broadened and like the submarginal spots purer white, an albinotic effect which is almost more noticeable on the under surface than above. Type from Tawaya, a place in the Bay of Donggala, in Central Celebes. — **ishma** *Btlr.*, figured by its author from Celebes examples, but whose locality is erroneously given as Gilolo, is the race which inhabits the south peninsula of the island and occurs in great abundance especially near Macassar and at the waterfall of Maros. *ishma* is next to *tawaya* the lightest form of the island, with almost pure white instead of greenish vitreous patches and very large cell-spots on the forewing. Moreover on the underside it is easy to distinguish from the eastern and northern Celebes subspecies by the more prominent double row of white submarginal dots on both wings. — **satellitica** *Fruhst.* inhabits Saleyer, where it is not rare from November to March; its small size, the reduced whitish patches and areas and broader black veins give the distinctive facies of a race inhabiting an outlying island. — **sophonisbe** *Fruhst.* closely approaches it in the small wing-expanse, but like *cleona lucida Fruhst.* bears glossy, very light vitreous areas and patches on both wings, which approximate to those of *tawaya* in shape. Submarginal dots pure white, especially those of the ♀♀. Sula Mangoli. — **sequana** *subsp. nov.* was discovered by H. KÜHN on Binongka, a small island to the east of Buton. In this all the transparent areas are even lighter, the butterflies are larger than those of the Sula Islands and Saleyer,

lycosura. *sitah.* *kinitis.* *goria.* *galaecia.* *manillana.* *luzonica.* *lirungensis.* *libussa.* *tontoliensis.* *tawaya.* *ishma.* *satellitica.* *sophonisbe.* *sequana.*

meganira. the marginal dots and especially the small costal and subapical wedge-spots essentially longer. — **meganira** *Godt.*, one of the commonest butterflies of the Southern Moluccas, differs from the preceding races in the more rounded shape of the wings, which is particularly noticeable in the ♀♀, and the rounded instead of rectangular or oblong postdiscal patches of the forewing, which in the corresponding races from the other Moluccas decrease or increase in size according to the greater or less extent of the black mar-

buruensis. ginal area. — **buruensis** *Holl.*, from Buru, is somewhat inferior in size to *meganira* and has the vitreous interneural areas just a little smaller and somewhat duller whitish than in examples from Amboina and

sobrina. Ceram. — **sobrina** *Bdv.*, whose locality its author erroneously gave as Buru, from whence he had himself already recorded *meganira*, is the race from the Northern Moluccas, a fact which Mons. Charles Oberthür has confirmed by comparison of the type. *curtisi Moore* (1883) is synonymous with *sobrina*. The white patches of the forewing rounded, the cell-streak thread-like, the two stripes at the submedian more elongated but narrower than in *eugenia* (77 a). Hindwing with distinct black fork in the cell, which in

ellida. *meganira* is only indicated. Halmaheira, Batjan, Ternate, everywhere very common. — **ellida** *Fruhst.* is geographically and morphologically an intermediate form between *meganira* from the Southern Moluccas and *sobrina*; it has pure white instead of greenish grey submarginal patches and the intramedian areas are only slightly more reduced than in *meganira*. The hindwing with its rudimentary cell-stripes and the almost white subbasal streaks agrees much more with *meganira* than with *sobrina*, which has the bands

ogylla. similar to those of *eugenia*. Obi, not rare. — **ogylla** *subsp. nov.* is a highly specialized race from the Aru Islands, which in colouring is about intermediate between *meganira* and *metaxa* (77 a), but bears only a very narrow cell-streak on the forewing and vestigial cell-stripe on the hindwing. Otherwise as in *meganira*, except that the wings are more rounded and the patches on the forewing greenish. Apparently rare. —

turneri. **turneri** *Btlr.* forms a transition from *sobrina* to *eugenia*. All the vitreous patches greenish as in *eugenia*; but the cell-streak of the forewing thread-like, in the ♀ completely absent and never joined to the spots before the apex of the cell. Dutch New Guinea, especially at Dorey and the foot of the Arfak Moun-

eugenia. tains. — In German New Guinea *turneri* is replaced by **eugenia** *Fruhst.* (77 a), a form which is not rare in the woods at the coast of Friedrich-Wilhelmshafen, and flies according to Hagen from December to March. The larva occurs singly on a climbing plant of the Convolvulus tribe, on which the ♀ lays the greenish eggs singly at the tip of the underside of the leaves. Both sexes lighter and larger than *turneri*, larger and somewhat darker than *georgina*. ♂: the greenish white, almost quadrate, costally somewhat incised spot before the apex of the cell of the forewing merged in the long stripe which runs out from the base of the cell. Cell of the hindwing with a thin brown-black fork, which in *turneri* fills up almost the entire cell, but in *georgina* is completely absent. All the circumcellular spots of both wings considerably larger than in *turneri* and *georgina*. The 3 strigae below the costal margin, which are placed close above the apex of the cell of the forewing, are nevertheless narrower and more isolated than in *georgina*. The submarginal area of the hindwing much more prominently dotted with white than in *georgina*, but only a little more distinctly than in *turneri*. *eugenia* is further intermediate between *tanais Fruhst.* from Mefor, from which it differs in the more broadly black submedian veins and the confluent cell-spots

metaxa. of the forewing, and *purpurata* from Waigeu. — **metaxa** *subsp. nov.* (77 a) affords one of the clearest examples of how species alter in the Tropics even at short distances. The greenish white areas of both wings are widened, the longitudinal streak at the submedian of the forewing and the fork-marking of the hindwing are either entirely absent or only vestigial. Properly speaking only the submarginal dots of the hindwing remain unchanged, being quite as complete, especially in the ♀, as in *eugenia*-♀ (78 a). One may describe *eugenia* as having the ♀ predominantly black-brown with whitish patches, whilst *metaxa* is a form with greenish white ground-colour and black margins to the wings. *eugenia* approaches *sobrinoides Btlr.* from the Bismarck Archipelago, whilst *metaxa* forms a transition to *georgina* from British New Guinea. *metaxa* is common at Stefansort and Finschhafen, principally in the rainy season, from September onwards.

georgina. Valve of *metaxa* and *eugenia* not distinguishable with a low-power lens from that of *juventa*. — **georgina** *Fruhst.* approaches *metaxa*, from which it differs in the shorter, more rounded subapical strigae and the rounder, smaller apical spot in the cell of the forewing, which is not confluent with the basal streak. Also the greenish white areas at both sides of the submedian are shorter, the submarginal dots of the hindwing are absent or reduced, in general also the black-brown marginal area of both wings more extended. Collingwood Bay, Milne Bay and Papua Gulf in British New Guinea. The occurrence of three separate Danaid-forms confirms the fact which has been long known of birds, but with regard to Lepidoptera was first shown by me in 1905 (W. Ent. Zeit. p. 57), that the mainland of New Guinea produces well differentiated local races of a collective species. The range of these forms is to some extent accidentally identical with the present political divisions of New Guinea, so that the Dutch and the German as well as the British district each has its own endemic forms. The varieties inhabiting Dutch and German New Guinea, however, are often not so sharply differentiated as those of the German and British territories. This fact is easily explained by the common coast-line of the two first-named and the absence of any separating mountains, whilst between German and the southerly British New Guinea the Bismarck and Finisterre Mountains and the Owen Stanley Range form a lofty barrier, impassable to many species.

Along the coast the deep indentations of Huon Gulf, Collingwood Bay and Milne Bay appear to serve as barriers. — **purpurata** *Btlr.* is the local race from Waigeu, and is the furthest removed from typical *juventa* and *meganira*. It surpasses even *metaxa* in the deep black margining of the wings and the large vitreous areas on both wings, and shows a strikingly broad black marginal area and only a thin cell-streak on the forewing. Median and basal areas of the hindwing almost pure white, particularly beneath without greenish tinge. Cell of the hindwing without any trace of a fork-marking. Submarginal patches very indistinct. *purpurata* might be claimed as a distinct species if it were not connected with the races of the main island by intergrades from the islands in Geelvink Bay. — **tanais** *Fruhst.*, from Mefor, very nearly approaches it and is only distinguished as follows: the greenish white areas on the forewing are darker, somewhat smaller; the spot at the submedian is divided by a broad black line; the submarginal dots reach to the lower median and are stronger; the spot in the cell is smaller, as are also all the transcellular patches. The lowest patch, however, between the lower medians, is intermediate in size between those of *purpurata* and *georgina*. The hindwing bears two fairly distinct rows of submarginal dots, as in *georgina*, whilst in *purpurata*-♂ only one row is visible. Under surface: all the discal spots smaller, darker and scaled with blackish brown. Submarginal dots much more distinct, larger and the rows more complete. — With **sobrinoides** *Btlr.* begin the most easterly races, which approximate closely to *eugenia* and even *meganira* and show either no cell-streak at all on the forewing or only an obsolete one and the cell of the hindwing much darkened. *sobrinoides* differs from *eugenia* in the more yellowish white areas on both wings, without a trace of greenish. Common on New Pomerania and New Lauenburg. — **ribbei** *Fruhst.* inhabits New Mecklenburg. ♂♀: considerably smaller than *sobrinoides*, the white markings reduced and the black-brown ground-colour consequently more extended. The submarginal rows of dots on both wings more obsolete, the cell of the forewing without the least trace of a white stripe and the cell of the hindwing begins to be much darkened in the upper part, as brown scales from the costal margin extend to the lower branch of the cell-fork. On the forewing the white spots at both sides of the submedian and also the patches placed beyond them are much narrowed, proximally pointed. On the under surface the wings are even more darkened than above, particularly the cell of the forewing. — **mangalia** *Fruhst.* In the *Radena* from the Shortlands Islands the white cell-streak of the forewing is connected with the white cell-spot and is not divided as in *tanais* from Mefor. Moreover, in the Shortlands ♂ the submarginal streaks are narrower and more curved and are divided by four of the much more broadly black veins. The anal fold is quite plain yellowish and not striped with black as in *purpurata*. In addition to the very noticeable absence of the black stripe in the anal fold of the hindwing *mangalia* further differs from *purpurata* in the complete submarginal row of white dots and in having the hyaline spots reduced as in *tanais*. From *tanais*, to which it is very similar, *mangalia* may easily be distinguished by having the patches on the hindwing further removed from the cell, and also narrower and more rounded. Shortlands Islands, Solomon Archipelago. — **zanira** *Fruhst.*, from Bougainville, scarcely resembles *purpurata* and *mangalia*, but leans more towards *sobrinoides Btlr.* from New Ireland. From this *zanira* is easily distinguished by larger size and the much darkened markings. All the white spots are reduced with the exception of the submarginal dots of the hindwing, which are more distinctly developed. *zanira* forms a connecting link between *turneri* and *sobrinoides*, being somewhat lighter than *turneri*, but darker than *sobrinoides*. The streaks at the submedian of the forewing are likewise intermediate between the two races, as also the circumcellular spots of the hindwing. The under surface of the wings is very characteristic, bearing extremely prominent, pure white spots and dots, while in both the allied races these are more grey and green-white and quite distinctive. Bougainville, Solomons. Very common. — At the first glance it may appear rash to unite under one species the almost scaleless and diaphanous Javan *juventa* with the almost entirely black *turneri* or *sobrina*, but even under the microscope it was not possible to establish the very slightest difference in the sexual organs between the widely separated geographical races. Hence it may be unhesitatingly concluded that *juventa* must be regarded as the lightest and most easterly form, the Celebes and Molucca races as connecting links and those from Papua as the most extreme melanotic offshoots of a single species. The eastern representatives of *juventa* are slightly scaled and hence very transparent, whilst the Papuan races with almost the entire surface of the wings covered with black scales are scarcely transparent at all.

purpurata. *tanais.* *sobrinoides.* *ribbei.* *mangalia.* *zanira.*

2. Genus: **Ideopsis** *Horsf. & Moore.*

This genus was formerly regarded as an intermediate form between *Danaida* and *Hestia*, as with its vitreous wings and general scheme of markings it presents to some extent the aspect of a miniature *Hestia*.

But the clubbed antennae and particularly the genitalia distinguish it from *Hestia*, as also its generally very striking sexual dimorphism. In neuration the species approximate to the *Radena*-group of *Danaida*, having like these the first subcostal vein of the joining with the costal — and also the arrangement of the modified scales along the submedian of the hindwing is the same. The androconia are arranged in undulate lines and are most widened in *vitrea* — whilst in *iza* they stand out most strikingly as deep

black bands from the pure white ground. The upper discocellular of the hindwing is longer than the others, in which *Ideopsis* differs from *Radena*. But the genitalia have no connection at all with *Hestia* and approximate to *Radena* in the similar non-dentate valve, which shows only a ventral point. Uncus somewhat shorter than in *Radena* with two short bristle-bearing appendages resembling a roller or willow-catkins.

The early stages are unfortunately not yet known, for what HORSFIELD and MOORE figured as such in 1857 belong without doubt to *Hestia malabarica* or *agamarschana*; but it is tolerably certain that larva and pupa resemble those of *Radena* more than of *Hestia*.

Precostal of the hindwing originating at the origin of the subcostal vein as in *Danaida* and the claws simple, without paronychia, which indicates a further difference from *Hestia*.

The antennae of the ♂♂ are more abruptly clubbed than those of the ♀♀, whose antennae approximate more to the Danaid form, in the ♂ 8—9 segments, in the ♀ 10—11, are united to form the club.

The species of *Ideopsis* mostly occur in company with Hestias and like these are fond of flying up and down along streams in the woods, in shady places but when the sun is bright, especially in the morning; their flight is Danaid-like and lacks the slow, majestic sailing motion of *Hestia*.

Ideopsis is a purely Malayan genus, inhabiting the whole of Macromalayana, the Philippines, Celebes and all the larger Moluccan islands, but wanting in Micromalayana and also on the Aru and Key Groups, and its most eastern offshoot reaches Dutch New Guinea.

Structurally the species are broken up into two groups: a) With elongate clubs to the antennae, which are well rounded (transverse section). 2nd subcostal of the forewing arising at the apex of the cell, so that the upper discocellular is wanting. *Ideopsis Moore*. b) With oval clubs to the antennae, which are compressed. 2nd subcostal arising before the apex of the cell, so that there is a distinct upper discocellular. *Aianthis Fruhst.*

Group Ideopsis *Moore* (= Gamana *Moore*).

All the species with *Hestia*-like grey, semitransparent wings.

gaura. **I. gaura** *Horsf.* inhabits eastern and western Java and occurs locally from the coast-forests up to about 800 m. throughout the whole year. ♂♀ similar to *costalis* (76 a), but with more extended black markings, in which are placed large, white, roundish submarginal patches. On the other hand the black spot at the apex of the cell of the hindwing is but little developed.

I. daos is very susceptible to climatic influences and is broken up into a series of island races, both Sumatra and Borneo even having two separate local races. The species reaches the maximum of *perakana.* its development on the Malay Peninsula, where occurs **perakana** *Fruhst.* (76 a), distinguished by its size, the milk-white ground-colour especially in the ♀ and the large black patches at the apex of the cell of both wings. The submarginal row of spots on the forewing does not increase in size so regularly and gradually as in *gaura* and the other forms of *daos*, on the contrary the three upper subapical dots are very small, but the following three very large, without any intergradation. On Penang MARTIN found the butterfly in company with *Hestia linteata Btlr.* When at rest large specimens of *perakana* were not distinguishable from small *Hestia*, but they were known at once by their flight, which is more rapid in *natunensis.* *Ideopsis* than in the sluggish *Hestia*. — **natunensis** *subsp. nov.* closely approaches *perakana*, has the same expanse and the patches at the discocellular of the same size, but the black submarginal spots of the forewing are essentially smaller and more elongated, and the median veins more thickly bordered with *daos.* black. Natuna Islands, not rare. — **daos** *Bdv.* is the name-type, probably from South Borneo. Ground-colour, particularly that of the ♀♀, smoke-brown, which in the ♂♂ is also noticeable beneath. ♂♂ with *infumata.* specially dark upper surface MARTIN has called f. **infumata.** Very common at Banjermasin in South-*ardana.* East Borneo and at the Kapuas River in South-West Borneo. — **ardana** *subsp. nov.* is probably the mountain race of Northern Borneo, taken by WATERSTRADT in large numbers at the Kinabalu. Both sexes appreciably smaller, the black patches somewhat reduced, the ground-colour more uniform, dark, vitreous, without brown or whitish tinge and even the white marginal spots of both wings less developed. — *palawana.* **palawana** *subsp. nov.* is the form from Palawan, which is still more dwarfed than *ardana*, and in which the black submarginal patches of the hindwing are placed very near to the marginal spots and like all *lingana.* the other spots are smaller than in *ardana*. — **lingana** *subsp. nov.* forms the transition from *perakana* to the race from north-eastern Sumatra and is exactly intermediate in size between the two. It has in common with *perakana* the distinct cell-spots and the very broadly black costal margin of the forewing, but the ♀ is coloured like that of *sonia*. Islands of the Lingga Archipelago to the south of Singapore. — *sonia.* **sonia** *Fruhst.* is a small form approaching *costalis*, but with lighter ground-colour in the ♂, the ♀ with the submarginal patches of the hindwing twice as large and the median veins of the forewing very broadly *eudora.* black. Common in the Sultanat Deli, North Sumatra. — Finally, **eudora** *Gray* is the West Sumatran mountain race, with dark vitreous areas on both wings as in *ardana* from North Borneo. Neighbourhood of

Padang Pandjang, West Sumatra. — **costalis** *Moore* (76 a) is one of the commonest butterflies of the island of Nias. — A closely allied form occurs on the neighbouring Batu Islands, which has been described from Pulo Tello as **batuna** *Fruhst.*, with still more reduced black submarginal patches on the hindwing. The costal margin of the forewing unicolorous black, suppressing the wedge-shaped white spots which adorn the other subspecies of *duos*. — **nigrocostalis** *Hag.*, from Mentawej, has the basal half of the costal margin and the upper part of the cell on the forewing more strongly blackened than *costalis*. Only ♀♀ known. *costalis.* *batuna.* *nigro-costalis.*

Group Aianthis *Fruhst.*

I. anapis, the only species known from the Philippines, approximates closely in the colouring to the Philippine *Hestia*. becomes darker as one proceeds southwards, is broken up into a series of island races, and shows at the base of both wings the yellowish tinge so characteristic of *Hestia leuconoë*, which likewise increases from north to south. — **anapis** *Fldr.*, from Manila and the adjacent Sierra de Mariveles, is a somewhat darker race than the pale **bracara** *subsp. nov.*, from North-East Luzon, figured by Semper, in which the upperside of the hindwing shows only an obsolescent delicate yellow tinge and the subapical spots remain pure white, not enclosing any black. — **anapina** *Semp.* is a highly specialized form from Mindoro, of which I have before me a pair collected by Dr. Platen. The black transverse band of the forewing in the ♂ is appreciably broader and the submarginal patches on the hindwing are enlarged. The latter shows only at the basal part of the cell a yellowish tinge, which in **glaphyra** *Moore*, from Mindanao, extends over the whole cell. The costal border also covers the anterior half of the cell of the forewing, but the spot at the apex of the cell is not united with the distal border as in *anapina*. Cell of the forewing in both sexes with black apex, which is likewise wanting in *anapina*. — **messala** *subsp. nov.* is the race from East Mindanao, figured by Semper, which is known from 8—900 m. above sea-level; it is an albinotic extreme of *glaphyra* and is characterized especially by the absence of the black patch at the apex of the cell of the hindwing in the ♀♀ and the very narrow black bands in both sexes. The subapical area of the forewing does not show the extended black spots which Moore mentions in *glaphyra* and which are distinct in my examples from West Mindanao. *anapis.* *bracara.* *anapina.* *glaphyra.* *messala.*

I. vitrea is unquestionably the most beautiful of all the species of *Ideopsis* and not only occurs on all parts of Celebes but also extends to the Moluccas and western Dutch New Guinea. But singularly it is not found on Bangkai and the Sula Islands, where it is replaced by a much smaller, entirely different species. — **vitrea** *Blanch.*, the name-type, inhabits North Celebes, where it is not rare both in the Minahassa and at Toli-Toli and forms one of the ornaments of the woods with its slow flight and the magnificent yellow border of its hindwing as well as by its abundance. The ♀ has more rounded wings and on the forewing also two complete rows of yellow patches before the distal margin. The black band of the hindwing is sometimes only indicated and also in the ♂♂ much narrower than in the figure, which is drawn from a ♂ from South Celebes, a form which is here introduced as **arachosia** *subsp. nov.* The median band of the hindwing in the ♀♀ is broad from the apex to the lower median vein, whilst in *vitrea* between the middle and lower median veins it is usually more streak-like or is altogether so little developed that it may be regarded more as a widening of the blackish dusting on the vein. Also beneath the distal margin of *arachosia* is much broader, the yellow ornamental band correspondingly narrower and the yellowish submarginal dots more indistinct. The species is to be met with all the year round at the waterfall of Maros. — **chloris** *Fldr.* (76 b), described from Batjan and Halmaheira, shows all the white patches of *vitrea* yellow-coloured. The submarginal half-band of the hindwing begins broad at the apex and ends at the upper median. The subterminal patches on the underside of both wings and sometimes even the submarginal spots of the forewing in the ♀♀ are white and contrast vividly with the sometimes lighter, sometimes darker yellow intramedian areas of the proximal parts of the wings. Cell of the hindwing sometimes with brown fork-mark. — **neleus** *Fruhst.* differs from *chloris*-♀ in the brown instead of black ground-colour of both wings. The hyaline patches are dull and darker yellow. All the submarginal dots smaller and yellowish, instead of pure white. The first two transcellular yellow spots broader. The brown-black distal border encroaches on the yellow discal band with narrower but more pointed and longer wedge-spots. The blackish apical spot of the hindwing is broader than in *chloris*, the first three submarginal spots are smaller and strongly incised. The forewing more rounded, the whole build smaller than in *chloris*. *neleus* must be very local on Buru, as only ♀♀ are yet known and Doherty, who collected for a long time on the island, did not meet with it at all. — **obiana** *Fruhst.* (76 c), from Obi, again approximates decidedly more to *vitrea*, as the yellow-colour of both wings is lighter and in the ♀ the middle of the wing is white, though not transparent. The yellow areas in both sexes are moreover much more extended and the posterior half of the cell on the forewing not black, but likewise a beautiful light yellow. The yellow or whitish submarginal wedge-spots on the underside of the forewing in the ♀♀ are only separated from the median area by small brown lunules, cell of the hindwing without any trace of a fork-mark. Not rare. — **arfakensis** *Fruhst.* has the cell of the forewing completely transparent and the median area vitreous, while the yellowish submarginal patches are especially strong. Only the submedian part of *vitrea.* *arachosia.* *chloris.* *neleus.* *obiana.* *arfakensis.*

the forewing tinged with yellowish, hindwing similar to that of *chloris*. Hence the forewing of *arfakensis* recalls *vitrea*, whilst the hindwing has distinctly preserved the *chloris*-character. Appears to be very rare, as I have only received one pair.

ribbei. **I. ribbei,** a very rare species, of which there are only two island races to record. — **ribbei** *Röb.*, from Bangkai, of which apparently only ♂♂ have been taken, as the ♀ is still undescribed. ♂♂ with broad black distal border and narrow grey-white longitudinal stripe in the cell of the forewing, otherwise like a *vitrea* in miniature, except that the submarginal band of the hindwing is also grey-white instead of *iza.* yellow. — **iza** *Fruhst.* (76 c) has the cell-stripe of the forewing almost twice as broad and the submarginal patches much larger. On the hindwing the black teeth of the distal border project further into the vitreous area than in *ribbei.* ♀ with three large subapical stripes on the forewing. Sula Mangoli. Flies October—November.

klassika. **I. klassika** *Mart.*, a sharply differentiated species, has the ground-colour entirely black-brown with straw-yellow submarginal, subapical and median patches and is said to recall *D. menadensis Moore* in the arrangement of the markings and to form a sort of transition from *Ideopsis* to *Danais*. Only 3 ♀♀ are yet known. Ceram.

inuncta. **I. inuncta** *Btlr.* (76 b), with the black markings even more simplified than in *iza*, especially the distal border of the hindwing only slightly dentate proximally, the submarginal spots of the forewing only separated by fine black margins from the median area, which is transparent in the ♂♂, milky white in the ♀♀, base of the forewing in both sexes tinged with brilliant yellow. Marginal area of the wings beneath black-brown with white submarginal dots and large quadrate white submarginal spots on the forewing. Abdomen above brown, beneath grey-white. Waigeu, ♂ evidently very rare, as only one ♂ is *hewitsoni.* taken to about 20 ♀♀. — **hewitsoni** *Kirsch* is the only branch race yet known, from the island of Mysore in the north of Geelvink Bay in Dutch New Guinea. The yellowish tinge of the forewing is entirely absent, as also the brown double line in the cell of the hindwing, and it differs further from *inuncta* in the broadly brown veins of both wings.

3. Genus: **Hestia** *Hbn.*

All the species which belong here are distinguished by their size and have a heavy, awkward flight, the weak muscles being evidently unable to control the enormous wings. Even a moderate breeze drives them helplessly hither and thither like pieces of light paper and probably on this account they never leave the shelter of the woods. The species of *Hestia* are among the largest butterflies, and they even attract the attention of the natives, who in India call them „spectres" or „ghosts", the Malays on Celebes give them the expressive name „surat", i. e. letter, and the Javanese that of „kupo kertas", i. e. paper-butterfly. The butterflies are mostly gregarious, are fond of following the course of small streams, above which they float up and down, also frequently gambol round high flowering forest-trees and love to settle in the late afternoon on projecting twigs, mostly in pairs, so that one might think they were beginning family life. The imagines are large, semitransparent butterflies with long, very thin antennae, scarcely thickened at the tip, without clubs or knobs. Claws, unlike *Ideopsis*, with appendages. The precostal of the hindwing arising distally to the subcostal, being bipartite and directed proximad. Forewing with five subcostals, of which two arise before the end of the cell, the first being united with the costal as in *Ideopsis*. Hindwing without patches of androconia or other scent-organs. ♂♂, however, with two or four scent-pencils at the anal extremity. The *Hestia* differ from all other Danaids in the broad and always sharply armed valve, which is coarsely dentate or provided with widely projecting points, and form a group by themselves. The uncus is aborted. Larva of only two species yet known, approaching those of the Euploeid-group *Trepsichrois*, long, black, ringed, with lateral variegated patches above the prolegs and provided with four pairs of fleshy black tentacles. Pupa more slender than the bell-shaped pupa of the Danaids, with projecting points at the head, yellowish, black-dotted, without golden ornamentation.

The genus *Hestia*, like *Ideopsis*, may be separated into two groups:

a) The second subcostal vein arises near the apex of the cell. Lower discocellulai very short. Abdomen with four anal pencils of equal length. . . . . Hestia *Hbn.*

b) The second subcostal vein arises at a great distance before the apex of the cell. Lower discocellular of the hindwing long. Abdomen with four anal pencils, two of which are much abbreviated . . . . . Nectaria *Dalm.*

Group Hestia.

H. jasonia is the species of the genus which has extended furthest towards the west, with offshoots to Ceylon and the Andamans and northwards distributed to Tenasserim and Assam, but only occurring

at the southern point of the Indian peninsula. — **kanarensis** *Moore*, described from North Kanara and South Konkan, is a small race with blue-white, semitransparent wings, with two black isolated patches in the cell of the forewing, veins of both wings at the distal part with cuff-shaped figures, which are proximally widened as in *fumata* (74 b). Upon these follow at a less distance than in *fumata* a row of irregularly shaped submarginal patches, and there is an oblong subbasal spot at the submedian vein and a rounded patch between the median veins below the cell-wall. Markings of the cell otherwise as in *fumata*, but all the black spots smaller. Flies from January to the end of March at about 500—600 m. — **malabarica** *Moore* is a race which so closely approaches *lynceus fumata* in the strongly widened black spots and in its size that by earlier authors it was cited in the local lists of Indian butterflies as *lynceus*. It is, however, a subspecies of *jasonia*, although again *jasonia* must be regarded as only the western representative of *lynceus* from Anterior India and Ceylon. The butterflies are common, though they are said to be difficult to catch, as they fly high. They have, however, the habit of sailing slowly down from the tops of trees with the wings outspread, describing wide circles, sometimes approaching the surface of small mountain streams, where they hang for a time over their own reflection, and then return again to their tree-tops in as ghostly a manner as they appeared. According to Moore they do not seem to occur below 300 m., but ascend to 1200 m. The butterflies fly all the year round and are reported as occurring abundantly from February to April and again from August to November. Egg white, oval, with longitudinal rows of hexagonal grooves, fastened singly on leaves. Larva cylindrical with small head, black with legs of the same colour and four pairs of tentacles, broadly ringed with white with red lateral patches above and between the prolegs. Pupa yellowish, canoe-shaped, covered with black streaks and dots. Pupal stage 18 days. The larva when first hatched yellowish, but with black head and legs, eating holes in the middle of the leaf. Only when it becomes larger does it begin to attack the edge like other larvae and mostly remains on the underside of the leaf. The larva takes 20—25 days to feed up. As food-plant an Apocynaceae, Aganosoma cynosa, is known. Malabar. — **jasonia** *Westw.* occurs commonly on Ceylon, especially in the northern part of the island. In general somewhat darker than *malabarica*, more yellowish instead of white, with all the black markings enlarged. The black costal spot and the transverse band in the cell of the forewing always joined together. There are also ♀♀ with the under surface of both wings suffused with black-brown (**diabolica** *form. nov.*). Larva, which was first discovered in 1899, on a climbing plant allied to the genus Hoya, dark velvety black with broad pale yellow rings and ornamented with a lateral carmine-red spot on each segment from the sixth to the twelfth. Pupa unknown, but from the evident relationship to *malabarica* certainly very similar to that. Butterflies only a few feet above the ground, always in woods and by preference in the neighbourhood of water. In the late afternoon they are so tired or sluggish that one can go round among them, and even strike with the net, without the neighbouring butterflies being frightened away. They are said to ascend to 5000 ft. above sea-level. — **agamarschana** *Fldr.* inhabits Tenasserim, where it is said to be not rare in mangrove-swamps. It differs from *jasonia* in the much widened subapical cell-band and submedian band on the forewing, whilst the hindwing is scarcely distinguishable from that of *kanarensis*. In the Mergui Archipelago a larger, paler race is said to occur. — **arrakana** *subsp. nov.* is a local race with yellowish instead of whitish wings and with the apical spots of the forewing less sharply expressed and more confluent. Akyab, Arrakan. — **margherita** *Fruhst.* differs in the still darker ground-colour with much broader black distal border to the hindwing above. Margherita, Upper Assam, discovered by W. Doherty. — **cadelli** *Wood-M.* reaches the maximum in the progressive development of the black markings, which on the forewing only leave a very narrow white subapical area and a median area about the width of the thumb. The hindwing is bordered by a compact black band and both the cell-spot and the submarginal patches are almost twice as large as in *kanarensis*. Hitherto only known from Port Blair, where it flies chiefly in April.

kanarensis. *malabarica.* *jasonia.* *diabolica.* *agamarschana.* *arrakana.* *margherita.* *cadelli.*

H. hadeni *Wood-M.* (75 b) is perhaps only a branch form of *jasonia*, but as it is treated by all authors as a species, I follow their example. The white subapical area of the forewing is entirely suppressed by the deep black margin, which is almost uniformly broad on both wings. The species is very rare and has only been found as yet near Bassein at the estuary of the Irawaddi.

hadeni.

H. lynceus, a purely Macromalayan species, of which hitherto five local forms have been described. The name-type **lynceus** *Drury* probably came from Sumatra and is based on a ♀ with white-grey ground-colour. All the races belonging to *lynceus* are distinguished by a dense black dusting on the upperside of both wings, which in the allied species *logani Moore* is only feebly present, and a broad stumpy valve with only two ventral points and appreciable dorsal notch. All the forms, and also those of *logani*, bear a black spot at the subcostal of the hindwing, which is very dissimilar in shape, and varies in that it is sometimes only punctiform, but is occasionally continued as a narrow band to the costa. The costal area of the hindwing in the *lynceus*-group always bears two further black spots, a central one, which is placed free, and a subbasal which touches the cell-margin. *lynceus* is not rare on Sumatra and in the Deli Sultanate quite as common as in western Sumatra. According to Martin it is not found in the plains but at the outer slopes of the mountains, where the rainfall is larger than in the alluvial land, and

lynceus.

from the west of Sumatra it has only been sent to me from Padang Pandjang from elevations of about
reinwardti. 600—800 m. — **reinwardti** *Moore* is even larger and the roundish black patches on both wings are of great size, about one third larger than in *lynceus* from Sumatra. Perak and other parts of the Malay
niasica. Peninsula. — **niasica** *Fruhst.* on the other hand is a smaller race with the ground-colour more yellowish white instead of blue-black, which is particularly noticeable beneath, the wings more rounded, the black
favorinus. spots less developed, especially those in the cell of both wings. Nias. common. — **favorinus** *subsp. nov.* is the form which is called *fumata* at 74 b, and differs from Sumatran examples in the narrower wings and in having the ground-colour slightly inclined to grey-brown. The black patches smaller and especially those in the cell of the forewing more rounded. North Borneo, Kina Balu district and occurring at the
fumata. west coast of Borneo southward to Pontianak. — **fumata** *Fruhst.*, described from Amuntai and Banjermasin in South-East Borneo, deserves its name on account of having the upperside of both wings entirely suffused with dark smoke-brown, the underside being predominantly tinged with yellowish white instead of blue-white, as in *favorinus*. The dorsal part of the abdomen is likewise brown, instead of deep black, as in *lynceus* and *favorinus*, the roundish patches of both wings above dull brown-black instead of deep
stolli. black, as in Sumatra and North Borneo examples. — **stolli** *Moore* is inferior in size to all previously mentioned forms of *lynceus* and is of a lighter, grey-white colour throughout, which is a matter of course in a Javan butterfly, as all the species of this island, compared with their representatives from other districts, are distinguished by albinotic colouring, probably on account of the long dry season to which they are subjected. The black spots are analogous to those of *favorinus*, but especially on the forewing characterized by a more pointed and wedge-shaped instead of rounded form. Cell-patch of the hindwing mostly very small. *stolli* is rare both in the east and west of Java, on the other hand it was easy to catch
thalassica. 40—50 examples of the allied species *logani* in one morning. — **thalassica** *subsp. nov.* inhabits the Natuna Islands; it even surpasses *stolli* in its light ground-colour, but approximates closely in the arrangement of the markings to *favorinus*, with which it has also the size and wing-contour in common.

H. logani only differs from *lynceus* in the lighter ground-colour and the reduced brown or blackish scaling on the upperside of the wings, also as a rule it is somewhat less spotted with black, the knob-like widening of the submarginal patches of the hindwing more delicate, removed further proximed, and the rounded dots at the submedian of the hindwing show a tendency to obsolescence, as well as the black bordering at the discocellular of the forewing. But these are trifling differences, and have led Nicéville among others to accept *lynceus* and *logani* as merely forms of one species, between which no distinguishing line can be drawn. But nevertheless the valve shows characters of such decisive significance that the specific rank of *logani* cannot be questioned. The valve of *logani* is scarcely half as broad as that of *lynceus*, dorsally with a concave excision for more than half of its extent, and with a projecting distal part which is sharply dentate, much more recalling that of *d'urvillei* from New Guinea than that of *lynceus*. *logani* is like *lynceus* a purely Macromalayan species, and there are the following races to record:
logani. **logani** *Moore*, from the Malay Peninsula, very large, grey-white, with stronger black patches than **druryi**
druryi. *Moore*, which inhabits the alluvial plains of Sumatra and particularly in the west of the island is apparently much rarer than *lynceus*, with which it flies at the same time. This is only an unimportant modification of the preceding, ♀ somewhat more yellowish than Perak ♀♀ and with the black markings very
donovani. slightly reduced. — **donovani** *Moore*, described from Singapore, is perhaps only a dry-season form and is
diana. based upon an example of small size. — **diana** *Fruhst.*, described from a ♀ from the Batu Islands, is still lighter and more transparent than *druryi*-♀ from Sumatra. The black spots more reduced on both wings, the underside darker, the upperside on the contrary lighter grey. The cell of the forewing is traversed by 3 black longitudinal lines, which are separated basally, not forked. All the 3 lines connected by a rounded transverse spot shortly before the apex of the cell. Cell of the hindwing with 2 longitudinal lines, of which the upper one is forked shortly before the end of the cell. The round spot in the cell and the 3 spots at the costal margin more reduced than in the allied races. It is interesting to observe that the Batu Islands produce the light *logani*, the neighbouring Nias on the contrary exclusively the dark
alcine. *lynceus*. — **alcine** *Fruhst.* (74 b), easily recognizable by the almost completely obsolescent black spots in the cell of the forewing and above the submedian of the hindwing, has beneath a dull yellowish silky gloss. Only known to me from Pontianak, where it occurs together with *favorinus*. In South-East Borneo
virgo. occur ♀♀ with *alcine*-pattern, but like *fumata* lightly suffused with smoke-brown. — **virgo** *Fruhst.* is a race from northern Borneo with the general colouring more black-grey and the cell-spots somewhat stronger,
alceste. but the knob-markings on the submarginal part of the hindwing reduced. — **alceste** *subsp. nov.*, an extremely elegant light race from the Natuna Islands with entirely vitreous wings, without a trace of a yellowish or brownish tinge as in the local forms of the main island. — It is most nearly approached by
mevaria. the somewhat larger **mevaria** *subsp. nov.*, which again shows very well-marked black spots on both wings, but less developed than those of *lynceus stolli*. *mevaria* on the other hand is much smaller than *druryi* from Sumatra and has not hitherto been noticed, since also the *lynceus* race from Java differs, as mentioned above, from all the other *lynceus* forms by the whitish ground-colour being predominant. Not rare on Java and apparently on the whole the commonest *Hestia* of the island. Flies all the year round, but

especially in February—March, and occurs from the woods at the sea-coast up to about 500—600 m. — Finally, **hypata** *subsp. nov.* is a race of unusually small size, with the forewing strikingly narrowed and the black spots on both wings even less developed than in *alceste*. Sulu Islands, to the north of Borneo. On Palawan and also on the Micromalayan chain of islands beginning with Bawean and Bali no *Hestia* occurs, but whilst the genus *Ideopsis* extends to Palawan, it reaches its extreme limit on Java. *hypata.*

Group Nectaria.

H. hypermnestra is proved to belong to *Nectaria* by the rounded instead of elongate bag-shaped forewing and by the second subcostal vein arising far before the apex of the cell, and is a decidedly Macromalayan species. With the exception of Borneo, where it not only occurs in 2 local races but is also subject to the same colour-modifications as *Hestia lynceus*, it is very constant and scarcely varies in size and in the scheme of markings. — **hera** *Fruhst.* (74 c) is the Sumatran local form, occurring very sparingly in Deli Sultanate, but apparently not very rare in western Sumatra in the neighbourhood of Padang Pandjang (the so-called Bovenlanden). *hera* approaches **linteata** *Btlr.*, from Perak and Penang, but is apparently larger on an average, with the black patches enlarged and broader black stripes round the cell and along the veins, especially in the ♀♀, in which the cell-spot of the forewing is almost twice as large as in *linteata*-♀♀. *linteata* has been recently discovered in South Tenasserim also. — **belia** *Westw.* is a very rare race from Java, where in my experience it apparently only occurs in the neighbourhood of Palabuan Bay in the west of the island. In the course of many years I have only been able to obtain one pair, distinguished from *hera* by the more strongly expressed black spots on both wings and the specially thick black stripes on the radials of the forewing, while the ♀ has the ground-colour yellowish instead of pure white. — **vollenhoveni** *Fruhst.*, with the somewhat uncertain locality „Java", is known from a figure of Snellen van Vollenhoven's, which is noticeable for the smaller submarginal patches of both wings, the larger cell-spots and the darkened distal parts of the forewing. — **hypermnestra** *Westw.*, the race from southern and south-eastern Borneo and the Natuna Islands, occurs in 2 principal forms, which might be taken for separate species, but are connected by transitions. **belina** *Fruhst.* is the commoner, with both wings pure white above and beneath and hence very similar to *hera*, but with much smaller black wedge-spots and submarginal patches. *hypermnestra*, which might be taken for a rainy-season form, but which apparently occurs at the same time as *belina*, is as darkly scaled with smoke-brown as *fumata*, only the basal part, the upper end of the cell and the marginal area of the forewing have retained the original vitreous colour, producing a sharp contrast. The darkening, however, does not extend to the under surface, which is only somewhat more yellowish than in *belina*. It appears that only the ♀♀ show a tendency to the *hypermnestra*-colouring, and this also applies to **arbela** *subsp. nov.*, the geographical form of northern Borneo, which may be at once recognized by having the black patches on both wings more than twice as broad. ♂ white as in *belina*-♂, but with appreciable blue-grey sheen, ♀ more uniform, i. e. also tinged with smoke-brown in the distal parts of the wings. Abdomen more extended black on the dorsum than in *belina*. Kina Balu, apparently very rare. *hera.* *linteata.* *belia.* *vollenhoveni.* *hypermnestra.* *belina.* *arbela.*

All the forms of *hypermnestra* differ from the *lynceus-logani* group in having two isolated black rounded patches in the costal area of the hindwing and in the absence of the black streak at the subcostal vein.

H. leuconoë must be regarded as the most variable and widely distributed species of the genus. It has in common with *hera* the absence of the black streak at the subcostal and the two isolated black patches in the costal area of the hindwing, but differs from it in the still more rounded wings and the confluent submarginal patches of the hindwing, in which the harpoon-pattern of the *lynceus-hera* group disappears. The Philippines must be considered as the centre of distribution of *leuconoë*, whence it has reached the Sangir and Talaut islands in the south of the archipelago, singularly without extending to Celebes. Northwards it has reached the central Loo Choo Islands and entered northern Borneo (Sandakan) by way of Palawan. Along the western satellite-islands of Borneo it has crossed over to the Malay Peninsula, being known from Billiton and Banka, and having recently been discovered also on Engano and the Batu Islands. — **riukiuensis** *Holl.*, a characteristic butterfly of the Loo Choo Islands, represented in every consignment received thence. It is a summer species, flying principally in the second half of July and the first half of August. At the end of March and the end of August only worn specimens are met with. It is very variable and bears of all known races the smallest and at the same time the most rounded submarginal spots on the hindwing. In the ♂♂ the patches between the radials of the hindwing are also isolated, but in the ♀♀ they are confluent. ♂♀ on the upperside of both wings tinged with intensive dark yellow, also the under surface, especially that of the hindwing, yellowish. — **nipponica** *Fruhst.* (74 a) is a seasonal form or island race of uncertain locality, in which the yellow tinge does not extend beyond the cell of the forewing and the hindwing remains pure white on both sides. — **clara** *Btlr.* inhabits For- *riukiuensis.* *nipponica.* *clara.*

mosa. For decades only the type in the British Museum was known, but my collector recently discovered it near the south-eastern point of the island, at Taihanroku, in large numbers. It flies there from March to August and is very variable in pattern and colouring. No two specimens are alike and I have before me ♂♀ with the upper surface almost entirely white together with others in which it is almost entirely yellow. Frequently also only the forewing is yellow, the hindwing white. The submarginal spots of the forewing form in the ♂♂ a continuous band, so that in general the increase of all the black markings may

missilia. be regarded as a characteristic of *clara* in distinction from the Loo Choo races. — **missilia** *subsp. nov.*, essentially larger than *nipponica* and with the same tendency to albinotic colouring, but with the submarginal bands of the forewing widened as in *clara* and characterized by a subanal transverse band on the hindwing, which extends from the upper median vein nearly to the submedian. Loo Choo Islands, more

solyma. exact locality unknown. — **solyma** *subsp. nov.*, from Camiguin de Luzon, is the hitherto unnoticed race figured by SEMPER as *clara*, which differs from all the other forms in three black intramedian bands about 1 cm. broad, placed obliquely above one another. Both wings are white, only the base slightly tinged with yellowish, and the submarginal markings of the hindwing, which is otherwise spotted as in

leuconoë. *nipponica*, very narrow. — **leuconoë** *Eschsch.*, the name-type from Luzon, is best compared with *esanga* (74 a), from which it differs on the forewing in the less developed black median bands, but more extended subapical spots and hence narrower white distal area. The hindwing shows insignificant black markings. The ♀ is only distinguished from the ♂ by more rounded wings and somewhat larger spot in the middle of the cell on the hindwing. According to SEMPER *leuconoë* flies all the year round, and examples exactly analogous to the name-type are only met with in southern and central Luzon, whilst at the east coast and in North-West Luzon appear already transitions to *solyma*, which in its turn leads over to *clara* from Formosa and *riukiuensis* from Loo Choo. — As a rule *leuconoë* from the southern Philippines are very

obscura. dark and on this account the race from South-East Mindanao has received the name **obscura** *Stgr.* In these the yellow shade which in *leuconoë* extends as far as in *clara Btlr.* is restricted to the basal region of the forewing, the white zigzag area of the marginal part of the forewing is suppressed by broadly diffuse black-brown subapical wedge-spots, the cell and all the veins are densely covered with black, the

samara. upper surface of the wings in the ♀♀ moreover powdered over with blackish. — **samara** *subsp. nov.* is a race in which the melanotic colouring has its maximum development, the yellow tinge completely dis-

moira. appears and the vitreous patches are still more reduced than in *obscura*. Island of Samar. — **moira** *subsp. nov.* on the other hand is a form which like those that SEMPER mentions from the island of Siargao again approaches *leuconoë* from Luzon, even recalling *solyma* in having the intramedian patches of the forewing in part isolated, in part only slightly connected by fine streaks. But *moira* differs both from *solyma* and *leuconoë* in the broader subterminal black bordering of both wings, and the ♀♀ decidedly approach *obscura* in the broad-margined veins and large, long, pointed wedge-spots of the hindwing. Island

princesa. of Bazilan to the south of Mindanao. — **princesa** *Stgr.* is a very large form with much abbreviated cell-

esanga. spot on the forewing and large, mostly isolated wedge-spots on the hindwing. Palawan. — **esanga** *Fruhst.* (74 a), with strikingly light ground-colour, is characterized by very large black median spots on the forewing and large round cell-patches on the hindwing. The yellow tinge is not very pronounced and the underside of the hindwing differs from all known forms in the large rounded spots in and below the cell. The white marginal area of the forewing extended as in *clara* by the reduction of the subapical row of

godmani. spots. Talaut Islands. — **godmani** *Oberth.*, from Sangir, is a very large, strikingly light race with small

nigriana. black spots. — **nigriana** *Sm.*, described from a pair from the Sulu Island Tanganac off the north coast of Borneo, differs from *leuconoë* in the more rounded wings; the distal third of the wing is darker, the marginal and submarginal whitish patches and irregular areas begin to disappear, hindwing intersected by darker brown veins. I suspect that examples from Sandakan (North Borneo) belong to *nigriana Smith*, they are distinguished principally by the narrowed, elongate-oval subapical streaks and almost entirely

chersonesia. black apex of the forewing and hence differ essentially from **chersonesia** *Fruhst.*, which is noticeable for an especially broad white submarginal area, equally developed on both wings. Also the black dentate bands are quite uniform, the subapical wedges not being placed so near to the distal margin as in *nigriana* and *leuconoë*. Malay Peninsula, Lingga Archipelago, Banka, probably also Billiton. — But whilst *chersonesia*

natunensis. shows a deep yellow tinge, in **natunensis** *Snell.* this disappears completely from the basal half of the forewing and the ground-colour is lighter than in *leuconoë*, according to its author. Natuna Islands, unknown

javana. to me in nature. — **javana** *Fruhst.* is about intermediate between *chersonesia* and *nigriana* and bears very large black subapical streaks on the forewing, which restrict the white submarginal area, though still leaving it more room than in *nigriana*. Hindwing with small black cell-spot and very distinct dentate band. The round spot between the middle and lower median of the forewing is absent (perhaps only an individual variation, but very noticeable as it is present in all my many *leuconoë*). North-West Java, type in coll. PAGENSTECHER, Wiesbaden. The form has only once been found, and one might be tempted to question the locality, if *javana* were not actually different from all the allied races. However, this *Hestia* may formerly have been more common on Java, but through the constant increase of population and consequent inevitable destruction of the forests for the purpose of cultivating rice, sugar-cane and

coffee, the butterflies have been deprived of their head-quarters in their favourite quiet woods. — **vedana** *Fruhst.* (74 a) inhabits the Batu Islands near Nias off the south-west coast of Sumatra. Scheme of markings somewhat as in *obseura* from Mindanao, but the ground-colour purer white, the subapical area somewhat more extended, upper surface of both wings without black-brown or velvety brown tinge. *vedana* is, nevertheless, one of the darkest forms of *leuconoë*. Of the original yellow colouring of the wings it only retains a slight tinge, inclining to greenish on the forewing and a delicate yellow shade on the basal half of the hindwing. Upper surface of the forewing: The upper part of the cell and the areas between the cell-wall and the submedian densely scaled with black. The black patch at the submedian the size of a pea, distally strongly pointed. The black transverse band in the cell unusually broad. The black distal border very broad, hence the arrows of the postmedian band confluent near the radials and at the anal angle. — **enganoensis** *Doh.* differs from *vedana* principally in the broader black markings, which is particularly noticeable on the underside of the hindwing. Engano. Flies in April. *vedana.* *enganoensis.*

H. electra, hitherto only known from Mindanao, where it occurs in two local races, differs from *leuconoë* chiefly in the apex of the forewing projecting as in *lynceus*. Both wings suffused with yellowish to the distal margin, the black cell-spot of the forewing does not extend to the costal border, nor posteriorly to the cell-wall. — **electra** *Semp.*, of which only 5 ♂♂ and 4 ♀♀ have yet been brought to Europe, comes from Taganito in East Mindanao, where it was observed from the end of May to the beginning of June. The ♀ bears more extended black spots on both wings than the ♂ and approximates more to the *leuconoë*-type. — **harmonia** *subsp. nov.* is a local race discovered by Dr. Platen in South-East Mindanao, with the upper surface of both wings essentially darkened and still broader black bands. *electra.* *harmonia.*

H. blanchardi inhabits Celebes and its satellite islands in a series of well separated races. On Muna and on the Tukan-Besi Islands off the south-east of Celebes much darkened forms occur, such as are also known from the Andamans, Pegu and New Guinea. All the forms of *blanchardi* have in common a broad valve, deeply excised distally and armed with 10—12 irregular serrate points. In the *idea*-group the proximal costal patch is much reduced, in the races from Celebes and the neighbourhood it is completely absent and the distal patch sometimes connects the costal and subcostal as a diffuse spot. The butterfly is everywhere common and in South Celebes they even frequented the villages, where they fluttered round the huts of the natives, hiding themselves in the bamboo thickets at night. Larva ringed with black and yellow, above the spiracles a broad, dull yellow lateral band, which is interrupted by the black transverse bands. Head, venter and legs black, as well as the filiform appendages on segments 2, 3, 5 and 11. — **marosiana** *Fruhst.* (75 c) is characterized by a brown-green tinge, which sometimes covers the surface of both wings and is most distinctly present in the ♀♀. The intraneural arrows very long and slender, only on the forewing sometimes widened. The black cell-spot of the forewing never reaches the costal margin. Both sexes show in side-light a bright violet reflection. South Celebes, especially the waterfall of Maros, where they often rested in copula on twigs in the woods and the pairs could be easily taken with the hands. Sometimes also they flutter round tall forest-trees, as I observed especially in the rainy season (January, February), when they are very rare, whilst from May to November they occur in great abundance. Valve with one very large dorsal tooth, whilst in **blanchardi** *March.* (= tondano *Vollenh.*) the distal part is uniformly dentate. — *blanchardi* is a lighter form, with the distal part of the cell and the median area of both wings pure vitreous white, the brown tinge confined to the basal part and the marginal area, the cell-spots much reduced. Under surface almost pure white, the intraneural streaks thin, without a trace of cuff-shaped widening, cell likewise only quite finely striped with brown. North Celebes, apparently rarer than *marosiana*, as it is never brought to Europe in any large numbers. Also at Toli-Toli I took but few examples in November—December. — **garunda** *subsp. nov.* I have hitherto thought that the East Celeban race should be united with *kuehni* from Bangkai. But as according to Kühn's figures (Iris 1887) the larvae differ considerably, I propose the name *garunda* for the form from the whole east of the island, which is much lighter especially in the ♀. The principal difference from *marosiana* and *tondana* consists in the deep black instead of brown intraneural stripes and the more sharply defined distal border of both wings on a lighter ground. On the under surface of the forewing the brown dentate band is likewise replaced by a black one, the awl-shaped markings of the hindwing are much more delicate. Collected in Central Celebes in July and August by Doherty, at Bonthain by Ribbe and at Tombugo by Kühn, everywhere common. Larva according to Kühn varying locally, but in general similar to that of *malabarica*. Judging from a drawing of Kühn's, the larva of the East Celebes race bears on all the segments lateral red patches of equal size above the stigmata, but that of the island of Bangkai only six large anterior and posterior patches and two small dot-like ones in the middle of the body. Moreover in the latter the black rings predominate, in *garunda* the white ones. Pupa metallic golden with dark brown margins to the wing-cases and the abdomen, as well as rows of black dots. In January the caterpillar is very common, especially on rainy days. — **djampeana** *Fruhst.* (75 c) closely approaches the preceding and differs in the still more pronounced black cell-spots, which in ♂♀ reach both the costal margin and the cell-wall, the intraneural stripes are broader, the cell-spot is nearly *marosiana.* *blanchardi.* *garunda.* *djampeana.*

always confluent with the black patch at the discocellular and the dentate band of the forewing is broader
phlegeton. beneath. Tanah-Djampea. — **phlegeton** *Fruhst.* (75 c) is distinguished by the broad, deep black distal border of both wings, the much darkened costal margin to the forewing and the extended irregular transverse band in the cell of the forewing. The black border is absent on the under surface, but it shows through from above, the stripes of the hindwing bear cuff-shaped markings, which are united into a
munaensis. continuous band on the forewing. Tukan-Besi Islands, to the south-east of Celebes. — **munaensis** *Fruhst.* approximates to the preceding, but the marginal border is less dark and not so sharply defined, on the other hand on the forewing appreciably broader and as on the hindwing more uniformly decreasing. Island of Muna near Buton. Only 1 ♂ known, which was captured by Dr. SARASIN on the 26th December 1895 and is in the Museum at Basle.

H. idea, one of the best known species and a characteristic butterfly of the Moluccas, occurs in great abundance particularly on Ceram. RIBBE collected there in a short time over 2000 examples. The species differs from *blanchardi* in an unimportant but constant character, namely the occurrence of large wedge-shaped submarginal patches on the forewing, frequently united into a band. Also as a rule the black dot in the middle of the costal area of the hindwing beneath is absent. Valve of more irregular outline distally, and deeply sinuate in the central part (*blanchardi* is here concave), the upper tooth more
novella. obtuse than in *blanchardi*. — Under the name **novella** *subsp. nov.* (75 b) are united three only slightly
idea. differentiated races from Banda, Goram and Ceram, which only differ from the long-known **idea** *Clerk.* (= agelia *Godt.*) in the narrower black transverse bands in the cell of the forewing and the somewhat smaller black markings. *idea* is one of the commonest butterflies on Amboina and Saparoea.

All the following races of the *aza-* and *d'urvillei*-group have in common a mostly narrow black distal border, which is composed of the confluent cuff-shaped figures of the intraneural streaks of the hindwing and encloses round white dots.

aza. **H. aza** *Bdv.*, from Buru, is very similar to **hertha** *Fruhst.* (74 b), from Sula-Besi, but
hertha. essentially larger, with stronger wedge-spots on both wings and the marginal bands nearly twice as broad. Moreover the spot in the cell of the forewing and the stripes in the cell of the hindwing
sula. are more distinct resp. broader. *aza* is rather rare on Buru. — **sula** *Nicév.* is somewhat larger than *hertha*, apical part of the wing with more isolated, i. e. narrower strigae, the marginal and submarginal markings narrower. The spots on the underside of the hindwing more strongly margined with black and the costal patch much larger than in *hertha*. Sula Mangoli. Valve essentially different from that of *idea*, narrower, more irregular, without central sinus and only armed with 2 very pointed teeth of
theia. equal length. — In **theia** *Fruhst.* (74 c) the wedge-spots of both wings are united with the black marginal band and shorter than in *aza*. *theia* is very common on the Northern Moluccas and passes under the name *agelia*, which, however, is a synonym of *idea*. Valve similar to that of *hertha*, but with only one very long
obiana. dorsal tooth and two short protuberances below it. — **obiana** *Fruhst.* (74 c) is an unimportant local form, only differing from *theia* in having the black colouring somewhat reduced. The transverse cell-spot of the
vosseleri. forewing in particular is narrowed. Obi, not rare. — **vosseleri** *Fruhst.* is smaller than *theia* and *obiana* and its forewing has the cell completely blackened and the black patches twice as broad. Under surface of both wings with very thick black veins, the white submarginal dots very small, partially absent. Locality unknown. Perhaps only a melanotic aberration of *theia*.

H. d'urvillei forms the natural continuation of the preceding species in the Papuan region, where, however, it reaches the limit of its range in the western part of Dutch New Guinea and the islands in Geelvink Bay. All the races belonging to it, of which, however, we only know a small part, have in common a broad black transverse band on the forewing and a strongly expressed black distal border on the hindwing, the extent and development of which vary according to the locality. The valve is characterized by a deep dorsal sinus, and a relatively narrow distal extremity, projecting more than in other species and provided with only 2 equally large teeth. A forest species like all the *Hestia*, and the
d'urvillei. Key race is said to fly about among the trees at a great height above the ground. — **d'urvillei** *Bdv.* (75 a). The name-type only occurs on Waigeu, where it is apparently rare, but as BOISDUVAL erroneously
nike. located it in New Guinea, the much darker **nike** *Fruhst.* (75 a) from Dutch New Guinea passes under this name in collections. *nike* differs from *d'urvillei* in the materially widened discal band, the darkened apex and the reduced white marginal dots on the forewing. Moreover, the intraneural streaks on the hindwing are more pronounced, united with the black distal border for a great distance. Dorey, Arfak Mountains
metris. and Kapaur. — **metris** *Fruhst.* (75 b), from Salewatti, is the darkest extreme of the species. The cell of the forewing is almost entirely blackened, the submarginal streaks are broadened and on the hindwing the black-brown border extends to the middle of the wing, moreover the cell-stripes of the hindwing are
hemera. stronger. — **hemera** *Fruhst.* from the island of Biak. The bands of the forewing are again narrower than in *nike* and *metris*, but still somewhat broader than in *d'urvillei*, and the marginal region of the hindwing is likewise essentially darker than in examples from the main island of New Guinea. Hence *hemera* forms

to **aruna** *Fruhst.* (75 a) from the Aru Islands, with extended, pure white distal area on the forewing and the black margin broken up into separate spots and with the cell-stripes wanting on the upperside of the hindwing, thus approaching **keyensis** *Fruhst.* from the Key Islands, which is characterized by very narrow black transverse bands, a black spot at the apex of the cell and short, awl-shaped interneural streaks. Moreover, the marginal band of the forewing is even more broken up than in *aruna*. Not rare on Great Key. *aruna.* *keyensis.*

4. Genus: **Euploea** *F.*

The genus *Euploea* with about 140 species constitutes the most extensive Danaid-group of the eastern tropics. They accord well together in their similar facies and the uniform style of colouring in spite of the difference in the shape of the wings and in the markings of the upperside. Ground-colour mostly brown to deep black, only in a few species of the Papuan region changing to violet or brown-white. Larva, as far as known, on Ficus and other plants with milky sap, either with 3 pairs of fleshy appendages (*Macroploea*) or 4 pairs of tentacles (*Crastia, Trepsichrois*). Pupa thick, bell-shaped, sometimes profusely ornamented with gold and silver.

One of the principal characters of the imagines consists in the concave inner margin of the forewing of the ♂♂ in most species, which is usually associated with shorter or longer glossy scent-stripes. The hindwing appears as if polished at the costal margin in the ♂♂ (scent-patch) and mostly possesses a cavity which is covered with mealy scales, often modified into a thick pile (*Trepsichrois*).

The androconia are mostly club-shaped or elongate, but consist in *Trepsichrois* of long, thin, wavy threads.

The anal pencils are different in every species and are projected by the butterflies by the pressure of an apparently light fluid which quickly fills in the stylus and presses out the hair-pencil. In some species this process is accomplished slowly; it is most rapid in *Trepsichrois*, which protrudes its apparatus in nervous haste and draws it in again, every time emitting afresh that acrid, peculiar smell, which also characterizes the abdomen of the female.

Some species do not emit a nauseous, but a mildly aromatic smell, such as the large, dull blue *camaralzemau*, which like all its nearest allies possesses at the same time the shortest pencils, which can only be projected with difficulty.

Satpinx bears two rosettes of hairs placed one above the other, and it needs a fairly strong pressure to project the inner (upper) tuft, which moves up and down as a small yellow ball in the stylus, but cannot be protruded by the specimen, so far as I was able to observe in Siam. The double tuft of hairs is most developed in *midamus*, which is even able to protrude the supposed weapon all at once. *Eupl. rhadamanthus* has the rosette light grey instead of yellow. Nicéville compares the anal pencils with holy water sprinkling-brushes; they are always stretched out perpendicularly to the plane of the body. Judging from my preparations of *Salpinx viola*, the anal pencils are placed laterally in a throat-shaped, oval opening with somewhat swollen rim and apparently exactly in the middle of the seventh and eighth tergite, in pairs. Their radiating hairs look to the naked eye like black dots, but under the microscope they are long, thick tufts of hair.

The first subcostal always arises before the end of the cell, nearly always free, only occasionally in a few *Calliploea* coincident with the costal. In all the groups subcostal 2 arises at the end of the cell, a character which in contrast to *Danaida* remains very constant. Upper discocellular always present as in *Hestia*, although in some species only very short. The tertiary sexual characters on the upperside of the wings are very variable and are scarcely sufficient to separate the species, but have nevertheless led earlier authors to erect over 25 genera.

But whilst among the Danaids some groups can be separated structurally, in the Euploeids in spite of the closest investigation not the least difference can be recognized, as they remain altogether constant in the neuration. At the same time some of the tertiary sexual characters are useful as distinguishing marks for the separation of series of forms, which, however, must always be regarded as only groups, without the slightest claim to subgeneric rank, such as must be accorded to some of the divisions of the Danaids.

The differences in the anal pencils might offer a better basis for subdivision, but at present we are only able to study them conveniently at the live specimens, and hence they are still practically useless.

In absolute contrast to the Danaids, and even to most other genera of butterflies (with the exception perhaps of the Brassolids), the clasping organs are of strikingly uniform structure. Form of the uncus in 16 species and forms examined not recognizable at all. Valve broad, distally shaped like a bird's head, the tip chitinized, with long shaggy hair all over, very slightly widened or narrowed according to the species, and only covered with teeth in a few species (*aegyptus*, *leucostictus*). Saccus likewise only varying slightly in shape. Penis unusually long, membranous.

Almost all the Euploeas have in common a nauseous smell, which in *mulciber* reaches the maximum of repulsiveness for the human sense of smell. Some species smell of mignonette, others again of honey and

vanilla. The smell is in general dependent on the food and we may assume that it probably protects the Euploeas from insectiverous attacks. It is true that Piepers observed on Java that birds caught and devoured living Euploeas in his garden in Batavia, which to some extent would prove the protection to be of less vital importance.

In general the Euploeids are fond of flowers and sometimes occur in great abundance. In Siam I observed in a half dried-up wood a positively ghostly swarm of the butterflies, hundreds of which were resting in the underwood in rows one above another, and when anyone passed through the wood they rose up in alarm, fluttering about in confusion like bats, but in a short time settling down again.

In Hong-Kong at the end of October I saw Euploeids clinging to the fiery red flowers of Hibiscus and occasionally I met with them in Siam in the dry season on rocks over which water trickled. In Tonkin *mulciber* frequented places on the road which were fouled with urine, also I repeatedly baited it with rags soaked in excrement, which often attracted dozens of individuals.

On the continent of India the first brood appears already at the end of February, when the Euploeids afford a charming spectacle in the forests, as they describe light curves with their mysteriously iridescent ultramarine pinions or move forwards in a straight line, only to dip down again afterwards as if to display anew their beautiful dress with complacent satisfaction.

They are all in the habit of flying from 9 o'clock till towards midday, then disappearing and only coming out again in large numbers when the sun is nearing the west.

Sexual dimorphism is more pronounced in the Euploeids than in the other Danaids, and has even in one case led to the erection of two genera for the two sexes of one species. Horodimorphism on the other hand only occurs in rare cases and even then not to any very marked extent. Euploeas are even more than *Danaida* attached to the plains. In the Malay Archipelago no species ascends above 2000 m; and even in the Himalayas only *core* and *mulciber* reach 7000 ft. All without exception love the moist, warm tropical climate, but they are never found at dry localities either hot or cold; they are fond of small, isolated woods in the midst of cultivated tracts, as well as the edges of woods. A large number prefer the wooded sea-shore and disappear when human activity disturbs the quiet of the woods, but others again fearlessly sail about in open places in the large towns of South Asia. Starting from two centres of distribution, continental India and New Guinea, the number of species rapidly decreases on the remote island groups. Northwards they are still numerous on Formosa, but on the Loo Choo Islands they become extremely rare.

In spite of the abundance of the individuals the complete life cycle is only known of extraordinarily few species. We may also still look for the discovery of many species and numerous island races, especially on the satellite islands of Sumatra, Celebes and New Guinea.

Group **Crastia** *Hbn.* (1816).

Larva with four pairs of fleshy appendages.

With recurrent vein in the cell of the forewing at the origin of the lower radial. Scent-patch of the hindwing absent. Anal pencil short, without double hair-pencil.

Subgroup a. Forewing without distinctly visible sexual stripes (*Nipara, Oranasma, Patosa, Sarobia, Vadebra, Lontara, Gamatoba, Menama, Tronga, Sabanosa, Adigama* [Moore 1883]).

E. climena is an inconspicuous species, distributed from the Nicobars and Engano to the Moluccas, at the same time one of the smallest known, but occurring in colour-variations according to the locality. A
simulatrix. pronounced inhabitant of the coast-lowlands and of remote islands. — **simulatrix** *Wood-Mas.* Above dark brown, the margins broadly lighter, ♀ throughout paler than the ♂, both wings in the ♂ unspotted above, only the ♀ bears a small violet-whitish costal patch. Under surface of the forewing as in all the other forms with a violet-white dot before the apex of the cell, three blue transcellular spots and occasionally some subapical patches. Hindwing likewise with a punctiform spot, and three to four beyond the discocellular. Nicobars.
enganensis. Very rare, unknown to me in nature. — **enganensis** *Doh.* (81 e). Above fine deep velvety black with a pure white dot before the end of the cell in the ♂♂ and three in the ♀♀. Hindwing, particularly that of the ♀♀, with distinct submarginal spots and a row of subterminal dots on the underside. The commonest *Euploea*
sepulchralis. of Engano, I have received over 100 examples taken in April, of which, however, very few are ♀♀. — **sepulchralis** *Btlr.* is a somewhat smaller and paler race, which occurs very commonly in the neighbourhood of Batavia. Hindwing of the ♀ with appreciably lighter, brownish white patch, which is somewhat more extended beneath.
terissa. West Java, Island of Bawean. — **terissa** *subsp. nov.* is the local form of Eastern Java, where it ascends to about 500—600 m on the spurs of the Tengger Mountains. Above it always shows a distinct white area on the hindwing, which beneath reaches to the apex of the cell, in extreme examples even occurring as a pure
elwesiana. white marginal area, so that there is a certain similarity on the hindwing to *E. euripon* (86 e). — **elwesiana** *Nicév.* is a smaller race, originally described from Bali, where, as well as on Lombok and Sumbawa, it is nowhere rare up to about 700 m. Hindwing with somewhat less white than *terissa*, under surface with almost
macleari. obsolete dots beyond the cell. — **macleari** *Btlr.* likewise resembles *terissa*, but is even smaller than *elwesiana*.

Only a few examples known. Christmas Island, to the south of Java. — **neptis** *Röb.*, from Flores, shows a distinct light patch, approaching *bandana*, on the forewing, on which, especially beneath, a light brown submarginal area is perceptible, the first traces of which are visible in *elwesiana* from Lombok. Hitherto only a few ♂♂ known. — **climena** *Cr.*, the name-type from Amboina, varies much in size, the darkest examples, probably belonging to the rainy-season form, have the forewing 46 mm in length, whilst ♂♂ and ♀♀ of **zinkeni** *Fldr.*, collected in August, only measure 36 mm and bear on the hindwing a whitish submarginal band, visible also above, which, however, is likewise always slightly indicated beneath in *climena*. Both forms bear very large white submarginal dots on the hindwing. — **melina** *Godt.* is a form without subapical dots on the hindwing beneath; likewise described from Amboina. Amboina, Saparoea, Ceram, very common. — **dohertyi** *Holl.* is a smaller race, as a rule without perceptible whitish or yellowish submarginal area on the hindwing beneath. Not rare on Buru. — **bandana** *Fruhst.* (82 d) forms a kind of transition to *eurypon* (86e), only the submarginal bands on both wings above are not white, but light brown, but beneath become distinctly white. Banda, not rare. — **sobrina** *Röb.* has the colouring of the under surface in common with *bandana*, but differs above in the darkened forewing, which shows a retrogression to *climena*, whilst the white marginal area of the hindwing indicates its relationship with *eurypon*. Goram. — **valeriana** *Fruhst.*, from the small island of Roma between Wetter and Dammer, to the north-east of Timor, shows a sharply defined quadrate white spot on the distally light, basally dark brown forewing and a whitish submarginal band on the hindwing above, distally changing gradually into brown. On the under surface the white patches are reproduced. — Finally, **eurypon** *Hew.* (86 e) constitutes the albinotic extreme of the entire series of forms, with broad, pure white marginal area on the hindwing, the brown ground-colour completely suppressed distally. On the under surface the white area extends to the apex of the cell. Common on all the Key Islands in October and November, but occurring in single specimens all the year round. — **vicina** *Fldr.* is an allied race of somewhat smaller size and with the white bands less developed. Aru Islands, unknown to me in nature. — **doretta** *Pagenst.* I think from examples in my collection should be referred to *climena*, from which it only differs in the more rounded wings, the rather dark and more unicolorous hindwing and above all in the smaller blue-white discal dots on the under surface. Bismarck Archipelago, New Lauenburg. — **mangoensis** *Btlr.* is a further, rare race of somewhat smaller size. Micronesia. — **misenus** *Misk.* Upper surface brown-black, hindwing with lighter brown anal angle and a submarginal row of only faintly indicated whitish dots. Under surface somewhat less dotted in *climena*. Described from Cape York, wanting in my collection.

neptis. *climena.* *zinkeni.* *melina.* *dohertyi.* *bandana.* *sobrina.* *valeriana.* *eurypon.* *vicina.* *doretta.* *mangoensis.* *misenus.*

E. lugens *Btlr.*, distinguished by the narrow, oval hindwing, appears to replace *climena* on New Guinea. — **smithi** *Moore* is an allied form, only known to me from the description; somewhat larger than *lugens*, forewing with white submarginal spots, of which the two lowest are equal in size, and a submarginal row of small white dots. Under surface as above, forewing with a small blue-white cell-spot and five insignificant discal patches, an arrangement which is repeated on the underside of the hindwing. New Guinea, without exact locality.

lugens. *smithi.*

E. palmedo *Doh.*, which its author compares with *lewa Doh.* (85 a), is an ally of *climena* and *compta* and similar to *adorabilis Fruhst.* (86e). Forewing dark brown, distally paler, with a quadrate white subapical spot, which is divided by three thin dark veins. Hindwing above the subcostal vein nearly white, the median part brown, the distal and subanal region appreciably lighter. Forewing with a blue-white cell-spot and two discal patches, also traces of stripes between the lower medians. Hindwing likewise with cell-dot and six very small circumcellular dots, as well as a row of 6—7 larger spots in the yellowish discal area. Only one or two small submarginal dots. Rare in the interior of Sumba. — According to Doherty a similar species occurs on Sumbawa, with the margins broadly whitish and without the white subapical spot on the forewing (possibly *climena elwesiana Nicév.* is meant). — **adorabilis** *Fruhst.* (86e), which I formerly united with *compta Röb.*, I now unhesitatingly refer here as a further Micromalayan race. Upperside as in the figure, with vivid dark blue-violet reflection. Underside differing from that of similar races of *climena* in a row of sharply expressed subterminal dots and a complete row of white submarginal dots, which latter are placed in quadrate white areas, proximally bordered with brown-violet. Wetter, very rare, only 2 ♀♀ in coll. Fruhstorfer.

palmedo. *adorabilis.*

E. compta, an extremely handsome species, inhabits all those eastern islands of the Timor and Timor-Laut Groups on which *climena* does not occur, and may possibly be specifically identical with the *climena*-series. The most essential difference from *climena* consists in three strongly expressed white patches on the forewing and a postdiscal band of six very large white spots on the hindwing, differing in size. — **virudha** *Fruhst.* (80 d), of which we figure the upper surface, is the largest race. The underside only differs in five obliquely placed, small white subapical dots on the forewing, 3 pairs of white subterminal patches in the middle of the wing and the light violet cell-spot and discal dots of both wings, which are arranged as in *climena*. Dammer. — **compta** *Röb.*, described from a ♀ from Timor-Laut, is somewhat smaller, but has still more extended and purer white markings on the upper surface of both wings. Very rare on Timor-Laut, where according to the collec-

virudha. *compta.*

eucompta. tor Rouyer the natives asked 20 Dutch florins for each example. — **eucompta** *Fruhst.* completely resembles *adorabilis* on the forewing above, except that the wing is narrower and the subapical white area less sharply defined. The white transverse band of the hindwing less developed than in *compta*, the three subanal white patches of the forewing absent. Beneath the violet discal dots are much less developed. Babber, very rare; only 2 ♂♂ in coll. Fruhstorfer.

eboraci. **E. eboraci** *Gr.-Sm.*, described from New Pomerania and New Lauenburg, is a very rare species, which is unknown to me in nature; forewing brown with a submarginal row of four indistinct bluish white dots before the apex. Hindwing with a large patch before the apex of the cell and with a curved series of seven similar transcellular spots and a submarginal row of small whitish dots, which decrease from the costal margin to the anal angle.

lacon. **E. lacon** *Gr.-Sm.*, likewise recorded from New Pomerania, is said to be darker brown than the preceding, forewing suffused with purple and bearing purple spots before the apex. The under surface very similar to *eboraci*, with larger spots than on the upperside.

malaguna. **E. malaguna** *Ribbe*, judging from a figure of Pagenstecher's, is allied to *doretta*, and is a small, very rare species, distinguished by blue reflection on the upper surface. Beneath darker than *doretta*, with the antemarginal row of dots wanting. From the interior of New Pomerania.

oceanis. **E. oceanis** *Doh.* (81 c), of which its author says that it is difficult to place systematically, has no near allies either in the Macromalayan or the Micromalayan region. In the disc of the forewing above there are sometimes obscure grey-violet patches, which are absent in the ♂ figured. ♀ of light brown instead of black colour, with a row of six elongate, pointed, whitish violet transcellular streaks and a costal streak. On the hindwing the markings of the underside show through. The latter is copiously spotted with white, both wings bear two rows of white submarginal patches and a punctiform spot before the apex of the cell. Engano.

honesta. **E. honesta** *Btlr.*, described from the Solomons without more exact locality, somewhat resembles *oceanis* in habitus, but the dark brown forewing bears two violet stripes above the submedian, a large whitish violet spot before the apex of the cell and 5—6 discal patches of the same colour, of which some are elongated and some rounded. Hindwing above without markings, but beneath as the forewing, only adorned with
faisina. light blue patches. — **faisina** *Ribbe*, from Bougainville, is a race in which the hindwing becomes somewhat lighter distally. Markings as in *honesta*, only somewhat more pronounced in the ♀♀.

E. spiculifera closely resembles *pydna* (80 c) and is one of the rarest species of *Euploea*. Four island
dromius. forms are known: **dromius** *Gr.-Sm.*, from Halmaheira, according to its author with a white spot before the apex of the cell, three white spots beyond the cell, a costal dot and two minute subapical dots. Hindwing likewise
pydna. with cell-patch and 5 patches beyond the cell. — **pydna** *Fruhst.* differs from *spiculifera Moore* from Amboina in its smaller size, its darker wings and the lighter violet-white dots on the forewing. *pydna*, however, has only 1—2 white apical dots, but no submarginal dots. The under surface on the other hand is much more copiously dotted on the disc of both wings. The hindwing bears a double submarginal row of white dots and also 5 small white circumcellular spots. In addition a distinct submarginal row of violet-white dots traverses the entire forewing. ♀: before the apex of the cell a very broad white dot; above the cell 2 white costal streaks, beyond the cell 1 white streak and 1 round dot. Further a submarginal row of 5 white dots, of which the middle ones between the radials are scarcely visible. On the hindwing 3 obsolete white dots. Under surface as above, but all the spots much enlarged; in addition there is a double submarginal row of violet-white dots.
spiculifera. Obi, very rare. — **spiculifera** *Moore* (on pl. 80 c as *pydna*) differs from *pydna* in its larger size, a very large whitish patch before the end of the cell on the forewing and in the submarginal spots, which as a rule stand
praxithea. out even more than in the figure. Apparently very rare, on Buru. — **praxithea** *Fruhst.* is a form from the South Moluccas, which in size is intermediate between *pydna* and *spiculifera* and only shows very small cell- and submarginal dots on the forewing; but beneath *praxithea* is distinct from the two previous subspecies in the entire absence of dots on the hindwing. Amboina, only 2 ♂♂ in coll. Fruhstorfer.

radica. **E. radica** *Fruhst.* I possess no *Euploea* from the Moluccas with which I could compare this species; it most nearly approaches *honesta Btlr.* from the Solomon Islands. The under surface resembles *Stictoploea* in having a submarginal, lighter brown area. The species is easily described, the upperside being entirely black with a lighter costal area on the hindwing. Under surface: forewing with a white spot before the end of the cell and 3 circumcellular, whitish spots, of which the upper two are round and somewhat violet and the lower one oblong and more yellowish. Hindwing with a violet dot before the end of the cell and 6 small violet circumcellular patches. The basal part of both wings is black. The forewing is costally and anally light brown and the hindwing, as already mentioned, is characterized by a light submarginal area. The ♀ is as the ♂, ex-

cept that there is a long white streak on the underside of the forewing between the 3rd median vein and the submedian. Obi, only 2 ♂♂ and 1 ♀ known.

E. leachi, a very interesting species, hitherto only known from Celebes, where it occurs in two local races. — **leachi** *Fldr.* (86 c), in the south of the island, taken by me at the waterfall of Maros in November, *leachi.* has the upper surface of the ♂ entirely black, whilst the ♀ is basally dark and distally light brown, and bears a row of distinct white submarginal spots and an inconspicuous row of small antemarginal dots on both wings. The under surface, which is figured, is still more copiously decorated with white. On the underside of the ♂ all the punctiform spots of the ♀ are strikingly reduced, only in the median area a series of brown, only slightly indicated intraneural patches, placed in pairs, is noticeable. — **coracina** *Hpffr.* is a smaller race, similarly *coracina.* spotted beneath, which above is easily recognizable by a row of small but strongly expressed white submarginal dots. Central Celebes, flying in August-September; North Celebes. Dr. Martin's collector found the species also in the eastern part of the island. — **albiplagiata** *Fruhst.*, from Bangkai, scarcely differs in size from *albiplagiata.* *coracina*, but bears above indistinct white dots; ♀, however, differing considerably in the very large, long ultracellular patches of the forewing and in having the white spots on the hindwing beneath nearly twice as large.

E. latefasciata *Weym.* (= ribbei *Röb.*), one of the most beautiful Euploeids, which can best be com- *latefasciata.* pared with *eupator Hew.* (80 a), as the ♀ of which Hewitson regarded and figured it. Differs from *eupator* in having narrower but longer wings, the inner margin not concave, and two oblong cell-spots on the forewing. The transcellular patches of the forewing distally more pointed, those of the hindwing almost twice as broad. The species is known from the whole of Celebes, but is everywhere of great rarity; I myself met with it both in the coast-forest near Toli-Toli in the north and at the peak of Bonthain at 1000 m in the south of the island.

E. moorei is a Macromalayan species, which is yet to be discovered on the Malay Peninsula and Java, but has already been brought to Europe from Borneo, Sumatra and its satellite islands. — **brookei** *Moore* (86 d), *brookei.* described from Sarawak, is one of the commonest species of South-Eastern Borneo and has also been repeatedly taken in the northern part of the island. The ♀ differs from the figured ♂ in the presence of a white cell-dot and of one or two transcellular dots placed between the median veins. Valve distally concave, with long, thick, shaggy hair and broad, obtuse ventral projection, which is distally likewise slightly arched. — **moorei** *moorei.* *Btlr.*, very common in North-Eastern Sumatra, I have never had from the western part of the island. ♂, but especially the ♀, as a rule with more complete and more pronounced spots on the forewing and apparently altogether lighter brown than Borneo examples. — **morrisi** *Hag.*, an island form which is still very rare, des- *morrisi.* cribed from Mentawej. Most examples have the forewing unicolorous brown and on the hindwing a more or less complete and distinct row of small submarginal and marginal spots. Under surface similar to *moorei*, but with the white spots reduced to dots. — **thiemei** *Fruhst.*, described from a ♂ in coll. Thieme in Berlin, must *thiemei.* be regarded as the most copiously white-marked race yet known. It approaches *moorei Btlr.* from Sumatra, from which it differs in its smaller size, the more prominent white submarginal dots of the forewing, and the more complete row of submarginal spots, of which the upper 3 are scarcely any smaller than in *moorei*, whilst the 4 following are considerably larger. Beyond the cell are placed 7 white streaks and dots, of which in *moorei* only one between median 1 and median 3 is occasionally present. In addition there is another rather large white dot before the apex of the cell and between median 3 and the submedian is placed a white streak. The upper surface of the hindwing is less copiously decorated than in *moorei*. There are only 3 admarginal and 3 submarginal dots present, whilst the anal row is absent above and only shows through slightly from beneath. The under surface again approaches *moorei*. But the admarginal dots are here also more prominent and beyond the cell are placed 6 white dots and streaks, whilst in *moorei* occasionally only 3, of a violet colour, are present. The underside of the hindwing differs from the upperside in a complete admarginal row of white dots, which agrees with *moorei*. Also the circumcellular dots are as in *moorei*, but white instead of violet. It is singular that *thiemei* has little in common with *morrisi Hag.* from Mentawej; for *morrisi* has the upperside of the wings entirely black and the dots on the underside of the forewing are more obsolete, whilst on the other hand the submarginal row on the hindwing is more complete. Nias.

E. crameri is one of the richest in forms of the species of the Indo-Malayan region and its satellite islands. To the east it extends as far as Bali. Valve less incurved, with straighter and somewhat more pointed ventral process than in *moorei*. — **nicevillei** *Moore*, described from the Sunderbunds, small, flat, alluvial is- *nicevillei.* lands at the estuary of the Ganges, was probably originally only accidentally introduced by shipping. It is distinguished by the unusually broad and pure white submarginal spots on both wings. Only one ♀ is yet known, which is in the British Museum collection. — **frauenfeldi** *Fldr.* (= esperi *Fldr.*, biseriata *Moore*) differs con- *frauenfeldi.* siderably from *nicevillei* in the much reduced white spots, in the ♂♂ even the proximal row of submarginal dots is sometimes entirely absent. Nicobars. — **bremeri** *Fldr.* (♀ = olivacea *Moore*) is distinguished from the *bremeri.* figured *heylaertsi* by the lighter brown ground-colour, the narrower shape and the more pronounced white markings on the forewing. Not rare in Upper Tenasserim, this form extends northward to Akyab and is also to

marsdeni. be met with in abundance in the Mergui Archipelago from December to March. — **marsdeni** *Moore* is the form from the Malay Peninsula, which as a rule has the white spots of the forewing somewhat reduced and forms *heylaertsi.* the transition from *bremeri* to *heylaertsi.* — **heylaertsi** *Moore* (86 d) is considered one of the commonest species of Sumatra, where it ascends from the alluvial plains to about 500 m and even flies about in village gardens. According to Martin examples sometimes occur which show a short, but occasionally even a distinct *niasica.* and longer sexual stripe on the forewing. — **niasica** *Moore* is smaller than *heylaertsi* and in consequence all the white markings of the ♂♂ are also reduced. On the other hand in the ♀♀ there is a supplementary row of narrow, partly violet transcellular spots on the forewing, which are wanting in *heylaertsi.* But at the same time *nagasena.* the rows of white dots on the upperside of the hindwing are entirely suppressed. Nias, very common. — **nagasena** *Fruhst.* (82 b). Intermediate between *niasica Moore* and *mentavica Hagen*, differing considerably from both, but approximating more to the Nias race. *nagasena* differs from *niasica* in the much smaller white dots on both wings, whilst apart from the shape of the wings it has only the scheme of markings on the forewing in common with *mentavica. nagasena* bears 2 complete submarginal rows of white dots on the forewing, of which the dots of the admarginal row are all of equal size and are united into 6 pairs, while the proximal row is more concave and consists only of 7 small, widely separated spots, of which the second subapical patch, resembling a pin's head, is the largest. In the median part near the costal margin there are further some obsolete dots, otherwise the deep black forewing is without markings above. On the under surface all these dots are reproduced, and in addition there is on both wings a row of small ultracellular dots, of which in the type *mentavica.* the forewing shows 7, the hindwing 8. — In **mentavica** *Hag.* some of the white dots on the upper surface disappear, only 3 remaining on the forewing in the ♂. On the other hand the proximal submarginal row of the hindwing extends above and beneath from the costal margin to the anal angle, instead of terminating before the middle of the wing, as in *nagasena.* Mentawej Islands. — On Engano no *crameri*-race has yet been observed. *tenggerensis.* — **tenggerensis** *Fruhst.*, a rare form of Eastern Java, is essentially modified, a true product of a district with pronounced dry season, pale brown, with a few scattered large white rounded patches of unequal size, which are arranged similarly as in *nagasena.* ♀ with the usual spots before the apex of the cell, a row of 7 discal, 9 submarginal and 9—11 antemarginal dots on the forewing. Hindwing without cell-patch and with abbreviated median row of white dots, all of which are inclined to bluish on the under surface. Valve smaller than *pagen-* in *crameri*, distally scarcely concave, with sharper vertral point. Tengger Mountains at 500 —800 m. — *stecheri.* **pagenstecheri** *Hag.* as a rule bears on a deep black ground only 3—4 well developed subapical patches of unequal size, a small dot in the costal margin and only very rarely small discal dots. Only the ♀ shows the spot usually found in *crameri* before the apex of the cell in the forewing and 1—2 median patches. Bawean. not rare. *singaradha.* — **singaradha** *Fruhst.*, from Bali, approximates closely to *crameri* from Borneo, with which it shows much more analogy than with the subspecies from Bawean and Java. Forewing always with distinct large submarginal spots, continued to the lower median, and particularly in the ♀ with extended, wedge-shaped median *crameri.* patches. Like all the Bali butterflies *singaradha* is only of very small size. — **crameri** *Luc.* (= johanna *Kirby*) is next to *pagenstecheri* the melanotic extreme of the species with the white spots of the forewing reduced and as a rule with the rows of dots on the upperside of the hindwing entirely absent. Valve somewhat less robustly built than in *heylaertsi.* Distributed over the whole of Borneo with the exception of the extreme *pryeri.* north. — From there **pryeri** *Moore* is known, which again recalls *heylaertsi* by the larger amount of white, *daatensis.* but is as a rule smaller and with the subapical patches somewhat more rounded. Sandakan. — **daatensis** *Moore* is said to differ from *crameri* in the relatively broader and larger subapical spots and in an almost complete row of antemarginal dots on the forewing. Hindwing likewise with distinct rows of white dots. Island of Daat, *labuana.* North Borneo. — **labuana** *Moore* approaches *pryeri* in having 2 rows of small white submarginal dots on the *lanista.* hindwing. Island of Labuan, North Borneo. — **lanista** *Fruhst.*, from Natuna, differs from *crameri* in the more profuse dotting of both wings and is intermediate between *crameri* and *pryeri Moore.* The ♂♂ bear an admarginal row of 7 small white spots and a submarginal row of 8 very much larger white spots of unequal size; there is likewise a costal spot beyond the cell and a small white dot between the 2nd and 3rd median veins. The hindwing bears on the upper surface 2 complete rows of small white dots, while in *crameri* these are either entirely absent or only one row is visible, especially in South Bornean specimens. The under surface is likewise more copiously dotted and differs from *crameri* in the double row of white dots on the hindwing. The ♀ may be easily distinguished from that of *crameri* by the presence of larger admarginal dots; the 3 discal dots are also much more prominent than in *crameri.* On the upperside of the hindwing the inner submarginal row is not so strongly developed as in *pryeri*-♀, but on the underside again complete.

malayica. **E. malayica**, a typical Macromalayan species, of which we figure the commonest branch-race, **malayica** *Btlr.* (80 b). The ♂ is deep black-brown with considerably smaller submarginal dots and mostly with the cell-spot and median patches much reduced. The ♀♀ as a rule bear on the hindwing above only a mostly incomplete row of white submarginal dots. *malayica* inhabits the true tropical forests, but nowhere ascends above the lowlands; it is fond of sailing about at a good height over small clearings and is found all the year round, *stolli.* but without occurring in great abundance. Malay Peninsula, North-East and South-West Sumatra. — **stolli** *Weym.* inhabits Nias and is inferior to *malayica* in size and consequently also in the development of the white

median and marginal spots. ♀ beneath light coffee-brown with darker marginal area, slightly tinged with violet. — **hypanis** *nom. nov.* for the preoccupied *ochsenheimeri Moore* I propose for the Javan subspecies, with still smaller expanse, above dark silky brown, with very small white marginal and discal patches. The former are repeated in more strongly expressed and more complete rows on the under surface. Java, very rare, not met with there by me. — **scudderi** *Btlr.* as a rule surpasses *malayica* in size, but has a melanotic appearance on account of the much reduced white spots, which in ♂♂ from South-East Borneo are sometimes entirely absent above. Borneo. — **claudina** *Stgr.*, from Palawan, differs essentially from all the allied island forms in the brilliant blue iridescence of the upperside and the much enlarged, pure white patches, which on the hindwing are elongate instead of rounded. *hypanis.* *scudderi.* *claudina.*

E. cratis *Btlr.*, an extremely rare species, hitherto only found at Cape Engano on Luzon and on the Babuyanes Islands to the north of Luzon. The markings are similar to those of *suluana* (84 d), but there are in addition a large crescent-shaped cell-spot and 4 yellowish circumcellular patches on the forewing. Submarginal spots, particularly between the median veins, large, heart-shaped, the discal row of the hindwing extending from the costal towards the anal margin and gradually increasing in length. *cratis.*

E. modesta *Btlr.* (= cupreipennis *Moore*, tavoyana *Moore*, mouhoti *Moore*) may be called one of the characteristic butterflies of Further India. *modesta* is by far the commonest *Euploea* of Central Siam, where I met with it in many thousands in January and February. Even on the railway from Bangkok to Korat, where the first hills rise from the rice-covered plains, they occur in perfect clouds, mixed with Pierids and all flying off together in confusion when frightened by the engine. Also when the woods were crossed they appeared in hundreds from their hiding-places in the thickets. Until the middle of February I found exclusively worn examples, but then (simultaneously with *Pap. tavoyanus*) the first generation began to emerge, which with its intensive and wonderful blue reflection on the violet-brown wings (when worn copper-coloured!) does not justify the name *modesta*. From the relatively short scent-pencils, which are projected with difficulty, the species emits an extremely agreeable odour. Though varying much in size (forewing 38—45 mm in length), it is very constant in markings. It resembles a miniature *camaralzaman* (79 c). Tenasserim to South Annam, Cambodja, Island of Salanga. — **buxtoni** *Moore* (81 b) is a much darkened race, whose occurrence on Sumatra has hitherto been doubted. I have, however, received 5—8 examples from the neighbourhood of Padang Pandjang in the western part of the island. The wings are still darker than in Siam ♂♂ and have not such beautiful blue reflection, the white double row of submarginal dots on the hindwing somewhat reduced. — **lorzae** *Moore* apparently replaces the species in North Borneo, unknown to me in nature, according to its author's figure it bears 3 moderately large, wedge-shaped white subapical spots on the forewing. *modesta.* *buxtoni.* *lorzae.*

E. cameralzaman *Btlr.* (79 c) is not only one of the largest and most beautiful Euploeas, but also one of the most pleasant-scented butterflies of South Asia, the ♂♂ emitting a very ageeable, sweet scent of vanilla. According to my observations the butterfly always traverses the forest-shades singly at about 2—3 m. above the ground and only during the morning, and is always very rare; seen from a distance it recalls South American Morphids. It was not possible in the figure to reproduce the wonderful blue gloss which overspreads the proximal $^2/_3$ of the wings. The type came from Chentabun, Siam; taken by me at the Muoklek River in January-February, it has recently been discovered also in South Tenasserim. — A ♀-form with a third row of white dots in the middle of the hindwing has been described by Moore as **carpenteri** from the islands of the Mergui Archipelago. *cameralzaman.* *carpenteri.*

E. deheeri *Doh.* inhabits the most westerly islands of Micromalayana. The name-type came from Sumbawa. It may best be compared with *werneri* (86 d), from which it is easy to distinguish by the absence of all the median markings of the forewing and almost all the submarginal dots of the hindwing. The underside of the hindwing is characterized by a yellowish belt with blue-white patches, which are absent in *werneri*. — **suavissima** *Fruhst.* is based on a series of examples with elongate white streaks, often somewhat tinged with violet, on the hindwing, which recall *cratis* from the Philippines. Submarginal patches of the forewing above mostly violet. Lombok, at 5—700 m, not very rare, April-June. — **salinator** *Fruhst.*, from Alor, differs in the rounded, whitish violet submarginal spots on the forewing above, which are more than twice as large, and in the much darkened under surface, whose white dots are all smaller. — Finally, **lamos** *Fruhst.* is a very rare race from East Java. ♂: forewing dark brown with intensive blue-violet sheen, a row of 8 large, pure white submarginal patches, arranged as in *werneri* (86 c), 4 indistinct, partially violet transcellular spots and the usual costal and cell-spot. Hindwing lighter brown, especially distally, with only one row of 4 distinct submarginal dots. Under surface with the broad violet streak at the submedian, which is always absent in *crameri*-♂♂, but as a rule is present in *deheeri*. Hindwing without the yellowish pale median area which *deheeri* and *suavissima* have in common, in this respect forming a transition to the remarkable Flores race. — **kuehni** *deheeri.* *suavissima.* *salinator.* *lamos.* *kuehni.*

Röb., from Flores, shows a striking resemblance to *werneri*, but the pattern of the upperside corresponds to that of *lamos*, on the other hand the much broadened white patches on the hindwing beneath agree more with *werneri* than *deheeri*. Doubtless rare, only one pair as yet known.

werneri. **E. werneri** *Fruhst.* (86 d). On the small Vulcan Island, only 20 km from German New Guinea, the Swiss botanist Dr. Eugen Werner has discovered a species of *Euploea* which has not hitherto been observed on the main island. This interesting new species approaches *deheeri Doh.* from Sumbawa, *suavissima Fruhst.* from Lombok and *lamos Fruhst.* from East Java, but differs from them all in the larger white submarginal spots of the forewing, the presence of a row of white patches on the hindwing and a circumcellular group of 5 smaller white dots on the forewing. In the cell of the forewing, before the apex, is placed a further large white dot. In the ♀ all these white spots are essentially larger and more distinct and along the submedian runs an oblong white transverse streak, which occasionally occurs in the ♂ also. Under surface black without the light patch on the hindwing so characteristic of *deheeri*. On the hindwing there are likewise 6—7 transcellular white spots and the apical dot before the end of the cell. The figure (86 d) renders a further description superfluous. The relationship with *deheeri* is revealed in the genitalia, but the valve has a more regular, less distinctly rounded form, which recalls a bird's head; its ventral process is somewhat more sharply constricted and the distal end more pointed.

batesi. **E. batesi**, originally described from Halmaheira, is an exclusively Papuan species. I have no examples which agree with the name-type, **batesi** *Fldr.*, compared by its author with *melina Godt.* They closely ap-
pinaria. proach the island race **pinaria** *subsp. nov.* figured as *batesi* (86 c), which differs from all its allies in having the distal margin of both wings nearly grey-yellow, especially in the ♀. ♂: occasionally with two small violet subapical spots on the forewing, otherwise like the ♀ absolutely without markings. Forewing with a cell-dot and two intramedian dots, hindwing the same, but with six circumcellular dots suffused with violet. Marginal
mimica. area of the hindwing whitish. Waigeu, very rare. — **mimica** *subsp. nov.* somewhat surpasses *pinaria* in size, the ground-colour darkened, the distal margins more red than yellow-brown and the basal colou-
publilia. ring of the hindwing beneath decidedly red-brown. Dutch New Guinea, Sorong. — **publilia** *subsp. nov.* is a relatively small race, above almost black-brown, marginal area of the hindwing much darken ed, with distinct, black distal margin, basal area of the hindwing beneath dark coffee-brown, with strikingly broad, light yellowish border which extends far along the inner margin and is sometimes suffused with white, sometimes with violet. German New Guinea, occurring in great abundance at the Astrolabe Bay.

nubaida. **E. nubaida** *Gr.-Sm.*, described from Halmaheira and unknown to me in nature, is according to its author a larger species and differs chiefly in the absence of any pale distal area on both wings. Ground-colour velvety brown with paler costal margin to the hindwing.

E. wallacei exclusively inhabits the Moluccas and forms, as its author pointed out, a group by itself
gilda. on account of its long, uniformly narrow wings. — **gilda** *Fruhst.* (82 e ♂, 86 c ♀, on the plate misprinted ♂) differs from *wallacei* from Batjan in the lighter yellow-brown discal part of both wings and in the much enlarged white submarginal spots of the forewing. The under surface is darker, but as above the white patches stand
ares. out more strongly than in the Batjan race. Obi. — **ares** *Fruhst.* forms a connecting-link between *wallacei* and *gilda*, being lighter in the discal part than *wallacei*, but somewhat darker than *gilda*. The white dotting is likewise intermediate; on the other hand both wings are beneath even more copiously spotted with white than in *gilda*. Buru, Miro, time of flight November. Must be very rare on Buru, as
wallacei. Doherty has not taken it there. — **wallacei** *Fldr.*, the name-type, considerably surpasses *gilda* and *ares* in size, its upper surface is dark brown throughout, with appreciably lighter middle of the wings and in the ♂♂ as a rule wit hout white submarginal dots, which in the ♀♀ are occasionally slightly indicated. Batjan, Halmaheira, Morotai.

E. confusa forms the natural continuation of the preceding species in the Papuan region and it is not
grayi. impossible that it should even be specifically united with it. — **grayi** *Fldr.* (82 e), above and beneath dark brown, with yellow-brown disc in the ♂♂ and light yellow, distally even whitish area in the ♀♀. In the latter the lighter area of the forewing even encroaches into the cell. Most ♀♀ are above much lighter than the ex-
faunia. ample figured. Aru. — **faunia** *subsp. nov.* differs from *grayi* in the much narrower (scarcely entering the cell), but much longer yellowish area of the forewing in the ♀♀, and in the much darker ♂♂, in which the discal part
confusa. is almost red-brown. Dutch New Guinea, Sorong. — **confusa** *Bilr.* (= waigensis *Stgr.*), described from Waigeu,

is characterized by lighter brown ground-colour and the ♀♀ show a light violet median area, which is sometimes much widened, two examples even having the cell and the apical part of the forewing also suffused with violet. Only in *confusa* the blue circumcellular patches on the underside of the hindwing are distinct. — **melia** *Fruhst.*, from Fergusson Island, differs from *confusa* from Waigeu in the dark, almost black-brown ground- *melia.* colour of both wings, which is especially pronounced beneath. The light discal spot of the forewing peculiar to *confusa* is much widened in *melia* and continues about equally broad nearly to the distal margin. This spot is in *confusa* whitish violet, in *melia* basally reddish brown, becoming yellowish white distally. — **catana** *catana.* *Fruhst.* (81a) differs from *melia* in the unicolorous, dark red-brown discal area of the forewing, which particularly in the ♀♀ from German New Guinea occupies also the lower half of the cell. The hindwing is quite as dark as in *melia,* but differs from it in having a much lighter, coffee-brown anal area on the upperside. German and British New Guinea. According to Hagen occurring not very rarely in the rainy season. — **japudia** *subsp. nov.* was only recently discovered, on the occasion of the advance of the Dutch expedition to *japudia.* the snow-mountains of above 4500 m in the southern part of Dutch New Guinea. Both sexes of the new race may be recognized by a strikingly light and much broadened yellowish white median area on the forewing, which in the ♀ extends to far beyond the middle of the cell. Under surface of the hindwing without a trace of violet or blue discal patches.

E. alecto (= melancholia *Btlr.*), a Papuan species, which is distributed westwards to the Moluccas and southwards to Australia and is divided into several local forms, some of which are highly specialized. **alecto** *alecto.* *Btlr.*, the first described subspecies, inhabits Amboina and the Southern Moluccas. Both sexes are easy to distinguish from the figured *barsine* (82b) by the presence on the hindwing of two rows of smaller submarginal spots, lightly scaled with brown. On the under surface in the middle of each wing are five rather large violet patches of different sizes bordering the cell. The forewing of the ♂♂ frequently bears further a row of subapical and that of the ♀♀ always a row of subterminal dots. — **zodica** *Fruhst.* ♂ differs from *zodica.* *nox* from the Aru Islands and *alecto* from the South Moluccas in the entirely black forewing with no dots and on the hindwing in having the white dots at the distal margin almost suppressed. Under surface: forewing similiar to **alecto**, but with smaller costal and discal spot. The hindwing bears likewise smaller discal and marginal dots. Obi, very rare, only 1 ♂ known. — **nox** *Btlr.* approaches *barsine* above and is distinguished *nox.* by 4 or 5 distinct white subapical patches on the forewing and small submarginál dots on the hindwing. The small violet discal spots on the underside of the wings even smaller than in *zodica*. On the Aru Islands, apparently very scarce. — **diadema** *Moore* is a subspecies especially copiously spotted with white, the subapical *diadema.* spots of the hindwing even more strongly expressed than in *nox,* hindwing always with two rows of white submarginal patches, of which the proximal one is composed of especially large, rounded oval interneural areas. The forewing of the ♀♀ bears in addition a bordering of small antemarginal dots. On the other hand almost all the small cell-spots and transcellular spots on the under surface are absent. British New Guinea, flying in January. — **barsine** *Fruhst.* (82b). ♂ differing from *diadema* from British New Guinea in a prolonged row *barsine* of submarginal spots on the forewing, which are only about $^1/_5$ as large as those of *diadema*. The hindwing bears only one row of white patches, which are larger and more rounded than in *diadema*. The marginal row of white dots is entirely absent in the ♂. The underside of the forewing is without dots and on the hindwing there is likewise only a submarginal row of white spots. Fergusson, rare. — **monilifera** *Moore* is *monilifera.* an unimportant, somewhat darkened form of *diadema*, based on a ♀ from Thursday Island. — **misagenes** *misagenes.* *subsp. nov.* is velvety brown, distally a little lighter, with a submarginal row of nine white spots, curved before the apex, of which the first three, placed almost parallel to the costal margin, are the smallest and the fourth is the largest; posteriorly they decrease again in size; the last is double behind the lower median. Hindwing with a submarginal row of white spots beginning at the anal angle, the posterior ones elongate-oval, the upper ones rounded and more isolated. A complete row of white marginal dots, which is repeated on the under surface. (Hagen). Described from a ♂ from Dampier Island.

E. eichhorni *Stgr.* (= boreas *Misk.*) (81c), a magnificent form, which replaces *alecto* in Australia and *eichhorni.* is probably a good species. Upper surface deep velvety black. Beneath as above, but with brown apical area on the forewing and the hindwing light brown throughout. Forewing with violet streak at the median and the normal blue discal spots of *alecto*, but more prominent. According to Waterhouse *boreas Misk.* is a synonym of *eichhorni.* North Australia, Queensland.

E. ebenina *Btlr.*, very nearly approaching *alecto nox Btlr.*, but at once distinguishable by the intensive *ebenina.* blue reflection on the upper surface of the wings. The concave row of white subapical patches is prolonged to the submedian, the hindwing as in *diadema* bears two rows of white marginal spots, the proximal row consisting of larger oval spots, the distal of mere dots. The dots on the under surface appear to vary according to the sex. The ♂ bears no discal spots at all, the ♀ extremely pronounced violet cell-spot and 5 or 6 transcellular spots. Aru, apparently very sparingly. — **nymphas** *subsp. nov.* differs from *ebenina* in the presence of *nymphas.*

supplementary white median dots and a fine streak along the submedian of the forewing. All the submarginal dots smaller, but purer white, those of the under surface more delicate and lighter violet than in *ebenina*. Key Islands, only one ♀ in coll. Fruhstorfer.

E. **æthiops**, a typical Papuan species, which does not extend beyond New Guinea and the neighbouring islands, affords a conspicuous example of the variability of a species on the main island itself, since it pro-
aethiops. duces as many as 5 easily distinguished local races. **æthiops** *Btlr.* (86d), the name-type, was described from Waigeu and like all the representative races is characterized by a scent-spot with dull silky gloss which extends beyond the cell of the hindwing and surpasses even that of *alecto* in its long, shaggy androconia. Under surface of the forewing with a long white stripe over the submedian and 3 whitish violet discal dots. Hindwing with a row of 7 small circumcellular and 10—11 subterminal spots. Hindmargin of the ♂♂ light
tamis. yellow-brown, that of the ♀♀ grey-brown. — **tamis** *subsp. nov.* inhabits Sorong in Dutch North-West New Guinea. Hindwing of the ♂ with darker marginal area, that of the ♀ gradually fading into the light brown
latreilli. ground-colour, subterminal dots present on the underside of both wings. — **latreilli** *Kirsch.* (= reaumuri *Oberth.*) was recorded by both authors as coming from Dorey; it is the darkest of the known forms and probably also the largest. ♀ above deep black-brown with bright dark violet gloss, the marginal area scarcely lighter.
melinda. Also found by Doherty at the foot of the Arfak Mountains. — **melinda** *Gr.-Sm.*, erected on a single ♀, seems to me to be a form with a row of white spots on each wing, such as I have before me from Waigeu, but considering the similarity of the Euploeid-♀♀ from New Guinea, even of those which belong to quite different groups, it is imposible to say anything with certainty without having seen the type. Without exact locality,
lygdania. perhaps Humboldt Bay. — **lygdania** *subsp. nov.*, somewhat smaller than *latreilli*. Both sexes beneath even darker,
pheres. with more delicate violet discal spot on both wings. Mefor. — **pheres** *subsp. nov.* inhabits the island of Jobi in Geelvink Bay; it is always reduced in size, hindwing only inappreciably lighter even in the anal angle, beneath in the basal area also with bright blue gloss. All the violet markings, and also the streak along the
coffea. submedian vein, much abbreviated and reduced. — **coffea** *Fruhst.* (86e) is the most brightly coloured local race of the main island, ♂ with distinctly defined, light colfee-brown anal margin to the hindwing. Upper surface, ♀ mostly with brilliant violet costal margin and sometimes even with the marginal area of the hindwing variegated with white. Occasionally the apical and distal area of the forewing is grey-brown, and beneath
occulta. with violet mealy powdering. German New Guinea, very common near Friedrich-Wilhelmshafen. — **occulta** *Btlr.*, in contrast to *coffea* with dark brown distal margining to the wings, which also beneath is confined to a narrow area. *occulta* again approaches *latreilli*, from which, however, it is easy to distinguish by the shorter and more rounded wings, especially in the ♀♀. British New Guinea, Collingwood Bay, type from Pt. Moresby.
monaeses. — **monaeses** *subsp. nov.* was likewise discovered on the expedition of Nouhuis and Lorentz already mentioned. The ♂ differs from all the allied forms from New Guinea in the pale yellow-brown anal area of the hindwing above and the yellow-brown instead of reddish marginal area of both wings. The ♀ approaches that of *melinda* and bears three white subapical patches on the forewing and a row of distinct yellowish submarginal spots on the hindwing, and the anal part of the hindwing is almost pure white. Under surface lighter brown than in other *æthiops*, distal margin of the hindwing yellowish white. South-West Dutch New Guinea.

obscura. E. **obscura** *Pagenst.*, judging from a figure in Iris (1898, pl. 4, f. 2), is either a local race of *æthiops* or a nearly allied species which represents *aethiops* in the Bismarck Archipelago. Shape apparently agreeing with *pheres* from Jobi, but the scent-spot on the hindwing only extends to the middle of the cell; forewing beneath with a submarginal row of small white dots and three similar dots grouped round the cell. Cell of the forewing itself without white patch before the apex, which, however, is frequently absent also in *aethiops*. New Lauenburg, New Pomerania.

cerberus. E. **cerberus** *Btlr.* (81c), of reddish brown ground-colour with slight bronzy reflection on the forewing, which sometimes bears a row of 5 submarginal dots. Beneath exactly as in *obscura*, but with distinct violet dot before the end of the cell of the forewing, on the other hand the white patch along the subcostal of the
subpunctata hindwing is absent. New Pomerania, New Lauenburg, common, varying slightly. — **subpunctata** *subsp. nov.* is a smaller darkened form with more distinct bronzy reflection on the forewing and much reduced whitish violet dots on the underside of both wings. Especially striking is the reduction of the white spot between the middle and lower median vein on the forewing. New Mecklenburg.

E. **resarta** (82b) is one of the most interesting of the known species, exclusively confined to the east of New Guinea, and apparently not yet observed in the Dutch part of the island. There are two local races
turbonia. to be mentioned. **turbonia** *subsp. nov.* is the form figured and occurs in Kaiser-Wilhelmsland, but only at Finschhafen and Simbang and is very rare. Under surface as above. Forewing with a blue dot before the discocellular, a white wedge-spot between the median veins and 3—4 small circumcellular streaks between the radials. Hindwing with a blue-violet cell-dot and 5 postdiscal dots. Hagen mentions examples which

are dark brown above, lighter towards the margin, and with obsolescent submarginal band on the forewing. — **resarta** *Btlr.*, first brought to Europe from Pt. Moresby, in my collection from Milne Bay, differs from *turbonia* in the essentially narrowed white wedge-spots of the forewing and the shorter proximal submarginal patches of the hindwing, which are consequently not united with the subterminal dots. *resarta.*

E. funerea *Btlr.* is a very distinct species, which varies in the increase or suppression of the white bands of both wings. Dark black-brown, costal and distal margin olive-brown with slight bronze sheen. Both wings traversed by a grey-white band broken up by the veins into separate spots, which is angled on the forewing and in the ♀ twice as broad as in the ♂. Beyond this band a row of submarginal dots, which are placed in pairs. Beneath with a blue spot in the cell of both wings, this spot on the forewing is surrounded by 3—4 and on the hindwing by 5 spots placed in an elbowed row. Pt. Moresby, British New Guinea. — **squalida** *Btlr.* Smaller, paler, the white spots smaller and hence more isolated, of darker cream-colour. Submarginal dots on the forewing absent and on the hindwing indistinct. Merely a form of the preceding, from the same locality; in the British Museum and in coll. Fruhstorfer. *funerea.* *squalida.*

E. helcita is the oldest name for a small group of Euploeas which inhabit the Oceanian islands and of which we only know a small number. Most of them present a faithful copy of convergent species, such as *eleutho* (84 d) and *schmeltzi,* and hence they are nearly always mixed with them in collections, although they differ considerably in the absence of the silky sexual stripe on the forewing. They are probably not rare in certain places, but for nearly 20 years scarcely an example has been brought to Europe from their remote islands, which is much to be regretted, as many new forms still await discovery. — **helcita** *Bdv.*, from New Caledonia, seems to approximate very nearly to the figured *aglaina.* Size of *eleutho* from Guam, upper surface brown-black, apex with 4—5 small white dots. Hindwing with a row and a half of very small dots. Under surface of the hindwing with a concave row of 7—8 violet spots, one of which is in the cell. Forewing with 5—6 dots, one of which is before the apex of the cell. — **aglaina** *subsp. nov.* (86 a) differs in having two further white median spots on the forewing and more complete rows of submarginal dots on the hindwing beneath. Tutuila, Samoa Islands. — **perryi** *Btlr.* Forewing with a large white oblong spot beyond the cell between the upper and middle medians and a row of 6—7 subapical and submarginal dots, as well as a costal dot at the point of origin of the first subcostal of the forewing. Hindwing with the usual 2 rows of small white dots. Savage or Niue Island. — **eschscholtzi** *Fldr.* is the race most strongly and conspicuously white-spotted, having a large quadrate patch beyond the cell of the forewing, an oblong rectangular spot between the medians, a distinct costal spot and 4 irregular ones. The double row of white dots on the hindwing composed of elongate, narrow speckles. Fiji Islands. — **distincta** *Btlr.* resembles the preceding, except that the white quadrate patches beyond the cell of the forewing are deeply incised distally, and the dots of the hindwing much reduced. Ellice Islands. — **intermedia** *Moore* is intermediate between *perryi* and *distincta.* Forewing with even more reduced white spots, but hindwing with a submarginal row of larger patches. Raratonga Island. **indistincta** *Moore* appears to be only an aberration of this, almost entirely without spots. Described from the same locality as the preceding. *aglaina.* *perryi.* *eschscholtzi* *distincta.* *intermedia* *indistincta.*

Subgroup b. With glossy, silky, mostly distinct sexual stripe on the forewing. *Crastia Hbn.* (1816), *Chanapa, Andasena, Deragena, Bibisana, Betanga, Penoa, Mahintha, Karadira, Pamasa, Tagata, Pramesta, Rausuma, Chirosa, Mestapra Moore* (1883).

E. core *Cr.* inhabits the whole of India south of the Himalayas and in general resembles the figure of *suluana* (84 d), but bears a shorter and narrower scent-stripe. The butterflies are found even in gardens ta Calcutta, where they flutter sluggishly from flower to flower; they are also fond of congregating in large numbers and have been observed in the harbour of Bombay crossing over the sea from one island to another, and it would be interesting to learn whether they are able to recognize or to scent out the land from a distance or whether they boldly follow their wandering instinct without any plan. – Three species of Apocynaceae and three species of Ficus are already known as food-plants of the larva. Larva always singly, sluggish, like all the other Euploeid larvae on the underside of the leaves; ground-colour yellowish with a lateral red-brown ventral stripe and some red-brown dorsal rings on each segment. Four fleshy, sometimes rolled-up reddish tentacles. Pupa short, thick with the abdomen swollen, on the first day yellowish, on the second with slight gold or silver gloss, a few days later emerald-green with brilliant metallic gloss on the head. Before emergence the colour changes into a purple-black, with a white band at each side. Pupal stage 6—9 days, probably according to the humidity of the air. The butterflies are fond of resting on wet places in the road and are commonest at Calcutta in the cold months. October to March. — **vermiculata** *Btlr.* is a larger form and ornamented with broader white bands than *core* from the plains. Originally described from the north-western Himalayas, but extending to Sikkim and Assam, sometimes reaching elevations of 2000 m. — **asela** *Moore* is a typical island race with the white patches darkened and on the forewing even gradually suppressed and the ground-colour lighter brown. — Larva adorned with narrow white and purple rings and with red and black spots: on the Indian oleander. Pupa golden yellow, with brown stripes and bands. One *core.* *vermiculata.* *asela*

of the commonest butterflies of Ceylon, occurring from the plains up to 6000 ft. and especially in November-December gathering together in large migratory swarms, which, however, never leave the island, not emigrating to the adjacent mainland. I observed them myself at the beginning of the monsoon (end of May) up to many thousands in neglected village gardens at altitudes of about 600 m. — As **graminifera** Moore has described a further race from the Malay Peninsula, unknown to me in nature, with smaller and more sharply defined white patches on the hindwing.

graminifera.

distanti.

E. distanti *Moore* (81 c) appears to replace *core* on Sumatra and is regarded as the commonest of the brown Euploeas on this island; it prefers the neighbourhood of the sea and never ascends even to slight elevations. The ground-colour varies from light to dark brown, the extent of the white spots of the hindwing is also inconstant. Malay examples appear to bear smaller submarginal dots on the hindwing. Judging from specimens in my collection the sexual streaks in the ♂♂ are occasionally wanting, but sometimes they are larger than the normal. The ♀ bears always in addition one or two white dots beyond the cell of the forewing. — **circuita** *Swinh.,* described from examples found by me in Further India, is a local form with the white patches on the forewing reduced by more than half, and in consequence widely separated. On the other hand the submarginal patches of the hindwing show a tendency to become broader. Under surface as in *distanti* with large violet spot before the discocellular and a large, pointed-oval white intramedian patch. Tonkin, Cochinchina.

circuita.

godarti

E. godarti *Luc.* (= siamensis *Fldr.*) (81 d) is one of the most variable Euploeids of South Asia and it is only to be regretted that Felder's name must sink, for *godarti* is one of the characteristic butterflies of Siam and to be met with in all parts of the country in countless profusion. I found the species also in Tonkin, and even on the storm-beaten sea-coast of South Annam and on the island of Kosi-Chang in the Gulf of Siam. Bingham sent me *godarti* also from Tenasserim and Burma, where it is nowhere rare from February to July and extends also across Tavoy on the Mergui Archipelago. Examples occur in which the white patches on the forewing are as broad again as on the figure (**dominans** *form. nov.*), and further both ♂♂ and ♀♀ with the apical area of the forewing light white-grey instead of more or less light blue-violet (**recussa** *form. nov.*) — Those individuals which show no violet or grey-white apical tinge pass as **layardi** *Druce* (= binghami *Moore,* subdita *Moore*). This form extends from Tenasserim to Tonkin and is not at all rare in Siam. — **tonkinensis** *Swinh.* is the name given to an aberration corresponding to *layardi,* from examples found by me in Siam, in which even the white costal and subapical dots of the forewing are suppressed. — Finally, **defigurata** *form. nov.* is the rarest of all the varieties. without a trace of the rows of submarginal dots on both sides of the hindwing, and with even the small subterminal spots on the underside of the forewing wanting. Upper Burma; type in my collection. — **prunosa** *Moore* appears to be a local race of *godarti* without violet tinge in the apical part of the forewing and without white submarginal dots on the hindwing above. The marginal area of both wings paler than the basal half, the sexual stripe very small. Only one example known, type from South China in coll. Oberthür.

dominans. *recussa.* *layardi* *tonkinensis.* *defigurata.* *prunosa.*

orontobates.

E. orontobates *spec. nov.* forms a transition from *godarti* to *modesta Btlr.* and *camaralzeman,* having the same shape and the large size as the latter, but the wonderful blue reflection is absent. *orontobates* differs from *godarti* in the extremely small, scarcely recognizable sexual stripe on the forewing. but a light mouse-grey scent-spot on the hindwing above, which also extends to the anterior third of the cell, submarginal patches of the hindwing as large and pure white as in *camaralzeman* and at once distinguishable from the yellowish grey ones of *godarti.* Under surface deeper black-brown than in *godarti.* Chentabun, East Siam; only 1 ♂ taken by me in January.

scherzeri.

E. scherzeri *Fldr.* is the older name for the species which passes in English museums and collections under the name *camorta Moore.* Wing-contour as in *godarti,* but somewhat more rounded. Ground-colour dark sepia-brown, distally somewhat paler. Upper surface mostly without a trace of white patches, only rarely with one or two discal and costal dots. Under surface somewhat paler than upper, a long yellowish white streak between submedian and lower median, a large cell-spot, costal and two discal spots whitish violet, hindwing with cell-patch and five transcellular patches. ♀ commonly with broad, nearly whitish brown bordering to both wings. On all the Nicobar Islands.

andamanensis.

E. andamanensis *Atkins.* is the only known *Euploea* in which the ground-colour is light grey, becoming somewhat darker distally. Markings as in *distanti,* but the ♂♂ also bear a large white spot before the apex of the cell on the forewing and two discal patches, the ♀ having three. Forewing with two widely separated rows of white submarginal spots of about equal size. Under surface lighter than above with slight yellow sheen. From March to August at Port Blair, Andamans.

E. amymome *Godt.*, very common on Hong-Kong and the adjacent mainland and very variable in size and in the arrangement of the dots on the wings; the species has received a number of names, such as *kinbergi Wallgr., lorquini Fldr., felderi Btlr.,* and through incorrect labelling of specimens has also been reported from Sumatra and Java, and even Ceylon, but it is certain that it only inhabits southern China. Recently it was discovered on Hainan. Size about the same as *heyluertsi* (86 a). Ground-colour dark brown with extremely bright violet reflection. Forewing mostly with two more or less complete submarginal rows of small white dots, rarely a cell-dot, but always with 2—3 discal dots. Hindwing mostly without submarginal spots, only one of my ♂♂ bears such (whitish sprinkled with yellow-grey scales). Under surface as in *godarti,* but as a rule with only one row of small antemarginal dots on the hindwing. — Larva probably undescribed, but known to feed on Strophanthus divergens. *amymome.*

E. haworthi *Luc.* has shared the fate of the preceding, being provided with a series of names, such as *huebneri Moore, janus Btlr., moorei Fldr., eleusina Hbn.* A faithful copy of the preceding, likewise very variable, but only with indistinct violet reflection on the upperside, moreover the submarginal patches are not so uniform as in *amymome* and the subapical spots are essentially broader. Sexual stripe longer than in *amymome.* Hindwing almost always with two rows of small yellowish white submarginal spots, under surface with violet cell- and discal patches, but rows of white submarginal dots. In my collection there are over 60 examples, of which no two are alike. Not rare in East Java at elevations of 500—700 m., the species is apparently rare in the neighbourhood of Batavia. The West Javan examples are as a rule smaller than those from the Tengger Mountains in the east of the island and one of the above names will no doubt denote the form, but which can only be proved by comparison of the type. Dr. Martin's collector has also taken it in large numbers on Bali. It is not impossible that *geyeri Fldr.* may be founded on an aberrant example of this species. — **inconspicua** *Moore.* Forewing without apical and marginal spots and with a very short, thin sexual stripe, hindwing with two rows of whitish patches, which towards the costal margin are reduced and darkened. Described from Sumatra from examples taken by Wallace; if the locality is correct it should perhaps be included as a form of *haworthi.* Should it prove to be really a local race worth naming, then the name, which is already preoccupied by Butler, must be altered. *haworthi* *inconspicua*

E. bauermanni *Röb.,* described from the small, remote island of Kabia, to the south-east of Celebes, doubtless belongs near *haworthi,* of which it presents a miniature edition. Forewing as in *haworthi,* but with a distinct series of transcellular patches on the forewing and longer wedge-shaped subapical patches. Hindwing with small marginal dots and three larger submarginal spots, only extending to the upper median. Under surface as in *haworthi,* exeept that all the white markings on the forewing are more pronounced. — **kalaona** *Fruhst.,* discovered by Everett on the island of Kalao, between Flores and Celebes, is somewhat larger than *bauermanni* (length of the forewing 36 mm.) and differs in having a broader sexual stripe. The circumcellular wedge-spots of the forewing are absent, and also all the white spots on the underside are somewhat reduced, *kalaona* thus forming a distinct transition to *haworthi,* whieh latter occurs certainly also on Flores. *bauermanni* *kalaona.*

E. alcathoë *Godt.* has apparently spread from Further India over all the Macromalayan islands and has advanced eastwards from Java to Lombok. Not very numerous on the continent and in Sumatra, it is very scarce at the extreme limit of its range. — **doubledayi** *Fldr.* is the Indian branch-race of the collective species, described from Assam, also occurring in Burma, conspicuous by its size and the extended, long white submarginal streaks of the hindwing, particularly in the ♀. The ♂ figured belongs to the dry-season form and comes from Siam, where the species has developed a local race which is especially characterized by the darker ♀♀ and has the intraneural areas of the hindwing predominantly blue-grey instead of pure white. — **aesatia** *subsp. nov.* (85 b). ♀♀ without a trace of white spots on the upperside of the forewing are especially typical, together with which examples also occur which form a transition to normal *doubledayi* in having 3 white discal dots. Siam, Lower Burma, common up to about 700 m. — **gardineri** *Fruhst.* (♀ = menetriesi *Fldr.*) is erroneously called by English authors *menetriesi Fldr.;* Felder has described under this name a local form belonging to *dione.* Both sexes are inferior in size to *aesatia,* of which they otherwise present a still more darkened extreme with shorter brown-grey intraneural patches. Malay Peninsula. — **martinus** *Fruhst.,* in contrast to the preceding provided with somewhat more distinct small white-grey spots on the hindwing, inhabits the plains and the spurs of the mountains in north-eastern Sumatra. — **vonara** *subsp. nov.* bears particularly in the ♀ strongly expressed and almost pure white and longer strigae in the submarginal area of the hindwing. Also in the ♀♀ there is a double row of white marginal dots on the upperside of the forewing. West Sumatra. — **simplex** *Fruhst.,* an essentially darkened race of small size, with abbreviated sexual stripe on the forewing and thin, indistinct striation on the upperside of the hindwing. Nias. — **pahakela** *Doh.,* the darkest of the known island races, both sexes without a trace of white striation on the hindwing, ♀ dark brown throughout with the hindwing lighter. Moreover, beneath all the submarginal white markings are absent, only the violet discal patches and a series of small marginal dots remaining, and even *doubledayi.* *aesatia.* *gardineri.* *martinus.* *vonara.* *simplex.* *pahakela.*

arasa. the latter mostly wanting. April. Engano. — **arasa** *subsp. nov.* is the form from the Mentawej Islands. It approaches *simplex* from Nias, and still preserves traces of white striation on the under surface of the hindwing, which sometimes show through above, and are lighter and more distinct the larger the examples are. —
alcathoë. **alcathoë** *Godt.* (= eyndthovi *Fldr.*), the name-type, a butterfly of elegant but simple facies. Forewing deep velvety black, hindwing lighter brown distally. Scent-stripe distinct, but narrow and somewhat raised at the edges. ♂ with almost rounded, short submarginal patches on the hindwing, which, however, in the ♀ again
geyeri. assume the normal streak-shape and stand out distinctly, the colour somewhat inclining to yellowish. **geyeri** *Fldr.*, unknown to me in nature, is probably a dry-season form of it. West and East Java. Bali. Lombok.
uniformis. but everywhere scarce. — **uniformis** *Moore* approaches *pahakela.* ♂ above without appreciable submarginal stripes, which in the ♀ show through slightly from the underside. ♂ beneath with vestigial. ♀ with two
salistra. distinct but thin grey-white longitudinal streaks. North and South Borneo. — **salistra** *subsp. nov.*, the race from the Natuna Islands, differs in the sparsely scaled but distinct grey-white, rather broad intraneural areas of the hindwing, which especially beneath are purer white and strongly expressed and are accompanied by strikingly large subterminal dots. The violet discal patches of both wings brighter and standing out more distinctly than in *gardineri*, to which *salistra* approximates more nearly than to *uniformis* from Borneo. —
distincta. Finally, **distincta** *Stgr.* is the most northerly form known, like *claudina Stgr.* more copiously decorated with white than the allied races. The rows of spots on the hindwing are purer white and more sharply defined and even on the underside of the forewing there are two rows of dots, although incomplete. Palawan. very rare. *distincta* is perhaps conspecific with the following species.

snelleni. **E. snelleni** *Moore*, previously only known from East Mindanao, I have also received in a variety from Bazilan. Above characterized by a lighter and somewhat narrower androconia streak on the hindwing, it may be recognized beneath by three light brown longitudinal stripes in the cell of the hindwing and three extremely faintly marked streaks of white-grey colour which are placed between the radials and the upper median. Two incomplete rows of rounded submarginal patches on the forewing are repeated on the upper surface. —
peducaea. **peducaea** *subsp. nov.* differs from the name-type in the smaller size, whilst the white patches and streaks o both wings are nevertheless almost twice as broad, which is noticeable both above and beneath. Also the third intraneural row of streaks on the underside of the hindwing is lighter and more sharply marked than in Mindanao examples. Pazilan. Very rare, discovered by W. Doherty in February 1898.

tobleri. **E. tobleri** *Semp.* is one of the rarest and most wonderful species of *Euploea*, apparently exclusively inhabiting the mountains and hitherto only observed on Luzon, flying in June. ♂: forewing deep black, with 4 large, quadrate white subapical spots united into a band and 6—8 blue subterminal dots. Hindwing pure white except where it is covered by a grey furry patch of androconia which extends over the entire cell, the narrow, sharply defined distal margin black, adorned with blue-white dots. Under surface of the hindwing white, only intersected by black veins, and with a submarginal row of wedge-shaped, partially confluent black spots. Forewing predominantly black, with white base to the costal margin, white cell-streak and antemarginal spots placed in pairs.

E. deione, an Indo-Malayan species, runs parallel with *alcathoë,* beginning in Sikkim, and spreading thence over Siam and Perak on to the Macromalayan islands and their satellites. Wings rounded, upper surface
deione. mostly with brilliant, but sometimes also with dull blue reflection. — **deione** *Wastw.* Forewing with the exception of a very narrow black marginal area with brilliant dark blue gloss, only the basal part of the hindwing with dull reflection. Hindwing above only rarely with the rounded submarginal spots of the under surface showing through. ♀ with one costal and three white discal dots, which in the ♂ are reproduced more weakly. Sikkim
arida. to Upper Burma. — **arida** *form. nov.*, only known to me from the Ruby Mines, Upper Burma, is a dry-season form, essentially smaller than Sikkim and Assam examples. Both sexes with small white dots on the upperside
limborgi. under surface entirely without spots except for the violet discal dots, which are also much reduced. — **limborgi** *Moore* is a local race with very large white, elongate-oval submarginal spots on both sides of the hindwing. On the other hand the white dots of the forewing are entirely absent in the ♂♂ and almost entirely in the ♀♀. I found the butterfly commonly on flowerings shrubs in Siam and South Annam. Other
menetriesi. localities: Tenasserim, Lower Burma, Mergui Archipelago. — **menetriesi** *Fldr.* (= pinwilli *Btlr.*) is a much darkened form, but the ♂ still with intensive blue reflection and hindwing with a double row of brown-grey
epiphaneia. submarginal spots. Malay Peninsula. — **epiphaneia** *subsp. nov.* approaches the preceding, but differs in having less of the blue reflection on the forewing and in the longer and mostly pure white submarginal strigae of the hindwing. West Sumatra. Examples from North-East Sumatra form a transition to *menetriesi.* According
kheili. to Martin common in the plains, preferring the flowers of a heliotrope-like shrub. — **kheili** Weym. is not only a much darkened race, but is also of smaller size than *epiphaneia.* Forewing with three white subapical dots on deep black ground with magnificient blue gloss. Hindwing ornamented with two rows of submarginal dots of equal size. Nias. — **seitzi** *Hag.* bears likewise only two small white subapical dots, but isessentially

larger than *kheili* and has a similiar arrangement of the two rows of white dots on the hindwing above and beneath. Mentawej Islands. — **pasina** *Fruhst.* differs from *seitzi* and *kheili* in having the blue reflection on the forewing scarcely perceptible, the sexual stripe longer and broader and both wings more copiously dotted with white. ♂: forewing with an admarginal row of white dots which start from the submedian and extend to the radials, becoming gradually smaller. Above them three larger pure white subapical dots complete the row. The hindwing bears two parallel submarginal series of white elongate spots of almost equal size. which are repeated also beneath. Under surface: white spots more distinct than above; on both wings a violet dot before the apex of the cell. Forewing further with another violet dot in the middle of the costal margin and three small violet circumcellular spots of unequal size, as well as some dots at the base. The long grey sexual spot always present in the allied forms between the third median and the submedian on the forewing beneath is absent in my example, perhaps only accidentally. For the rest the submedian is accompanied by two rows of stripes of scent-scales with a dull gloss, which are suddenly much widened basally. ♀: both sides with very slight blue reflection, ground-colour black-brown. Forewing with two rows of white submarginal spots, of which the proximal one is composed of larger, proximally pointed spots. Under surface: in the middle of the costal margin two whitish strigae, the lower transcellular spots elliptical, very large. Between the lower median and the submedian the usual long violet-grey streaks of *deione*. Hindwing with five median dots. Island of Pulo-Tello in the Batu Group. From Engano no *deione*-race is known. — **wallengreni** *Fldr.* (86a) is a highly specialized branch, almost worthy of specific rank, the general character of which is so different that Moore included it in the Moluccan "genus" *Betanga*. Only one of my 20 examples shows a dull blue reflection which recalls the continental race. Together with the form figured, with white subapical dots on the forewing, which are sometimes accompanied by 3—4 submarginal dots, there occur also others entirely without dots (**demaculata** *form. nov.*). The form with more or less obsolescent wedge-spots is very rare in both sexes. Distributed over the whole of Java, ascending to about 600 m., but in the west much scarcer than in the east. — **sapitana** *Fruhst.* Approaches *kheili* from Nias in habitus, but differs from all the known forms in the brown, sometimes even light brown and sharply defined distal border of both wings, through which whitish brown dots show through from the under surface. Hindwing similar to that of *epiphaneia* and *menetriesi,* i. e. with long, oval whitish submarginal wedge-spots. somewhat shaded with grey. Lombok. at elevations of 600—700 m; flies April—June; named from Sapita, a village situaded at the edge of the timber-forest. — **menodice** *subsp. nov.,* the most easterly form known, has almost entirely lost the blue reflection and the brown colour, rudimentary in *sapitana*, extends nearly to the middle of the wing, whilst at the same time the submarginal wedge-spots disappear on the upperside of the hindwing, only remaining beneath as in *seitzi* and *kheili.* Sumbawa. — **zonata** *Druce* is the subspecies inhabiting the whole of Borneo, which has been brought to Europe in large numbers; it shows above no trace of white dots and a dull deep blue reflection overspreads the entire forewing. Some examples are almost larger than continental specimens; the sexual stripe very long, broad. Hindwing beneath only with isolated short white interneural striae. — **masina** *Fruhst.* is founded on a smaller form or race from south-eastern Borneo with narrower forewing, very short, thin sexual stripe and a complete row of distinct submarginal striae. South-East Borneo, neighbourhood of Amuntai. ♀ of both the Borneo forms extraordinarily rare, apparently not yet described at all. — **transpectus** *Moore* is only known to me from a ♂ in the Museum at Stockholm; it differs from *epiphaneia* and *menetriesi* in the paler brown hindwing and bears only two or three insignificant submarginal wedge-spots and an antemarginal row of seven small dots on the hindwing above. Island of Billiton. — Finally, **cyllene** *Stgr.* is a race which shows a distinct retrogression to the continental type; both sexes with very long, narrow submarginal streaks on the hindwing, which are also prominent above; ♀ with one, sometimes even two rows of grey-dusted antemarginal dots on the forewing. Under surface as in *epiphaneia*, but with the white wedge-spots a little narrower. Palawan; flies in January.

pasina. *wallengreni.* *demaculata.* *sapitana.* *menodice.* *zonata.* *masina.* *transpectus.* *cyllene*

E. swainsoni inhabits exclusively the Philippine region, from whence it has advanced into northern Celebes, and it is only to be wondered at that no race of this species has yet been discovered in Sandakan. The separate branches of the collective species are so different that the question has been raised whether some of them should not be regarded as good species; but as in analagous cases the investigation of the genitalia yielded no result, we have abstained from exmaining them and for the sake of uniformity all the forms are here treated as geographical subspecies. — **swainsoni** *Godt.* differs from the figured *bazilana Fruhst.* (82a) in having the white subapical spots of the forewing, which form an almost quadrate area, more than twice as broad. The proximal row of submarginal spots is incomplete, only 2—5 dots being present in both sexes. Ground-colour similar to that of *suluana Moore* (84d), the under surface even paler, grey-brown. but with pure white areas and spots. Luzon; according to Semper not extending southwards beyond 14° Lat. — **butra** *Stgr.*, from Palawan, approximates to *swainsoni* in the under surface, which, although somewhat darker, almost exactly agrees in the weak development of the submarginal dots of the hindwing. *butra* has also the concave inner margin of the forewing in common with *swainsoni,* but differs considerably in the absence of the large white subapical area of the forewing, in place of which there is only a series of mostly strong white submarginal spots. But examples also occur with scarcely perceptible dots. — **dealbata** *form. nov.* Forewing at

swainsoni. *butra.* *dealbata.*

lucasi. the base dark brown, distally of a characteristic grey-brown shade. Palawan, not rare in January. — **lucasi** *Moore,* described from Mindanao, is one of the most easily caught butterflies of the island; SEMPER possessed over 450 examples. The white spots on the upper surface of both wings smaller, and hence more isolated. than in the Bazilan race. Ranges according to SEMPER over all the central and southern Philippine Islands.

bazilana. — **bazilana** *Fruhst.* (82 a), of essentially darker brown ground-colour, with purer white spots on both wings, of which especially the intramedian spots on the forewing are more pronounced than in *lucasi.* Bazilan.

suluana. February to March. — **suluana** *Moore* (84 d), with the general colouring light brown, bears more regular submarginal spots on the forewing and larger antemarginal dots on the hindwing. ♀ as a rule with more numerous

donovani. white discal dots. Sulu Archipelago. — **donovani** *Fldr.*, unknown to me, must be very rare, as it has not been brought to Europe again since FELDER's time. There is perhaps also a mistake as the locality on the

kuroiwae. part of the author. North Celebes. — **kuroiwae** *Mats.* is a race from the Loo Choo Islands, only discovered in 1905, which is strikingly similar to *lucasi.* Subapical spots of the forewing as in *bazilana,* but the submarginal band of the hindwing only composed of small rounded patches as in *butra.* Moreover, the subanal spots of the forewing much reduced. Inner margin of the forewing moderately concave, as in *swainsoni.* Described from the Yayeyama.

abjecta. **E. abjecta** *Btlr.* (82 c ♀ not ♂), a completely isolated species, ♂ with narrow forewing, strongly excurved at the inner margin. Sexual stripe long and broad as in *swainsoni,* ground-colour light brown with darker costal area on the hindwing above. Both wings beneath distally paller, with delicate violet tinge. Forewing with submedian streak, which as in *swainsoni* occurs only in the female, hindwing with 2 pairs of interneural stripes, which are longer and broader than above. Palau Islands.

E. diana is peculiar to the Celeban subregion, is divided into three local races on the main island

diana. itself and extends southwards on to the elongated satellite island of Saleyer. **diana** *Btlr.*, the name-type, is the race richest in colour and most widely distributed in collections. Forewing with whitish violet sexual stripe, two very large, nearly quadrate ultracellular patches, several costal and submarginal dots. Hindwing with two discal spots, a series of submarginal spots and in addition a row of marginal dots. In the ♀ there are further whitish discal patches beside and beyond the cell of both wings. Under surface grey-brown with grey or violet-white patch in the median area of the hindwing. Common on low-lying meadows with long grass in the coast-forests of Toli Toli, in November to December. Extending southwards to the Bay of Palos

horsfieldi (Donggala, August). Common everywhere in the Minahassa. — **horsfieldi** *Fldr.* is the strongly darkened race which inhabits the southern arm of Celebes and is at the waterfall of Maros one of the first butterflies which the traveller encounters. Sexual stripe of the ♂ black. Submarginal spots of the hindwing mostly larger and the whitish violet areas which in *diana* surround the spots on the forewing are wanting in the ♂♂,

fruhstorferi. whilst in the ♀♀ as a rule the upper transcellular patches are absent. — **fruhstorferi** *Röb.* is a rainy-season

tombugensis form, in which the white costal and cell-dots of the hindwing almost entirely disappear. — **tombugensis** *Fruhst.* (82 a) is the melanotic extreme of the species, as a rule without a trace of white discal patches and with grey-black sexual stripe on the forewing. ♂♂ from Tombugo are the darkest, while ♀♀ from the more southerly harbour of Kendari form a transition to *horsfieldi* in the white intramedian patches of the forewing.

laodikeia. — **laodikeia** *subsp. nov.* is a pronounced geographical form, whose discovery is due to Dr. MARTIN. Ground-colour deep black-brown, almost without a trace of a violet tinge; sexual stripe grey-black without any violet bordering; subapical and submarginal spots of the forewing extremely prominent, pure white, three times as broad as in *diana,* contrasting vividly with the dark ground-colour. Submarginal patch of the hindwing as in *horsfieldi,* cell- and median dots absent. Saleyer, in January.

E. maura replaces *diana* on the adjacent islands to the east and differs principally in its small size, length of the forewing 33—34 mm. against 40—43. Above and beneath unicolorous brown, only with white

maura. discal spots without violet tinge, sexual stripe always black-brown. — **maura** *Hoffr.* similar to *corvina Fruhst.*

corvina. (86 a), but without white cell-spot and without any dots on the hindwing above. Described by HOPFFER from Celebes, but really coming from the Togean Islands in the Tomini Gulf. — **corvina** *Fruhst.* (86 a) bears above as a rule only one fine white dot before the apex of the cell and 2 small obsolescent spots between the median veins of the forewing, 3 submarginal dots and a white cell-spot on the hindwing. All the spots are enlarged on the under surface and their colour is changed to violet. The submarginal row is more complete

wiskotti. and on the hindwing there are further 3—4 minute discal dots. Sula Mangoli, Sula Besi. — **wiskotti** *Röb.* has the same arrangement of all the white spots and beneath of all the violet ones, except that they are all, in particular the cell-patch of the hindwing, about three times larger than in *corvina.* Bangkai.

lewa. **E. lewa** *Doh.* (85 a) is the darkest extreme of a series of forms which inhabit the eastern Micro-

baudiniana. layan islands, of which **baudiniana** Godt. (= orope *Bdv.*) must be regarded as the name-type. From *baudiniana,* which is unicolorous brown, *lewa* differs in the deep violet or steel-blue sheen of the upper surface of the forewing and the absence of the series of white dots on the hindwing. On the underside of the hindwing a yellowish grey discal area is noticeable, in which are placed 5—6 whitish yellow patches in an irregular row. Cells of both wings with violet spot, which is distally surrounded by 5—6 dots of the same colour

Sumba; occurring in abundance. — As **E. orope** Boisduval has first figured a form which approaches *fabricia* (86 a), of which, however, *baudiniana Godt.* is pretty certainly the oldest name. Godart apparently described a ♀, as he does not mention the scent-stripe, whilst Boisduval's figure is an excellent and unmistakable representation of a ♂. But whereas Godart quite correctly names Timor as habitat, Boisduval erroneously gives Polynesia as the locality of his type. *orope Bdv.* differs from *fabricia* in having the white bands somewhat broader and hence somewhat more continuous on the forewing. Dots of the under surface as in *lewa,* but the hindwing grey-white from the cell onwards. Timor. taken by Doherty in May. — **belinda** *Btlr.* is the polymorphic race from Wetter, erroneously described by Butler as from Sumatra, which apparently produces 3 different seasonal forms. The name-type seems to belong to the rainy season; it is very similar to *lewa* from Sumba, but smaller, without appreciable blue reflection, but with the white subapical area of the forewing almost as large again. Hindwing either without or only with a few distinct submarginal dots and very small antemarginal ones. Forewing in both sexes with only one white spot between the upper and lower median veins. On the under surface, however, in contrast to *lewa* the submarginal white markings occur as relatively large wedge-spots. The violet discal patches prominent. **oropina** *Röb.* is an intermediate form, in which on the hindwing the submarginal row of wedge-spots is present above also and is accompanied by distinct antemarginal dots. Flies in May. Finally, **latistriga** *form. nov.* is probably the product of an extreme dry season and forms a connecting-link with *baudiniana* and *fabricia* in the essentially broadened intramedian spots of the forewing and in the widened, band-like submarginal spots of the hindwing, which as in *fabricia* are confluent with the marginal dots. Flies perhaps in July and August. — **fabricia** *subsp. nov.* (86 a) differs from *baudiniana* chiefly in having the white submarginal bands of both wings narrower and more sharply defined. A ♀ belongs to the form *oropina Röb.* Letti, Kisser, apparently not rare. — **domitia** *subsp. nov.* (84 d) is the largest race known and with correspondingly widened macular bands, of which that of the hindwing in the ♂ is composed more of rounded instead of elongate patches and is not confluent with the marginal dots. Under surface of both wings paler and more uniform grey than in *fabricia.* Roma; discovered by H. Kühn.

orope. *belinda.* *oropina.* *latistriga.* *fabricia.* *domitia.*

E. eleutho is the oldest name of an Australian-Pacific species of black-brown ground-colour with large quadrate postdiscal spots on the forewing and a white submarginal band on the hindwing which varies in breadth according to the race. From Australia *eleutho* has spread to Guam and the Ellice and Samoa Islands and has advanced westward over the Timor-Laut Group to Babber and Dammer, occurring on those islands which have not been reached by *baudiniana*; only on Kisser both are found. The variability of the collective species has led Moore to divide the separate island forms among three of his genera. — **sacerdos** *Btlr.* (84 d), described from Larat in the Tenimber Group, bears very broad white spots and bands, as a rule much more extended than in the example figured. Under surface of the forewing black, that of the hindwing pale brown, in each cell a larger violet punctiform spot and a transcellular row of 3—7 violet patches, partly streak-like, the forewing in addition with 2 small costal spots. Base of the hindwing with 4—5 white dots and both wings also ornamented with white marginal dots placed in pairs. The pattern of the upper surface is reproduced beneath. Sometimes there is a second thin scent-stripe between the glossy, silky, deep black sexual stripes. Timor-Laut, Aru, Key. — **eleutheria** *subsp. nov.* (84 d) is a specially large race, with extended quadrate white spots on the forewing, particularly in the ♀. Beneath with brilliant light blue cell- and discal patches. Island of Teeon. — **ancile** *subsp. nov.* (82 d) is characterized by the narrower white markings of both wings, the intermedian spots of the forewing not quadrate, but mostly elongate-oval. Dammer, Babber. Kisser, very common. — **corinna** *McLeay* (= lewisi, angasi *Fldr.,* boisduvali *Luc.?*) has all the white spots and bands slightly tinged with yellowish, somewhat smaller than in *eleutheria,* and hence apparently more proximal, distally more deeply incised than in *sacerdos* and *ancile.* Australia, from Sydney to Cape York. — **euclus** *Misk.*, which Waterhouse places as a synonym in the Catalogue of Australian Lepidoptera, appears from its author's description to be an interesting aberration of *corinna,* characterized by the absence of the antemarginal white spots on both wings and the much reduced white bands of the hindwing. Cape York. — **eleutho** *Quoy,* the name-typical form, with somewhat shorter wings and very large quadrate spots on the forewing Under surface a peculiar light grey, earth-coloured, the spots on the discocellular relatively large, but the violet or blue discal patches almost entirely suppressed. Island of Guam in the Ladrones, according to Moore also from Samoa and the Ellice Islands in the British Museum. — **proserpina** *Btlr.* is a conspicuous local form with delicate markings on the wings and considerably reduced white patches, which are occasionally slightly tinged with violet. Marginal dots of the hindwing in the ♂♂ mostly absent; the submarginal patches reduced to small wedge-shaped or rounded punctiform spots. The small circumcellular dots on the underside of the hindwing are, however, distinct, in contrast to *eleutho.* Viti-Levu, apparently occurring in abundance.

sacerdos. *eleutheria.* *ancile.* *corinna.* *euclus.* *eleutho.* *proserpina*

E. schmeltzi *H.-Schäff.* is a species rare in collections, known from the Samoa Islands: type a ♀, whose forewing bears 3 costal and 4 large white subapical patches; in addition there is a white spot in each cellule between the radials and the upper median veins. Upper surface of the hindwing with three larger proximal rows of submarginal dots and three smaller distal rows, only extending to the first median vein. Under surface with a white spot before the cell and somewhat more complete reproduction of the white markings of the upperside.

schmeltzi.

whitmei. **E. whitmei** *Btlr.*, with the forewing 30 mm in length, one of the prettiest of the brown Euploeas and a true Oceanic butterfly in its small size. Locality: Lifu in the Loyalty Islands, to the east of New Caledonia. Ground-colour dark chocolate-brown with the marginal area slightly lighter, especially on the hindwing. Forewing with very short, but broad sexual stripe and two small subapical dots. Hindwing with a distal row of small, somewhat irregularly placed marginal dots and a submarginal row of 3—4 somewhat larger spots. Underside with a more complete double row of white dots, to which is further added a discal group of 7 circumcellular spots and a cell-spot. Forewing likewise with a violet patch before the apex of the cell, *childreni.* two transcellular and two white intramedian patches. — **childreni** *Moore,* described from an example in coll. Oberthür from "Java", is perhaps synonymous with *whitmei* or a local race of it from the Pacific region. All that is certain is that *childreni* does not occur on Java.

E. guerini, hitherto only known from New Guinea and the Aru Islands, was recently discovered in Australia also. Apparently constant on the Aru islands, on the main island of New Guinea it is one of the most variable species, so that no less than 10 specific names have been given to the local race of British New *punicea.* Guinea, which, however, for the most part do not represent aberrations worth naming. — **punicea** *Gr.-Sm.* (84 c) is the oldest name, which was given to the race from Dutch New Guinea and according to the material I have examined from Humboldt Bay the form from Kaiser-Wilhelmsland is identical with it. On the figure the delicate, plum-blue tinge and the somewhat lighter marginal area are unfortunately not brought out well. The under surface is cocoa-brown, occasionally with dull, light violet reflection on the distal parts. Both wings with light blue cell-spot and two resp. five discal dots. Forewing in the ♀ further with the submedian streak found in most Euploeids, in place of which in the ♂ the glossy brown sexual stripe shows through from above. In the form *punicea* the white subapical patches of the upperside are also reproduced beneath. — *bruno.* **bruno** *Sm.,* under which name the New Guinea *guerini* in general pass in the trade, designates a slight variation, *palilia.* in which the forewing shows in addition a complete submarginal row of white spots. — **palilia** *form. nov.* (84 e) has no white spots on the forewing, but in their place a light violet tinge, which extends as a band *amethysta.* to the middle of the wing. — In **amethysta** *form. nov.* (82 e) both wings are adorned with a broad violet marginal area and the discal area of the hindwing beneath is whitish. This form sometimes also occurs in *progressiva.* combination with the spotted typical form *punicea.* — **progressiva** *form. nov.* (84 c) are examples with plum-blue upper surface, without white splashes and without violet margin, but distally more or less tinged with *violetta.* light brown. Here belong 36 out of 72 pairs, thus exactly half the examples in my collection. — **violetta** *Btlr.* (81 b) is the oldest name for the local race from British New Guinea, erected from examples from Port Moresby. According to the series of 12 pairs from Milne Bay before me the local form is very constant; all the examples bear much larger white subapical spots than *punicea*, which are either covered or bordered with blue or violet, more or less densely sprinkled scales. Submarginal band of the forewing nearly always complete. On the upperside of the hindwing there are 1 or 2 submarginal intramedian spots. *pleiadis Btlr.* *ordinata.* and *dolosa Btlr.* sink to *violetta* without further discussion, as based on smaller individuals. — **ordinata** *Moore* *denticulata.* is a form with a complete row of submarginal spots on the forewing. — In **denticulata** *Moore* these are strongly *bipunctata.* reduced. — **bipunctata** *Moore* refers to the ♀♀ already mentioned with two submarginal spots on the hindwing *astraea.* above. — **astraea** *Moore* has the spots essentially widened and for *stella, siderea, louisa Moore* I can give no distinctions at all. But from Moore's descriptions it is tolerably certain that neither the form *palilia, amethysta* nor *progressiva Fruhst.* has as yet been observed in British New Guinea: it is also interesting to notice that the pairs received by me from the eastern parts of Kaiser-Wilhelmsland all incline to the form *punicea* and consequently form a distinct transition to *violetta,* whilst *progressiva* and the violet-banded individual aberrations predominate especially in Astrolabe Bay, near Friedrich-Wilhelmshafen. It is not impossible that *tenebrosa Sm.* *tenebrosa.* and *lachrimosa Sm.*, which, however, its author expressly compares with *netscheri*, belong to *guerini.* — **tenebrosa** then about corresponds to *progressiva* and would have to stand as the name-type in place of *punicea*, and *lachrymosa.* **lachrymosa** *Sm.* would be the race from the island of Jobi, according to Smith without blue reflection and *amycus.* beneath somewhat paler than *tenebrosa.* — **amycus** *Misk.*, which Waterhouse cites in the Catalogue of Australian Lepidoptera as a separate species, is judging from the description a *guerini*-race. ♂ above dark velvety brown, with lighter distal margin. Apical band composed of 4 irregularly shaped, slightly clouded white spots, of which the upper two are the smallest. A small round white spot is placed between the median veins near the distal margin. Hindwing dark brown with lighter marginal area and two small white submarginal spots near the apex, of which the lowest is nearly obsolete. Under surface velvety brown with a violet spot before the end of the cell, 5—6 beyond the cell and five white larger subapical patches. Locality Cape York. — *guerini.* **guerini** *Fldr.*, the first named branch-race of the species, apparently inhabits exclusively the Aru Islands; it has not yet been observed on Key. Habitus larger than in *punicea*, forewing somewhat longer and always with a complete row of submarginal spots, which in the ♀ are continued also on the upperside of the hindwing. — *enna.* **enna** *subsp. nov.* is before me from Salawatti; upper surface deep black, with slight dark steel-blue gloss and forewing with a complete row of almost uniform pure white spots, of which the upper three are wedge-shaped and the third is distally slightly incised. Under surface with very large, light blue cell- and ultracellular spots, deep black with dull blue tinge.

E. illudens *Btlr.*, a small species, has about the same colouring as *cerberus Btlr.* (81 c), but the wing-contour much as in *corvina Fruhst.* (86 a); it is so far only known from the Bismarck Achipelago. in my collection from New Lauenburg and New Pomerania; according to Butler also occurring on New Mecklenburg, from whence, however, I have before me a much larger race. The ground-colour of *illudens* is dark brown, forewing of the ♂♂ with three to four, that of the ♀♀ with five small grey-white subapical dots, underside with light blue cell-spot and three resp. six circumcellular patches. Forewing with a row, hindwing with a half row of small antemarginal spots. — **lygdamis** *susp. nov.* is a larger form from New Mecklenburg, with purer white and more prominent spots on the upperside and larger and lighter blue ones on the underside of both wings. *illudens.* *lygdamis.*

E. decipiens *Btlr.* is a species nearly allied to *illudens* with the sexual stripe much longer, broader and distally not ovally prolonged. Apex of the forewing more pointed, hindwing with only two short rows of antemarginal dots. Described from New Lauenburg. in my collection from Herbertshöhe. *decipiens.*

E. hemera *spec. nov.* (86 a), similar to *cerberus Btlr.*, with the wings of the same shape; inner margin of the forewing strongly convex; ♂ above dark brown, ♀ somewhat lighter. ♂ above without, ♀ with a few unimportant small submarginal spots. Sexual stripe of the ♂♂ narrow, short, in some examples nearly suppressed; dots on the under surface as in *illudens*. Island of Mafor or Mefor in Geelvink Bay. — **nesis** *subsp. nov.* is a darker and much smaller race, which differs from *hemera* beneath in having a more complete row of violet submarginal dots. Dammer. *hemera.* *nesis.*

E. irene *spec. nov.* (86 c), with more rounded wings, of larger size than the preceding (usually about equal to *anthracina Btlr.* from Amboina), has like *anthracina* and *deione Westw.* a very long broad sexual stripe on the forewing. Ground-colour dark coffee-brown, ♀ little lighter, both sexes wihout a trace of dots on the upperside. Under surface light coffee-brown with a broad yellowish patch in the median part of the hindwing, such as occurs also in *deheeri Doh.* and *radica Fruhst.* Forewing with two, hindwing with five transcellular patches surrounding the cell-spot. Forewing in the ♂ with a violet stripe between the median veins, distally curved somewhat downwards, ♀ with the customary submedian streak. Fergusson and Kiriwina. *irene.*

E. vitella *Montr.* and **transfixa** *Montr.*, from Woodlark Island, possibly approximate to *irene*, but I have never seen these forms.

E. melanopa, an exclusively Papuan species, is distributed in collections under the newer name *netscheri Snell.* — **melanopa** *Röb.*, described from Sekar, on the southern arm of West Dutch New Guinea, is the darkest branch-race known. Upper surface without markings, forewing dark coffee-brown with the margins but little lighter, hindwing only dark brown basally and in the cell, distally yellowish brown. Under surface lighter, somewhat tan-coloured. Dots of the underside as in *irene.* Doherty took the form at Kapaur, Kühn also in Etna Bay. In the Kayu-Meru Bay examples occur with large white subapical patches on the under surface, which are present on the forewing as small spots shaded with grey-brown (= **albifrons** *form. nov.*, 86 b). Together with it occur in the same district ♂♂ with white patch on the hindwing above and the entire anal third of the hindwing beneath tinged with grey-white (= **delicia** *form. nov.*, 86 b). — At the Humboldt Bay and especially at Dorey in Geelvink Bay on the northern coast of Dutch New Guinea occurs **netscheri** *Snell.*, with the upper surface uniform light brown, of which a good figure was given in the Tijdschrift voor Entomologie 1889. – **julica** *subsp. nov.* (86 b) has a rather monotonous upper surface, the distal margin only in the ♀♀ appreciably lighter, but the under surface is always more or less inclined to the *delicia*-pattern. Waigeu, Salawatti. — Finally, **parca** *subsp. nov.* inhabits German New-Guinea, but is very rare. Distal margin of the underside of both wings reddish brown, the upper surface darker than in the forms already mentioned. According to Hagen *parca* occurs from December to April at the Astrolabe Bay. — **cissia** *subsp. nov.* is before me from Misol; above and beneath characterized by a light grey-brown, sharply defined margin on both wings and with large violet-white discal patches on the under surface; the ♀♀ bear subapical patches on the underside. thus somewhat resembling *albifrons*. Flies in January. *melanopa.* *albifrons.* *delicia.* *netscheri.* *julica.* *parca.* *cissia.*

With **E. duponcheli** begins a small group of species which is distributed from the Moluccas to the Solomons and is distinguished by a long, broad silky stripe on the forewing, which particularly in the eastern species reaches the maximum of development among all the Euploeids. The separate races and species are all to be met with in great abundance in woods at the sea-coast. — **anthracina** *Btlr.* Habitus about as in *deione Westw.* Ground-colour black-brown with the margins slightly lighter; ♀ above nearly always with indistinct grey-white submarginal spots (Amboina) or these distinctly shining through on both wings (Ceram). The species is often confused with *climena,* but the intramedian patches of the forewing and the submarginal dots of the hindwing are all more pronounced. Amboina, Saparoea. — **lykoatis** *subsp. nov.* has the ground-colour lighter brown throughout than *anthracina*, the forewing of the ♀♀, but especially the hindwing, has the white dots better developed, and the submarginal patches of the under surface are likewise more prominent than in Amboina examples. East Ceram, very common. — **duponcheli** *Bdr.* on the other hand is a considerably darkened race; ♀ smaller than in *anthracina* and without a trace of transparent submarginal dots. *anthracina.* *lykoatis.* *duponcheli.*

Under surface more delicately dotted with blue throughout, the rows of dots on the hindwing not continued
odingdensis. to the anal angle even in the ♀. Buru. — **dodingensis** *Moore* is characterized by the strikingly broad sexual stripe of the forewing in the ♂♂ and the uniform dark brown colouring of the upper surface. Dots on the
varina. underside even more reduced than in *duponcheli*. North Moluccas: Halmaheira, Batjan. — As ab. **varina** *form. nov.* we indroduce an interesting aberration with a row of light brown submarginal patches on the forewing above, which beneath are magnificently blue-white. The hindwing bearse long whitish violet intramedian
moluccana. streaks. Both wings distally tinged with steel-blue. Batjan. — **moluccana** *Swinh.* is the darkest of the Moluccan races, altogether smaller than *dodingensis*, ♀ above sometimes with two or three small median dots. Dots of the under surface very delicate, similar to those of *dodingensis*. No representatives of *duponcheli* are yet known from New Guinea, but two species occur commonly on the Solomons.

fraudulenta. **E. fraudulenta** *Btlr.* ♂ somewhat larger than *anthracina,* with dark brown androconia-spot, filling up the whole cell, and light brown anal margin on the hindwing. ♀ above dark brown, with darker marginal area, a rather large white cell-spot and two transcellular spots. ♂ with the sexual stripe on the hindwing very long, yet only a third broader than in *anthracina*. The under surface of the forewing is characterized by a long, concave, somewhat sausage-shaped whitish violet spot, bent downwards at the sides, placed between the middle and lower median veins before the grey cell-stripe which shines through from beneath. In the ♀ there is further an unusually long band, extending to the base, likewise whitish violet, which occupies the inner margin of the forewing behind the submedian. Under surface of the hindwing as in *anthracina,* but with two rows of very large antemarginal dots. Widely distributed on the Solomon Islands: Shortlands, Bougainville, Choiseul, Ysabel and Rubiana. On Renonga Ribbe captured a specimen with whitish sheen on
lystra. the upperside of the hindwing. — **lystra** *subsp. nov.* Habitually smaller than *fraudulenta*, with reduced white discal dots on the forewing and more uniformly light brown hindwing. Underside of the forewing in addition to the usual cell-spot and 2 transcellular patches with a row of 3 thin striae before the apex of the cell, which are wanting in the other *fraudulenta*-forms. Treasury Island.

nechos. Finally, **E. nechos** *Math.,* with more rounded wings than the preceding, has the sexual bands of the forewing nearly 1 cm. in breadth. Ground-colour somewhat lighter brown, the characteristic intramedian stripe on the underside of the forewing shorter than in *fraudulenta,* distally deeply incised, proximally not excurved posteriorly. Antemarginal patches of the hindwing mostly absent. Ribbe met with the species up to many thousands on the small Solomon Island Munia, whole swarms were frightened up when anyone passed through the thickets; and in some places, where the natives had cut down wood, whole crowds of Euploeids were resting on the flower-covered stumps. Even in the dense forests there was not a twig and scarcely a leaf of the lower bushes on which a *nechos* was not settled. Ribbe learned from the natives that such swarms occur periodically, about every 10 years. Shortlands Islands, Bougainville.

megaera. **E. megaera** *Btlr.* is only known to me from the description. Ground-colour dark brown, the hindmargin lighter. Five subapical spots are placed in an oblique row. ♀ with a cell- and a costal dot and a row of small indistinct submarginal spots. ♂ with three subapical dots on the paler hindwing, ♀ with two rows of subapical dots. Under surface lighter brown than upper; ♂ with 7 antemarginal dots. Aru Islands.

E. morosa (= dalmani *Fldr.*) is an interesting species, and is the easiest to determine of all the *Crastia*. The sexual spot inserted between the middle and lower median vein is placed quite near to the
morosina. distal margin of the forewing and moreover is almost rounded instead of elongate and stripe-like. — **morosina** *subsp. nov.* (82 d). Above deep velvety black, hindwing with whitish grey costal margin and quite narrow black androconia-patch. Under surface with a violet cell-dot, two discal dots and an elongate, distally pointed intramedian stripe, which is placed exactly over the oval scent-spot. Hindwing besides the cell-spot with 5
morosa. violet discal and 3 subapical dots. ♀ somewhat lighter brown, above without a trace of dots. Obi. — **morosa** *Btlr.,* described from Halmaheira, not rare also on Batjan, is somewhat larger than the preceding; scent-spot elongate and larger. Under surface with more delicate discal dots than in *morosina.*

E. pierreti, described from Dorey (Dutch New Guinea), has the sexual spot likewise very near the distal margin of the forewing. It varies in length in the separate local races, but in all the forms is somewhat
numantia. curved down distally. — **numantia** *subsp. nov.* (86 b) shows a shorter sexual patch, which in some ♂♂ is somewhat narrower, but in others broader than on the figure, where unfortunately it could not be brought out very distinctly. Under surface of both wings basally dark coffee-brown, the distal margin of the hindwing shaded with whitish yellow. Forewing with a cell-dot and 2 or 3 discal dots, hindwing with a cell- and 5
pierreti. discal dots. Not rare; Waigeu. — **pierreti** *Fldr.* is above somewhat lighter brown throughout than *numantia*,

the scent-spot long, large, distal margin of the hindwing, particularly that of the ♀, rather dark tan-coloured. Discal dots on the under surface very weak. Marginal area of the hindwing in the ♀♀ almost whitish. Dutch New Guinea. — **erana** *subsp. nov.* may be recognized by having the silky stripe on the forewing nearly twice as long as in *numantia* and the upper surface of both wings very dark, with the yellow-brown distal margin standing out rather sharply. Under surface dark coffee-brown, with bone-yellow marginal area extending to the cell and extremely prominent whitish violet discal patches. German New Guinea. *erana.*

E. lugubris *Sm.*, described from the island of Biak, has the sexual stripe as short as in *morosa Btlr.* Hindwing as pale brown-yellow as in *numantia Fruhst.*, the size larger than in *morosa* and *numantia*, but the hindwing more similar to that of *morosa*, i. e. with anteterminal dots, which are absent in the *pierreti*-series. — **fuscosa** *Sm.* is a local form of the preceding, above and beneath darker brown, but hindwing with the white dots more indistinct. Mysore, collected at the harbour of Korrido. Only 2 pairs known. *lugubris.* *fuscosa.*

E. lapeyrousei *Bdv.* is a species probably allied to *pierreti*, said by Moore to occur on Buru, but by Oberthür, who possesses the type, in Dutch New Guinea. According to Oberthür Boisduval's description is much too brief for it to be possible to judge of the species from it. Moore states that the sexual spot is much narrower but longer than in *pierreti* and the under surface more prominently spotted. *lapeyrousei.*

E. torvina *Btlr.* An extremely elegant species with very narrow wings and a large sexual stripe, distally and posteriorly rounded. Forewing deep velvety brown with narrow distal area, somewhat lighter brown but tinged with violet. Hindwing with somewhat broader yellow-brown anal margin, under surface light chocolate-brown, hindwing with very narrow, sharply defined pale brown marginal area and prominent, rather large white-yellow antemarginal dots. Disc and cell as in *morosa*, but more delicately dotted. New Hebrides: Aneitum; Lifu; rare in collections. *torvina.*

E. paykullei *Btlr.* is a nearly allied, but distinct species, with even more delicate colouring than the preceding. Subapical region of the forewing and marginal area of the hindwing narrowly lighter, band-like, light brown instead of blackish, like the rest of the upper surface of both wings. Underside of the forewing also margined with lighter brown, hindwing without the antemarginal dots. Vate, Aneitum and Mota in the New Hebrides. *paykullei.*

E. brenchleyi *Btlr.* is wanting in my collection; it nearly approaches *paykullei*, from which it differs chiefly in having the hindwing almost entirely margined with white, recalling *eurypon Hew.* (86 c). Solomon Islands, without more exact locality, and discovered on a cruise to various Polynesian islands. *brenchleyi.*

E. eurianassa, one of the most beautiful species of *Euploea* known, exclusively inhabits the Papuan region and is a faithful copy of *resarta Btlr.* (82 b), from which it is at once distinguishable by the very long scent-patch of the forewing. — **cumaxa** *subsp. nov.*, from Kaiser-Wilhelmsland, is somewhat darker above, with narrower bands, partially suffused with yellowish, especially on the forewing. Like *resarta*, *cumaxa* does not occur further west than Finschhafen and hence is absent already from Astrolabe Bay. Hagen already knew the species in 1897 as very rare at Simbang, taken in December. — **terentilia** *subsp. nov.* (82 b) is a larger race than *cumaxa*, with the bands still more darkened; that of the forewing is sometimes entirely scaled with brown-grey and in parts nearly obsolete. The narrowing of the whitish submarginal band is even more noticeable beneath than above, in consequence of which the light brown anal margin of the hindwing is widened. Fergusson Islands. — **eurianassa** *Hew.*, described from New Guinea, probably coming from the British part of the island, is the most copiously white-banded local race and bears beneath the most delicate cell-dot and 5 discal dots of all the forms. Milne Bay, December, January; apparently not rare. *cumaxa.* *terentilia.* *eurianassa.*

Group Stictoploea *Btlr.* (1878)

(*Narmada Moore* 1880, *Doricha Moore* 1883.)

Larva as far as known with 3 pairs of tentacles, otherwise scarcely differing from that of the preceding group, but the appendages on the 3rd and 4th segments are considerably longer. Pupa as in *Crastia core.* Forewing with 2 sexual stripes. Neuration as in *Crastia.* Valve, as far as examined, similar to that of *Salpinx*, but much narrower, with elongate point, only moderately bent upwards.

E. coreta *Godt.*, of the same shape as *E. core Cr.*, but with somewhat smaller yellowish white submarginal patches on the forewing and shorter yellowish white wedge-spots on the hindwing. Forewing beneath with two white dots at the discocellular, which are absent in *core.* The species is very common in Southern *coreta*

India and is better known under the name *coreoides Moore.* Probably *consimilis Fldr.*, described as from Java, where it does not occur, is also a synonym of *coreta.* Larva with black head and white labrum, body of indefinite colouring, ground-colour blackish with blue dorsal line, some segments with yellowish, others with greenish violet sheen. Tentacles indigo-coloured, legs black. Pupa silvery with broad brown bands. Larva
montana. on the underside of young leaves of Ichnocarpus frutescens, much infested with ichneumons. — **montana** *Fldr.* is the Ceylon race of the preceding, with melanotic colouring of the forewing, on which above the submarginal dots are almost obsolete in the ♂♂ and much darkened in the ♀♀. Also beneath all the white markings are reduced. At certain seasons not rare, *montana* ascends from the plains up to about 2000 m. and is met with at Nuwara Eliya in May; sometimes it accompanies the common *asela* in its migrations.

E. harrisi, a continental Indian species with the most wonderful blue reflection, is broken up into two geographical races, and on account of itstendency to individual variability a whole series of names has been given to single, sometimes very unimportant forms. In spite of its commonness the early stages are still
hopei. unknown. — **hopei** *Fldr.* resembles the figured *binotata* (82 a), except that the hindwing bears a row of large white submarginal spots. This is the most northerly branch of the collective species, from Assam, Sikkim
binotata. and Cachar, described by Felder. — **binotata** *Btlr.* (82 a) is the type-form, hindwing without white wedge-spots, very common in Sikkim and Assam. Some examples have light blue, white-dotted subapical patches on the forewing, moreover the blue discal spots vary considerably in size; sometimes the two rows on the
pygmaca. forewing are prolonged and joined together. The cell-dot is sometimes suppressed. — **pygmaea** *Moore* is founded on a ♀ of the dry-season form, with violet upper surface and an elongate white wedge-spot in the
microsticta. cell of the forewing. — **microsticta** *Btlr.*, without exact locality, is probably a ♂-form of the rainy season,
regina. with extraordinarily large wings, and ab. **regina** *Moore* is an aberration without white submarginal dots
harrisi. on the hindwing and bearing very small white punctiform spots, described from Cachar. — **harrisi** *Fldr.* extends from Tenasserim to the Malay Peninsula, was described by Felder from Cochinchina, and collected by me in numbers in January in Siam, in February in a very small dry-season form in South Annam, and
crowleyi. in June and July in Tonkin. ab. **crowleyi** *Moore* is a melanotic aberration from Tenasserim, in which the
depunctata. two rows of white spots on the hindwing are absent. — **depunctata** *form. nov.* are specimens without whitish
discalis. submarginal dots on the forewing, which I have before me from Siam, and ab. **discalis** *form. nov.* is a rare aberration, with distinct blue cell- and 5 transcellular patches on the forewing, with normal hindwing, which bears a double row of white dots, and hence forms a transition to *hopei Fldr.* from Assam.

E. lacordairei is the name-type of a series of geographical races distributed over all the Macromalayan and some of the Micromalayan islands, which forms a very natural transition from *harrisi Fldr.* from the Indian continent to *dufresne Godt.* from the Philippines. Whether all the three species now regarded as separate belong to one collective species is a question which can only be solved by further anatomical research. As in certain species of *Salpinx*, so also here reliable conclusions as to the specific rank of individual forms
mithrenes. can scarcely be drawn at present from the only slightly different shape of the valves. — **mithrenes** *subsp. nov.*, from Sumatra, differs from the figured *harrisi* (84 b) in the darker, more steel- than light blue reflection on the upper surface and in the unequal and darker blue-violet submarginal spots of the forewing. Hindwing nearly always without submarginal rows of white spots, which are only absent on the under surface. On the other hand there is always an admarginal row of white dots on the hindwing and the discal spots on the underside of the forewing are very distinct. *pirina* is nowhere common and does not extend beyond the
convallaria. alluvial plains and the adjoining spurs of the mountains. ♀♀ are very rare. — **convallaria** *Thieme* is a well marked race with a row of very large, pure white subapical spots on the forewing, which are only at their proximal margin sprinkled with brownish atoms. Hindwing with five or six small white submarginal spots, which become smaller posteriorly. Upper surface deep brown, the violet gloss of the forewing is scarcely recognizable, and only in certain lights. Distal margin of both wings with the exception of the apical part with minute dots, which are placed nearer to the margin than in *lacordairei* from Java. Nias, only 1 ♂
nica. known. — **nica** *Fruhst.* differs both from *convallaria* and *pirina* in the particularly bright blue gloss even of the hindwing, in which it strongly recalls *harrisi*, except that the reflection is appreciably darker than even in Siam examples. Forewing with five very large, light blue submarginal spots without white centres; hindwing in the ♂ with three obsolescent, in the ♀ with pronounced, small subapical spots. Under surface deep black-brown with large whitish blue discal patches on the forewing. Hindwing, however, only with a few and
tyrianthina. nearly obsolete blue cell- and marginal dots. Engano, very rare. Flies in April. — **tyrianthina** *Moore*, described from North Borneo, in my collection also from South-East Borneo, closely approaches *mithrenes* from Sumatra, but is generally larger, the subapical blue spots of the forewing correspondingly larger, the blue gloss somewhat brighter on the forewing, but less bright on the hindwing and the under surface deeper
dotata. brown with the white marginal dots reduced — **dotata** *Fruhst.*, from Palawan, forms the transition to *dufresne Godt.* from the Philippines, has a more intensively blue gloss than *tyrianthina* and always bears, particularly in the ♀, large, rounded, light violet submarginal patches on the forewing, which traverse the entire wing to

the submedian. But the dots on the under surface are as insignificant as in the Borneo race Flies in January. — Whilst the races hitherto dealt with all show a more or less similar stamp, with **lacordairei** *Moore* begins *lacordairei.* a series of extremely variable geographical forms, probably due to the contrast of the seasons both on Java and on the more easterly islands. *lacordairei* inhabits the whole of Java, ascending from the sea-coast up to about 6—700 m. Examples from West Java, especially those from the Bay of Palabuan, taken by me in January in the middle of the rainy season, show in general only minute blue submarginal spots on the forewing and three subapical larger white spots on the hindwing (**defigurata** *form. nov.*) In East Java both sexes *defigurata.* commonly occur with very large, wedge-shaped, almost entirely white subapical spots on the forewing, which recall the ♀ of *Salpinx leucostictis* and may be designated **magniplaga** *form. nov.* ♀♀ from the Tengger Mountains *magniplaga.* of East Java bear wedge-shaped instead of rounded submarginal spots and an intramedian dot on the forewing beyond the cell and to some extent recall *E. eleusina*-♀. Finally, **decorata** *form. nov.* appears to belong to the *decorata.* most extreme dry season, with very large, white-dotted, light violet patches on the forewing and two complete rows of small white dots and small rounded spots on the hindwing above and beneath. — **baweanica** *subsp.* *baweanica.* *nov.* is as a rule larger than Javan examples, the submarginal patches of the forewing always larger, in the rainy-season form powdered with light blue. Under surface most resembling that of *tyrianthina Moore* from Borneo, deeper brown, with less dots. The dry-season form recalls *decorata*, but is still more pronouncedly dry-season, the hindwing bears even above two rows of light violet dots, and the ♀ bears in addition to these discal patches a blue splash before the discocellular, so that the resemblance to *eleusina* is still more complete (**eleusinida** *form. nov.*). Bawean, July-September. — **cassia** *subsp. nov.* differs from *lacordairei* in *eleusinida. cassia.* the smaller size, the more rounded wings, and the reduction of the blue reflection Under surface of the ♂♂ with pronounced dark blue discal patches, but almost without antemarginal dots. ♀ mostly with regular, distinctly wedge-shaped submarginal patches and almost without exception belonging to the form *eleusinida.* Coast-forests of Lombok, by preference sailing up and down at the edge of the woods on very hot days. — **tambora** *subsp. nov.* is a larger form, as a rule with almost whitish submarginal spots, which are continued *tambora.* on the hindwing. The under surface varies in two directions: the majority of the ♂♂ have the discal dots but little developed and no marginal ones, whilst a limited number show increased violet and white markings. Sumbawa. — **invitabilis** *subsp. nov.* is the maximum in the development of large, white-centred, light violet *invitabilis.* subapical spots on the forewing. The ♀♀ have large triangular spots, which pattern is accompanied by the *eleusinida*-markings. Disc of the wings on the under surface copiously decorated with violet. Alor. — **melolo** *melolo.* *Doh.* is a very distinct geographical form with light blue submarginal spots, which are almost united into bands, being proximally broadly diffuse, and only inappreciably and rarely centred with white. ♀ with traces of *eleusinida*-pattern. The under surface is the poorest in markings of all the *picina*-races, the hindwing commonly entirely without dots. Sumba.

E. watsoni *Moore* doubtless replaces *picina* on Buru in the Moluccas. Upper surface very dark, with *watsoni.* uniform deep blue reflection. Expanse very large. Forewing with small, narrow, reniform sabapical spots, predominantly white with light blue border. Hindwing with one or sometimes three likewise reniform, pure white subapical spots and rarely with white marginal dots. Under surface dark chocolate-brown with dull blue gloss. Forewing without minute marginal dots. Discal spots violet, arranged as in *picina.* Buru; rare.

E. dufresne *Godt.* is the oldest name for a species which inhabits the Philippines and is better known *dufresne.* under the name *laetifica Btlr.*, under which it has also been figured 82a. *dufresne* is characterized by a band-like, confluent row of four white subapical spots, which are bordered with brilliant light blue. In the submarginal area of the forewing moreover are placed four more or less white-centred rounded patches, the hindwing bearing three dots in the ♂, in the ♀ six to eight, gradually decreasing in size posteriorly. Hindwing as a rule with a further row of small white antemarginal dots. Under surface with blue cell-spot, two discal spots and a whitish streak at the submedian. Hindwing mostly without cell-spot, but with three to five ultracellular dots. The white subapical patches of the upperside strongly reduced, and the submarginal spots scarcely larger than the subterminal dots. — In one ♂ all the white spots, except the subapical ones, are absent beneath, and the submarginal patches of the forewing have also nearly disappeared, the blue reflection on the upperside is darker and duller than in normal examples, **azagra** *subsp. nov.* Habitat unknown. Mindoro (?). *azagra.* — **bazilana** *Fruhst.* is a considerably different race without distinct white subapical area on the forewing, *bazilana.* on the other hand with the submarginal spots almost equal in size and all centred with white: the cellular and discal spots of the under surface more pronounced than in *dufresne* from more northerly localities. Bazilan, February, March, discovered by W. Doherty. From the other Philippines a whole series of geographical branch-races may still be looked for. — **swinhoei** *Wall.* inhabits Formosa, where it appears not to be rare *swinhoei.* at Taihemoku near the south point of the island. Forewing with somewhat smaller, darker blue, but likewise all white-centred submarginal spots. Hindwing with three subapical patches and a row of pure white antemarginal dots, always strongly expressed. Under surface, also that of the forewing, with very small marginal and discal spots.

E. gloriosa, with the forewing 52 mm. in length, is the largest known *Stictoploea* and distinguished from all the other species in having the most extended white submarginal spots on the forewing. Two local
gloriosa. races: **gloriosa** *Btlr.* (= superba *Voll.*, badonia *Kirby*, schlegeli *Fldr.*) (84 b), from the north of Celebes, collected by me at Toli-Toli, November-December, near the sea-coast; a rapid flier, but like all the Euploeas is tempted to lengthened rests by flowering shrubs. ♀ as a rule with a proximal smaller, but pure white row of discal spots, which are united with the violet submarginal patches by diffuse proximal prolongations of the latter. Under surface with only slightly narrower rows of white, often wedge-shaped markings. Discal
pompilia. patches of the hindwing likewise whitish, not pale, as in the other *Stictoploea*. — **pompilia** *subsp. nov.* is the hitherto unnoticed form of Southern Celebes, recognizable particularly beneath by the reduced white spots, of which the discal ones are again tinged with light blue or violet. Observed by me at the Peak of Bonthain even at an elevation of 1000 m.

E. picina inhabits the Moluccas, and with its more dusky upper surface is absolutely the reverse of
inaequalis. the preceding species. Everywhere very rare, there are as yet only two island races to record: **inaequalis** *Btlr.* (81 b). Ground-colour of the hindwing as a rule somewhat lighter brown than on the figure, moreover the ♀ shows above a lighter brown distal margin. Under surface of the ♀♀ always with whitish grey anal area, which is sometimes reproduced on the upperside. Discal markings predominantly whitish, no trace of
picina. marginal dots Amboina. Saparoea, Ceram. Very rare. — **picina** *Btlr.* (= plateni *Stgr.*) is a form strongly darkened above and beneath, with more extended dark violet reflection on both wings and a slightly indicated light brown submarginal area on the upperside of the hindwing. Northern Moluccas, Batjan, Halmaheira: ♀ still undescribed. Described by Butler with the incorrect locality "Sumatra", but very recognizably figured.

E. doleschalli is the oldest designation of a Papuan collective species which passes in collections under a series of names, among which, however, the very one entitled to priority has been entirely ignored. Apparently in the whole range of the species striking deviations occur, which have given occasion to different specific names. But in spite of all the statements to the contrary, there is also in New Guinea as well as in India and on the Malayan islands only one *Stictoploea* in each district, which excludes the presence of a
doleschalli. second species. — **doleschalli** *Fldr.* (= papuana *Reak.*), the form from the Dutch region, was figured as *penelope Btlr.* (81 a), a name with which the type-form of the collective species is labelled at the British
moesta. Museum. — As **moesta** *Btlr.* an insignificant variety has been described, which bears only three blue-violet
inconspicua. subapical spots on the forewing. — **inconspicua** *Btlr.* is a form with dark brown upper surface and somewhat
aethiopina. lighter margins, especially on the hindwing, but without a trace of white or violet apical spots. — **aethiopina** *Sm.*, founded on two ♀♀, shows only a white costal spot on the forewing. — All these names refer to examples
immaculata. from Dutch New Guinea, whilst **immaculata** *Btlr.*, the race of the British region, is somewhat smaller than *doleschalli*, and still darker: only ♂♂ without white submarginal spots are known. Also according to Butler the
agema. ♀ has no submarginal marks at all. — As **agema** *subsp. nov.* we introduce the geographical race from Kaiser-Wilhelmsland, which is somewhat smaller than my examples of *doleschalli* from Sorong and Dorey, Rapsur and Hattam in Dutch New Guinea. The form *inconspicua Btlr.* is the typical form in Friedrich-Wilhelmshafen, but examples also occur which correspond to the figured *penelope*, and from Finschhafen I even have before
egregia. me ♂♂ with the submarginal patches of the forewing entirely white (**egregia** *form. nov.*). The ♀♀ of *agema*, of which, however, I have only received 5, are dark brown, with steel-blue tinge and rather sharply defined light brown distal border, with slight reddish sheen. At the proximal edge of this are placed six whitish, violet-powdered submarginal patches of unequal size, which in one ♀ remain pure white and are even continued on the hindwing. The ♂ figured shows an aberration, the forewing having three grey-violet intraneural
limbata. stripes. — **limbata** *subsp. nov.* has the forewing almost entirely black with extremely dark, indistinct blue gloss. Hindwing with broad, chocolate-brown distal margin, ♂ occasionally with a violet subapical dot on the forewing, otherwise belonging to the form *inconspicua Btlr.* ♀ resembling that of *agema*, but lighter brown, with indistinct,
tarnis. brown-powdered submarginal patches. Hindwing with almost whitish marginal area. Waigeu. — **tarnis** *subsp. nov.*, inhabiting the island of Jobi in Geelvink Bay, is even larger than *doleschalli Fldr.* from Sorong, and above, especially at the anal margin of the hindwing, darker than *limbata* from Waigeu. Under surface of both wings
amarynceus. with larger light blue discal patches than the allied races — **amarynceus** *subsp. nov.* is before me from the island of Salawatti and bears the most pronounced and irregular submarginal patches on the forewing. ♂ with the light brown anal margin more extended than in *limbata*. ♀ almost entirely light brown, marginal area
melander. on the underside of the hindwing in both sexes inclining to whitish. — **melander** *Sm.*, described from the island of Santa Cruz, appears also to belong to *doleschalli* as the most easterly offshoot known. ♂ brown with two narrow violet subapical patches on the forewing and four small white dots between the veins. Hindwing as in *limbata*.

palla. **E. palla** *Btlr.* (= payeni *Fldr.*) (84 b) replaces *doleschalli* on the Aru Islands. It only differs in having the inner margin on the underside of the forewing in both sexes cut off straight as above and all the white subapical spots somewhat reduced. Discal patches of the hindwing absent and only three present on the forewing

E. tristis *Btlr.*, a miniature form of the preceding, forewing similarly marked, but the submarginal ovals of the hindwing removed further proximad, narrower, under surface more copiously dotted with violet than *palla*, forewing with white, partly absent submarginal spots, but both wings with violet cell-patch and a row of five transcellular spots. New Hebrides, apparently rare. — **scylla** *subsp. nov.* is a race without submarginal punctiform spots on the underside of the forewing, and with only three distinct subapical white spots on the upperside. New Hebrides without more exact locality. *tristis.* *scylla.*

E. jacobseni *Röb.* (= wetterensis *Fruhst.*, baudiniana *Godt.* ? ?) (82 e) is a pretty species, which inhabits Micromalayana (Timor Group) and must be regarded as the smallest *Stictoploea* known. ♂: forewing with slight violet sheen on a dark ground, hindwing light brown like the upperside of both wings in the ♀♀. Forewing with very broad, pure white subapical patches, proximally slightly tinged with violet, and four prominent rounded submarginal spots. Hindwing with three rounded subapical punctiform spots. A form which probably belongs to the dry season is **crassimaculata** *form. nov.*, with very broad yellowish white submarginal band on the hindwing in both sexes, recalling *orope* and *fabricia*. Wetter. — **timora** *Fruhst.*. ♂: ground-colour of the forewing a very dark, of the hindwing a somewhat lighter brown. From the apex to the anal angle runs a row of large white spots, which are proximally bordered with violet. The three upper spots are placed close together, the others being smaller and isolated. The yellowish white submarginal spots of the hindwing, as in *sylvester*, are distally separated by a brown tooth projecting from the distal border, and are proximally somewhat incised, especially in the ♀. Both wings are bordered by a marginal row of white dots. Above the end of the cell the ♂ bears one violet dot, the ♀ three white ones at the costal margin. Of the two silky, very narrow sexual stripes the upper one is $^1/_3$ shorter than the lower and both are much smaller than in *sylvester*. The brown ground of the under surface, which gradually becomes lighter from the base to the distal margin, recalls *orope Bdv.* and *oropina Röb.*: a colouring which combined with abundant white bands lends to the Euploeas of the small Sunda Islands a characteristic stamp. On the under surface of *timora* all the markings of the upperside are reproduced, and in the middle of the wing there is further a row of blue-white dots. On the forewing 4 of these spots are costal, 1 cellular, 3 circumcellular, and 1 or 2 placed below the submedian: the hindwing bears 1 cellular and 6 circumcellular dots. One dot is placed at the base of the forewing and 4 at that of the hindwing. Antennae and abdomen as in *sylvester*. Length of the forewing: ♂ 41 mm., ♀ 34 mm. Timor. *jacobseni.* *crassimaculata.* *timora.*

E. pelor *Dbl.*, an extremely rare species described from Australia, but never found there again. As I have a ♂ before me from Babber, the Timor-Laut Group is pretty certainly the true locality of the species. Upper surface, except for the two sexual stripes, exactly as in *sacerdos* (84 d), only with two spots instead of a costal patch on the forewing. Under surface as above, but with four transcellular and three discal small violet spots on the forewing and a cell-dot and six small blue-violet discal spots on the hindwing. Ground-colour deep black. *pelor.*

E. rogeri *Hbn.* is an allied species, likewise very rare, which differs from *pelor* in the smaller white submarginal spots on both wings. Locality unknown, probably islands of the Timor or Timor-Laut Group. *rogeri.*

E. sylvester *F.* (= dardanus *Misk.*) resembles *eichhorni Stgr.* (81 c) except for the two scent-stripes. Under surface exactly as in *pelor*. — As **crithon** *Misk.* a form has been described of which it is doubtful whether it is an accidental aberration of *sylvester* or must be regarded as a distinct but very rare species. Upper surface deep black with purple sheen and two sexual spots, under surface dark brown with lighter margins. Forewing beneath with two blue-white, hindwing with five violet punctiform spots. Like *sylvester* at Cape York, North Australia. *sylvester.* *crithon.*

Group Trepsichrois.

Larva with four pairs of very long appendages. Cell of the forewing as in *Crastia*. Hindwing with large androconia-patch and a small spot covered with yellow, shaggy, clubbed scent-scales with short cilia. Anal pencil somewhat shorter than in *Stictoploea*, longer than in *Crastia*, light canary-yellow, simple, can be easily and strongly moved and projected. Valve not examined as yet. The group does not extend eastward beyond Celebes, and hence is purely Indo-Malayan, only one species *(mulciber)* has been observed in New Guinea, as an accidental importation. Of all the Euploeids the species of this group all have in both sexes a smell most repulsive for human organs.

E. mulciber is better known under the designation *midamus L.* and as such also figured vol 1. pl. 28 e and described with larva and pupa p. 78. The species belongs to the characteristic butterflies of India, but strange to say is wanting in Ceylon and the Andamans, though it is met with again on the Nicobars as an occasional migrant. Northwards it extends to Formosa, eastwards to the island of Bali, and is broken up into a series of local races, some of them highly specialized. It is further worthy of note that there is a series of butterflies and of Chalcosiids which have a convergent garb and afford striking examples of mimicry. Even specimens of the Nymphalid genus *Penthema* and some Papilios of the *paradoxus*-group, which are much larger than the model, resemble *mulciber* on the wing to such a degree that they deceived me over and over again, and my Annamites and Japanese could not distinguish them at all. — **barsine** *Fruhst.* is the largest *barsine.*

race known, both sexes distinguished by unusually large subapical patches with well developed white centres on the forewing, but in the ♀ the influence of the island melanism is shown by the white stripes of the hindwing being very thin and occasionally entirely absent in the cell. Formosa, up to 4000 ft., on the wing
mulciber. especially July—August. — **mulciber** *Cr.* (= midamus *auct.*, linnæi *Moore*), described from China and the Coromandel Coast, inhabits the whole of continental South Asia from China and Tonkin to Singapore, and is met with from the sea-coast up to 2000 m. wherever there are flowering shrubs and trees to attract it. In the north-western Himalayas it is already rare. According to the season there occur very small examples (Siam, January) and strikingly large specimens (Tonkin, Assam, July). According to my observations the anal pencils are pushed out with nervous haste and drawn in again just as quickly, and at the same time an
kalinga. extremely pungent smell is emitted, which is also present in the ♀♀. — **kalinga** *Doh.* is a name given to a race from Southern India which I have not seen, and which moreover is synonymous with *claudius F.* if the locality "Tranquebariae" of Fabricius should prove to be correct. According to the description *kalinga* differs from *mulciber* in the ♂ only in having less blue reflection on the forewing, which bears larger white patches, and in the somewhat smaller sexual spot on the hindwing. The ♀ is said only to differ from the ♂ in the absence of the sexual spot on the hindwing and of any trace of white longitudinal bands in the cell.
vandeventeri. Hitherto only known from the Ganyam District near Madras. — **vandeventeri** *Forbes* can only with difficulty be separated from continental *mulciber;* but if large series are compared, West Sumatran examples in particular can be distinguished by the more pronounced white dotting of the forewing in the ♂♂ and the more extended adneural striation of the hindwing in the ♀♀. *vandeventeri* is the commonest *Euplœa* of the alluvial plain of Sumatra, where it flies all the year round, one generation following another continually. Banka, Billiton (?).
verhuelli. — **verhuelli** *Moore* differs from the Sumatran sister-race in the considerably enlarged white subapical wedge-spots, slightly margined with blue, and the entire absence of the discal patches of the forewing. The ♀ likewise bears large subapical white smears, which are continued as rounded patches in the middle of the wing. Nias.
maassi. — **maassi** *Hag.* is a still very rare race from the Mentawej Islands with only one row of light blue round (apically not wedge-shaped) submarginal spots on the forewing. ♀ pale brown, without a trace of a blue
batunensis. reflection, the interneural stripes somewhat tinged with brownish. — **batunensis** *Fruhst.* (= nidana *Fruhst.*) is the darkest island form which is yet known from the Sumatran region. In *batunensis* the blue ground-colour of the upper surface is darkened; the white marginal dotting of the hindwing is entirely absent and on the forewing we only notice four rather dark blue submarginal spots and some indistinct admarginal dots. The dotting of the under surface is likewise reduced, especially the small circumcellular blue spots on the hindwing. The forewing bears below the cell between the middle median and the submedian peculiar grey scent-scales (corresponding with the friction-spot on the upperside of the hindwing), which in other forms of
malakoni. *mulciber* are tinged with yellowish. Batoe. — **malakoni** *Doh.* again approaches in appearance the Sumatran form, as it bears two rows of submarginal light blue patches on the forewing and the usual cell-spot. The ♀ is above brown throughout, the subapical patches obsolescent, dusted with brown, forewing without trace
basilissa. of a blue or violet tinge. ♂ not rare in April on the Island of Engano. — **basilissa** *Cr.* (85 a) is a typical Javan butterfly and on account of its abundance one of the most striking species among the Lepidoptera of the island. Particularly in the heaviest rainy season *basilissa* sometimes occurs in many thousands, thus in January-February 1892 in the Bay of Palabuan, where in the open forest and at the edge of the woods, together with *Radena juventa,* they were so abundant that it was difficult to catch the better species. No other local race has the subapical blue reflection so sharply defined, so large a white spot before the apex of the cell or so strong a submarginal double row of white patches on the forewing and such pronounced white striation on the hindwing as *basilissa.* The latter characters are even somewhat more pronounced in the race from Bali. Very common near Batavia and on Bawean (July—September). In West Java occurs an interesting but rare ♀-form, which forms the transition to *malakoni Doh.* and *maassi Hag.,* shows no trace of blue sheen on the forewing above, darkened white bands on the hindwing and a reduction of the rounded
donada. patches on the forewing, and is apparently only found in the rainy season (f. **donada** *form nov.*) (85 a as
portia. *basilissa*). Palabuan. Batavia. — **portia** *Fruhst.* approximates very nearly to *malakoni Doh.* in the strongly reduced blue dotting of the forewing compared with *basilissa;* the ♀ shows somewhat blue reflection on the forewing, but differs both from the Javan and the Sumatran race in the insignificant white adneural striation
paupera. of the hindwing. North and South Borneo, Natuna Islands. — **paupera** *Stgr.* approaches the continental *mulciber* in the large light blue spots of the forewing, but the submarginal patches have no white centres; the ♀ as in *malakoni* and *donada* without trace of a violet or blue tinge and only differing from the figured *donada*
mindanaensis. in having the white interneural areas of the hindwing somewhat broader. Palawan, rather rare. — **mindanaensis** *Semp.* ♂, upper surface of fore- and hindwing, so far as the latter is not occupied by the furry spot, with brilliant steel-blue gloss; at the distal margin of the forewing a proximal row consisting of 8 larger blue dots and a distal row composed of 12 smaller ones which are not much subject to variation. Under surface: on the forewing there are sometimes some blue dots present at the costal margin in addition to the two usual rows of blue marginal dots and the 2—3 placed on the middle of the wing: the hindwing bears, besides the distal row composed of 14 dots, a proximal row of 12 or less, of which the 8 placed next to the inner angle are elongate, streak-like, the others round and occasionally bipartite. The ground-colour is darker

than in the preceeding forms, the colour of the markings the same except for the dot placed between the 1st and 2nd median veins, which is reddish. ♀: upper surface with strong blue reflection on the distal half of the forewing; very constant and varying but little in the size of the white spots; on the forewing the light streaks in the cell next to the base and at the inner margin only slightly indicated, really only showing through from the under surface, which in addition to the absence of the blue reflection only differs from the upperside in the presence of the whitish streaks just mentioned. — **seraphita** *Fruhst.* (81 d) has shorter and more rounded wings than *mindanaensis* and stronger rows of blue dots on the forewing and hence somewhat recalls *gelderi Snell.* Hindwing above darker than in Mindanao ♂♂. On the under surface of the wings all the patches and streaks are enlarged and purer blue. Hindwing further with a cellular and several circumcellular strigae. ♀ with more extended and more intensive white markings and in the cell of the forewing a broad basal stripe, which is wanting in *mindanaensis.* Bazilan, February, March, discovered by W. Doherty. — **megilla** *E.* (81 d, ♂, 85 e ♀) is so far removed from the *mulciber*-type that one would be tempted to regard it as a species if it were not connected with *mulciber* and *paupera* by transitional forms such as *kochi Semp.* As the larva also, according to Semper, only shows unessential differences from the continental Indo-Malayan collective species, *megilla* is united with *mulciber* in spite of the different colouring and markings. The ♂ is easily distinguished from the other species of *Trepsichrois* by the large white spot at the apex of the forewing, which as a rule consists of two large and four small spots, of which, however, the latter are frequently suppressed. On the upper surface there are in addition sometimes bluish marginal spots, the distal ones being small and the proximal ones very few in number and somewhat larger, for the rest the forewing is unicolorous with brilliant steel-blue reflection. The anterior half of the hindwing is occupied by the grey-black furry hairs peculiar to this genus, bounded basally in the cell by the characteristic small gold-brown spot. The proximal half of the hindwing, together with a narrow distal margin reaching to the 1st subcostal vein, is unicolorous and iridescent like the forewing. The under surface is unicolorous brown as in all the species of this genus, in addition to the large white patch at the apex of the forewing, which is always divided into six spots, there is mostly at the distal margin of both wings a row of small blue dots as well as sometimes 1—3 similar dots before the cell of the forewing. A somewhat larger reddish spot at the median nervure between its 1st and 2nd bands is always present and also the grey furry dusting at the inner angle of the forewing, likewise basally bounded by a small yellow-brown spot. The under surface of the ♀ is lighter brown than the upper and without iridescence. The larva eats white and red oleander flowers; it has two horns each on the segments before and behind the four pairs of forelegs and two each on the 2nd and 3rd thoracic segments. It is transversely striped with black and white, but this black colour, as also that of the similarly coloured tentacles, more inclines to reddish. The pupa is entirely golden, like a polished gold plate, the wing-cases with a somewhat silvery sheen. The pupal stage lasts 10 days in July. Luzon. — **kochi** *Moore.* ♂, upper surface: this race from the western Visayas differs from the other Philippine *mulciber*-races in having seven bluish spots on the middle of the forewing, besides the two very large and distinctly expressed rows of bluish spots at the distal margin. The brilliant blue reflection is extended over the whole of the forewing as well as over the part of the hindwing placed next to the furry patch, where, however, it is weaker than on the forewing. On the under surface there are further some blue dots at the costal margin and in the cell of the forewing and the distal-marginal dots are more sharply expressed than in *visaya,* with which the underside otherwise exactly agrees. Of the blue streaks placed round the cell of the hindwing in *mulciber* only in one example of *kochi* a slight indication is present, but in accordance with the geographical position this form is nearest to *portia Fruhst.* from Borneo.

seraphita. *megilla.* *kochi.*

E. semperi is divided into two geographical races. In **semperi** *Fldr.* (= tisiphone *Btlr.*) (85 e), from Mindoro, the ♂ is easily distinguished on the upper surface from the other species of this genus by the absence of the blue reflection, of which only a slight dark violet tinge is present on the proximal half of both wings. The four to five violet-white dots at the apex of the forewing are occasionally suppressed except for one placed 6 mm. before the distal margin between the last subcostal and the discoidal veins. Under surface: occasionally there is a small bluish white dot in the cell of the forewing. *semperi* differs from *megilla* from Luzon in the absence of the large white spot at the apex of the forewing, from the forms from the Visayas and Mindanao in the bluish white dots. ♀: upper surface distinguished from the races of the other Philippines by the entire absence of the blue reflection and also by having the proximal row of spots at the apex of the forewing removed somewhat further from the distal margin. The under surface is similar to the upper, but with somewhat lighter ground-colour. — **visaya** *Semp.* ♂, upper surface: the violet-blue reflection is only present on the distal half of the forewing, whilst the proximal part of the hindwing, which is not occupied by the furry brown spot, is light brown. Hence this subspecies, which only flies on the eastern Visayas, differs from the very nearly allied *semperi* from Mindoro in having the blue reflection on just that part of the upper surface from which it is absent in *semperi*, and vice versa. The light blue distal and proximal rows of spots at the distal margin are very variable, varying from twelve distal and seven proximal dots to almost complete absence. The under surface is distinguished from that of the preceding species by having the dots in the middle of the wings and at the distal margin blue and

semperi. *visaya.*

the proximal row placed nearer to the distal margin at the apex of the forewing; as on the upper surface the number of dots is very variable. The ground-colour is uniform brown, as in *semperi Fldr.* and *kochi Semp.* ♀, upper surface: on the distal half of the hindwing there is a very slight blue reflection: the proximal row of distal-marginal dots is placed nearer to the margin than in *semperi*. The size of the white spots on the middle of the wings, as well as the size and number of the marginal dots, is very variable: some spots occasionally tinged with blackish. On the hindwing the light markings are always tinged with blackish. The under surface is without blue reflection and has the ground-colour somewhat lighter. Cebu, Bohol, Camotes, Samar, Leyte, Panaon.

The range of **E. gelderi** begins in Micromalayana, where the continental *mulciber* reaches its eastern limit in Bali with *basilissa Cr.* This species is everywhere rare and inhabits Flores, Sumbawa, Lombok and some satellites of the two first-named main islands, and flies at elevations of about 5—800 m. above the sea. The ♂♂ with brilliant yellow scent-pencils, which emit a very strong smell somewhat recalling mignonette. Four insular branch-races: **gelderi** *Snell.* (85 e ♂), described from Flores; ♀ larger than the ♂ figured, with the yellowish white patches and bands of both wings more than twice as broad. — **dongo** *Doh.*, described from Sumbawa, scarcely differs in the ♂ from the preceding; ♀ above with no trace of a blue tinge, with a pale basal streak in the cell of the forewing and a rounded spot before its apex. Under surface with all the strigae white and sharply defined. Very scarce in the mountains of Sumbawa. — **phoebadis** *subsp. nov.* is a smaller and darker race from Lombok, chiefly characterized by the melanotic ♀, which was erroneously figured 85 e as *gelderi*-♀. As may be seen from the figure, all the white bands are reduced in extent, the cell-streak of the forewing is almost entirely suppressed and the stripes of the hindwing are covered with brownish. Rare on Lombok, always at the edges of woods and singly on flowering underwood. — **elwesi** *Doh.*, of which only ♀♀ are as yet known, was discovered in the interior of Sumba at an elevation of about 1000 m. ♀ above brown, cell of the forewing as in *dongo*, otherwise the markings arranged as in *Radena oberthueri Doh.* Not known to me in nature. According to Doherty it is entitled to specific rank.

gelderi. *dongo.* *phoebadis.* *elwesi.*

E. euctemon *Hew.* is the most sharply defined species of the group *Trepsichrois* and distinguished from all the other species by a yellow scent-area more than three times as broad and the absence of grey or black patches of androconia on the hindwing. It is at the same time the only species in which the ♂♂ (85 a) are adorned with blue submarginal patches on the hindwing, and in the entirely different ♀ (81 d), which much more resembles a Danaid *(Nasuma)*, *Trepsichrois* reaches in *euctemon* the maximum of sexual dimorphism. Thus it came about that the learned Felder described the ♀ as a new species under the name of *configurata*, and Moore even based two genera on the two sexes (*Bibisana* and *Glinama*). The species is rare in Celebes; I myself took both sexes in the heaviest rainy season, January, in the hinterland of Macassar. Typical ♀♀ from Tondano in the Minahassa are somewhat smaller and more broadly suffused with brownish than South Celeban examples.

euctemon.

Group Euploea *F.* 1807.

Larva only known of two species, of which the western one bears 3 pairs of tentacles *(corus)*, the eastern, judging from a figure, only 2, supposing that the figure is correct. Cell of the forewing without recurrent vein *(Calliploea)* or only with rudiments of one *(Euploea)*. The first subcostal vein sometimes coincident with the costal *(Calliploca)*. Upper discocellular of the forewing present. Anal pencil yellowish. Hindwing with large scent-patch, but forewing without sexual spot.

a. Subgroup Calliploea *Bthr.* 1875 (= *Tabada Moore* 1883).

Small species with rounded forewing. Larva unknown,*) which is much to be regretted, as the separate species are very difficult to define, owing to their variability and the partially discontinuous distribution. Moreover on some islands of the Philippines and parts of Micromalayana the offshoots of two species seem to occur together, whilst the Macromalayan. Islands, including Celebes, are only inhabited by one species. The division of the species is here attempted exclusively from a geographical point of view and is consequently an arbitrary and provisional one, but with our present knowledge the only way out from the labyrinth of names. Valve scarcely different from that of the group *Salpinx*, very narrow, distally only slightly convex.

E. mazares is the species of the group which has advanced furthest towards the west, representatives of it inhabiting all the archipelagos from the Solomons to Sumatra and Formosa. — **ledereri** *Fldr.*, somewhat larger even than *mazarina* (80 d), has the same anal brown patch in the submarginal area of the forewing as *mazarina* and differs from it in the relatively large light blue cell-spot and circumcellular patches of the forewing. Common on the Malay Peninsula, it is occasionally met with in southern Tenasserim and the Mergui Archipelago as a great rarity. — **eunus** *Nicév.* differs from *mazarina* in the uniformly light brown upper surface of the forewing, the lighter submarginal patches with violet instead of blue margins and the smaller transcellular spots of the forewing, which are arranged as in *ledereri*. The ♀♀ are unusually rare. According to Martin the form does not ascend above the lowest hills of North-East Sumatra, and is commonly

ledereri. *eunus.*

*) See Appendix p. 272.

found in company with *Danais hegesippus* and *Crastia distanti* at river-banks and shows a decided partiality for the neighbourhood of the sea-coast. — **mazarina** *Fruhst.* (80 d) closely approaches *mazares* from Java and differs from *emms* in the absence of cellular patches and in the larger subapical spots of the forewing with purer white centres. West Sumatra. No representative forms are yet known from the satellite-islands of Sumatra. — **mazares** *Moore*, the name-type, from Java, is the commonest *Euploea* of the island at elevations of about 500 m. and both in the east and west occurs up to many thousands, especially in the rainy season from January to April at suitable places, neglected coffee-gardens and the edges of woods and is particularly fond of herbs. West Javan specimens bear more extended spots on the forewing, proximally bordered with a beautiful light violet. The costal spot of the forewing is occasionally absent, otherwise the variation consists in the lesser or stronger development of the submarginal patches. In contrast to *emms* ♀♀ are by no means rare. *mazares* from Bali and Kangean are not known to me in nature. Incredible as it may appear, the island of Bawean, though only a few sea-miles distant from Java, just as it produces a distinct race of *E. crameri*, has also a *mazares*-race of its own, **baweana** *Fruhst.* (83 d), recognizable by the very broad (much larger than in the figure), predominantly white submarginal spots on the forewing, proximally margined with light blue, and by the darker, brighter and more uniform steel-blue reflection on both wings. Forewing beneath more prominently dotted with white than in *mazares*. — **lombokiana** *Fruhst.* has the darker ground-colour and the very strong blue-violet reflection of the upperside in common with *baweana*, whilst beneath the satellite-island character is revealed in the reduction of the white dotting. That is to say the admarginal dots are completely suppressed in most examples and the submarginal dots are not only fewer but also smaller. Moreover the white pupils on the upperside of the forewing are less noticeable on account of the uniform dark violet tinge of the submarginal patches. Lombok, where from April to June it is an ornament among all the wealth of flowers at about 600 m. and together with *Danais melissa* is among the visitors to the village gardens. — **sambavana** *Doh.*, larger than *lombokiana*, nevertheless has essentially smaller submarginal spots on the forewing, with diminutive white dots, and the spots on the under surface likewise insignificant. Doherty has already observed that in this form the first subcostal vein is occasionally coincident with the costal, as in *Radena, Ideopsis* and *Hestia*, a phenomenon which is also repeated in *mazares*. — **philinna** *Fruhst.*, very near to *sambavana*, is somewhat inferior to it in size, but in spite of its smallness has larger light blue submarginal patches on the forewing. The marginal area of the hindwing lighter brown, the submarginal spots very large, forming a transition to *wetterensis* (83 d). Islands of Adonara, Pura and probably also Flores. — **sumbana** *Doh.*, a strongly marked race, almost entitled to specific rank. Forewing as in *wetterensis* (83 d), but with more extended light violet proximal bordering, which is absent in *wetterensis*. Hindwing without any white spots, under surface very striking, without a trace of admarginal dots, but with white subapical patches on the forewing united into a broad band and a submarginal row of 6—7 rounded punctiform spots on the hindwing. White markings of the ♀♀ still more striking, recalling *tullius F.* from Australia. Sumba, not rare. — **natunensis** *Fruhst.* is a very small race, above dark with bright steel-blue sheen, with light blue submarginal spots on the forewing, which are distinctly but only delicately dotted with white. Under surface dark chocolate-brown with a slight violet sheen and relatively large, round, light blue-violet discal spot on the forewing. Natuna Islands. — **aristotelis** *Moore*, described from Sandakan, but in my collection also from the neighbourhood of Labuan and the Sultanate of Brunei, is a larger form with intensive light blue reflection on both wings, and mostly very small white, blue-margined submarginal spots on the forewing. Only a few examples show a diffuse light blue bordering to the patches of the forewing. — **palawana** *Fruhst.* approaches the preceding, but has the dull part of both wings more extended and hence the blue reflection restricted, and always reduced submarginal spots on the forewing, which as a rule can scarcely be called more than punctiform. Palawan, January. — **monilina** *Fruhst.* on the other hand is a retrogression to the most copiously blue-spotted subspecies of the Sunda-Islands, the white spots are margined with broadly diffuse and more extended blue-violet. The under surface is, however, scarcely more strongly dotted with white than in *palawana*. February, March. Bazilan. — **monilis** *Moore* inhabits the northern Philippines. The extent of the white spotting reaches the maximum of its development in this race, even the hindwing as a rule bearing small white submarginal dots. Babuyanes, Negros, apparently flying all the year round and according to Semper somewhat liable to variation.

mazarina. *mazares.* *baweana.* *lombokiana.* *sambavana.* *philinna.* *sumbana.* *natunensis.* *aristotelis.* *palawana.* *monilina.* *monilis.*

E. koxinga *Fruhst.* (= klugi Mats. ?) (83 c), distinguished by considerable size, extraordinarily brilliant blue reflection, large white submarginal patches on the forewing with light blue margins, which, moreover, are suffused with a restricted light reflection, which is reproduced in the figure. The under surface is characterized by a double row of distinct small white submarginal dots. Formosa, ascending form the plains to the spurs of the mountains and nowhere rare from March to July.

koxinga.

E. mariesis *Moore* I have not seen in nature; according to the description it approximates to *mazares*, but is darker coloured on both wings and has the submarginal spots twice as large and proximally bordered with blue. Hindwing with a row of small but distinct white dots, which are continued to the anal angle. From the Lu-shan, near Kiu-Kiang, Central China. Perhaps *koxinga* should be united with it as a subspecies.

mariesis.

E. tulliolus differs from the *mazares*-group in the broadened white apical spots of the forewing and as a rule in the sharply expressed proximal row of submarginal dots on the hindwing beneath, but the latter disappear in the examples from the northern Philippines. Where forms of *tulliolus* occur together with those of *mazares*, one might be tempted to regard the former as extreme dry-seasonal products of *mazares*. Moreover, in New Guinea the differences are completely effaced and also on the South-Sea Islands races of *tulliolus* intergrade with those of *adyte Bdv.* from New Caledonia. — *pollita.* **pollita** *Eschsch.* is regarded as the most northerly offshoot of the species and bears as a rule even broader white bands on the forewing than on the figure, which was taken from an example from Mindanao. Typical *pollita* have no white markings at all on the hindwing, and on its grey-brown under surface even the small admarginal dots are absent. North Philippines, especially Luzon. — *ecbatana.* **ecbatana** *subsp. nov.* (85 d, as *pollita*) inhabits the southern Philippines, Mindanao, Bazilan and other islands. Hindwing on both surfaces with prominent submarginal rows of white dots. ♀: beneath with narrower white subapical band than the ♂ type from Bazilan. Flies in February-March, thus taken at the same time as *mazares monilina Fruhst.* — *tulliolus.* **tulliolus** *F.*, the name-type, has decidedly dark reflection, more steel- or violet-blue than light blue, on the upperside of both wings, more distinct submarginal spots but narrower subapical bands on the forewing. Common in Queensland from Brisbane to Cape York. — *sicinia.* **sicinia** *Fruhst.* is a geographical form from the island of Dammer, like *tulliolus* without white submarginal band on the hindwing and with the subapical patches of the forewing much reduced — *meda.* **meda** *Fruhst.*, from the island of Pura to the east of Sumbawa, is throughout lighter blue than *tulliolus*, forewing with very broad bands, hindwing with white submarginal spots, which are also distinct beneath. — *turneri.* **turneri** *Btlr.*, from Darnley Island to the north of Australia, which is unknown to me, forms a transition from *tulliolus* to *saundersi Btlr.* from Arua in that the subapical band of the forewing is exactly intermediate betwen those of the two branch-races mentioned. *turneri* was described from a ♀. — *saundersi.* **saundersi** *Btlr.* is a common *Euploea* on the Aru Islands, dark blue in its general colouring, with pure white, medium-sized, submarginal spots on the forewing, which are proximally only slightly tinged with violet and beneath are likewise prominent, being somewhat larger than a pin's head. — *nocturna.* **nocturna** *Fruhst.*, from Salawatti, is larger, still darker violet-blue with deep steel gloss and on the underside of the hindwing also with distinct white patches. — *mardonia.* **mardonia** *Fruhst.* inhabits British New Guinea and occurs also in the German territory in the neigbourhood of Finschhafen. Upper surface with brilliant light steel-blue reflection, lighter than in *saundersi*, the small white spots with thin light blue border. Under surfare as in *saundersi*, hindwing with 2 rows of white submarginal dots. — *doryca.* **doryca** *Btlr.* probably replaces *saundersi* in all parts of Dutch New Guinea and is the malanotic extreme of the whole series of forms. Upper surface more violet than steel-blue with duller reflection, the light blue submarginal patches only slightly dotted with white. Submarginal and admarginal dots of the under surface mostly absent, and even the subapical row but little prominent. Dorey, Sorong, Hattam, Kapaur, everywhere common. — *offaka.* **offaka** *Fruhst.* is a smaller island race with the usual darkened colouring, submarginal patches of the forewing almost without white centre, their bordering more blue than violet and all the white dots of the under surface reduced, especially those of the hindwing. Waigeu. — *forsteri.* **forsteri** *Fldr.* is certainly the representative of *tulliolus* on the Fiji Islauds; upper surface lighter than in *doryca*, the markings of the forewing somewhat as in *saundersi*, broadly white, with narrow light violet proximal border; hindwing above without puntiform spots. Forewing with the patches sometimes larger, sometimes smaller, apparently varying according to the season; in the three ♀♀ before me they are smaller than in *saundersi*, under surface as in *saundersi*, but with the white markings somewhat more delicate. Viti-Levu.

adyte. **E. adyte** *Bdv.*, of which I saw the type at Ch. Oberthür's, probably also belongs to the *tulliolus*-series of forms. Upper surface of the forewing with a complete row of seven violet submarginal spots, only slightly touched with white, which beneath on the contrary are pure white and relatively large. Hindwing with a curved row of six to seven larger, pure white rounded submarginal patches, which decrease in size from the costal margin to the anal angle. Both wings with small admarginal dots. Forewing without discal white or violet spot, a characteristic, however, which may be either present or absent in all the allies of *tulliolus* discussed. New Caledonia.

seriata. **E. seriata** *H.-Schäff.* should perhaps be united with *adyte.* Upper surface lighter brown, almost without violet sheen. Submarginal spots of the forewing only slightly widened, nearly obsolete. Hindwing with distinctly defined yellowish brown marginal area. Under surface of both wings basally dark brown, lighter in the distal part. Submarginal dots of both wings pronounced, but yellowish instead of pure white. Admarginal streak-like dots on both wings. Forewing beneath without discal white spot. Islands of the Loyalty Group: Lifu, Uvea.

dudgeoni. **E. dudgeoni** *Sm.* (30 e), which occurs together with *doryca* at Humboldt Bay, Dutch New Guinea, was recently sent to me from Friedrich-Wilhelmshafen, where it seems to be the only blue *Calliploea*, whilst from Finschhafen I have only received *tulliolus mardonia Fruhst.*, but never *dudgeoni. dudgeoni* is distin-

guished by the duller brown ground-colour, which is lighter in the distal part, especially on the hindwing, the almost imperceptible blue reflection, in the ♀ in fact no longer present at all, the pale violet, diffuse marginal patches, in the ♂ without white centres, and particularly beneath by the absence of all the white subapical bands or spots so distinct in *tulliolus* and *doryca*. Most examples bear only a blue-white cell-spot on the forewing and some submarginal splashes on the hindwing. In the ♀ the submarginal spots of the forewing are inappreciably suffused with white and bear distally a small patch extending to the terminal margin.

E. hyems, decorated on both wings with brilliant white bands, is one of the most beautiful species and in common with *Crastia orope Bdv.* and *Stictoploea jacobseni Röb.* is a characteristic butterfly of Micromalayana, where it replaces *E. mazares Moore,* beginning to occur where the most easterly forms of *mazares* reach the limit of their range with *sumbana Doh.* — **wetterensis** *Fruhst.* (83 d) has a dark violet reflection on a dark brown ground, which on the hindwing also covers the white submarginal band of the ♂♂ as a light violet gloss. Underside as above, only with a row of very strong white submarginal dots, which adorn the butterfly together with the pure white, broad, subapical and submarginal spots and are so easily distinguished from allied forms of the *mazares*-series. Wetter, not rare. — **hyems** *Btlr.,* described from Timor, is somewhat larger, the ground-colour lighter and the white bands even more strongly expressed than in *wetterensis.* Only Butler's type in the British Museum is known to me. — **liza** *Fruhst.* (82 d) inhabits Babber and on the underside of both wings is dark brown with less violet reflection than *wetterensis,* yellowish white band on the forewing and a row of more extended submarginal patches on the hindwing which are rather quadrate than rounded, this being especially noticeable in the ♀♀, the submarginal part of which in *wetterensis* is as a rule entirely without markings. — **catilina** *Fruhst.* (80 d), from Dammer, has the violet reflection on the forewing as bright as in *hyems* and the white bands even broader. — **leaina** *Fruhst.* (85 d) is distinguished by the very distinct violet bordering of the white subapical bands of the forewing, the white area of the hindwing is extended to the distal margin, of which only a narrow stripe remains brown-black. Kisser. — **aga** *Fruhst.* (83 d) has the white spots on the forewing almost twice as broad and a still more extended pure white marginal area on the hindwing, in which beneath even the small brown intraneural spots are paler and begin to disappear. Letti, taken by W. Doherty in July 1892. — **kuehniana** *Fruhst.* (85 d), which is almost entitled to specific rank, shows diffuse elongate submarginal patches, proximally dusted with light violet and in the central part separated by broad black vein-stripes. Hindwing without sharply defined white band, but with whitish distal area, which proximally shades off into the light brown ground-colour. Under surface light brown with relatively very small subapical patches on the forewing. Roma, discovered by H. Kühn.

wetterensis.

hyems.

liza.

catilina.

leaina.

aga.

kuehniana.

E. visenda forms the natural continuation of the preceding species and is distributed over the very limited region of the Tenimber and Key Islands. Ground-colour black-brown with lighter brown under surface. Submarginal bands of the wings differing in width according to the local race, but always well developed. — **visenda** *Btlr.* occurs exclusively on Timor-Laut (Larat), above very similar to *aga,* differing from it in the broader black-brown distal border of the hindwing and the larger subapical yellowish white bands of the forewing. ♀♀ of the dry-season form are sometimes light grey-brown on the underside of the hindwing and the white area extends to the cell. — **ornata** *Fruhst.,* from Key, differs from *visenda* in the narrower, slightly yellowish white bands and spots, especially of the submarginal band of the hindwing, which consequently appears removed further proximad. The subanal patches of the forewing smaller than in *visenda* and *aga* (83 d), ground-colour of the under surface in the ♀♀ also more red-brown than in *visenda*-♀♀. Common everywhere on all the Key Islands and very variable, especially in the size. — **lonia** *Fruhst.* (85 d) very nearly approaches *ornata* and differs from it in having the white bands even narrower, particularly on the hindwing. Babber. In all the races of *visenda* there is no trace of a violet tinge on the upperside of the wings.

visenda.

ornata.

lonia.

E. menamoides *Fruhst.* (83 d), from Babber, is in certain respects an intermediate form between *hyems,* which is represented on Babber by *liza Fruhst.* (82 d), and *visenda Btlr.*, represented on the same island by *lonia Fruhst.* (85 d). It has in common with *liza* the violet tinge, particularly on the forewing, with *visenda* the arrangement of the yellowish white bands, which are nowhere bordered with blue-violet. But both ♂ and ♀ differ from *liza* and *lonia* in the smaller white subapical spots of the forewing.

menamoides.

E. hopfferi is one of the most distinct species of the eastern Moluccas and Key Islands, of which so far two island races are known, but of which quite a series remains to be discovered in the near future. — **hopfferi** *Fldr.* is a faithful copy of *eurypon Hew.* (86 e), from which, however, it is easy the distinguish by the projecting, excurved inner margin of the forewing, the *Calliploea* scent-patch of the hindwing and by having the white margining of both wings even broader and deeply incised proximally and hence more irregular. Costal area of the hindwing beneath with three large, sometimes confluent white spots, whereby the ♀♀ of *hopfferi* are distinguishable from those of *eurypon*, in which these costal patches are absent. Key Islands. — **helia** *Fruhst.* closely approaches *hopfferi*, but is distinguished by the light brown ground-colour

hopfferi.

helia.

and by the more yellowish instead of pure white borders of the wings, which in many examples completely shade off into the brown basal colouring. In one ♀ even the white band of the forewing is suppressed except for the vestiges of a subapical light patch. Banda.

niveata. **E. niveata** *Btlr.* combines the characters of the *tulliolus*-group with those of *hopfferi*, as the brilliant violet glossy forewing has the white markings somewhat more restricted than in *tulliolus*, but the hindwing has the white submarginal bands almost as broad as *hopfferi*. Under surface altogether as in *tulliolus*, only with extraordinarily broad, pure white submarginal area on the hindwing composed of quadrate spots. Queensland, apparently rather rare.

darchia. **E. darchia** *Mac-L.* (= priapus *Btlr.*) is very rare in the same country and is not known to me in nature. Forewing similar to that of *tulliolus*, but the white spots united into a band which is continued to the anal angle. Hindwing with a pure white, compact, moderately broad submarginal band. Forewing with brilliant light blue sheen.

pyres. **E. pyres** *Godm.* is the only *Calliploea* which shows a larger white, blue- or violet-bordered subanal than subapical spot on the forewing and beneath bears postdiscal strigae on both forewing and hindwing, to which are further added the usual double row of white antemarginal and submarginal dots on both wings. Forewing above with a relatively large costal spot and the hindwing with a complete band of pronounced white submarginal patches bordered with violet. Solomon Islands, apparently rare: Bougainville, Munia, Guadalcanar

trimeni. **E. trimeni** *Fldr.* (= engrammelli *Moore*) is a small, inconspicuous species of the Northern Moluccas, of which only two races are as yet known; the name-type was described from Halmaheira and I also have it before me from Batjan, collected by Doherty in March. Somewhat like *cledonia* in shape and colouring, with a slight dark gloss on deep brown ground-colour. Forewing with five small submarginal spots bordered with whitish violet, of which two or three sometimes reappear on the upperside of the hindwing. ♀ without any reflection; the dots on the forewing more pronounced white. Under surface as above, but deeper brown, with violet tinge on the hindwing. Forewing with elongate oval discal spot. Hindwing with five strongly expressed,
duilia. rounded, violet, submarginal patches. — **duilia** *Fruhst.* is a smaller race, which Felder already knew from Obi and described together with the preceding. The steel-blue reflection covers an almost black ground, from which the submarginal dots stand out brilliantly and predominantly white. Very rare. Obi.

E. salabanda, likewise described from Halmaheira, with branch races on Obi and Batjan, extends also on to the South Moluccas. It is not impossible that it is only an extreme rainy-season form of the
salabanda. preceding, of which it bears all the characteristics. — **salabanda** *Kirsch* differs from *trimeni* in the bright, predominantly blue-black reflection on the upper surface of the wings, which mostly shows only a light
parallelis. violet subapical dot; Halmaheira. — **parallelis** *Fruhst.* is its representative on Batjan, with a row of three to five light violet submarginal spots; ♀ in contrast to that of *trimeni* with distinct steel-blue gloss above. Taken by Doherty in March 1892 together with both sexes of *trimeni*, also received by me from the month
obiana. of August from another collector. — **obiana** *Fruhst.* is a very dark form, mostly without subapical spots, but occasionally also with two to three small ones, light blue, with white centres: ♀ certainly very rare, still
cledonia. unknown. Obi. — **cledonia** *Fruhst.* (83 c) is the most distinct geographical branch: ♂ dark, ♀ light brown; ♂ with very slight steely gloss, ♀ without any. Dots on the under surface considerably more pronounced than in *salabanda* and *obiana*. Common in East Ceram; I have also before me a ♂ (bought in Paris) with the label Amboina. Earlier authors did not know the species from any of the Southern Moluccas, so that it must be very local.

E. pumila is the oldest name for a species distributed over the whole Papuan region, and affording one of the most striking examples of individual variability, being indeed one of the most variable of all butterflies. The species has consequently received a series of names, which, however, do not illustrate sufficiently its tendency to polymorphism. Even the six figures in this work do not represent all the principal types of colour-modification. Valve similar to that of *Salpinx*, strongly narrowed, with indistinctly
pumila. defined point. — **pumila** *Btlr.* (85 d) is a local form of north-western Dutch New Guinea. Ground-colour dark brown with some small whitish submarginal spots on both wings and a subapical double spot of light violet-colour on the forewing. The under surface, as in all the following races and forms, has no distal c
violet spot, which distinguishes the members of the *trimeni-mazares-hyems* group. Forewing, however, as a
lucinda. rule with a complete row of admarginal dots. — **lucinda** *Sm.* (82 e) designates a form with the upper surface of both wings predominantly smoky brown, in which the ♂♂, but especially the ♀♀, gradually shade into a violet-white in the discal area. We have figured the lightest extreme, with silky gloss all over, opalescent with whitish violet reflection. The under surface is, however, not so light, but in the basal

area and cell tinged with extremely delicate light brown. Abdomen likewise whitish violet, with brown rings. It appears that these very light ♀♀ only occur in Humboldt Bay, where Doherty discovered them in September-October 1892. — **salpingoides** *Fruhst.*, based on examples of light leather-brown ground-colour with two or three violet subapical spots on the forewing, is distinguished by a particularly light scent-patch on the hindwing, which fills up the whole of the cell and extends beyond it as an additional patch of polished appearance. The central part of this scent-patch is covered with long, dense yellow androconia. Examples with no markings at all on the upper surface and light yellow patch on the basal area of both wings have been described as **melitta** *Fruhst.* ♀♀ with still more extended light patch, which already show traces of a whitish tinge on the upper surface, I have named **sublucinda** *Fruhst.* In the neighbourhood of Friedrich-Wilhelmshafen ♀♀ commonly occur which form a transition to *lucinda* and already bear traces of a milky hyaline tinge in the cell of the forewing and between the median veins. **anaitis** *form nov.*, a rare aberration, consists of ♀♀ with small elongate-oval, opaline subapical and submarginal spots on the forewing and larger submarginal dots on the hindwing, which are accompanied by a row of admarginal dots on the underside of the latter. But by far the prettiest aberration known consists of ♂♂ with the cell and costal part of the forewing suffused with violet as in *Salpinx swierstræ* (83 c) (**amida** *form. nov.*). All the above mentioned aberrations occur in the neighbourhood of Friedrich-Wilhelmshafen in Astrolabe Bay. — In the more easterly Finschhafen on the other hand occurs a darker form, which should probably be regarded as a subspecies; this is **phokion** *Fruhst.* (83 d), which as a rule shows a deeper black-brown ground-colour, as in the figure. Most ♂♂ have supplementary violet-white submarginal spots, which are continued also on the hindwing as thin dots. All the *phokion* before me bear in addition complete rows of pure white admarginal dots on the underside of both wings. — In British New Guinea there is a local race approaching *phokion*, but of even deeper colour, — **jamesi** *Btlr.* (80 d), which in contrast to *pumila Btlr.* and *salpingoides Fruhst.* appears to be very constant, at least specimens collected in Milne Bay, in Samarai, on the coast opposite to Yule Island do not vary at all. A ♂ from Fergusson Island has also the same characteristic broad white-violet, subapical bands on the forewing as the example figured. — **flaminia** *Fruhst.* (83 c) is a larger race from the island of Salawatti with somewhat more indistinct macular bands on the forewing, but as in British New Guinea small ♂♂ occur which seem to belong to a dry-season form, have the dots small and have been described as **infantilis** *Btlr.* — **garcila** *subsp. nov.* is a local race belonging to the most westerly part of Dutch New Guinea, from Sorong, characterized by a pale brown ground-colour, dark steel-blue reflection, very small whitish submarginal patches and but little larger light violet subapical spots on the forewing. Under surface of the forewing with larger, that of the hindwing with smaller white patches than *pumila* and *jamesi*. — **stephensi** *Fldr.*, from Misol, according to the single ♀ before me is a dark brown form with reduced violet apical spots on the forewing, three submarginal patches on the hindwing, and no dots on the underside of the forewing. — **kirschi** *Moore*, of which only 1 ♀ was known until recently, represents *pumila* on Waigeu. Normal examples of both sexes closely aproach *pumila*: almost all are characterized by the submarginal spots being of equal size and the violet subapical spots somewhat larger on the forewing. Between these punctiform spots and the distal margin of the forewing a fine violet dusting is noticeable, which in many ♂♂, but particularly in the ♀♀, is sometimes broadly diffused, becomes whitish along the veins and on the under surface is visible as a grey tinge (**amantia** *form. nov.*). There is also a very rare form with unicolorous upper surface, under surface without marginal dots and the forewing only ornamented with some small streak-like dots (**parvipunctata** *form. nov.*). On the islands in the Geelvink Bay *pumila* is represented by a charming form, **sisamis** *Kirsch*, described from Ansus on Jobi and approaching *amida Fruhst.* from Kaiser-Wilhelmsland, which shows a pale violet tinge in the cell and the subapical region of the forewing and in addition is ornamented with four blue submarginal dots. Under surface as in *pumila* with some subapical dots on the forewing and a double row of white dots on the hindwing. — Finally, **bismarckiana** *Fruhst.* is the branch from the Bismarck Archipelago, characterized by the deep brown upper surface, which specially in the ♀ remains dull throughout, without the least violet or steel-blue reflection; forewing in the ♂ with violet, in the ♀ with white subapical patches, followed by some small, but distinct white submarginal spots. ♀ beneath with 2 rows of white dots on the hindwing. New Pomerania, New Lauenburg and New Mecklenburg.

salpingoides. *melitta.* *sublucinda.* *anaitis.* *amida.* *phokion.* *jamesi.* *flaminia.* *infantilis.* *garcila.* *stephensi.* *kirschi.* *amantia.* *parvipunctata.* *sisamis.* *bismarckiana.*

In the Celeban subregion, as in the Macromalayan, *Calliploea* is only represented by one species, but this is an even more brilliant one: **E. hyacinthus,** which far surpasses all the preceding species in the intensive blue reflection and is at the same time the only *Calliploea* with large white discal spot on both wings. Four local races are known as yet: **mangolina** *Fruhst.* (82 c), of which the ♂♂ only differ in the projecting inner margin of the forewing; under surface blackish with the margins of the upperside reproduced and with two instead of one submarginal row of white patches on the hindwing. Sula Mangoli. — **besinensis** *Fruhst.* most nearly approaches *mangolina* but may be at once distinguished from it by the absence of the broad white streaks in the cell of the hindwing above. It has less white dots, the large ultracellular spot in the middle of the forewing in particular being always much reduced and the patches placed before and behind it in *mangolina* appearing only as small dots or being altogether suppressed. On the hindwing the submarginal row of whitish violet dots which is always distinct in *hyacinthus* and *mangolina* is sometimes restricted to only

mangolina. *besinensis*

3 small spots, the rest of the hindwing is in one ♂ entirely without a trace of markings above, in some other ♂♂ small circumcellular hooks and patches are present. The ♀ also suggests a melanotic form of *hyacinthus* and *mangolina* and bears above only the white submarginal row of dots, a costal spot and a round median spot on the forewing, and on the hindwing only a small white helmet-shaped spot behind the cell. A second ♀ presents a somewhat brighter appearance, having two small costal spots and three circumcellular dots. The principal character, however, consists in the wholly black cell on the under suface of the hindwing, which

hyacinthus. in *mangolina* is filled up with white to one-half. Sula Besi. — **hyacinthus** *Btlr.*, in contrast to the preceding, is the lightest extreme of the species, distinguished by the yellow scent-area of the hindwing, the very broad subapical band, and by the discal spot of the forewing filling up the whole centre of the wing, particularly

subcongrua. in the ♀♀. South Celebes, not very common, ascending to about 1000 m. — **subcongrua** *Röb.* (= hewitsoni *Fldr.* 1867), judging from Felder's figure, is the somewhat less brightly coloured race of Northern Celebes, especially characterized by the blackish-dusted scent-area of the hindwing and the darker ground-colour: moreover, the cell of the hindwing beneath is grey-black to the middle instead of pure white as in *hyacinthus*. On the other hand the submarginal patches, particularly on the under surface, are more pronounced than in the southern race. Not rare at Toli-Toli, November-December, but occurring in Central Celebes (August) and distributed to the north point of the island.

b. **Subgroup Euploea** *F.* (= Macroploea *Btlr.* 1878).

Embracing the largest known species, forewing mostly pointed.

E. corus (not to be confused with *E. core Cr.*) is a Macromalayan species, which has spread westwards to Ceylon and Burma, eastwards to north Celebes and Palawan and finds its eastern limit in the southern chain on Bali. Larva cylindrical, light brown with slight purple sheen and a paler suprastigmatal region. Head and legs dark brown, the segments with brownish stripes of the same colour. Three pairs of reddish tentacles with black tips. Pupa broad, thorax uneven, silvery grey with golden brown bands, abdominal segments dorsally convex, brown-spotted. Food-plant still unknown. The statements concerning its flight are contradictory; it seems to be different in different races, either heavy and sluggish or rapid. It is only certain that all the forms are very local, exclusively inhabit the alluvial plains and even there keep near

corus. the sea-shore. — **corus** *F.* (= elisa *Btlr.*) inhabits Ceylon, where it is said to be very common at Galle among cocoanut-palm-trees. It occurs in June and July, and again in November and Dezember. I myself observed it at Colombo in 1886 and according to Nicéville it is fond of the shady jungle and on the wing may easily be mistaken for a bat. According to Moore *corus* is also met with in the mangrove swamps or else near the sea. *corus* is the smallest known race of the collective species: the spots of the upper surface

phoebus. on a light brown ground, arranged somewhat as in *vitrina Fruhst.* (79 a). — **phoebus** *Btlr.* (= castelnaui *Fldr.*) approaches *nikrion Fruhst.* (80 b), except that it has the subapical patches shorter and rounded instead of wedge-shaped and elongate, and bordered with grey-violet. Hindwing as in *nikrion*. Under surface with whitish, reduced subapical patches, but large grey-violet kernel-shaped distal spots. ♂ type from Moulmein, ♀ from Penang, also occurring in certain parts of Tenasserim, in the Mergui Archipelago and Perak, and

drucei. Singapore. An allied form was also once observed on the Nicobars. — Of **drucei** *Moore,* described from Chentabun in Siam and probably based on a dry-season form of *phoebus,* a single example only was taken by me in the temple gardens at the Menam in Bangkok in January. Forewing with somewhat reduced whitish subapical spots, hindwing with a transcellular row of violet punctiform spots, which occur also on

vitrina. the underside. — **vitrina** *Fruhst.* (79 a) is an extraordinarily local and apparently also very rare form, as neither Moore nor Bingham knew it. It is distinguished from all the allied species by the transparent pale violet anterior part of the forewing, which gradually becomes lighter from the middle of the cell on, nearly recalling *E. browni Godm.* in colouring. ♀ still paler than the figured ♂: apical part of the forewing beneath almost white, only in the cell shading into a dull yellow-brown. Lower Burma, only one pair, in coll.

hesiodus. Fruhstorfer. — **hesiodus** *subsp. nov.* is the race from Banka, where Dr. Hagen discovered it, and has still

statius. larger, lighter spots than *nikrion* (80 b). — **statius** *subsp. nov.* inhabits Sumatra, from whence it is only known to me from the north-east of the island, and differs from *phoebus Btlr.* chiefly in the darker brown-violet ground-colour, the richer violet reflection on the distal part of both wings and the more intensively violet-

phaeratena. blue-powdered subapical and more strongly expressed admarginal patches of the forewing. — **phaeratena** *Kheil* is smaller, with shorter and more rounded forewing and particularly in the ♀ almost pure white

micronesia. subapical patches on the forewing, widened into bands. Nias, apparently not very rare. — **micronesia** *Doh.* bears no white spots at all on the forewing, but only indistinct grey-violet ones, and its author was quite right when he compared this Engano race with *semicirculus Btlr.* from the far distant North Moluccas; for on account of the small dots of both wings *micronesia* has indeed much more resemblance to the Batjan race than to those of the neighbouring islands, paradoxical as it may sound. The ground-colour is a dark

pavettae. blue-violet and the ♀ is black-brown, whilst *statius* from Sumatra has light brown ♀♀. — **pavettae** *Zink.* (= gyllenhali *Luc.*) is always inferior in size to *nikrion*. Ground-colour lighter brown, with small, grey-

white patches and very restricted, insignificant blue-violet reflection on the distal area of the hindwing. *pavettae* was very rare in Java. I found the species exclusively in the neighbourhood of the sea, in the coast-forests of Palabuan, during the heaviest rainy season in January 1892. Several times a few butterflies wandered into the orchard which surrounded my dwelling-place at that time, the Pasanggrahan (rest-house) of Palabuan. They looked like ghosts, flew about two to three meters above the ground and darted and dashed so violently and irregularly through the air that for a long time it was impossible for me to recognize what butterflies I had before me. — **defiguratus** *Fruhst.*, from Bali. Dr. MARTIN's Javan collector had the good fortune to take a large series of this new *Euploea*, which I have never met with in East Java. Compared with *pavettae Zink.* from Java, *defiguratus* presents a darkened satellite-island race, distinguished by the violet instead of white proximal submarginal patches of the forewing and the much smaller antemarginal dots of both wings, which are mostly entirely absent. That *defiguratus* is also smaller than Javan examples is a matter of course in a Bali butterfly. In Lombok I had no opportunity of taking any *Macroploea*, but they are certain to be found there on the south coast in September. — **nikrion** *Fruhst.* (80 b). There are much more important differences between *pavettae* and this form from Bawean of which I have before me a series of 16 examples, collected July-September. Ground-colour darker than in *pavettae*, the violet reflection more extended and intensive, the white subapical spots of the forewing, but particularly the violet patches of the hindwing, considerably larger than in Javan specimens. — **butleri** *Moore* (♀ = godmani *Moore*) closely approximates to *nikrion*, but the forewing is more rounded; subapical spots more uniform, more sharply defined, dusted with darker blue-violet. Sandakan, Sultanat Brunei in North Borneo, Amuntai in South-East Borneo. — **salvini** *Stgr.* recalls *micronesia Doh.* from Engano in the reduced grey-violet subapical spots of the forewing, but is larger than this and shows more distinct rows of violet submarginal dots on the forewing. Palawan. Flies in January. — **grandis** *Moore*, described from a ♂ in the SEMPER collection, of unknown locality, perhaps comes from the Sulu Archipelago. Forewing longer and narrower than in *butleri Moore*, with very small discal spots. The spots of the submarginal row dentate, those of the admarginal row indistinct. Hindwing with three rows of whitish spots, of which those of the discal row are the largest. — Finally, **celebica** *Fruhst.* was described from a ♂ example from North Celebes, where I found it in the coast-forests of Toli-Toli in November 1898. Distinguished from the most nearly allied *salvini Stgr.* from Palawan by the greater expanse of the forewing and the narrower hindwing. All the dots on both sides of the wings are even more obsolete than in *salvini* and hence it is almost as unicolorous as *heurippa* from the Shortland Islands, yet not so blackish as this, but brown-coloured. Length of the forewing in the ♂ 67 mm., that of *salvini* 64 mm.

defiguratus. *nikrion.* *butleri.* *salvini.* *grandis.* *celebica.*

E. althaea approaches the figured *juvia Fruhst.* (83 a) and with its large blue spots much more recalls the Papuan *callithoë Bdv.* (79 a) than *corus F.*, from which latter, however, it differs in the positively enormous intraneural blue areas of the hindwing above and beneath. — **althaea** *Semp.* is known to me in four examples from Mindanao, where it was observed in the north at Dapitb, in the east at Taganito in May to September. — **juvia** *Fruhst.* (83 a) may be distinguished from *althaea* by the blue-violet subapical spots of the forewing being scarcely half as large and the discal patches of the hindwing likewise reduced. But in *juvia* occur further on both wings above as well as beneath a complete row of whitish, relatively large submarginal dots, which in the ♂ of *althaea* are entirely absent above, in the ♀ scarcely indicated. Taihanroku, from the 2nd to the 15th of July, 1908, collected in numbers by HANS SAUTER. An interesting discovery, as *juvia* constitutes a Philippine element in the Formosan fauna and makes it probable that *althaea* is also found on the more northerly Philippine islands. Taihanroku lies near the southern point of Formosa, so that it is quite easy to believe it may have immigrated from the Bashante or Bashi Islands of the Philippine group.

althaea. *juvia.*

E. phaenarete replaces *corus* on the Moluccas, from whence its representatives have spread over the Bismarck Archipelago to the Solomons. On some islands it is connected by transitional forms (*irma Fruhst.*, 79 b) with the Papuan *callithoë Bdv.* (79 a). — **phaenarete** *Schall.* is one of the commonest butterflies of the South Moluccas, whence it is always brought to Europe in company with *Hestia idea Cl. phaenarete* is moderately variable, both sexes being sometimes lighter, sometimes darker brown. The name-typical form is the one figured by CRAMER pl. 266, with a row of white wedge-spots in the middle of the forewing above and beneath. These spots are sometimes entirely absent (= **pauperata** *form nov.*) or there are in addition very large transcellular whitish grey or grey-violet patches of longitudinal streaks (= **luxurianta** *form nov.*). Amboina, Saparua. Ceram. — In **semicirculus** *Bthr.* (= cuvieri *Fldr.*) there begins beyond the basal colouring, which is still light brown, an area with intensive dark steel-blue sheen, in which in the ♂ are placed light blue, in the ♀ violet double rows of submarginal patches. Halmaheira, Batjan. — **hollandi** *Fruhst.* is distinguished by the more intensive blue reflection, which particularly in the ♀♀ covers the entire surface of both wings. The ♀♀ bear in addition on the forewing much larger blue-violet submarginal patches, and the underside is decorated with very large and pure white spots arranged in three rows. Buru. — **irma** *Fruhst.* (79 b) inhabits Obi. Examples somewhat smaller than *semicirculus* and *hollandi*, the blue reflection especially bright, the spots before the apex of the

phaenarete. *pauperata.* *luxurianta.* *semicirculus.* *hollandi.* *irma.*

cell on the forewing and the transcellular patches larger than in *hollandi*. ♀ very rare, approaching that of *semicirculus Btlr.* in the lighter brown basal region of the forewing. — **rolanda** *Fruhst.*, from Mangoli, one of the Sula Islands, has likewise a light brown ♀ with the light violet discal patches of the forewing more than twice as broad as in *irma* and *semicirculus* and with a double row of larger white submarginal spots also on the hindwing. ♂ dark brown with very slight distal blue reflection. Cell of the forewing surrounded with light grey-violet strigae. Under surface in both sexes with very large white intramedian wedge-spots. — **locupletior** *Fruhst.* forms a transition between brownish Macroploeas from the Sunda Islands and the brilliantly blue-iridescent species of the Papuan region and most nearly approaches in appearance *Macroploea euthoë Fldr.* from Aru. Forewing with a marginal row of pure white dots, a submarginal row of light violet, white-dotted patches, which extend nearly to the submedian. a proximal, parallel row of blue spots with but little white. On the underside of the forewing the markings of the upperside are reproduced, but are smaller and almost entirely pure white. In addition there is an ultracellular row of three white spots, of which the two intramedian ones are very large, that below the lower median vein very small. Esang, one of the Talaut Islands to the north of Celebes.

rolanda. *locupletior.*

E. unibrunnea *Godt.* is the oldest name for the unicolorous brown form of the commoner light, whitish violet **browni** *Godt.* (79 a). Between these all gradations in brown and whitish violet occur, one of which, a pretty uniformly light tobacco-brown form, has been described as *majuma Ribbe.* The ♂♂ of *browni* do not vary materially on the upper surface, beneath on the contrary the tobacco-brown colour varies in extent. The under surface of the ♂♂ bears around the cell of the hindwing more or less distinct opalescent white discal spots, which are absent in the ♀♀. — In the form **majuma** *Ribbe* these spots are sharply defined on the brown ground, and they are also present on the underside of the forewing. Pupa with golden gloss. Larva and food-plant apparently still unknown. Bismarck Archipelago, on all the islands. — **heurippa** *Godm.*, from the Solomons, I unhesitatingly refer as a local form to *unibrunnea*, and must even leave the question open whether *unibrunnea* is not also only a *phaenarete*-race. Ground-colour dark brown, dull, without reflection. Forewing with very long light brown thin streaks at the costal margin above the cell and five small, indistinct grey-violet submarginal spots, which are sometimes entirely absent. Forewing beneath with large horseshoe-shaped whitish blue spot before the apex of the cell, in place of which the representative forms bear a rounded patch. Occurs on the Shortland Islands, where it is not common. *heurippa* is fond of the dense woods and is a sluggish butterfly, which is only rarely flushed, and easy to catch.

unibrunnea. *browni.* *majuma.* *heurippa.*

E. callithoë is a purely Papuan species, which is indeed somewhat smaller than the Moluccan *phaenarete*, but is otherwise the most beautiful of the whole genus. In addition to its gorgeous colouring the collective species is distinguished by the most extensive sexual heteromorphism and to its tendency to geographical polymorphism is to be attributed the fact that it already possesses a number of names. *callithoë* reaches its highest development in Kaiser-Wilhelmsland, where two local races occur, which have hitherto been always confused. — **callithoë** *Bdv.*, the name-type, comes from northern Dutch New Guinea and probably from Geelvink Bay (Dorey). Boisduval concisely describes the form figured 79 a as follows: "Wings black-brown, with violet sheen. Forewing with a curved macular transverse band, a thick punctiform spot in the cell and two rows of pale blue marginal dots. Hindwing with some marginal dots towards the apical angle." The under surface is figured in Iris 1895, pl. IV, and shows on the forewing three transcellular white intramedian spots and on the hindwing a discal row of five small blue elongate stripes and an incomplete row of small admarginal dots. Together with it occurs not rarely at Dorey an aberration which we meet with in the entire range of distribution of the species, with two very strong glossy blue patches, which are placed isolated before the discocellular of the forewing (**biplagiata** *form. nov.*). From Sorong, the north-east cape of the main island, and from Mysol, a satellite-island, I possess six ♂♂ which bear on the hindwing beneath either no blue discal spots at all or only obsolete ones (**privata** *form. nov.*). The nomenclature of the forms from Kaiser-Wilhelmsland is very complicated, as neither Honrath nor Staudinger was aware that two faunistic regions there come together within a short distance, namely that of Astrolabe Bay with Friedrich-Wilhelmshafen, whose races in general approach those of the Dutch Humboldt Bay, and that of Finshhafen, Simbang, which with its melanotic branch-races is allied to the north-eastern part of British New Guinea. We have already become acquainted with analogous cases in *Radena juventa* and *Euploea tulliolus,* and in these giant Euploeas they are even more manifest. — **hansemanni** *Honr.*, from Simbang (Finschhafen), must be given priority as the oldest name; at the same time the ♂ is figured here for the first time (79 b) and renders a description unnecessary. The ♀ belonging to it is figured by Honrath Berl. Ent. Zeitschrift pl. V, f. 1, it resembles that of *mesocala* (79 b), except that it has a still more extended white patch, reaching the base of the forewing, and with a more blue than violet border. As far as is known the ♀♀ of the Finschhafen race do not vary so considerably as those of the local form from Astrolabe Bay. — **duerrsteini** *Stgr.*, originally described from Hatzfeldhafen, further to the west, and recognizably figured Iris 1890 pl. IV f. 2 and 3, is the form most

callithoë. *biplagiata.* *privata.* *hansemanni* *duerrsteini.*

widely distributed in collections. ♀ with much smaller light blue-violet discal spot, not distally incised, on the forewing, which in Staudinger's name-typical form bears no submarginal patches. But there occur very rarely at Friedrich-Wilhelmshafen ♂♂ with the same shaped, but considerably lighter median area of the forewing, distally united with the submarginal spots (**praestabilis** *form. nov.*). Normal ♀♀ of *duerrsteini* show *praestabilis.* a broad white submarginal area on the hindwing, of which Hagen wrote in 1897 that this whitening of the hindwing is the principal character of the Astrolabe race, the Finschhafen ♀♀ always remaining brown, which on the other hand is never the case in any variety of the Astrolabe ♀♀. It is singular that Honrath was misled in 1892 into designating as *hansimanni*-♀ *vera* a ♀ identical with *duerrsteini* on the forewing, but which has no white marginal area on the hindwing. I think this rare ♀-form, figured by Honrath (Berl. Ent. Zeitschr. 1892. pl. XV f. 6), may be introduced as **honrathi** *form. nov.* Staudinger describes as ♀-form **nera** a likewise rare *honrathi nera.* individual aberration (Iris 1895. pl. IV f. 3) with light blue cell, bordered with dark blue, on the forewing. Finally, I give the name of ♀-form **erynia** *form. nov.* to an aberration with ♂-like colouring. Forewing evenly *erynia.* dark blue with bright reflection and small light blue cell-spot, five discal strigae and six submarginal patches. Hindwing dark brown with lighter marginal area and two small median streaks. Larva of all forms according to Wahnes identical: according to a figure of Ribbe's grey-white, irrorated with black, with only two pairs of flesh-coloured tentacles on the second and third segments. The eggs produce larvae in from 5 to 8 days; but they almost immediately crawl down from the food-plant and conceal themselves. In the adult stage the larva is sluggish and lives alone, mostly hidden among the food-plant, a small tree. Pupa at first yellow, after a few days acquiring a metallical gloss, so that it looks like glass which is gilded inside. — **sacer-** *sacerdotalis.* **dotalis** *subsp. nov.* inhabits Jobi; there occur ♀♀ which are marked like the ♂ and show a large blue spot before the discocellular of the forewing, with seven to eight discal stripes, followed by distinct antemarginal patches. A ♀ in coll Oberthür has the cell of the forewing light grey-brown beneath. — **mesocala** *Voll.* *mesocala.* (79 b) is the branch inhabiting Waigeu, which, judging from the material in my collection and a few examples from coll. Oberthür which Staudinger has minutely described (Iris 1895, p. 161—164), only varies very slightly. ♂ approaching that of *callithoë*, but, as far as is known, exclusively with *biplagiata*-pattern and three long and very broad blue patches beyond and above the cell of the forewing. ♀ as figured, the white patch in the cell varying in extent, sometimes reaching to the base, sometimes only to the middle of the wing. — **eurykleia** *subsp. nov.* approaches *mesocala,* particularly in the ♀, but the blue discal spots of the hind- *eurykleia.* wing are smaller than in the Waigeu race. ♂ with broad confluent double spot before the discocellular of the forewing and very broad blue area beyond the cell. But in the cell itself the fine blue powdering, which is always present in *mesocala*, extending almost to the base, is absent. Fergusson Island. — **euthoë** *Fldr.* *euthoë.* is a distinct island form; ♂ very near that of *callithoë*, but without distinct patch before the apex of the cell and with narrower and darker blue streaks beyond the cell of the forewing than *mesocala* and *eurykleia.* Aru Islands, very rare. — On the Key Islands occurs a branch-race allied to *euthoë*, which I do not know in nature.

E. eucala *Stgr.* is a very interesting species from the Micromalayan region, hitherto only known from *eucala.* Sumbawa, but pretty certainly to be expected also from Sumba and Flores. ♂ similar to *callithoë*, but with light brown base to the forewing, thus somewhat recalling *semicirculus Btlr.* and *irma Fruhst.*, with a rounded cellular spot and a row of large, but isolated light-blue transcellular spots on the forewing. Submarginal patches, especially the upper ones, dotted with white. ♀ predominantly brown, forewing only sulfused with blue in the distal part. Forewing with three to five whitish, hindwing with seven blue discal patches: cell-dot smaller than above. A ♂ in my collection shows the anal pencils formed as in *Salpinx,* of dark yellow-brown colour, which were probably light yellow in the living insect.

Group Salpinx *Hbn.* 1816.

(Selinda, Hirdapa, Pademma, Nacamsa, Isamia, Tiruna, Anadara, Daniseppa, Satanga and *Saphara, Moore* 1883.)

Larva closely approaching that of *Trepsichrois,* with four pairs of filiform appendages. Pupa green, with metallic gloss, but the transformations of only two species (*assimilata Fldr.* from Key and *treitschkei Bdv.* from New Guinea) are known, an almost incredible fact in view of the commonness of the species. Cell of the forewing mostly without recurrent vein. Upper discocellular always distinct; cell of the hindwing relatively short. Forewing with one or two androconia-streaks, hindwing with speculum. Anal pencils with double brush of hairs, which in one species *(rhadamanthus)* is grey, otherwise bright light yellow like the stylus. The separate species are almost more inclined to sexual and local variability than even those of the preceding group and their delimitation is very difficult.

Valve very similar to that of *Crastia*, distally shaped like the beak of a bird, especially a parrot's, with the apex sometimes more rounded, sometimes sharper *(nemertes).* In *leucostictos* a pad-like swelling of the inner part of the valve is noticeable and in *ægyptus* from Bawean there is a strongly chitinized, hand-like thickening of the clasper, somewhat recalling the shape found in *Hestia.*

E. eleusina is an elegant species of *Calliploea*-like appearance. pattern of the forewing somewhat as *baweana* (83 d). but with a long. light violet sexual stripe of the forewing. by which it is chiefly distinguished
eleusina. from the very similar *E. mazares* and proved to belong to *Salpinx*. — **eleusina** *Cr.* is one of the best known butterflies of Java, where it always flies together with *mazares*, ascending like the latter to 600—800 m. above sea-level and inhabiting the same luxuriant but deserted gardens or the edges of woods. never flying far. always hovering over flowers and always easy to catch. The ♀ differs from that of *mazares* in always having a complete row of whitish violet submarginal spots on the hindwing and in three to four, sometimes much widened subapical patches on the forewing, which are placed beyond the cell. On Bawean, from July to September, *eleusina* is the commonest butterfly of the island. East Javan examples have as a rule lighter
hygina. blue submarginal markings than West Javan ones. Bali, Kangean. — **hygina** *subsp. nov.* is a butterfly not rare on Sumbawa and Lombok. distinguished by having the white submarginal spots of the forewing larger and always margined with light blue instead of violet. According to Doherty it occurs also on Sumba. —
mniszechi. **mniszechi** *Fldr.* (82 c) is a pronounced Celebes form almost entitled to specific rank. with the copious violet-white ornamentation on the upperside of both wings peculiar to all blue Celeban Euploeids. The most beautiful are the examples from the neighbourhood of the waterfall of Maros, with the ♀♀ spotted with almost pure white, white instead of blue stripe at the submedian and very large quadrate transcellular patches on
arona. the forewing. Hindwing with wedge-shaped white cell-spot and two to three discal spots (♀-form. **arona** *form. nov.*). South Celebes. Examples from the east of the island are the purest in colour and much more nearly approach the Javan *eleusina*-type than *mniszechi*. The submarginal markings are margined with dark violet instead of light blue, the submedian stripe obliterated, the discal spots of the hindwing are absent or
palata. only slight. = **palata** *subsp. nov.* Locality: neighbourhood of Tombugo.

E. vollenhovi is a species which resembles *mniszechi* and exclusively inhabits the Celeban subregion.
vollenhovi. — **vollenhovi** *Fldr.*, described from Gorontalo in North-East Celebes, differs from *mniszechi* chiefly in having a broad white transcellular band on the forewing, which in both sexes from southern Celebes is occasionally indistinct in the upper part, being dusted with blue. ♂ and ♀ like those figured, with cell-spot on both wings and broad pure white median area (which on the figure has by mistake been covered over with blue),
anitra. occur only in Central Celebes in August-September, = **anitra** *subsp. nov.* (83 c). They are also beneath easy to distinguish from other Celeban *vollenhovi* by the very large white wedge-spots before the apex of the cell
aganor. on both wings. — **aganor** *subsp. nov.* is a satellite-island form with strongly reduced sexual spot and small transcellular patches on the forewing. Hindwing in the ♂ without cell-patch and only with two discal patches; ♀ with very small spot before the discocellular. Bangkai.

E. dehaani likewise resembles *Calliploea* in habitus; it somewhat approaches *ledereri Fldr.* from Malacca in size, but differs from this in the absence of the lighter brown patch at the hindmargin of both wings and the presence of the *Salpinx*-spot on the forewing. Moreover, the submarginal row of spots is distinctly dotted
dehaani. with white, reaches to the submedian and consists of larger, more wedge-shaped patches. — **dehaani** *Luc.*, described from Cochinchina, was found by me in southern Annam; the discal row of blue spots and particularly
musa. also the rounded patch before the apex of the cell on the forewing smaller than in **musa** *Swinh.* (= miraculosa *Fruhst.*), which must be regarded as a characteristic butterfly of Tonkin, where it is nowhere rare from June to September at elevations of 300—600 m. above the sea even in the neighbourhood of human habitations.
minorata. — **minorata** *Moore* (= hainana *Holl.*), unknown to me in nature, was described from Hainan, the fauna of which shows such a surprising resemblance to that of Tonkin. According to Holland's description, *minorata* differs from *ledereri,* as figured by Felder and Distant, in that the row of submarginal spots of the forewing consists of seven instead of six spots and that all these patches are indistinctly dotted with white. The chestnut-brown tinge, so characteristic of *ledereri,* is wanting both at the hindmargin of the forewing and on the hindwing. Under surface as in *ledereri.*

E. leucostictos is one of the commonest Euploeas throughout its wide range, which extends from Formosa in the north, across Further India southwards to the Nicobars, and to the east embraces the Mariannes. It is, however, essentially a Macromalayan species, dominant everywhere on the large Sunda Islands and their
hobsoni. satellites together with *Trepsichrois mulciber.* — **hobsoni** *Btlr.* is not very common on Formosa, at the extreme limit of the range of the collective species, and approaches *coelestis Fruhst.* (83 b), but is somewhat smaller, the submarginal patches are lighter blue and the subapical stripes on the forewing of the ♀♀ distinctly dotted with white. All the blue spots. moreover, extraordinarily broad, as is already mentioned by Butler who had only one ♂ for description. There are two forms, the normal, and a rarer one with extended, elongate-pointed
gaza. subcostal strigae, especially in the ♀ (= **gaza** *form. nov.*). Locality: Taihanroku, near the southern point of
negleyana. the island, July-August. — **negleyana** *Holl.* is about intermediate between *hobsoni* from Formosa and *coelestis*

from Tonkin; according to its author it is not rare on Hainan and bears, judging from the figure, distinct whitish antemarginal dots on the forewing and essentially smaller blue submarginal patches than *hobsoni* and *coelestis*. Not known to me. — **leucogonys** *Btlr.*, originally described from Malacca, extends northwards to Moulmein and was met with by me in February in Central Siam and in March at the border of Siam and Burma. In general they visit flowers, but in the dry season are fond of wet places in the waterless river-beds. *leucogonys* varies much in size, some ♂♂ only betray their relationship by two or three light blue transcellular patches; the submarginal patches may be either small or very large (= **lazulina** *Moore*). As localities are further known: Salanga, Singapore. — **vestigiata** *Btlr.* is a race with the hindwing generally darker, without discal stripes and as a rule with small or only moderate-sized submarginal patches on the forewing. As in the preceding form ♀♀ sometimes occur with pure white or slightly light violet anal margin to the hindwing, which, however, is not reproduced on the under surface (**albolimbata** *form. nov.*). Valve distally less excurved than that of *viola* from Celebes. Rare in North-East Sumatra. *vestigiata* is one of the commonest butterflies in the west of the island and the ♀♀ attain there an unusual size, but nevertheless have generally only a smaller stripe at the submedian of the forewing than *leucogonys*. According to Martin they are fond of shade and hence sometimes come under bridges covered with wood or straw, and even into the verandas of dwelling-houses, where they remain until about 4 o'clock, and then return to their hiding-places in the woods. — **novarae** *Fldr.* is a race from the Nicobars rare in collections, and only known to me from Moore's figure; forewing with light blue submarginal spots on dark blue, brilliantly glossy ground. — **juno** *Stich.* is a race approaching *vestigiata* in the predominantly dark blue-violet ground-colour of the upper surface, the ♀♀ of which, however, may be distinguished from the West Sumatran branch of the species by the very large subapical patches with pure white dots and the light blue, similar submarginal spots. Under surface of both wings with very distinct, complete rows of pure white submarginal dots. Rather rare. Nias. — **phane** *Doh.* on the contrary is very common (coll. Fruhstorfer contains 63 examples, captured in April). Ground-colour steel-blue, never changing into violet and hence easy to distinguish from *juno* and *vestigiata* and probably at the same time approaching *novarae Fldr.* from the Nicobars. *phane* also differs in the dark hindwing both from *leucostictos Gmel.* from Java and *vestigiata Btlr.* from Sumatra, both of which have the hindwing much lighter distally. ♂, but especially the ♀, with very large marginal spots, as a rule light blue, only rarely dotted with white. The *Salpinx*-spot in both sexes very large, in the ♀♀ often distally incised, sometimes double or so much widened as to recall *kulu* from the Philippines. But the principal character of the race consists in the almost undotted under surface (forming a contrast especially to that of *juno*), which in the ♂♂ is almost deep black and suffused with dark blue sheen. Engano. — **leucostictos** *Gmel.* (= eunice *Godt.*), the name-type, is one of the most variable races, with the ground-colour as a rule light brown with violet tinge. Examples with dark steel-blue reflection are rarer. The shape and colour of the submarginal patches vary, but examples predominate with light violet marginal patches, more or less dotted with white. The *Salpinx*-stripe is as a rule smaller than in *phane* and in the ♀♀ inclined to obsolescence. In single ♀♀ it is entirely absent (= **debarbata** *form. nov.*). In some ♂♂ appears as a rare exception a second rounded violet spot above the *Salpinx*-stripe (**bioculata** *form. nov.*), a series of ♂♂ and ♀♀ bear transcellular elongate or rounded strigae on the forewing (**radiata** *form. nov.*), whilst other examples, especially often ♀♀, show occasionally only four small, white-centred subapical spots, which only extend to the upper median vein of the forewing (**abrupta** *form. nov.*). In East and West Java nowhere rare up to 600 m.: but it is always met with singly, never gregariously, like *mazares*. — **timaius** *subsp. nov.* is a very large and dark-coloured race with light blue submarginal patches, but never light violet according to the material before me. ♀ as in that of *juno* with elongate subapical strigae, which distally enclose large white dots. Under surface darker and with smaller dots than in Javan examples. Bawean, apparently rare. — **relucida** *subsp. nov.* is a race with brown ground-colour, closely approximating to *leucostictos* from Java in the colouring of the upperside: ♂ with light violet. ♀ with light blue subapical and submarginal patches. The under surface forms a distinct transition to *tisais Fruhst.* from Lombok in the strikingly light coffee-brown patch in the cell of the forewing and the median area of the hindwing. Bali. — **tisais** *Fruhst.* (83b), described from Lombok, where it is fond of visiting flowers at elevations of 2000 ft. and was met with by me as one of the first butterflies immediately after sunrise. The upper surface is shown in the figure, the under surface is characterized by delicate light blue submarginal spots, and light brown patches in the cell of both wings, which gradually shade off into the somewhat darker marginal area. — **kandaon** *subsp. nov.* bears as a rule even larger and lighter blue submarginal spots on the forewing and is beneath easy to distinguish from *tisais* by the sharply defined dark brown marginal area, distinctly shot with violet-blue, on both wings. The white dots of the under surface are commonly replaced by small black dots with scarcely appreciable blue centres. Sumbawa. — **meizon** *Doh.* is an extremely pronounced geographical form, somewhat inferior in size to *kandaon*, but nevertheless with the marginal spots of the forewing almost larger and always light blue. The under surface similar to that of *phane*, i. e. much darkened, with a slightly lighter brown area in the median part, and both wings either entirely without dots or only with a few small blue spots in the subapical part of both wings. Sumba. — **syra** *Fruhst.* (79c), from Borneo and Palawan, is an exceptionally large form with dark velvety blue ground-colour and as a rule only three to five subapical patches on the forewing. The *Salpinx*-

leucogonys. *lazulina.* *vestigiata.* *albolimbata.* *novarae.* *juno.* *phane.* *leucostictos.* *debarbata.* *bioculata.* *radiata.* *abrupta.* *timaius.* *relucida.* *tisais.* *kandaon.* *meizon.* *syra.*

spot is always larger than in the allied forms, commonly as in the figure, but sometimes, especially in the ♀♀, three to four times as broad and slightly dotted with white. Sometimes there is also in the ♀♀ a second spot between the median veins and the hindwing is further adorned with two to three quadrate discal patches
kadina. beyond the cell-wall (**kadina** *form. nov.*). Occurring in all parts of Borneo, but everywhere rare. Flies on
oculata. Palawan in January. — **oculata** *Moore*, originally assigned only to a small dry-season example from Mindanao. must be adopted as the only valid name for the probably rather similar representatives of *leucostictos* from the Philippines. According to Semper specimens with large and small spots occur at the same time and in the same place, yet examples are not known from the Philippines with the submedian stripes as strongly
kadu. reduced as in *syra*. Apparently rather rare, from Luzon to Mindanao. — Finally, **kadu** *Ersch.*, first described from Guam in the Mariannes, is somewhat smaller than normal Mindanao specimens, but bears by far the
hewitsoni. largest grey-white *Saluinx*-spots on the upperside of the forewing. **hewitsoni** *Btlr.* is only a form of *kadu* with two submedian stripes on the forewing. According to Matsumura (Stutt. Ent. Zeitschr. Aug. 1909, p. 91) *kadu* has also been taken on Formosa and even on the Loo-Choo Islands.

E. viola replaces *leucostictos* and its representatives on Celebes and is actually also connected with it by transitional forms. But as in the ♀♀ (83a) the *Salpinx*-spot at the submedian of the forewing is absent and the genitalia also differ. this purely Celeban butterfly is treated as a distinct and separate species. Valve distally essentially broader than that of *vestigiata Btlr.* from Sumatra, ventrally with sharper and distinctly defined point. Celebes itself produces two sharply separated local races, although strange to say the differ-
viola. ences between them have not been noticed hitherto. — **viola** *Btlr.* (83b), the well-known form from Northern Celebes. which flies there all the year round and is never missing in consignments from the Minahassa; ♀ with withish. broad, light violet-bordered submarginal spots and a slightly curved row of subapical. transcellular stripes on the forewing. which never bears discal white spots. Hindwing above with cordiform, violet-dusted submarginal and white admarginal patches. Under surface of ♂ and ♀ without a trace of cellular or discal patches, hindwing moreover only with very minute dots, which traverse the submarginal area in two
weberi. rows. ♀ sometimes with a lighter, grey-violet-powdered postdiscal area on the hindwing. **weberi** *Moore* is
brandti. an aberration with small white submarginal spots on the hindwing, and **brandti** *Moore* an interesting form with medium-sized discal spots, but no submarginal patches on the forewing. Both probably from North Celebes, types in coll. Distant. An aberration in coll. Fruhstorfer, nearly allied to *weberi,* with obsolete
upis. submarginal spots and diffuse subapical patches on the forewing, is here introduced as **upis** *form nov.* —
westwoodi. **westwoodi** *Fldr.* (83a ♀) exclusively inhabits Southern Celebes and is at once distinguishable from *viola*, particularly beneath. by a discal row of spots, already figured by Felder, which in the ♂ are light blue and only of medium size, in the ♀ pure white, sometimes even forming quadrate areas. The forewing bears in both sexes extremely pronounced subapical, transcellular white spots, and the submarginal patches of the hindwing are always more prominent than in the northern form. Above the blue discal spots of the ♂ are always more strongly expressed, and sometimes assume a pure white colour, as may be seen from the figure
perizonia. (**perizonia** *form. nov.*. 80a ♂) and are confluent with the light blue marginal spots. ♀ always with purer white intraneural bands of the forewing than in *viola*, only sparsely bordered with violet. Two melanotic aberrations deserve mention: ♀ with only one row of medium-sized submarginal spots and a central patch. but without transcellular stripes on the forewing, hindwing with large, wedge-shaped, grey-violet-powdered postdiscal areas. Under surface of both wings with three rows of white punctiform spots
aisa. but not clouded with whitish violet (♀-f. **aisa** *form. nov.*). ♀ above as dark brown as the preceding, but with circumcellular stripes on the forewing. Hindwing also above with three rows of white patches and beneath
nivira. with broadly diffuse white, violet-powdered intraneural areas (♀-f. **nivira** *form. nov.*). In Southern Celebes,
bangkaiensis. especially in the dry season on flowering trees, which sometimes appear as if covered with them. — **bangkaiensis** *Fruhst.* agrees in size with Celeban *viola,* but bears much smaller whitish violet spots on the forewing and only one row of submarginal dots. From this branches off beyond the cell-wall towards the costal margin a curved row of four subapical spots. On the hindwing above the violet macular band which adorns *viola* is entirely absent. Beneath two submarginal rows of small white dots likewise recall *leucostictos,* whilst *viola* is ornamented with deep blue and larger dots. Type in the museum at Dresden. *bankaiensis* forms a connecting link between *leucostictos* from the Sunda Islands and the copiously blue-spotted *Salpinx viola.* —
leochares. **leochares** *subsp. nov.* is a darker race discovered on Salayer by Dr. Martin, with the white submarginal bands on both wings much reduced. In colouring it somewhat approaches *labreyi Moore.*

meyeri. **E. meyeri** *Hpffr.,* of which as yet only the type-specimens, in the Berlin Museum, have been brought to Europe, nearly approches.

depuiseti. **E. depuiseti** *Oberth.,* which is perhaps even a local form of the preceding and must be regarded as one of the finest Euploeids. Both sexes with a double spot of peculiar green-grey-blue colour at the submedian of the forewing, above it in the ♀ also another larger round white patch.

Transcellular spots and the proximal part of the subapical wedge-shaped streaks of the forewing likewise dusted with grey-green. Hindwing with a proximal row of very large white submarginal patches, of which the upper ones are also margined with blue-green, and a complete series of very distinct admarginal dots. Under surface somewhat as in *martini* but with a further row of greenish-dusted discal patches on the forewing. Sangir. — **lykeia** *subsp. nov.* is a geographical form from the Talaut Islands with reduced white and grey-blue patches on beth wings. *lykeia.*

E. labreyi *Moore* (= plateni *Stgr.*) (80 a) is the last of the representatives of *viola* and *leucostictos* and comes from Sula Mangoli, where Doherty rediscovered it. The ♀ differs from the ♂ in the presence of large white submarginal patches on the hindwing. As in *viola* the *Salpinx*-spot is wanting on the upperside of the forewing. *labreyi.*

E. nemertes was formerly regarded as a local race of *leucostictos,* which it indeed replaces on the Moluccas and in the Papuan region in its widest extent. but from which it is specifically sharply separated. apart from the differences in the markings and the absence of the blue reflection on the upperside of both wings, by the entirely different shape of the genitalia. Valve narrow, approaching that of *Stictoploea,* distally not shaped like a parrot's but rather a mouse's head. Apex strongly chitinized. obtuse. ventrally curved inwards. — **nemertes** *Hbn.* (= aglidice *Bdv.* ♀, pasithea *Fldr.*) is the commonest *Euploea* of the South Moluccas and distributed in collections from Amboina and Saparœa. Moderately variable: it varies as a rule only in the size of the light violet *Salpinx*-spot in ♂ and ♀ and the extent of the white subapical patches. which in specimens especially copiously decorated with white show a fine violet-grey distal powdering. In some ♀♀ there is also a complete row of whitish submarginal dots on the hindwing above. In the ♂♂ violet discal stripes sometimes occur on the underside of the forewing, which are always distinctly expressed in the ♀. — **hisme** *Bdv.* (84 a) differs from *nemertes* only in the darker brown ground-colour. a slight violet sheen on the upperside of both wings and on the forewing a more complete row of smaller submarginal dots with darker blue margins. On the under surface of the forewing the white dots are more pronounced than in *nemertes.* Buru. — **lycoleon** *subsp. nov.* is a light brown form from eastern Ceram with only four small white subapical patches on the forewing, the underside of the hindwing margined with light brown and extremely delicate, pale violet discal streak on both wings. — **bernsteini** *Fldr.,* described from Halmaheira and the Aru Islands (the latter locality is incorrect), inhabits the North Moluccas and is to be met with on Batjan all the year round. Subapical spots on the upperside of the forewing absent. ♀ as a rule only with 2—3 small subapical spots on the hindwing beneath. the ♂ on the forewing without a trace of discal streaks. the ♀ with these only slightly indicated. Both sexes only with one submarginal row of violet dots on the hindwing. — A dry-season form of somevhat lighter colouring, with the *Salpinx*-spot on the forewing much reduced, passes in the trade as **hismina** *form. nov.* — **pseudohisme** *subsp. nov.* is a darkened race from Obi. chiefly characterized by the ♀♀, which beneath show very large. rounded, white submarginal patches. Moreover. the discal spots on the forewing beneath are enlarged. **trysa** *form. nov.* is a ♀-form without blue-violet spot at the submedian of the hindwing. thus forming a connecting-link with the purely Papuan local races, in whose ♀♀ the submedian spot is always absent. — **staintoni** *Fldr.* (80 c). a very distinct geographical race, which already exhibits to a great extent the tendency to polymorphism so characteristic of the Papuan region: only in sexual heteromorphism the races of the main island of New Guinea surpass *staintoni.* Besides the typical form figured there are four directions of variation to be described: **eretria** *form. nov.,* similar to *erima* (85 a) and *gorima* (83 c), unicolorous brown with the distal part of both wings somewhat paler. **punctaria** *form. nov.,* similar to *quintia* (81 a), brown, with six strong white rounded patches on the forewing, which in the ♀♀ are distally margined by an especially light border. sometimes inclining to violet. **hortensia** *form. nov.,* with broad violet marginal area on the forewing. which is especially prominent in the ♀, sometimes becomes entirely white towards the apex and may even extend over the whole forewing as in the ♀ figured. **impressa** *form. nov.* is the rarest aberration, and may be combined with *hortensia* pattern: it is ornamented with small brown submarginal spots. which look as if sprinkled or printed on to the wings. Waigeu. described from 60 examples in coll. Fruhstorfer. — **herbsti** *Bdv.* is the subspecies which inhabits the whole of Dutch New Guinea and the islands of Geelvink Bay (Salawatti. Misol. Jobi. Biak), and of which Grose-Smith has given the name **traducta** to light brown examples. such as I have before me from Sorong. with a slightly bronzy sheen above. Quite small examples without a trace of subapical blue or violet patches are called **minima** *Gr.-Sm.,* and a very interesting aberration with violet tinge near the apex of the cell on the forewing is **swierstrae** *Snell.* (83 c). Boisduval himself knew only a form analogous to *quintia* (81 a), which bears on the forewing six pale violet, medium-sized submarginal patches on a light brown ground. — The oldest name for the geographical branch from Kaiser-Wilhelmsland is **erima** *Fruhst.* (85 a), which was first applied to the dominant form from Astrolabe Bay. of more uniform yellow-brown colour throughout than examples from Dutch New Guinea. A very common aberration with pale yellow-brown ground-colour, which occurs at Friedrich-Wilhelmshafen on the coast up to many thousands in company with *Calliploea salpingoides,* I designate **gorima** *form. nov.* (83 c). Examples with thin light violet shading before and behind the discocellular of the forewing. which form a transition to *swierstrae*

nemertes. *hisme.* *lycoleon.* *bernsteini.* *hismina.* *pseudohisme* *trysa.* *staintoni.* *eretria.* *punctaria.* *hortensia.* *impressa.* *herbsti.* *traducta.* *minima.* *swierstrae.* *erima.* *gorima.*

and are not very rare in both sexes. are **atomaria** *form. nov.* Very rare on the other hand is a form analogous to *Euploea pumila* f. *lucinda Sm.,* with opalescent white colouring. which only betrays its identity with *erima* by the narrow, diffuse, brown margins (**opalina** *form. nov.*) (85 b as *swierstrae*-♀). **sexguttata** *Fruhst.* is the name of a ♂-aberration. with six light violet patches on a light brown ground. In the ♀♀ the patches are pure white with fine light blue borders. *swierstrae Snell.* occurs both at Friedrich-Wilhelmshafen on the main island and on Vulcan Island. — At Finschhafen occurs a completely modified race, already approaching that of British New Guinea in the dark, almost black-brown ground-colour. two very large white subapical patches bordered with light violet and four diffuse submarginal spots on the forewing. Under surface likewise very dark, sometimes with 2 rows of large white subapical spots on the forewing. = **aviena** *subsp. nov.* Thus the condition of *Salpinx* in German New Guinea almost agrees with the statements of Prof. Neuhauss, who asserted that the fauna changes there with every kilometer. The valve of *erima* differs from that of *nemertes* in the slenderer form. the narrower and more abruptly narrowed tip. — **quintia** *subsp. nov.* (81 a). Wings darker throughout, almost black, with rich blue-violet tinge. Examples predominate with unusually large white apical and submarginal patches. which in the ♀ are strongly expressed on the hindwing also, but are never so extended as in *erima* and *herbsti.* Together with the typical form. however, there occur on the mainland, and rarely on Fergusson Island, a large proportion of ♂♂ and ♀♀ with no patches at all on the forewing (**rhodia** *form. nov.*); Milne Bay and Aroa River. in British New Guinea. Trobriand and D'Entrecasteaux Islands. — **messia** *subsp. nov.,* similar to *rhodia,* only smaller. but above with much larger milk-white discal spots on the forewing. Woodlark Island. — **oppia** *subsp. nov.* is noticeable for its dull earth-coloured ground-colouring, the lighter, almost grey-brown distal part of both wings and the complete submarginal row of violet dots on the hindwing beneath, which stand out more conspicuously than in the other Papuan races of *nemertes.* Mefor. — **perdita** *Btlr.* approaches *quintia* and *rhodia* and is distinguished by the uniformly dark brown colouring and distinct white submarginal patches on the underside of both wings. The upper surface, on the other hand, is very delicately dotted with white. — **ulaguna** *Ribbe* is a form in which the *Salpinx*-spot at the submedian of the forewing is obsolescent. whilst the hindwing is characterized by a row of more pronounced submarginal and very small admarginal dots. Bismarck Archipelago. everywhere common. — **polymela** *Godm.,* the largest of the eastern forms. above somewhat lighter brown than *perdita,* without marginal dots, but with large oval pale violet sexual spot. The ground-colour varies occasionally from light to darker, the ♀♀ bear above white submarginal patches, which according to Ribbe are sometimes continued on the forewing; nowhere rare in the Solomons. — **iphianassa** *Btlr.* (— consanguinea *Btlr.*). described from Aneitum in the New Hebrides, is characterized, according to the ♀♀ before me. by white, fairly uniform submarginal patches about the size of a pin's head, which are continued on the hindwing to the middle of the wing, and are reproduced on the under surface, so that the hindwing also is adorned with submarginal patches to the anal angle. — **graeffiana** *H.-Schäff.,* from Vate in the New Hebrides. is easy to distinguish from the preceding by a light distal border on both wings. — **macleayi** *Fldr.* again closely approximates to *iphianassa,* except that it bears somewhat smaller. but complete and purer white rows of dots on the upperside of both wings. Fiji Island. apparently rare.

atomaria. *opalina.* *sexguttata.* *aviena.* *quintia.* *rhodia.* *messia.* *oppia.* *perdita.* *ulaguna.* *polymela.* *iphianassa.* *graeffiana.* *macleayi.*

E. asyllus *Godm.* is a very distinct species, being an interesting parallel form to *E. pyres Godm.,* and like this easy to distinguish from its allies in the Solomon Archipelago and New Guinea by strongly expressed discal rows of blue-white spots, which traverse both wings in addition to the two submarginal rows. ♂ above scarcely differing from that of *polymela,* ♀, however, with whitish subapical and transcellular spots, which vary in size. Bougainville, Rubiana. — **laurentia** *subsp. nov.* is a distinct race. ♀ above darker brown, but on the hindwing with distincly defined pale yellow-brown marginal area. Forewing, except for a costal patch, entirely without spots. The submarginal dots of the forewing only extend to the middle of the wing. Shortlands Islands, discovered by C. Ribbe.

asyllus. *laurentia.*

E. usipetes is the same shape as *nemertes, herbsti* and *staintoni,* so that one is tempted to regard it as the *nemertes*-form from Aru. and where it occurs in British and German New Guinea together with *quintia* and *gorima,* as one of the many aberrations of those *nemertes* branch-races. But as the valve shows some difference *usipetes* is here treated as a species and only a knowledge of the larva can decide conclusively as to its validity or otherwise. Valve somewhat broader, but nevertheless more pointed than in *nemertes, erima* and *fraterna.* — **usipetes** *Hew.* (85 c ♀) is known from the Aru Islands, where it occurs together with *assimilata Fldr.,* which likewise cannot be united with *usipetes* as a form on account of the narrow valve, this being much broader in *assimilata* than in *nemertes.* Together with ♀♀ like the one figured, some also occur according to Ribbe with white instead of brown-yellow disc (**albodiscalis** *form nov.*). — On the main island of New Guinea, both in the British and German part, occurs a specially handsome race: **astrifera** *subsp. nov.* (85 c as *usipetes*-♂), with six to seven prominent pure white, blue- or violet-bordered submarginal spots on the forewing. which are also present in the ♀♀. The discal colouring varies from that of *albodiscalis* to dull yellow-brown. ♂♂ of the darker colour have usually only two to four small obscure grey-white subapical spots. — **rezia** *Kirby* is a further geographical form. ♂ with the disc of the forewing very slightly

usipetes. *albodiscalis.* *astrifera* *rezia.*

lighter, but ♀ with violet-white extended median area. Fergusson, Kiriwana. — **hippias** *Misk.,* from Cape York, is only known to me from its author's description. Upper surface rust-brown with pale brown disc, which becomes yellowish white distally. Hindwing with a very large oval ochre-brown cell-spot, which distally somewhat approaches the costal margin. *hippias.*

E. imitata *Btlr.,* without more exact locality, was discovered on the cruise of the "Curaçao", according to Butler from the Solomons. *imitata.*

E. assimilata is a species which occurs exclusively on the Key Islands and some of the small south-easterly Moluccas. It is noticeable at once for an extended light patch, particularly beneath, which finds its analogy in *eurypon Hew.,* as well as in *Calliploea hopfferi Fldr.* from the same groups of islands. Valve approaching that of *erima Fruhst.,* from New Guinea, but somewhat longer, uniformly narrower. — **bandaënsis** *Fruhst.* (85 b) is not rare on Banda, where it occurs in two principal forms: the dark ♀-f. *bandaënsis,* which has but little light scaling above, with the white submarginal spots of the hindwing distinctly showing through from the underside, which are placed in a pale brown area, inclining to whitish, particularly beneath; and **nepotina** *Fruhst.* (85 b) with broad and pure white marginal area on the hindwing in both sexes. *nepotina* always bears beneath only three large, tear-shaped transcellular patches instead of a complete row of submarginal dots. — **nepos** *Röb.,* from Goram, shows a still more sharply defined and broader white distal border on the hindwing and whitish-scaled apical part of the forewing. I have before me only one ♂ with three relatively small discal patches on the hindwing beneath. — **assimilata** *Fldr.* (♀ = fraterna *Fldr.*) is the albinotic extreme of the collective species. Forewing with the white submarginal bands as broad as *nepotina* shows them on the hindwing only. Under surface of the hindwing with large white tear-spots. Felder erroneously described the form from Aru, where according to Ribbe it does not occur and has no representative. Kühn has discovered the larva on Key; it is of black ground-colour, each segment with several thin yellowish stripes. Head, abdomen and legs entirely black. The four pairs of tentacles reddish with black tips. Pupa metallic green. — **frigida** *Btlr.* is according to the description allied to *bandaënsis;* it is said to come from North Ceram. *bandaënsis. nepotina. nepos. assimilata. frigida.*

E. treitschkei inhabits the Papuan region, extends eastwards to the Solomons and even to the Fiji Islands, but does not seem to reach westwards beyond the neighbourhood of Geelvink Bay, being absent even in Waigeu. On the main island of New Guinea the butterfly is probably of pretty general occurrence; sexual dimorphism not known from there; like *E. nemertes* and *Calliploea pumila,* however, the species is inclined to local variation, even Vulcan Island, only 10—12 km. from New Guinea, has a highly specialized branch race. Wahnes has discoverred the larva; according to a figure for which we are indebted to C. Ribbe, the ground-colour is yellow-brown, with black lateral stripe, head black, four pairs of filiform appendages yellowish. Pupa as in other species metallic golden. Larva lives in numbers, but not gregariously, on a creeping-plant which covers the sandy sea-shore. — **olivacea** *Sm.* (81 b) occurs in the whole of Dutch and German New Guinea and varies slightly in that the ♂♂ sometimes bear above no white or greenish grey stripes at all, nor any cell-patches (= **unicolor** *Hag.*); there are all transitions to the form figured with 5 discal splashes, to which are sometimes added one or two white subapical patches on the forewing. In the ♀, which is lighter than the ♂, with metallic green-yellow reflection, similar variations are repeated, only there occur, especially at Finschhafen, examples with whitish powdering in the apical part of the cell of the forewing and only whitish intramedian diffuse stripes (= f. **pulverulenta** *form. nov.*). Flies according to Hagen from September to December, and again in April. — **aebutia** *subsp. nov.* is a darger race from Jobi. Ground-colour green instead of black, with steely blue gloss, ♀ but little lighter, the discal patches blue-white. Under surface extremely sparsely dotted. ♂ above without *Salpinx*-stripe. — **eugenia** *subsp. nov.* (84 a) is the albinotic extreme of the preceding. Wings light sea-green with white subapical patches of the size of lentils on the forewing and circumcellular spots of the same colour on the hindwing. Cell of the forewing with *pulverulenta*-pattern, which is absent beneath. Vulcan Island, discovered by Dr. Eugen Werner. — **ursula** *Btlr.* (80 b) differs from *eugenia* chiefly in that the anal postdiscal white spots are more extended, but the cell of the hindwing encloses no white dot before the apex, which, however, is again present beneath. Fergusson. — In ♂♂ from Kiriwina all the white intramedian stripes of the hindwing are wanting, so that we have before us an unmarked form analogous to *unicolor Hag.,* which probably approaches **viridis** *Btlr.*, unknown to me in nature and described from a ♀ from Thursday Island. — **decia** *subsp. nov.* is a form from Milne Bay in the British territory, with white intraneural splashes on the hindwing arranged as in *ursula,* but smaller. — **treitschkei** *Bdv.*, the name-type, described from New Mecklenburg, is somewhat smaller than *olivacea*-♀, on the forewing with *pulverulenta*-pattern, hindwing with large, sharply defined, pure white circumcellular patches. **erimas** *Godt.* (= albopunctata *Ribbe*) is a handsome aberration with extended light patch on the forewing, which sometimes shows a very large white median area. — **biformis** *Btlr.* sometimes darker and predominantly blue-green, with somewhat smaller white dots than the type-form from New Mecklenburg. Described from Duke of York Island (New Lauenburg). — **coerulescens** *Pag.*, which I have not before me, differs in having a very conspicuous blue gloss in both sexes and more numerous white spots on the upper surface. ♀ usually *olivacea. unicolor. pulverulenta aebutia. eugenia. ursula. viridis. decia. treitschkei. erimas. biformis. coerulescens.*

lorenzo. with *pulverulenta*-pattern and on an average somewhat larger than *treitschkei*. New Pomerania. — **lorenzo** *Btlr.* was described from the Solomons without more exact locality, unknown to me. Probably it approaches *salomonis Ribbe* from the Shortland Islands; above like *unicolor Hag.*, but with larger *Salpinx*-stripe on the *aenea.* forewing. Discal dots on the under surface reduced. — **aenea** *Btlr.*, likewise inaccessible to me, erected on *jessica.* a ♀ from the Solomons. — **jessica** *Btlr.* is said to come from the Fiji Islands, a locality which I much question, as the species has never again been brought to Europe from thence. According to the figure it is allied to *ursula*, but bears yellowish instead of grey-green discal spots on the forewing, and very broad, elongate spindle-shaped sexual stripe. Hindwing with broad submarginal band, composed of larger patches than in *ursula*, placed in pairs. According to the markings *jessica* probably comes from the satellite-islands of eastern New Guinea.

gamelia. **E. gamelia** *Hbn.* (= faber *Zinck.*) recalls *eichhorni Stgr.* (81 c) in its refined general colouring, except that in *gamelia* the luxuriant white is extended on to the forewing. On a deep velvety black ground are placed three long oval, pure white transcellular spots, to which are added above the cell three costal patches and an irregular series of admarginal dots, following the same course as in *martini* (80 c). The double row of white marginal dots on the hindwing is widely separated, not confluent as in *martini*. In the glossy blue scent-area of the hindwing above a pointed oblong grey-yellow androconia-patch. Found by me exclusively in West Java, and there only at the volcano Gedé and at elevations of not less than 4000 ft.

martini. **E. martini** Nicév. (80 c) considerably surpasses *gamelia* in size; ♀ about as common as the ♂, differing in the duller brown ground-colour and broader submarginal spots in both wings. ♂ without oblong androconia-patch on the scent-area of the hindwing. Forewing prominent among all the *Salpinx* by possessing two long, narrow sexual streaks, which to a certain extent bring it near *Stictoploea* and which in *gamelia* are replaced by a short, more rectangular scent-spot. Sumatra, not below 1000 m.; not rare, but also not one of the commonest butterflies of the district.

roepstorffi. **E. roepstorffi** *Moore* rather ressembles *aelia* (85 c), except that the submarginal patches of the hindwing are more than twice as large and the forewing adorned with two discal and four subapical spots, sometimes rounded and sometimes elongate. Very rare, only one example yet known, which was in coll. Semper, and is now in the possession of Herr Weiss of Deidesheim. Andaman Is.

E. aegyptus, a Macromalayan species which is split up into sharply differentiated branches on the separate islands. In common with *martini* a second, although smaller sexual stripe is occasionally present on the forewing. It is not impossible that the name *ochsenheimeri Luc.* (1853) is entitled to priority. Absolute certainty could only be arrived at by examination of the type, which is said to be in the Paris Museum, but as the name clashes with *ochsenheimeri Moore* it would only tend to cause confusion and is hence provisionally *aegyptus.* suppressed. — **aegyptus** *Btlr.*, the type of which probably came from South Borneo or Sarawak, differs from the figured *rafflesi* (84 a) in the more pronounced white spots of the forewing. Valve similar to that of *E. leucostictos, vestigiata Btlr.*, but more quadrate, distally cut off straighter, the obtuse tip somewhat separated *lowei.* from the main part by a distal incision. **lowei** *Moore* is an unimportant aberration with somewhat larger white apical spots and without marginal dots on the forewing. Hindwing likewise with reduced rows of dots. *singapura.* Borneo. — **singapura** *Moore,* on the other hand, has according to the examples in my collection two strongly expressed double rows of white submarginal dots on the hindwing and in the ♀ distinct transcellular patches *sophia.* on the forewing. Singapore, probably also on the Malay Peninsula. — **sophia** *Moore* is rare in the alluvial plains of North-East Sumatra, but apparently rather common in the west of the island, and shows on both *limyrus.* surfaces somewhat brighter discal spots on the forewing. — **limyrus** *subsp. nov.* is a very dark island race with deep black instead of brown ground-colour, without transcellular spots and with small comma-shaped *staudingeri.* subapical patches on the forewing. Pulo Tello in the Batoe Islands. — **staudingeri** *Kheil.* one of the best known butterflies of Nias, is almost entitled to specific rank. Wings shorter, more rounded than in the preceding races of *aegyptus*. Forewing ornamented with large admarginal dots and a complete row of rounded, strongly expressed submarginal spots. Hindwing with a row and a half of small white marginal spots. Under *sticheli.* surface with white instead of violet discal spot. The ♀ must be very rare. — **sticheli** *Hag.* differs from the preceding chiefly in having all the dots of both wings reduced, neither above nor beneath larger than an entomological pin's head. Only the whitish discal spot on the underside of the forewing is very large, pointed-*rafflesi.* oval. Mentawej Islands, only ♂♂ known. *aegyptus* is wanting on Engano. — **rafflesi** *Moore* (84 a) is the more certain name for the Javan representative of *aegyptus*, which was perhaps first described as *ochsenheimeri Luc.* It occurs both in East and West Java, but is everywhere rare. It is met with in the coast-forests of Palabuan and in the mountain-ranges to the south of Malang, where, however, it is never found at over 500—600 m. above sea-level. Two principal forms may be distinguished, one with large, pure white subapical wedge-spots and grey-violet transcellular stripes on the forewing, corresponding to the description of *ochsenheimeri*, and the form here figured with the white spots of the forewing sometimes dusted with grey-

brown, which Moore has designated *rafflesi*. — **tricolora** *Fruhst.* (85c) is an astonishingly different race, of which three directions of variation may be noticed. **cuneifera** *form. nov.*, the principal form, which is figured, and to which are added in the name-type *tricolora* light violet transcellular, cellular and intramedian patches, so that such extremely richly coloured examples recall *margarita Btlr.* (84a). **rafflesina** *form nov.* is the name given here to examples with grey-blue instead of white subapical markings on the hindwing, which most nearly approach the Javan race. The three aberrations mentioned are reproduced in the ♀♀. Bawean, not rare from July to September. — **iduna** *Fruhst.* bears very little resemblance to *rafflesi* (of which I have large series before me), but, curiously, most nearly approaches *staudingeri Kheil* from Nias. *iduna* has in common with *staudingeri* the absolutely black ground-colour (brown in *rafflesi*), the equally prominent white spots on the forewing, which are divided in exactly the same way into two rows, whilst *rafflesi* shows only one row of washed-out whitish grey submarginal dots. On the hindwing *iduna* is even more copiously spotted with white than *staudingeri*, as the proximal white row of spots is also quite distinctly developed, whilst in *staudingeri* the second row is suppressed towards the anal angle, which is also the case in *rafflesi*. On the under surface of the wings *iduna* is intermediate between *rafflesi* and *staudingeri*. The spots on the forewing are stronger than in the former, weaker than in the latter. On the hindwing occur violet-white circumcellular dots, which are entirely absent in *staudingeri* and only indistinctly present in *rafflesi*. Kangean, in coll. Fruhstorfer. *tricolora.* *cuneifera.* *rafflesina.* *iduna.*

E. atossa *Pag.* much resembles *doubledayi* on the hindwing in the darkened, brown intramedian stripes, but naturally the scent-area is as in *rafflesi* and *tricolora*. Ground-colour of the forewing uniformly brown. The ♀ has sometimes two small violet costal spots on the forewing and on the hindwing in many examples the intraneural streaks show a tendency to obsolescence. ♂ beneath as above without subapical spots. Sumbawa. — **lombokiana** *Fruhst.* is a much smaller race, but with the white spots on the forewing more strongly expressed both above and beneath. Underside of the forewing with smaller violet submedian stripe and almost always with a curved row of well defined white subapical patches, which are absent in *atossa*. Lombok, at about 600 m., rare. *atossa.* *lombokiana.*

E. simillima replaces *aegyptus* and *atossa* on the Philippines and differs from the *aegyptus*-series chiefly in the light whitish or grey-brown intraneural areas of the hindwing beneath, which recall those of *leachi* (86c), *diana Btlr.*, and especially of the convergent Philippine *lucasi* and *swainsoni*. — **simillima** *Moore*, the North Philippine race, has no submarginal bands at all on the hindwing, but large white, almost quadrate subapical patches on the forewing. Very rare: Semper only knew 5 examples. Luzon. — **meldolae** *Moore* is characterized by smaller costal spots on the forewing, very long, prominent, pure white intraneural striae on the upper and under surface of the hindwing. South Philippines: Bohol, Mindanao. — **hypaspistes** *subsp. nov.* (the name signifies Esquire) is a race from Bazilan, where it occurs February—March. The white spots of both wings considerably reduced, the costal patches of the forewing in some examples powdered with brown. — **cornificia** *subsp. nov.* has the submarginal spots of both wings even more darkened and reduced. Mindoro. — **clorinde** *Stgr.*, from Palawan and Paragua, shows the admarginal dots of both wings dusted with brown, the submarginal spots of the hindwing are often absent. Palawan, not rare in January. — **aelia** *Fruhst.* belongs to those interesting relics of the land-connection between the Philippines and Borneo which still remain in the most notherly part of this extensive island and there inhabit Sandakan, whilst one degree further south the Macromalayan *aegyptus* already occurs in its place. *aelia* is smaller than *clorinde* and of lighter ground-colour. All the white markings are more washed-out and the number of the admarginal dots reduced. On the underside of the wings all the white dots and streaks narrower and smaller than in *clorinde*. *simillima.* *meldolae.* *hypaspistes.* *cornificia.* *clorinde.* *aelia.*

E. fabricii *Moore*, according to the description, is uniformly olive-brown above, the sexual spot of the forewing somewhat longer and placed nearer to the base than in *rafflesi Moore* from Java. The submarginal row of spots less strongly expressed, the marginal dots mostly absent. Hindwing with two rows of very minute spots, the proximal ones of which are obsolete from the upper median vein onwards. Cochinchina. Type in coll. Oberthür. *fabricii.*

E. dameli *Moore* is likewise unknown to me and is said to come from Shanghai, an extremely questionable locality, unless it is a northerly branch of the South Chinese *midamus L.* According to the description near to *aegyptus Btlr.* Upper surface washed-out brown, forewing with smaller, but prominent white subapical patches, a marginal row of five central and three lower very small spots on the hindwing. *dameli.*

E. midamus affords an interesting example of the variability of continental species and is next to *corus vitrina Fruhst.* the largest *Euploea* occurring in South Asia. Extraordinarily common in Hong-Kong and Siam, it becomes very rare at the limit of its range in Sikkim and Perak. Whether it also extends into the Macromalayan district is doubtful, but it is represented there by the forms of the *aegyptus*-series, whose relation to *midamus* is evidenced by *tricolora Frnhst.* from Bawean. — **midamus** *L.* (80a), a characteristic butterfly *midamus.*

of Hong-Kong and the adjacent mainland, passes in collections as *superba Herbst.*, *alopia Godt.* and *sinica Moore*. The last name refers to a form without pronounced double row of white submarginal dots on the hindwing, whilst *alopia Godt.* shows the maximum of white decoration, with still more extended light blue, white-centred transcellular and submarginal spots on the forewing than are shown in the figure. The ♀♀ are subject to the same variations, and that independently of the season, for at the end of October 1899 I took in the cemetery at Hong-Kong a ♀ with a white double row of spots on the hindwing above together with others without a trace of these spots. For the rest no two specimens are alike, in particular the spot before the apex of the cell on the forewing may be small, as on the figure, or 3 or 4 times as large. Also the discal spots of the forewing vary from light violet to dark blue, but a brilliant light metallic blue reflection is common to all. The ♂ butterfly smells slightly, the anal scent-pencils are dark yellow and very complicated, consisting of two rosettes, one very long-stalked with several long radiating hairs and the other a small, extremely delicate star at the tip of a somewhat lighter colour. According to Walker the larva lives on Strophanthus divergens, a climbing-plant of the family of the Apocyneae, on which the golden pupa also hangs. The larva is also occasionally found on imported oleander. The butterflies were repeatedly observed in groups of several hundreds, fluttering round the tops of flowering trees in the late afternoon. The true *midamus L.* extends to Tonkin and even to Central Siam, where I still took examples which could scarcely be distinguished from those from Hong-Kong. In Tonkin and Siam, however, *midamus* no longer predominates, but only occurs casually as an aberration. — That form of *midamus* which is common in the whole of Indo-China must be called **chloë** *Guér.*, though better known as **margarita** *Btlr.* (84a). It appears that *chloë (margarita)* is an intermediate form, which occurs in January-February, whilst I have taken *midamus* in November near Haiphong in Tonkin. The ♀ of *chloë* bears no white subcostal or discal patches on the fore-wing, moreover the discal blue spots are as a rule much less developed than on our figure. As **marseuli** *Moore* an individual aberration has been described from Saigon in Cochinchina, without white markings on the hindwing as in *chloë* and at the same time with conspicuous submarginal dots on the hindwing. — **brahma** *Moore* is an extreme dry-season form, in which in both sexes both the blue and the white irroration on the forewing are absent or reduced to a minimum and the dots on the hindwing are also somewhat reduced. Described from Moulmein, but occurring everywhere in Tenasserim and Siam. — **dejeani** *Moore* is an interesting melanotic local form, which approximates to *brahma*, as the almost unspotted forewing shows, but the hindwing is adorned with strikingly large double row of white dots. *dejeani* is, however, especially characterized by having the metallic sheen confined to the basal half of the forewing and dark steel-blue (instead of light blue). Malay Peninsula, from Pelak in my collection, according to Moore also occurring on Sumatra. But the latter locality, which rests on examples in the Boisduval collection, is very questionable. — **splendens** *Btlr.* from Nepal, is a well differentiated subspecies, characterized by the narrower forewing, and the constant absence of the white dots on the upperside of the hindwing, which though present beneath are much reduced. The light blue reflection similar, extremely intensive, recalling that of *Stictoploea harrisi*. *splendens* varies slightly according to the locality, the forewing in the Sikkim-♂♂ showing broadly diffuse, whitish-dusted transcellular strigae, in Assam-♂♂ (**irawada** *Moore*), on the other hand darker blue, more rounded patches. According to Nicéville *splendens* is extraordinarily rare in Sikkim, only occurring in the Terai and the lowest outer valleys of the Himalayas from April to November, but it is said to be somewhat commoner in Bhotan.

chloë. margarita. *marseuli.* *brahma.* *dejeani.* *splendens.* *irawada.*

E. klugi, in contrast to the Chinese-Further-Indian *midamus L.*, is more of an Anterior-Indian collective species, which is broken up into more sharply separated local forms, but in the centre of its range, in Assam, shows an even greater capacity for individual variation than *midamus-chloë*. Some extreme *klugi*-forms approach those of *chloë*,*) but they may be distinguished by the constant absence of the white and violet discal spots on the underside of the hindwing and by the more rounded wings. The ♂♂ are still further recognizable by the shorter, more rounded sexual stripes of the forewing and by a deep androconial cavity on the underside of the forewing, which is not found in the varieties of *midamus*. According to Moore *klugi* ascends northwards to Bhamo in Upper Burma, whilst in the south at Moulmein it is replaced by the Further Indian *crassa*. According to Bingham it also occurs on the Nicobars, but if the locality is correct, we may expect from there a still unnamed geographical form. Concerning the habits it is only known that in January and February it settles on sunny sandy river-beds near the edge of the water, in order to imbibe the moisture; but during the rainy season it prefers open places in the forests and foot-paths through the jungle. The new generation begins to appear in March, but in April and May it is commonest and freshest in appearance. I myself observed them in Siam always in groups on flowering shrubs which hung down over sandy river-banks. Moore figures as **klugi** a form with a large white spot before four blue-white ones beyond the cell and a row of very large wedge-spots inside a row of distinct white marginal dots on the forewing. — In **illustris** *Btlr.* all the cellular and circumcellular strigae are absent, on the other hand the anterior spots are extremely well developed, in **imperialis** *Moore* on the contrary the submarginal patches are most prominent. In **regalis** *Moore* the latter are very distinct on the

klugi. illustris. imperialis. regalis.

*) and especially also *Salpinx leniostictos leniogonys Btlr.*

hindwing also. **indigofera** *Moore,* founded on a small example, probably of the rainy season. bears also a white costal spot on the forewing. **hamiltoni** *Swinh.* is an aberration with incomplete series of white submarginal patches on the forewing, but distinct double rows of white dots on the hindwing. **augusta** *Moore* is darker blue with less blue reflection. **sherwilli** *Moore,* a rare form with confluant subapical and transcellular patches on the forewing, and **macclellandi** *Moore,* an interesting transition from *klugi* from Assam to *kollari Fldr.* from Sikkim with light violet discal patches on the forewing and a dark brown ground with dull blue reflection, very rare, first described from Assam, also before me from the neighbourhood of Calcutta. Finally, **uniformis** *Moore* even more approximates in the conspicuous median spots and the slight dark violet tinge on the upperside of the wings to **kollari** *Fldr.* The latter shows as a rule no violet reflection on the dark brown ground and bears very large white intraneural strigae on the upperside of the hindwing with round, pretty uniformly yellowish white submarginal patches on the forewing. Larva apparently not yet described, but is said to live on various species of Ficus and on Streblis asper Lom., an Urticaceae. Distributed from the southern point of the Indian peninsula to Bombay, but nowhere ascending above the coast. Near Calcutta it flies all the year round in company with the common *E. core Cr.* According to Hampson it occurs in the Nilgiri Hills even up to elevations of 5000 ft. — **sinhala** *Moore* is a darkened island form of the preceding, somewhat smaller, submarginal spots of the forewing strongly reduced and hence more isolated, admarginal dots mostly absent. The strigae of the hindwing likewise shortened. According to Moore *sinhala* has been found near Galla, but occurs especially at Kandy where it ascends to 1000 m., but is always very rare. — **crassa** *Btlr.* (= erichsoni *Fldr.*) (79 c) is the Further Indian representative of the species, which remains somewhat more constant in colouring and scheme of markings than *klugi* from Assam, yet in large series individual differences are shown, which gave rise to the erection of specific names, but which were recognized by its author in later years as mere forms, and placed as such. Butler's name-type has the submarginal patches on the forewing fairly equal in size and running in a complete row to the anal angle: the example here figured belongs to the form **apicalis** *Moore,* with large subapical spots, which are joined to the admarginal dots. — **masoni** *Moore* was found in Tenasserim at elevations of 3—5000 ft. and is a rainy-season form with the upper surface of the forewing suffused with dark violet. Hindwing with the submarginal patches reduced, otherwise as in *apicalis.* — **pembertoni** *Moore* has the submarginal spots traversing the entire forewing as in *crassa,* but very much less developed. Described from Lower Burma. — **burmeisteri** *Moore* is probably the product of an extreme dry season, the type is somewhat smaller than *apicalis,* with a double row of small yellowish white dots on both wings. Described from Saigon, taken by me in Siam in January and February. *crassa* is in Siam one of the commonest Euploeas up to 300 m. in hilly country. At the end of the dry season, January to about 25. February, only uniformly pale brown examples are met with, which but rarely have a slight violet reflection on the upper surface. But at the beginning of March, immediately after the first showers, the first generation begins to appear, dark brown and particularly at the base with violet-blue reflection. The apical spots are surrounded by rose-red to light blue margins, which become paler in the dry season, the approach of which was already foreshadowed by the rarity of the butterfly in August in Tonkin. According to a statement of Matsumura (Ent. Zeitsch., Stuttgart, 7. August 1909) a *Euploea* allied to *klugi* has been discovered on Formosa. — On Hainan *crassa* certainly occurs.

indigofera. *hamiltoni.* *augusta.* *sherwilli.* *macclellandi* *uniformis.* *kollari.* *sinhala.* *crassa.* *apicalis.* *masoni.* *pemberloni.* *burmeisteri.*

E. diocletianus is the only known species with grey instead of yellow hair-stars to the male anal pencils, which emit an agreable vanilla-scent. The butterflies are distinguished by sexual heterochromatism, which is shown in the island races in even more vivid contrast than in the continental forms. They are lively insects, like *Trepsichrois* love to be constantly on the move, never frequent wet places so far as I was able to observe, and are exclusively visitors to flowers. In Siam their appearance afforded especial pleasure on account of the pure white areas of the hindwing, as a wonderful contrast in the midst of the other exclusively dark species. Two local races occur in continental South Asia, otherwise the species is exclusively Macromalayan, not passing over to Bali and apparently not even occurring on Bawean. In vertical distribution it ascends to about 1000 m. — **ramsayi** *Moore* (81 a), described from Nepal and very local in Sikkim, only occurring in the deep outlying valleys from April to December. ♂ round-winged, upper surface with dark blue tinge in the distal area of both wings. — **diocletianus** *F.* (♀) (= rhadamanthus *F.* [♂]) differs from the preceding, particularly in the ♂, in the reduced white markings especially on the hindwing. On the forewing the transcellular white spots are sometimes entirely absent (**despoliata** *form nov.*). ♂♂ of the rainy-season form are larger than those which I collected in Siam in the dry season. Common everywhere from the Malay Peninsula to Lower Burma, from Assam to Annam. Examples from Sumatra and Singapore do not differ materially from those from Perak. — **lowei** *Btlr.* is an essentially darkened race, which occurs in Borneo; ♂ with only three, ♀ with four white subbasal stripes on the hindwing. ♀ predominantly dark brown. — **aërithus** *subsp. nov.* only differs from the preceding in the brilliant dark steel-blue tinge on the upperside of both wings in the ♀♀, and in the still shorter and narrower intraneural stripes of the hindwing in the ♂♂, hindwing of the ♀♀ with a double row of small white submarginal patches. Natuna Islands. — **alcidice** *Godt.* is a charming race from Java; ♂ scarcely differing from *diocletianus,* ♀ above somewhat lighter brown than

ramsayi. *diocletianus.* *despoliata.* *lowei.* *aërithus.* *alcidice.*

that of *lowei*, but hindwing more broadly striped with white and always with two rows of white submarginal dots. Common everywhere from the coast up to about 600 m. at the edges of woods and coffee-gardens
schreiberi. and flying all the year round, but never occurring in large numbers. — **schreiberi** *Bthr.* (= maasseni *Weym.*, niasica *Snell.*, niasana *Swinh.*) (81 c) is one of the most extremely developed melanotic island forms, giving the impression of a distinct species. Both sexes without basal streaks on both sides of the hindwing. ♀ dark brown with very narrow white bands, composed of isolated spots, at the apex of the cell and four small subapical and one anal patch on the forewing. Hindwing only with three small subapical spots. Nias, very
schildi. rare, especially the ♀. — **schildi** *subsp. nov.*, very common on the Batoe Islands, again more approaches the Sumatran *diocletanius*. The ♂♂ show basal white streaks on the forewing like those of *lowei*.

eupator. **E. eupator** *Hew.* (80 a), a very distinct species, probably replaces *diocletianus* on Celebes. In the
orneus. south of the island occurs a local race. **orneus** *subsp. nov.*, distinguished by even more widened white bands on both wings, especially in the ♀, in which also the white patch before the discocellular of the hindwing is twice as large as in *eupator* from the Minahassa. On the underside of both wings the white submarginal dots are more prominent. Flies in November: neighbourhood of the waterfall of Maros in the hinterland of Macassar.

Subfamily **Palæotropinæ** *(= Tellervinæ Fruhst.)*

Haase gave to this well defined subfamily, which only embraces one genus, the very significant name "*Palæotropidæ*" in contrast to the *Ithomiidæ* of South America = *Neotropidæ Schatz.*

According to the neuration it indeed most nearly approaches the South American Neotropids, but also differs considerably from these in the free costal vein of the hindwing, curving strongly upwards near the base of the wing and running just as in the Acræids, which never occurs in the Neotropids. Yet *Tellervo* has the broad cell and recurrent veins in common with *Ceratinia*.

But on the other hand the two subcostal veins arising before the end of the cell (in the Neotropids there is only one) form the most distinct point of agreement with the Danaids and, what is of greater importance, at the same time with the Satyrids.

The genitalia, however, do not reveal the least relationship with the Danaids, but rather point to a very close connection with the Satyrids. Hence the Palæotropids form an intergrade leading over from the Danaids to the Satyrids. Only the knowledge of the still undiscovered earlier stages can decide as to the proper place in classification. Probably the larva will be found to be cylindrical as in the Ithomiids and ornamented with short tubercles, and the pupa short, ventricose, but as in the Danaids with metallic gloss. Perhaps the larva lives on Solanum like the Ithomiid larvæ.

The genitalia reveal most connection with the Satyrids in the tripartite uncus and the simple, broad valve. The secondary sexual characters are little developed, thus especially the hair-pencils of the hindwing, so characteristic of the Neotropids, are absent, but the ♂♂ bear an elongate and broad area on the upperside of the forewing, which is adorned with modified scales and by which they can easily be separated from the ♀♀, which otherwise differ but little. Moreover, the costal margin of the hindwing is dorsally incurved.

In contradistinction to the *Tellervinæ* all the other Old World (and some New World) Danaids are classified as "Danainæ", which name should be inserted on p. 192 over the genus "*Danaida*".

1. Genus: **Tellervo** *Kirby (= Hamadryas Bdv.)*

Tibia and tarsus always present in the ♂. Forelegs, however, filiform, not clubbed as in the Danaids, from which *Tellervo* also differs in the longer basal joint of the palpi and the absence of the anal hair-pencil. Butterflies small, Ithomiid-like, with semitransparent, black- and white-spotted wings and long, delicate antennae gradually thickened into a club. Palpi projecting beyond the frons, densely haired, with a tuft of hairs on the middle joint and short, pointed terminal joint. — Concerning the habits it is only known that they are fond of the woods and fly irregularly and sluggishly. The genus is predominantly Papuan, with offshoots to the Solomons and westwards to the Moluccas. The commonly known generic name is preoccupied and hence Kirby's new name must be recognized. The poetical name *Tellervo* is from the Finnish language and signifies daughter of the forest god. The genus probably contains only one species.

zoilus. **T. zoilus** *F.*, the name-type, nearly approaches the figured *hiempsal* (78 e), but in ♂♂ of the rainy season the basal white cell-streak of the forewing is absent and the more rounded discal area of the hindwing is anally broadly scaled with blackish. A dry-season form copiously decorated with white has been
moorei. described as **moorei** *Macl.*; it has the disc. of the hindwing almost circular and the hyaline patches always more extended and purer white. Occurs only in northern Queensland, from Cardwell to Cape York. —
antipatrus. **antipatrus** *subsp. nov.* inhabits the southern part of British New Guinea and approaches the figured *zephoris* (78 e), from which, however, it differs in having the apical patches of the forewing almost twice as large

and a more oblong white area on the hindwing. Moreover, the scaleless transverse spot at the apex of the cell of the forewing is narrower and longer. — **hiempsal** *subsp. nov.* (78 e) inhabits Kaiser-Wilhelmsland. The ♀ differs from the ♂ in the more pronounced white spots of the forewing, especially the patch from the middle of the costal margin, which in the ♂ is either absent or only dot-like, is always well expressed. Together with the normal type-form figured occurs a rarer aberration with more rounded, distally convex, white discal area on the hindwing: **zephoris** *form. nov.* (78 e). According to Hagen *hiempsal* is common in open woods, and is a poor and feeble flier. Commonest in the rainy months of November and December, then again from March to June. I have received *hiempsal* in large numbers from the coast-forests at Friedrich-Wilhelmshafen. — Further to the east, in Finschhafen, we already meet with a different local race, **vereja** *subsp. nov.*, with very large, quadrate, pure white patches on the forewing, of which the transcellular are nearly confluent. — **fallax** *Stgr.* (78 e), not rare on Waigeu; the ♀ bears even larger white markings on the forewing, the subapical patches are nearly always confluent, the costal dot of the forewing always present and the transverse spot at the apex of the cell almost triangular. — **meforicus** *subsp. nov.* (78 e) is characterized by having the white median area on the hindwing strongly undulate distally, and with a long black tooth projecting into it from the costal margin opposite the end of the cell, as in *hiero*; Mefor. — **mysoriensis** *Stgr.* has the white patches on the forewing smaller and the discal area of the hindwing even more deeply incised; island of Mysore in Geelvink Bay. — **roonensis** *subsp. nov.*, a further very similar geographical branch of smaller size, with much narrowed white disc on the hindwing and dull vitreous areas on the forewing. Island of Ron. — **nedusia** *Hbn.* may best be compared with *hiempsal*, but is as a rule larger, with dull vitreous areas on the forewing and strikingly narrow, rectilineal band on the hindwing. From Dorey and Hattam, on the north-western coast of Dutch New Guinea. — **limetanus** *subsp. nov.* shows on the forewing very large rounded hyaline patches, which are otherwise darkened as in *nedusia*, and an irregularly defined and very broad pure white area on the hindwing. Discovered by Doherty at Kapaur, Dutch New Guinea. — **nais** *Guér.*, from the Aru Islands, has almost circular, large milk-white spots on the forewing, a distinctly curved discal spot on the hindwing and an elongate costal streak on the forewing above. According to Ribbe local, but not rare. — **niveipicta** *Btlr.*, a race inferior in size to *nais* with the white spots of the forewing more quadrate than round, and occasionally contiguous. The transverse area of the hindwing distally somewhat less excurved than in *nais*. According to Ribbe common in the woods on all the islands of the Key Group. — **jobinus** *subsp. nov.* is a further form allied to *nais*, but with indistinct costal spot, vertically placed cell-spot on the forewing, and band-like median area on the hindwing. The basal cell-stripe of the forewing is absent in the ♂, but is again present also above in the ♀. — **sarcapus** *subsp. nov.* is best compared with *hiempsal*. The cell-streak in both sexes very weak, the other white patches as in *meforicus*, the tranverse area of the hindwing distally deeply incised opposite to the median veins. Fergusson and Kiriwina. — **hiero** *Godm.* (= salomonis *Ribbe*) (78 e), distinguished by having the transcellular spots of the forewing fused into a band and a thin black longitudinal band, which cuts off a small oblong piece from the white discal area of the hindwing. Locality the Solomons, especially the Shortland Islands. — **assarica** *Cr.* (78 e), by far the most beautiful but also the rarest form of the collective species. It has been hitherto regarded as a separate species, but there is nothing to prevent its being united with *zoilus*, for the confluent spots of the forewing are also found in *hiero* and the strongly widened white discal area of the forewing is likewise no specific character, while the markings of the underside of the hindwing and the colouring of the abdomen agree with the other *zoilus*-forms. Ceram and Amboina. — **aequicincta** *Godm. & Salv.* has the most claim, perhaps, to be separated as a species, for in it the deep black ground-colour changes into a dull, but very dark brown, the scent-spots of the forewing are less sealed and hence more transparent. The white disc of the hindwing is not quite so rounded as in *hiero*, the white submarginal spots of the hindwing show through distinctly on account of the lighter and more transparent ground-colour. New Pomerania, New Lauenburg. — **variegatus** *Ribbe*, a somewhat larger local form with the vitreous spots of the forewing still more clouded. New Mecklenburg.

hiempsal. *zephoris.* *vereja.* *fallax.* *meforicus.* *mysoriensis.* *roonensis.* *nedusia.* *limetanus.* *nais.* *niveipicta.* *jobinus.* *sarcapus.* *hiero.* *assarica.* *aequicincta.* *variegatus.*

Appendix.

P. 202, to *Dan. melissa:* **nephthys** *subsp. nov.* approaches *orientalis Semp.* from Luzon, but is smaller, much lighter and more broadly striped with white, but with smaller submarginal patches than Semper's type. Sulu Islands, to the north of Borneo. — **sassina** *subsp. nov.* forms a transition from *palawana Fruhst.* to *orientalis Semp.* and is hence about intermediate between examples from Palawan and Luzon: relatively large, broadly striped and spotted with yellowish white. Mindoro, Cebu, Camiguin de Mindanao. Types in coll. Semper in the Senckenberg Museum in Frankfort. — **pelagia** *subsp. nov.* is in the same collection from the island of Cuyo and has the white stripes and spots still somewhat lighter and broader than *sassina*. — **tibula** *subsp. nov.*, from the Camotes, a strikingly dark form with broad black-brown marginal area especially on

nephthys. *sassina.* *pelagia.* *tibula.*

the hindwing and very small circumcellular and submarginal patches on both wings, and the hyaline spots
emona. decidedly less developed than in any other *melissa*-race from the Philippines. — **emona** *subsp. nov.,* from the island of Paragua, is again like *palawana,* near the *septentrionis*-type, and closely approximates to *microsticta*
valentia. *Btlr.* from Borneo in the arrangement of the strigae on the hindwing, but is somewhat lighter. — **valentia** *subsp. nov.,* likewise in the Semper collection, must be regarded as the largest race from the Philippines and is at the same time the most melanotic extreme of those forms which are more allied to Anterior Indian *septentrionis* than to the Micromalayan *melissa.* Abdomen of the ♂ above black, that of the ♀ red-brown. The greenish cell-spots nearly obsolete, especially the basal stripe of the cell of the forewing in the ♀. ♂ essentially darker than that of *palawana,* all the strigae, even those of the subapical region greenish. *valentia suanetes* is almost entitled to specific rank. Davao, Mindanao. — **suanetes** *subsp. nov.,* from the island of Balabac, resembles *microsticta Btlr.* from Borneo, from which it differs in the absence of the whitish basal streak in the cell of the forewing and is smaller and with more melanotic colouring throughout than Borneo examples. Type in coll. Staudinger in the Berlin Museum.

P. 204, to *Dan. ishmoides:* As the Philippines have produced in *tumanana Semp.* a *choaspes*-form, it is not surprising that the Celeban *ishmoides* also occurs there in branch-races. The new geographical subspecies in question are separable as follows, according to the material in the Semper and Staudinger collections,
trasinanus. where they are scattered about among the *melissa*-series: **trasinanus** *subsp. nov.,* from Cebu, where it occurs together with the *melissa*-race described above, is larger and far lighter than Celebes examples. The median spots of the forewing very large, on the other hand the fork in the cell of the hindwing is vestigial and in
sontinus. one ♀ entirely absent. Type in coll. Semper. — **sontinus** *subsp. nov.* inhabits Mindoro and is smaller than the preceding, with more delicate patches and lighter under surface. Type in coll. Staudinger. — Finally
strymon. **strymon** *subsp. nov.* is the largest, and as usual in Mindanao specimens the darkest form of the Philippines. more approaching the Celeban sister-race. Type in coll. Staudinfer.

moaria. P. 204, to *Dan. limniace:* The name **moaria** *subsp. nov.* may be given to the strikingly large Formosa race, which is distinguished especially from South Indian examples by the reduced subapical patches of the
norinia. forewing and the much thickened fork in the cell of the hindwing. — As **norinia** *subsp. nov.* we introduce the race from Hainan, in which on account of its small size the reduction of the whitish patches on both wings is still more noticeable.

oxynthas. P. 205, to *Dan. choaspes:* **oxynthas** *subsp. nov.* approaches *choaspes,* has the abdomen pure white with very thin, white dorsal line and differs from *choaspes* chiefly in having a narrow spot (scarcely half as broad) at the apex of the cell of the forewing. Sula Mangoli. Type in coll. Staudinger.

choaspina. **D. choaspina** *Stgr. i. l.* appears to be a species, as it has the spot on the forewing more than twice as broad as in *oxynthas* and the abdomen pure white. Occurs together with *oxynthas* on Sula Mongoli. Type in coll. Staudinger (Berl. Mus.).

caulonia. P. 205, to *Dan. aspasia:* **caulonia** *subsp. nov.* Approaches *thargalia Fruhst.* from West Sumatra more nearly than *kheili Stgr.* from Nias, but has in common with the latter the subapical strigae and the smaller size. The hyaline patches of the forewing become somewhat duller than in the Sumatra race, the median spots are not separated, but joined together. The white antemarginal and submarginal dots on the under surface are more delicate, as in Sumatran *thargalia.* Pulo Tello, in the Batoe Islands, near South-West Sumatra.
cerilla. — As **cerilla** *subsp. nov.* we separate the Palawan form, which approaches *shelfordi Fruhst.* from North Borneo, but is easily distinguished by the larger size and the corresponding increase in all the white patches of the submarginal and antemarginal areas. The ♂♂ are very similar to the Siamese *aspasia* ♂♂, but differ in
flymbra. having the submedian part of the forewing less tinged with yellowish. Type in coll. Fruhstorfer. — **flymbra** *subsp. nov.* is the race from Domoran, which differs from *cerilla* in showing the darkened coloration characteristic of the satellite-island forms. The innermarginal area of the forewing is more broadly yellow and of a darker shade and the yellow transcellular spots of the hindwing are much reduced. Type in coll. Semper.

meeki. P. 207, after *Dan. melusine:* **Danaida meeki** *Sm.,* from Fergusson Island, is said scarcely to differ in the ♂ from *melusine Sm.* from New Guinea, but to show a longer subapical vitreous stripe and to be of larger size. Under surface darker brown, the light band of the hindwing not placed so near to the base as in *melusine* and the subcostal stripes likewise more slender. Only 4 instead of 10—12 submarginal dots.

phormis. P. 208, to *Dan. aglea:* **phormis** *Fruhst.,* previously known only from Tonkin, Annam and Siam, also extends to Hainan; this race is distinctly different from the larger *maghaba Fruhst.* from Formosa.

P. 209, to *Dan. luzonensis:* Judging from the material in the Semper collection, the races of the
simonides. southern Philippines differ appreciably from the name-type from Luzon. As **simonides** *subsp. nov.* the Palawan subspecies especially may be separated, being essentially lighter and showing broader transcellular strigae and larger submarginal patches on the forewing. ♀ strikingly larger than the ♂. Types in coll. Fruhstorfer.

P. 210, *Dan. banksi:* **mnasippus** *subsp. nov.*, a strongly darkened form, easy to distinguish from *funeralis Btlr.* from Nias by the entirely black cell of the forewing, in which only a quite thin, linear hyaline marking remains. In addition all the strigae and submarginal spots are also much narrowed and reduced, especially on the underside of both wings. Batoe Islands. *mnasippus.*

P. 211, to *Dan. similis:* Like *aspasia caulonia Fruhst.* from the Batoe Islands the representatives of *similis* also differ from the Nias form, approaching the Sumatran branch-race. **ditiones** *subsp. nov.* differs from *macrina Fruhst.* from West Sumatra in the smaller size and the more delicate stripes and spots. Only in the ♀ the island melanism appears, in the more extended dark brown areas and the consequent reduction of the white striae and dots. *ditiones.*

P. 213, to *Dan. juventa:* **hadrumeta** *subsp. nov.*, judging from the Semper collection, is essentially darker and bears a more extended black marginal area than Luzon examples. Occurs on the Philippine Islands Negros and Bohol. — **tipasa** *subsp. nov.* is the race from Polillo and Leyte, a larger form, but less distinctly ornamented with hyaline markings on the forewing than Luzon specimens. Hindwing only with one row of whitish submarginal dots. *hadrumeta.* *tipasa.*

P. 216, under *Ideopsis gaura Horsf.:* Larva according to Dr. M. E. Piepers *in litt.* dark red-brown with a white ring at the edge of each segment. Two pairs of tentacles similar to those of the larvae of the *Danaida plexippus* group.

P. 222, to *Hest. leuconoë:* According to the long series in coll. Semper a further division of the Philippine *Nectaria leuconoë* becomes advisable. We mention first **athesis** *subsp. nov.*, from the island of Polillo, to the east of the Bay of Manila in Luzon, as a lighter form, with the forewing entirely yellow, but its apex much darkened in comparison with Luzon examples. Moreover the hindwing, in contrast to *leuconoë,* is only lighter in the distal parts. — **gordita** *susp. nov.* is a distinct race from Mindoro, which forms a transition to *obscura Stgr.* from Mindanao. But the examples are smaller, the yellow deeper than in *athesis* and more extended than in *obscura.* The black transverse band of the cell of the forewing twice as broad as in *athesis* from Polillo. — The island of Bohol, between Cebu and Mindanao, produces an allied form, **caesena** *subsp. nov.*, of pure white ground-colour, the base of both wings only slightly tinged with yellow. The cell of the forewing almost entirely black, differing from *athesis* in the still larger median spot, on the other hand the submarginal helmets of the hindwing more delicate. The ♀ reveals its connection with that of *obscura Stgr.* from Mindanao in the dense black scaling of the upper surface of the wings. — **fregela** *subsp. nov.* *athesis.* *gordita.* *caesena.* *fregela.*

is the conspicuously lighter form from the island of Siargao to the north-east of Mindanao, ♀♀ lighter than *obscura* ♀♀. On the forewing the basal yellow is absent and the hindwing has no black dusting — **vicetia** *subsp. nov.* is a still lighter race, forming a transition to *godmani. Oberth.* In particular the black cell-patches of the forewing are pure white, only narrower and longer than in the other Philippine races. The submarginal helmets of the hindwing more connected than in the Polillo form. Flies on the island of Domoran to the east of Palawan. Types of the above 5 raees in coll. Semper. In coll. Staudinger there is a race from the Sulu Island of Banguey allied to *nigriana Sm.* It is essentially darker than examples from Labuan in North Borneo. *vicetia.*

P. 223, to *Hest. blanchardi:* **munaënsis** *Fruhst.* was taken by Dr. Elbert in October 1909 also in the larger island of Buton, opposite to Muna. A ♀ in my collection differs from *phlegeton Fruhst.* (75 c) in having the forewing almost entirely blackened, with much larger cell-spots, and a somewhat more uniformly broad distal margin to the hindwing, which does not, as is *phlegeton*-♀, enclose any white wedge-spots. Also the under surface is darker than that of *phlegeton,* broadly black with silky gloss. *munaënsis.*

P. 231, to *Eupl. modesta:* **deriopes** *subsp. nov.* An extraordinarily dark race and so much larger than Siam and Tonkin examples of the collective species that I am still in doubt whether the single ♀ before me should not be united with *camaralzaman Btlr.* Forewing with 5 violet subapical patches, a costal and a violet transcellular spot, hindwing with indistinct, brown-shaded submarginal strigae, wich are essentially smaller and more obsolescent than in *modesta*-♀♀ from other localities. The distinct blue reflection on the upperside of the hindwing, present in all *modesta*-♀♀, is here absent. Under surface similar to the ♀♀ from Siam, only with darker and richer blue diseal patches on the forewing and the white submarginal spots of the hindwing reduced. Hainan, apparently rare, as it is not recorded by Moore, Holland and Crowley, who all wrote on Hainan butterflies. *deriopes.*

P. 227, to *Eupl. climena:* **moasana** *subsp. nov.* differs from *valeriana Fruhst.* in the narrower yellowish apical spot of the forewing and reduced whitish band of the hindwing. Island of Moa or Moas (east of Timor and Wetter). *moasana.*

P. 229, *Eupl. crameri:* **jedja** *subsp. nov.* Allied to *pryeri Moore,* also recalling *singaradha Fruhst.* from Bali, with strikingly large double row of white submarginal patches on the forewing; next to *pryeri* one of the most copiously white-dotted forms of the collective species. Banguey, type in coll. Staudinger, in the Berlin Museum, as also the preceding. *jedja.*

roduna. P. 231, to *malayica:* **roduna** *subsp. nov.* inhabits the small island of Banguey in the Sulu Group, to the north of Borneo, and is smaller, darker brown and more finely dotted than *scudderi Btlr.* from Borneo.

barea. P. 233, to *Eupl. alecto:* **barea** *subsp. nov.* represents the species in Duteh New Guinea, at Ati-Ati-Onin, in coll. STAUDINGER; smaller than *nox Btlr.* from Aru, with the rows of white spots on the upper surface strongly reduced and especially smaller discal and submarginal dots on the underside of both wings.

murena. P. 235, to *Eupl. funerea Btlr.:* **murena** *subsp. nov.* Considerably smaller than *funerea Btlr.*, of whieh it is a darkened satellite-island-race, with the yellowish submarginal band of the forewing strongly infuscated and the submarginal patches of the hindwing almost absent. Yule Island.

P. 235, to *Eupl. helcita:* Through the kindness of the director of the SENCKENBURG Museum in Frankfort on the Maine I have been able to examine two further sharply differentiated island races, both of which are *matilica.* represented by several examples in the Museum. **matilica** *subsp. nov.* surpasses even *eschholtzi Fldr.* from the Fiji Islands in the considerably widened white spots of the forewing and the larger and more complete series of subapical and antemarginal patches and dots. The hindwing bears a row of very long, proximally pointed strigae, plaeed in pairs, at the median veins and a complete row of larger admarginal dots. The prominent whitish violet diseal dots of *eschholtzi* and *aglaina* on the under surface are partially absent in this and the *lilybaea.* following race. Tahiti Paputi, in September. — **lilybaea** *subsp. nov.* forms a transition from *eschholtzi* to *aglaina Fruhst.,* the transcellular white areas of the forewing are more uniform, almost quadrate, the anterior are shorter than in *matilica*, the subapical spots as in *eschholtzi* and the hindwing as in *perryi Btlr.,* with complete double rows of small submarginal dots above. Colour of all the spots yellowish, not dazzling white as in *matilica.* From Tanna, in the New Hebrides.

hadrumaia. P. 236, to *Eupl. amymone Godt.:* **hadrumaia** *subsp. nov.* A race with the hindwing darkened, but the forewing more copiously dotted with white, from Hainan, where it is not rare. The form is especially characterized by the very large, pure white submarginal dots of the forewing above in the ♀♀ and the reduced submarginal strigae on both surfaees of the hindwing.

prunosa. P. 236: **prunosa** *Moore,* whieh from MOORE's description I took for a local form of *godarti Luc.*, is, judging from examples in coll. STAUDINGER, a representative speeies or highly developed rainy-season form of *amymone.* It appears that STAUDINDER obtained the name *prunosa* from OBERTHÜR, who is in possession of MOORE's type. *prunosa Styr.*, indeed, by no means agrees with the description of *prunosa Moore*, but as apart from this it is probable that *prunosa* will sink as a synonym of *amymone Godt., kinbergi Wallgr., lorquini Fldr., felderi Btlr.*, while on the other hand these four names may probably have to be divided between two species, the name *prunosa* is here retained in STAUDINGER's sense until I have the opportunity of verifying the types of the several forms in England. In the meantime the STAUDINGER collection is accessible to everyone, so that comparisons can easly be made. *prunosa* differs from *amymone Godt.* and from the examples thus labelled in coll. STAUDINGER in its larger size, the longer sexual stripes of the forewing and the absence of the white antemarginal dots on the underside of the hindwing. Hong-Kong and South *tersatica.* China. — As **tersatica** *subsp. nov.* I would designate the representative from Hainan, to whichever name-type it may ultimately prove to belong. It differs from *hadrumaia,* whieh flies together with it, and of which also the more northerly name-type has not yet been settled, like the Hong-Kong form in the larger size of both wings and compared with *prunosa* from Hong-Kong and *hadrumaia* from Hainan in the reduction of the white dots on the upper surface. The hindwing bears above no white dots at all and the submarginal patehes of the forewing in the ♀♀ are not pure white, but tinged with blue or violet. Hainan, not rare.

lucania. P. 237, to *Eupl. alcathoë:* **lucania** *subsp. nov.,* nearly allied to *simplex Fruhst.* from Nias and forming the transition from this to the West Sumatran *vonara Fruhst.* The ♂ similar to *simplex,* but with somewhat more pronounced grey-white striae on the upperside of the hindwing. The ♀ smaller than that of *vonara,* with narrower intraneural stripes, slightly scaled with grey-brown, on the hindwing. Pulo Tello in the Batoe Islands, off the west coast of Sumatra.

jadiva. P. 239, to *Eupl. swainsoni:* **jadiva** *subsp. nov.* is a melanotie island raee, approaehing *butra Styr.,* but with the white patches reduced. Balabac. — The Berlin Museum (coll. STAUDINGER) possesses a ♂ of *dono-* *bevagna.* *vani Fldr.* from the Minahassa, colleeted by Dr. PLATEN; henee the locality Celebes is eonfirmed. — **bevagna** *subsp. nov.* is nearly allied to *donovani,* but has a broader sexual stripe on the forewing, the white patches of the forewing are larger and have the blue bordering more extended and with a brighter gloss. Island of Sangir.

nicaias. P. 240, to *Eupl. diana:* **nicaias** *subsp. nov.,* judging from the ♀♀ in coll. STAUDINGER, nearly appoaches *tombugensis Fruhst.* from East Celebes, but has a paler brown ground-colour and the white spots on both wings less developed. Bangkai.

P. 247, to *Eupl. dufresne:* On the Philippines oecur two very interesting forms of this species, as is sufficiently evideneed by material in eoll. STAUDINGER. On almost all the Philippines there is only one

Stictoploea, resembling the figured *laetifica* (82 a). On Mindoro and Mindanao occurs in addition a second *Stictoploea,* which was recognized as a distinct form by Staudinger and Semper, and which they called *tyrianthina.* In this so-called *tyrianthina* the white subapical patch of the forewing is absent and it is also smaller than *dufresne.* These examples, however, differ considerably from true *tyrianthina* in the brighter blue sheen on the upperside of the wings. It is almost certain that this hitherto erroneously designated form is entitled to specific rank, and I would propose for it the name **praeclymnias** *spec. nov.*, as Mindanao produces an *Elymnias* species showing a tendency to vary in the same direction, namely *Elymnias beza Hew.* The well known typical form of this may be regarded as analogous to *Euploea praeclymnias,* whilst a rarer form approximates to *dufresne* in the large white subapical spots of the forewing. Both fly together on Davao, East Mindanao, where Dr. Platen discovered them. *praeclymnias.*

P. 248, to *Eupl. gloriosa:* As **agapa** *subsp. nov.* we introduce the race from Bankai, which is inferior in size to the North Celeban name-type and may be easily recognized by the smaller patches on the upper surface of the wings. *agapa.*

P. 252, *Euploea mazares Moore:* Larva discovered by Dr. Piepers on Java, with 3 pairs of tentacles and of dark violet ground-colour with yellow abdominal stripes.

P. 253, to *Euploea mazares:* **cabeira** *subsp. nov.,* a local form from south-eastern Borneo and easy to distinguish from *aristotelis Moore* from the north of the island by the darker and more glossy blue. In the larger white subapical patches of the forewing above and the pronounced double row of white submarginal dots, moreover, *cabeira* approximates more to *mazares Moore* from Java than to *aristotelis* (type in coll, Staudinger). — **gamala** *subsp. nov.* approaches *palawana Fruhst.,* but is smaller, darker blue and with the subapical dots even more reduced, in the ♀ almost entirely suppressed. From Paragua near Palawan. Type in coll. Semper. *cabeira.* *gamala.*

P. 255, to *Eupl. hopfferi:* **cluilia** *subsp. nov.* forms a transitition from *hopfferi Fldr.* to *helia Fruhst.* from Banda, is of dark brown ground-colour and has a much narrower whitish distal margin to both wings. The apical patch is more extended brown and cuts more deeply into the submarginal band than in *hopfferi,* so that this band is distally more deeply excised. Island of Tjandoe in the Key Group. *cluilia.*

P. 262, to *Eupl. negleyana:* This race from Hainan has now reached me in numbers and by its variability has led me to relinquish my belief in the specific independence of *klugi Moore* (p. 270) and to attach this well-known Assam *Euploea* to *leucostictos Gmel.* as simply a geographical race. *coelestis Fruhst.* (83 b), discussed on p. 262, distinctly forms the transition from *leucogonys* to the insular *negleyana* and to the continental *klugi.* Among *klugi* in my collection there are several examples which can scarcely be separated from *leucogonys.* ♂♂ also occur on Hainan in which the wedge-shaped, white-sprinkled discal spots and delicately blue transcellular ones specially mentioned by Holland are wanting (**leucostictina** *form. nov.*), and in Assam there occur similar examples, which are further characterized by the absence of the blue or violet sexual spot between the lower median and the submedian on the forewing. But neither Moore nor Butler has mentioned or described specimens of this description and strange to say they have never been figured. Of the aberrations classified under *klugi, crassa Btlr.*, p. 271, should be separated and raised to specific rank. To it belong, besides *sherwilli, macclalandi* and *uniformis Moore,* all the forms specified after *kollari.* *leucostictina*

P. 263, to *Eupl. leucostictos:* **marea** *subsp. nov.* forms the transition from *juno Stich.* from Nias to *phane Doh.* from Engano. The ♂ only differs materially from *phane* in the greatly restricted blue reflection on the hindwing, which scarcely extends beyond the cell. The ♀ approaches that of *juno,* bearing the aspect of a slightly darkened variety, with the white centres of the subapical spots of the forewing reduced. Batoe Islands *marea.*

P. 264, to *Eupl. viola:* The description of *leochares* may be completed from a pair collected by Kühn on Saleyer: smaller and darker than Celeban *viola,* the transcellular and subapical spots relatively small, predominantly white with blue bordering. Under surface approaching the South Celeban *westwoodi,* but with smaller spot.

P. 268, to *Eupl. aegyptus:* **bazares** *subsp. nov.*, an interesting race, remarkably similar to *atossa Pagenst.*; hindwing above with the diffuse spots only indicated, as if showing through from the under surface, but very large and powdered with grey-brown. Under surface of the hindwing with only one row of submarginal patches and two subapical whitish punctiform spots. Mindanao, discovered by Dr. Platen. *bazares.*

P. 269, to *Eupl. atossa:* **giva** *form. nov.*, from a ♂ in coll. Staudinger, recalling *tricolora Fruhst.* from Bawean, with three large blue-white transcellular patches and unusually large, wedge-shaped subapical patches on the forewing. Sumbawa. *giva.*

P. 269, to *Eupl. midamus:* **aegumurus** *subsp. nov.* approaches *sinica Moore.* from which it differs in its smaller size. From *midamus L.* from Hong-Kong the new race is likewise distinguished by the lesser expanse of both wings and still further by the uniform rows of pure white, submarginal intramedian spots on the *aegumurus.*

hindwing, which are scarcely half as broad. The white and blue spots on the upperside of the forewing are also reduced. Hainan.

P. 271, to *Eupl. crassa Btlr.:* The abandonment of *klugi* as a species and its union with *leucostictos Gmel.* and the separation of *crassa* as a distinct species affects the status of several forms. Thus *kollari Fldr.* is a very distinct geographical race from South India, and disfributed as far as the outer and lower valleys of Sikkim. *sinhala Moore* is the well differentiated branch from Ceylon, and I suspect that Bingham refers to a *crassa*-from when he speaks of a *klugi* from the Nicobars in the "Fauna of India." *macclelandi Moore* would then be the oldest name for the Assam subspecies, which already occurs singly as an aberration in Sikkim, and *sherwilli Moore* also no longer belongs as a form to *klugi*, but is to be treated as an aberration of *crassa* with confluent apical and subapical patches on the forewing. *uniformis Moore* must be considered as a form of *crassa*, with essentially smaller submarginal and antemarginal patches than *kollari* and differing from *macclelandi* in the absence of the median spots on the forewing; it should therefore be removed from the *klugi* series of forms. The other forms enumerated on p. 171 after *kollari* remain unaltered.

thrasetes. P. 272, to *Eupl. eupator:* **thrasetes** *subsp. nov.* inhabits Saleyer and is smaller than South Celebes examples, with more delicate white strigae on the hindwing. Type in coll. Staudinger, discovered by H. Kühn. —
sardes. **sardes** *subsp. nov.* Larger, darker blue than Celebes-♂♂, with a second row of white subapical strigae on the forewing. Cellular and transcellular patches isolated, because smaller than in *eupator Hew.* from North Celebes.

faesula. P. 279: *Eupl. barsine Fruhst.* is preoccupied twice, hence on p. 233 the name **faesula** should be substituted.

distinctissima. P. 279: *Eupl. distincta Stgr.*, preoccupied by Butler, should be changed to **distinctissima** *nom. nov.*

Alphabetical List

with reference to the original desciptions of the forms of the Indo-Australian *Danaidae.*

* signifies that the form is also figured at the place cited.

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abrupta Eupl. *Fruhst.* Seitz, Macrolep. 9, p. 269.
adorabilis Eupl. *Fruhst.* Insekten-Börse 1904, p. 309.
adustata Dan. *Fruhst.* Soc. Entomolog. 22, p. 105.
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4. Family: Satyridae.

The morphology and biology of this cosmopolitan family have already been sufficiently dealt with in the Palearctic part (vol. 1, p. 79) and in the discussion of the South American forms (vol. V, p. 173), so that only a few points peculiar to the tropical Asiatic Satyrids remain to be treated of here.

A sharp differentiation of the Satyrids from the following family (the Amathusiids) is almost impossible, especially as regards the larval form and that of the sexual clasping-organs, and Haase's erection of the group of Satyromorphids, to which reference has been already made in the Palearctic part, is constantly receiving fresh support as our knowledge increases.

There is also some resemblance to the Danaids, but more in the coloration than anatomically, for the clasping-organs approximate much more to the Nymphalids than to the Danaids. In general the occurrence of convergences is a characteristic of the Satyrids and the perfect imitations of the genus *Elymnias*, that paradigm of the adherent of the mimicry theory, never ceases to call forth our astonishment.

In accordance with the retiring habits of the shade-loving Satyrids all, probably without exception, have a weak flight and they prefer the underwood, though some species follow the cultivation of the rice in South and East Asia and others prefer open pasture-land. The species are for the most part of uniform colouring and their habit of dropping after a short flight and even settling obliquely, heightens their resemblance to dry or rotten leaves. But together with monotonously coloured groups of species we also find, in the great forest regions, species clothed in the glossy blue of the Euploeids (*Coelites*, *Ptychandra*), while others wear the hyaline white of *Hestia* and *Ideopsis* (*Zethera*, *Elymnias*), and the Australian species have in common a peculiar ochre-yellow colouring, probably adapted to their sterile environment. Pure reds and greens have not yet been recorded, but several New Zealand and insular species have metallic decorations on the under surface. A commonly recurring scheme is white, yellow or brown oblique bands on the forewing.

The clasping-organs are as a rule of the simplest structure, and in most cases even without essential differences between the Palearctic and the tropical genera. The long, distally pointed uncus bears two lateral clasps, slightly curved upwards, the valve is always provided with bristles and more or less broad, mostly with simple top, only rarely armed with teeth. The only exception is the genus *Zethera*, the valve of which bears dorsally an appendage shaped like a snake's head, into which the point of the uncus can be pushed. Jullien's rods, i. e. bundles of bristles welded together as in the European *Eumenis fagi* (= *Satyrus hermione*) and *alcyone* have not yet been observed in the Asiatic species. Only in certain *Maniola* (*Epinephele*) there are similar rods, but of smaller extent, and in *Eumenis* (*Satyrus*) *semele* from North India dorsal or subdorsal tufts of fine hairs are found, remotely recalling the scent-hairs of the Danaids. The organs are the most simplified in *Melanitis*, in which the lateral points of the uncus are wanting and the valve shows the simplest structure.

In the development of the secondary sexual characters the Indo-Australian Satyrids are behind the South American and even the African, on the other hand sexual dimorphism and heteromorphism is developed to an almost unparalleled extent. Some species of the genera *Elymnias* and *Zethera* even lay aside their family garb in order to assume more completely the style of colouring of the models from other families. That the members of so weak and pliant a family as the Satyrids should also be in the highest degree susceptible to climatic influences is only natural. Some species of the genera *Mycalesis* and *Ypthima* are actually so modified by the influence of the contrasting seasons as to be unrecognizable, and it is almost impossible in female examples of the dry-season form to settle their identity with their ♂♂ or to separate the different species. Many Satyrids are locally confined to isolated mountain peaks, single valleys and also islands. Ubiquitous species are relatively rare and become increasingly so as we proceed eastwards, breaking up into good species. In their vertical distribution they resemble many Pierids and Nymphalids, as they ascend to 4000 m., leaving far behind them the Danaids, which scarcely reach 2000 m.

The most striking and beautiful species prefer the woods in the hot lowlands of the coast-district, yet the number of species scarcely decreases at elevations of 1000—1500 m.

In general the Satyrids in the tropics do not present to the eye the same lively picture which is displayed in the height of summer on our meadows and woodlands. The relative poverty of tropical Asia is doubtless due to the absence of the more tender Gramineae, these being supplanted by the ill-famed lalang grass which is unpalatable to most larvae. In addition to this, the tropical wood does not produce grasses and their giant relative, the bamboo, apparently serves as food-plant only to the genus *Lethe*. But in those subtropical

districts where grassy plains are found, the situation is changed; thus in Sikkim occur 17 genera and 75 species, whilst in the equatorial forest-land of Sumatra only 10 genera with 36 species are known.

The figures are drawn from examples in coll. Fruhstorfer, Genf-Florissant, with three exceptions, which the Tring Museum kindly placed at our disposal. The types of the new forms are likewise in the Genf collection except where it is specially noted to the contrary.

Ypthima - Group.

Small delicate butterflies of the size of the European *Coenonympha*, with a large subapical ocellus on the forewing, which extends between the radials and the upper median. The under surface of the butterflies is never striped, but unicolorous or finely striated or irregularly spotted. The costal vein is always inflated.

1. Genus: **Ypthima** *Hbn.*

Next to *Mycalesis* the most extensive genus of the eastern tropics, at the same time bicontinental, as it encroaches into Africa and one Indian species has spread through Persia into Palestine. Also the Palearctic north of East Asia produces a few species.

Forewing with only one subcostal before the end of the cell, lower discocellular of the very broad hindwing runs into the bend of the upper median vein. Both the costal and the median vein inflated. Precostal of the hindwing short, knobbed. Some species bear a rather broad sexual spot, with a dull gloss, on the forewing, the presence or absence of which has been utilized for dividing the genus into groups; but the very constant arrangement of the ocelli on the hindwing beneath is much more essential for this purpose. — Larva according to Moore in „Lepidoptera Indica" somewhat less than an inch long, entirely green, the head round, the body of nearly uniform width, becoming somewhat thicker at the fifth segment, and then tapering to the anal segment, which bears two immovable divergent processes. Head and body covered with small, fine, colourless hairs, which arise from soft tubercles. — Pupa either green or brown, the head rounded, the wing-cases somewhat raised and anteriorly angled, the thorax humped.

Ypthima are but little dependant upon the sun and appear even on dull days in the early and late evening hours. In neglected coffee-gardens on the plateau of Pengalengan in West Java I met with them in hundreds on and between the weeds even in rainy weather. They all keep low in the grass, settling on blades and leaves but not on the ground. They are fond of visiting Ixora and Sambucus umbels and even sit on the flowers with the wings spread out. At elevations of 1500 m. they are still very common and it is known that in the Himalayas some species occur up to 8000 ft. The head-quarters of the genus are subtropical China and the whole of India. In the Macromalayan region they begin to decrease rapidly in numbers, and Sumatra and Java produce only 5 species; from Australia only one species is known, and in the Bismarck Archipelago and the Solomons they are entirely absent.

Y. asterope has already been discussed in the Palearctic part, but in place of it a strikingly small *baldus*-form is there figured (34 a), while a whole series of varieties of this species is found in vol. XIII on pl. 28. *asterope* always bears only one anal ocellus on the hindwing above, and beneath in the rainy-season form only one apical ocellus is present, never two. In the dry-season form, **alemola** *Swinh.*, even these disappear, so that the hindwing is plain grey-sand-colour without any markings except the unusually fine striation. — **asterope** *Klug* is the North African and Syrian branch of the collective species. — In the Himalayas, Kulu (Kashmir), thus in the Palearctic Region, occurs the smaller **mahratta** *Moore*, at elevations of from 2000 to 6000 ft. — In Further India, in the south of Annam, I found a dry-season form with smoke-brown under surface, likewise without eye-spots, **annamitica** *subsp. nov.*, which there ascends to about 1600 m. above sea-level and flies on the driest grassy places in large numbers even in the hottest part of the day. — As **norma** *Westw.* an aberration from China has been described, in which the apical eye-spot of the forewing is absent above.

alemola. *asterope.* *mahratta.* *annamitica.* *norma.*

Y. inica *Hew.* is an allied species, whose type is based on an example of the dry season, of which **complexiva** *Swinh.* is an aberration in the ocelli resp. an intermediate form. The rainy-season form **ariaspa** *Moore* (= rara *Btlr.*, daedalea *Swinh.*) only differs from that of *asterope* in having a larger anal eye-spot on the hindwing beneath. Examples of the dry-season form, however, can scarcely at present be distinguished from *alemola*. Punjaub, Central India, where it is not rare from May to November.

inica. *complexiva.* *ariaspa.*

Y. arctous *F.* (99 c), another primitive species, with the eye-spots of the simplest development, a larger apical ocellus on the forewing and a smaller one, which is sometimes nearly obsolete, in the anal angle of the hindwing. Under surface smoke-brown, with still more uniform vertical striation than *asterope* and no traces of longitudinal bands. Australia. — **papuana** *subsp. nov.* is smaller than *arctous* and is much darker brown both above and beneath. According to Hagen not rare on the grass at the road-sides, but local. Flies especially in December and March. New Guinea.

arctous. *papuana.*

Y. florensis *Snell.* (99 c) is light grey beneath and differs from *arctous* in the large, circular apical ocellus on the underside of the hindwing. But on the upper surface of the hindwing the eye-spot, which is so distinct in *arctous*, only shows through. Flores. *florensis.*

Y. pusilla *spec. nov.* (99 c as *minuta*) is probably the smallest Asiatic species, and was referred to *asterope* by Rothschild, Holland and Doherty. Above even somewhat lighter grey than *florensis* and beneath easy to recognize by the double eye-spot on the anal area of the hindwing. South Celebes, from the lowlands up to 1000 m. January, March. Amboina. The name *minuta* must sink, being preoccupied by *Y. minuta Matsumura* from Formosa 1910. *pusilla.*

Y. huebneri is widely distributed in continental South Asia and may be easily recognized by the three contiguous eye-spots on the underside of the hindwing. — **kasmira** *Moore*, very well figured in the Palearctic part (34 a), is the most northerly branch-race of the species. — **jocularia** *Swinh.* is a very distinct pale form from Western India with the anal area of the hindwing above slightly tinged with violet, and **honora** *Moore* (= apicalis *Moore*, catharina *Btlr.*) is the dry-season generation without ocelli on the underside of the hindwing. — **huebneri** *Kirby* (99 e) is the race from the eastern Himalayas, where the form occurs as far as Burma. The example figured came from Annam, where this form flies in the plains, whilst in Tonkin it ascends to about 3000 ft. The ♀ is paler grey, above like that of *baldus*, but with rounder wings. Egg a beautiful light green, the larva hatches in 4 days and soon produces a green or brown pupa, from which the imago emerges after about 4 weeks. According to Nicéville's observations, however, the development is more rapid in November-December, the pupa yielding the butterfly in only 12—18 days. The larva is described in the generic diagnosis. *kasmira. jocularia. honora. huebneri.*

Y. ceylonica *Hew.* (99 e) is the only species with the hindwing almost entirely white. The example figured belongs to the dry-season form **gellia** *form. nov.*, whilst Hewitson described the form of the rainy season, which has larger eye-spots, these being arranged beneath exactly as in *huebneri* and almost as large. *ceylonica* was formerly only known from the island whose name it bears, but it has now been discovered also in Southern India, in a slight variety. Its flight is short and it rests at the roadside on grass and weeds. Elwes and Edwards consider *ceylonica* to be specifically distinct from *huebneri* on account of the great differences in the finely denticulate apex of the valve. *ceylonica. gellia.*

Y. jarba is a species discovered simultaneously by Dr. Martin and myself, and of which Nicéville also received a doubtful form from Manipur. — **jarba** *Nicév.*, described from examples from Sumatra, is about intermediate in size between *gaugamela* (99 d) and *eupeithes* (99 f) and as may be seen from a glance at the unequal size of the anal ocelli and the dissimilar longitudinal striation, cannot be regarded as allied to *baldus* or *huebneri*. *jarba* is very rare and in 13 years Dr. Martin has not been able to obtain more than 12 examples. — In West Java and there only in the mountains from 1000 m. upwards *jarba* is replaced by **eupeithes** *subsp. nov.* (99 f), conspicuous by its size, the whitish median area of the hindwing and the large eye-spots with broad ochre-yellow margins. Examples also occur with an accessory eye-spot at the apex of the hindwing beneath. ♀ fully a third larger than the ♂. Flies April to June, on Mount Gedé and the plateau of Pengalengan, West Java. — **gaugamela** *subsp. nov.* (99 d). Above darker brown than *eupeithes*, the longitudinal bands on the under surface of the forewing straighter. The hindwing shows no accessory ocellus, the median area is more broadly striated with black than in *eupithes* and the habitus much smaller. East Java, from 500 m. upwards. Very rare. *jarba. eupeithes. gaugamela.*

Y. philomela *Joh.* (99 c). The synonymy of this species is in great confusion; all that is certain is that *tabella Marsh.*, *baldus Elw.* and *huebneri Snell.* are identical with it. *huebneri Kirby*, Seitz p. 91, is not the same. *philomela* occurs in South India, where it ascends to 3500 ft., in Java and Sumatra, in coll. Fruhstorfer there are also examples from Perak and Sumbawa. *philomela* differs from *huebneri Kirby* in that in the anal angle of the hindwing there are only 2 principal ocelli and but rarely one or two punctiform accessory eye-spots, whilst *huebneri* bears three anal ocelli of equal size. Moreover, the anterior ocellus in *huebneri* is always isolated, whilst in *philomela* it is almost without exception accompanied by a small supplementary eye-spot. On the upper surface *philomela* differs from *huebneri* in having a smaller apical eye-spot on the forewing. — Moore has described as **indecora** the somewhat larger race from North-Western India, which bears larger apical ocelli on the forewing and also above large anal eye-spots. Dry-season examples occur with the under surface dark sand-grey, often without the least trace of eye-spots. Kulu, Kangra (Kashmir), Mussouri. The form also approaches *philomela* in the structure of the valve; but according to Elwes it differs from it in having a distinct sexual spot on the forewing. In dividing the collective species I have here followed Bingham. But concerning *philomela* itself there is no doubt; it was originally described from Java and is extremely common both in the east and west of the island up to elevations of about 700 m. *philomela. indecora.*

Y. fasciata, one of the most easily recognized species, of which there are only two races to mention. — **fasciata** *Hew.* (99 g), described from Borneo, in my collection from Pontianak and the Natuna Islands, is conspicuous for the chain-like series of six eye-spots of almost equal size on the hindwing. The upper surface *fasciata.*

is dark brown, the apical ocellus of the ♂♂ relatively small, sometimes oblong, that of the ♀♀ large, with distinct
torone. white pupil and broad yellow bordering. — **torone** *subsp. nov.* differs in having the under surface of both wings light grey instead of striated with brown, as Distant already pointed out in 1883. Very rare, Perak, North-East Sumatra and the neighbourhood of Padang in West Sumatra.

lisandra. **Y. lisandra** *Cr.* (99 e), although first described as long ago as 1782, is one of the rarest and least known species. There are two forms of the ♂, the normal one, with a small apical eye-spot on the forewing, and the rarer one figured, without this. On the under surface the oblong apical ocellus has two distinct white pupils, the hindwing shows 2 apical and 2 subanal eye-spots, narrower and margined with darker yellow than in *baldus*, while in the anal angle, but placed less proximally, there is one other ocellus, never two as in *baldus*. Moreover, the whole under surface is darker brown, with more uniform and finer transverse striation than in *baldus*. Collected by me in Tonkin, Manson Mountains, April-May at about 1500 m., also from Hong-Kong in my col-
micromma-tus. lection. — **micrommatus** *Holl.*, described from Hainan, is an interesting local race; judging from the figure it is an intermediate form, lighter grey than *lisandra*, with smaller ocelli on the hindwing beneath. The fore-
minuta. wing bears the small apical eye-spot which is so characteristic of normal *lisandra*. — **minuta** *Mats.*, described from Formosa, probably also belongs here, unless it proves to be a form of *asterope* or *huebneri*.

avanta. **Y. avanta** *Moore* is an extremely variable species, but little distributed in continental collections, which inhabits almost the whole Indian Empire from Kashmir to Tenasserim and has advanced beyond the south-
ordinata. ern extremity of India to Ceylon. The name-type is the dry-season form, from which **ordinata** *Btlr.* of the rainy season differs in its larger size and the larger ocelli on the under surface, which are arranged much as
cerealis. in *baldus*. The dry-season form bears, as in *baldus*, two brown longitudinal bands on the under surface. — **cerealis** *Wats.*, described from the sterile region of Upper Burma, is a well defined local race, coming from a district entirely without trees; smaller than the Himalayan form, with the under surface clear white instead of slate-grey
striata. and almost without longitudinal bands. Androconia nearly absent on the forewing above. — **striata** *Hmps.* is still smaller, beneath likewise whitish, but with distinct submarginal brown longitudinal bands. The striation more delicate than in *avanta* and the yellow bordering of the ocelli more strongly expressed. The dry-season form as usual has the eye-spots much less developed. From 2—4000 ft., in the Nilgiris, the rainy-season form
singala. appearing in August, the other in December and January. — **singala** *Fldr.* (99 c) is somewhat darker than *avanta*
thora. with less of the purple gloss. Upper surface sometimes without eye-spots. **thora** *Moore* is the dry-season form with the ocelli on the underside of the hindwing reduced. Rare in Ceylon, flying about long grass at the edges of coffee-gardens and occurring at about 1000 m. The West Chinese *avanta*, already mentioned in vol. 1, p. 92, will certainly prove to be different from the North Indian race.

ypthimoi-des **Y. ypthimoides** *Moore* (= robinsoni *Dist.*) (99 d) is a species peculiar to South India, that home of so many endemic forms. Colouring of the upper surface dark brown throughout, with a bi-pupilled apical ocellus, constricted in the middle, and two eye-spots on the hindwing, somewhat larger than mere dots. The ♀ is lighter than the ♂ and shows clearer yellow bordering to the eye-spots of the forewing. The under surface of the hindwing is traversed by a weak, narrow, grey-white longitudinal band. *ypthimoides* shows a preference for grass-covered peaks at altitudes of 1000 to about 1500 m.

chenui. **Y. chenui** *Guér.* (99 d), of which we figure the dry-season form, shows a very large, as it were flattened-out, apical eye-spot on the forewing, bi-pupilled with blue and broadly margined with a beautiful light yellow. Hindwing with one or two punctiform spots. The wet-season brood is adorned with distinct ocelli on the underside of the hindwing. Common on rocky hills. Four generations are known in the year and the butterfly is never met with below 5000 ft., but ascends to 6700 ft. Locality hitherto only the Nilgiris in South India.

zodia. **Y. zodia** *Btlr.* (vol. 1, p. 91, 34 a) belongs to the same series of forms as *chenui*. — **albescens** *Pouj.* is very
albescens. likely the rainy-season form of *zodia*, of which I have before me only examples without eye-spots. West China.

bolanica. **Y. bolanica** *Marsh.*, above umber-brown, with an oval, oblique, bi-pupilled ocellus. Hindwing above with a small eye-spot. Under surface similar to that of *chenui*, but variegated more with brown instead of grey-black. Both wings traversed by a brown longitudinal band, hindwing with three subapical ocelli, an anal one and an accessory eye-spot below the latter. From Beluchistan and Campbellpore. Rare.

affectata. **Y. affectata** *Elw. & Edw.* belongs likewise to the *baldus*-series of forms, but is larger and darker, yet in spite of the difference in the valve Elwes thinks that *affectata* may possibly be only a rainy-season form of his *similis*. The sexual spot of the ♂♂ is wanting. Assam, but very rare.

sobrina. **Y. sobrina** *Elw. & Edw.*, from the Karen Hills in Burma, resembles *marshalli* above, as also in the pattern and colouring, and is therefore evidently erected on an example belonging to the dry-season. The form of the valve, which is said to be different from those of the *baldus*-races, was decisive for the erection of the species, which still remains rare and is unknown to me in nature.

Y. similis *Elw. & Edw.* is likewise a rare species, larger than average examples of *marshalli* and without the sexual spot of the forewing. As in the ♀ of *baldus* the ocelli of both wings are also in *similis* placed in a lighter area, which is proximally bordered by a dark band. Under surface similar to *baldus*, but the sprinkling is more delicate and the subbasal dark band is absent. The valve sharply differentiated from those of the preceding species and of *baldus*. Karen Hills, to the north of Tungo in Tenasserim, from about 4—5000 ft., discovered by W. Doherty. *similis.*

Y. baldus *F.* produces two very different seasonal forms, of which that of the dry season, **marshalli** *Btlr.*, is figured on 99 d (that of the rainy period in the Palearctic part 34 b). On the upper surface the two are alike, beneath the brown-grey longitudinal band varies in breadth and there occur all gradations from examples with large eye-spots to those without a trace of ocelli. Sometimes instead of the latter there are small silver or only black dots present. I met with *marshalli* commonly in the rainless period from December to February in southern Annam, whilst I have *baldus* before me in large numbers from Tonkin, taken from June to August. Distribution: the whole of Anterior and Further India, also in my collection from Hainan, where the darkening which already commences in Tonkin examples becomes more definite, so that Hainan examples may be designated as **gallienus** *subsp. nov.* The under surface bears broader, darker brown longitudinal bands and smaller ocelli, more broadly bordered with brown. The larva of *baldus* is known, and lives on rice; it is of reddish ochre-yellow colouring with indistinct dark stripes. Pupa either dark ochre-yellow or brown or pale grey and spotted with brown. — **scota** *subsp. nov.* is a melanotic island race with dark brown under surface spotted with red-brown and very broad submarginal line on the forewing. Not common, February, March. Hong-Kong. — In **ishigakina** *Fruhst.* (99 e) the island melanism becomes still more distinctly noticeable, and is accompanied by a decrease in size. Moreover the upper surface is darker brown than in *baldus*, the bordering of the ocelli less light and the pale grey submarginal area is absent even in the ♀♀. The striation of the under surface is finer and of a deeper brown-red. Besides the intermediate form figured there is also an extreme dry-season form, **zodina** *form. nov.*, analagous to *marshalli*, but smaller and with dark black-brown ground-colouring. Formosa, Ishigaki (Japan), not rare. — In the Macromalayan region *baldus* is divided into four races: **newboldi** *Dist.*, a form darkened on both surfaces, with reduced ocelli, especially on the hindwing. The oblique stripes of the under surface are more delicate, thinner, the transverse striation more blackish than brown. Described by Distant from the rainy-season form. Perak, Malay Peninsula. — **moerus** *subsp. nov.* is the form from the lowlands of Sumatra. Larva according to Martin on the same ubiquitous species of grass as that of *Mycalesis mineus L.* This race is further removed from the *baldus*-type and produces no dry-season form, yet the ocelli are reduced, especially on the hindwing beneath. This is predominantly white-grey, the longitudinal stripes more prominent, but the brown shading slighter. An extremely common species in the plains, present on every grassy patch in the shade. The eggs are laid singly and are white-green, distinctly smaller than those of *Mycalesis* and darken as the larva develops, the central part becoming dotted with black; the larvae are at first white, but after feeding become white-green, with white head and dense whitish hairs. These hairs become less with each moult, the teeth at the anal end always longer, whilst those at the head are only indicated. The full-grown larva is somewhat yellowish, of perhaps the colour of half ripe oats and with a dark dorsal line. The larvae live high in the culms, on which they also hang for pupation. The yellow-green pupa is ornamented with fine brown stripes, more slender than all the *Mycalesis*-pupae, and has a rather pointed thoracic horn (Martin). — **selinuntius** *subsp. nov.* (99 d) inhabits Borneo and the Natuna Islands and more approaches *newboldi Dist.*, from which, however, it differs beneath in the red-brown instead of blackish striation. — **horsfieldi** *Moore* (= baldus *Snell.*) is as usual the most copiously white-marked subspecies. The forewing is indeed more broadly and densely scaled with black beneath than the Sumatran sister-race, but the hindwing must be called grey-white, with slighter brownish scaling, which in the median area is commonly entirely absent. At present I have only before me examples taken in East Java, which I there found common at 500—700 m. at the edges of the coffee-gardens. — **pasitelides** *subsp. nov.* is an interesting form from the island of Bawean, close to Java, which is easily recognizable beneath by the almost completely brown forewing, on which almost all the white ground-colour is wanting. The hindwing also is costally and basally more slightly shaded with black-grey than any Javan example; all the ocelli more distinct and bordered with finer yellow. *baldus. marshalli. gallienus. scota. ishigakina. zodina. newboldi. moerus. selinuntius. horsfieldi. pasitelides.*

Further towards the east, in the Micromalayan region, and beginning from Bali, occurs a magnificent species, which is more widely distributed than was formerly known, namely **Y. aphnius** *Godt.*, originally described from Timor, but apparently occurring in exactly the same form also on Wetter. — The furthest removed from the name-type is **caratonus** *subsp. nov.*, of which I took a ♀ on Bali in October 1895. It is distinguished by its smaller size and especially by an almost pure white foreground to the ocelli in the anal area of the hindwing. — A somewhat larger form is **saravus** *subsp. nov.*, from Lombok, which occurs there at altitudes of 600—1000 m. and is nowhere rare at the edge of the woods and on the banks of the streams which intersect the plateau of Sambalun. The anal part of the hindwing is above darkened and all the ocelli *aphnius. caratonus. saravus.*

are larger than in the Bali form. *saravus* shows a tendency to produce aberrations, as out of four ♂♂ I
leuce. possess two with the yellow bordering of the ocelli enormously developed. — **leuce** *Doh.* (99 d), described from Sumba and Sumbawa, but only received by me from the former island, bears like ~~*ningas*~~ *nyrias Fruhst.* from Celebes a strikingly pale marginal area on both wings above and differs on the underside of the hindwing from
glabrius. Lombok examples in the purer white-grey ground-colouring. — In **glabrius** *subsp. nov.*, from Flores, the foreground of the ocelli of the hindwing assumes a yellowish shading and all the ocelli are broadly ringed with
budinus. ochre-yellow. Flores; flies in November. — **budinus** *subsp. nov.* has the eye-spots of the forewing as broadly margined with dark ochre-yellow as *aphnius* and the under surface of the hindwing assumes a darker colour-
aphnius. ing than in *leuce* and *glabrius*. Alor. — **aphnius** *Godt.* (99 d), from Timor and Wetter, is the extreme form which, as may be seen from the figure, has the foreground of the ocelli on the hindwing entirely ochre-yellow. The under surface is darker, being sprinkled with black instead of white-brown as in the other branch-races. — According to Elwes and Edwards *aphnius* (*leuce*) differs from *baldus* (*horsfieldi*) in the form of the valve, which bears a lamella on the concave innerside near the end.

argillosa. **Y. argillosa** *Snell.* is perhaps the Javan race of *aphnius*. Collected by Dr. Piepers in West Java and differing from *aphnius* in the absence of the orange part round the ocelli of the hindwing. The sexual mark on the forewing above especially developed.

argus. In Japan and on the adjacent mainland *baldus* is represented by **argus** *Btlr.*, which Elwes regards as a separate species on account of the difference in the clasping-organs. And indeed the quite different, almost rounded shape of the wings helps to confirm the separation. The species is common in Japan, occurring
evanescens. everywhere from Hakodate to Nagasaki. — As **evanescens** *Btlr.* a dry-season aberration has been described
pratti. in which the eye-spots are reduced to very minute rings. From Nikko, Japan. — **pratti** *Elwes*, from Ichang,
hyampeia. bears above a conspicuous marginal band, which is sharply defined proximally. — **hyampeia** *subsp. nov.* (99 e) is the local race from Ussuri and probably also from Amur, and stands in about the same relation to *argus* as *ishigakina Fruhst.* to *baldus*. Size smaller, ocelli above less brightly pupilled with white, under surface predominantly black instead of white-grey, the eye-spots much smaller.

stellera. **Y. stellera** *Eschsch.* replaces *baldus* on the Philippines and differs from it in having the apical ocelli of the forewing more oblong and margined with darker ochre-yellow, the under surface more whitish, traversed by sharper brown bands, and the bordering of the eye-spots on both wings again darker yellow. Were it not that Elwes and Edwards regard the two species as separate on account of the genitalia, I should unhesitatingly unite them. On all the Philippine Islands from Luzon onwards. Local races occur, but nothing
galeria. is known of them for want of material for comparison. — **galeria** *subsp. nov.* is a smaller race than *stellera* from Bazilan, with the eye-spots on the upper surface naturally smaller and with darker brown-grey under surface, in which the reduced ocelli and very broad, brown longitudinal bands are especially striking. Pala-
sepyra. wan. — In **sepyra** *Hew.* (99 e) the darkening has progressed still further and the under surface is distinguished by the reddish ochre-yellow bordering of the ocelli on the forewing, recalling *aphnius Godt.* (99 d), although not so strongly expressed. On the upper surface of the hindwing there are in the ♂ three, in the ♀ four moderately strongly bordered eye-spots. Batjan, Halmaheira, Ternate, common. Indications of localities such as Celebes, Borneo, Java, which are found in literature, rest on errors or a confusion with other species.

nynias. On Celebes *baldus* is represented by **Y. nynias** *spec. nov.* (99 ♂♂ misprinted *ningas*), a strikingly small species (otherwise Celebes always produces the largest forms of the collective species), noticeable on the upper surface for the contrast of the light grey submarginal area, which is divided by a very broad dark brown band from the dense and dusky brown basal area. The ocellus of the forewing, compared with that of *sepyra*, is laterally strongly compressed, the bands on the under surface are in examples from South Celebes sometimes more indistinct than on the figure, and in the dry-season form, which I collected in the neighbourhood of Macassar, the ground-colour becomes grey and the eye-spots are reduced. Common in North Celebes at Toli-
aretas. Toli, November, December. — **aretas** *subsp. nov.* bears in the ♀ again almost circular ocelli on the forewing, which only in the ♂ retain their oblong shape. The upper surface of both sexes is darker than in *nynias*, uniform brown without the distal lighter part. The under surface lighter grey, without brown-yellow transverse striation, the longitudinal bands less pronounced than in the Celebes race. Island of Saleyer, taken by me in March 1896.

gadames. **Y. gadames** *spec. nov.* approaches *stellera Eschsch.* above, except that the two anal ocelli of the hindwing are essentially smaller. The under surface recalls *fasciata Hew.* from Borneo, but the apical ocellus of the forewing is essentially narrower than in *nynias*, the irroration on the forewing more yellowish than grey, as in *fasciata* and *stellera*, but the arrangements of the eye-spots on the hindwing otherwise as in *fasciata*. Bangkai, type in coll. Staudinger at the Berlin Museum.

nareda. With **Y. nareda** *Koll.* (99 g), already discussed in vol. 1, p. 92, begins a group of interesting species which are all distinguished by a double eye-spot on the underside of the hindwing, not accompanied by anal accessory eye-spots. *nareda* is nowhere rare in the West Himalayas; it is said to fly from May to October

and to reach an altitude of 2500 m. in the Kumaon Himalayas. Valve short, broad, at the apex a simple black spine.

Y. newara *Moore* closely approximates to the preceding, the submarginal band of the under surface is more uniform in breadth, and the striation somewhat more compact and less regular. East Himalayas, from Nepal and Sikkim to Assam, from 1000—1500 m. Valve narrow, its apex flattened and finely dentate. — As **sarcaposa** *subsp. nov.* the Burmese form is here separated, which is smaller and beneath lighter grey than large series of Sikkim and Assam examples. Ocelli with broader and lighter yellow bordering. Collected by me in May at Tungo, Tenasserim, at elevations of about 1000 m., but distributed northwards as far as the border of Yunnan. *newara.* *sarcaposa.*

Y. chinensis *Leech* (vol. 1, p. 92, 34 b) is larger than the preceding and would without hesitation have been treated as a geographical race of *nareda* if Elwes and Edwards had not established its specific rank on the ground of the constant difference of the valve, tested on 4 examples. Valve bi-lobed, proximally armed with 5 teeth. Collected at Kiu-Kiang in May, at Chang-Yang in August, made known by Leech. *chinensis.*

Y. perfecta *Leech* is a species recognizable by the larger anal ocelli on the hindwing above, the straight-edged foreground of the apical eye-spots on the underside of the forewing and the cospicuous, almost white median area of the hindwing. Central and West China. — **akragas** *subsp. nov.*, somewhat larger, the ocellus of the forewing narrower. Under surface essentially darker, with the exception of the very narrow median area, which is basally widened and distally almost pure white. All the eye-spots of the hindwing somewhat smaller than in *perfecta*. Formosa, very rare. *perfecta.* *akragas.*

Y. sordida Elw. & Edw. belongs near *perfecta*, already discussed vol. 1, p. 92. Kiu-Kiang.

Y. lycus *Nicév.* has narrower wings, but the same arrangement of the eye-spots as *nareda* except that the anal ocelli on the underside of the hindwing are smaller. Under surface dark grey, with unusually fine striation. The only locality yet known is the Khasia Hills in Assam, where it occurs from March to July at about 1500 m. It flies somewhat more swiftly than *newara*, prefers open places and is not very rare, but hardly ever finds its way into German collections and I possess only 1 ♂. *lycus.*

Y. watsoni *Moore* apparently replaces *lycus* in Burma and might be taken for a mere local form if the valve did not differ strikingly from the simple, very slender *lycus*-valve in having a subapical, broad, proximally comb-shaped appendage. The rainy-season form resembles that of *nareda* and the striation on the under surface is more scattered. The ocelli are more uniform than in *lycus*, the dry-season form shows very broad brown bands on a light grey ground. Burma, from Tongu to the border of Yunnan. *watsoni.*

In East Asia in place of *nareda* and *newara* occurs **Y. motschulskyi** *Mén.*, a species with large eye-spots, which has been already dealt with in the Palearctic part (vol. 1, p. 92). I took the species on the island of Tsushima, end of September to beginning of October. — **amphitea** *Mén.* is a form from Korea with the sexual spot on the forewing reduced, whilst in **ganus** *subsp. nov.*, from Tsintau and probably also Ichang, it is especially distinctly developed. *ganus* is inferior in size to Japanese specimens and the ocelli are correspondingly reduced. The under surface bears the same relation to *motschulskyi* as *sarcaposa Fruhst.* to *newara Moore*, with its light grey ground-colour and fine striation. *motschulskyi.* *amphitea.* *ganus.*

Y. obscura *Elw. & Edw.*, from Korea, nearly approaches the Japanese race in colouring and pattern, but the valve is of widely different form, in *motschulskyi* having the teeth at the distal end, whilst *obscura* bears them at the dorsal, proximal part in almost twice as long a row. *obscura.*

Y. multistriata *Btlr.* (= posticalis *Mats.*) (99 g) bears the dentition of the valve also at the distal end, but its form is simpler and more slender, so that Elwes and Edwards are probably also right here in advocating its specific separation from the Japanese form. Beneath *multistriata* differs from *motschulskyi* in the more compact and darker brown shading, more condensed into single patches resp. spots. Formosa, not rarely ascending to about 4000 ft. — **imitans** *Elw. & Edw.*, from Hainan, differs above in the lighter distal area of the forewing and on the under surface in the reduced brown striation on a very light, nearly white ground. The margining of the ocelli is also paler and of a finer yellow. *multistriata.* *imitans.*

Y. praenubila Leech (vol. 1, p. 92, pl. 34 c), a specially large species, in many ways recalls the species of the next group. Central and West China, from May to August, does not belong to the Indo-Australian fauna.

Methora Group.

With **Y. methora** begins a series of species which far surpass their congeners in size, reaching or exceeding that of the European *Pararge*. — Two local forms of *methora* are known: **methora** *Hew.* (99 g), erected *methora.*

from the rainy-season form, nowhere rare in Assam, but in Sikkim extremely sparsely represented, and there observed at about 1000 m. The Assam specimens, and also those of the dry-season form, are essentially darker than Sikkim examples and have larger eye-spots. As the dry-season form has not yet been christened, I would *gela.* propose the name **gela** *form. nov.* for. it. It coincides with fig. 99 g. The upper surface may be described as vandyke brown. The hindwing bears always two anal ocelli, the ♀ also an apical ocellus on the upper surface. In the ♀ of the form *gela* there is sometimes further an apical accessory eye-spot, also in one ♀ the anal ocelli are diffuse and tear-shaped. The rainy-season form flies in August in Sikkim and Bhotan, whilst *gela*, the *persimilis.* generation of the cold season, was observed in February and March. — **persimilis** *Elw. & Edw.* bears no sexual stripe on the forewing above and the anal ocelli of the hindwing are not as in *methora* and *gela*, but only ornamented with two white pupils. From Mao, Manipur, from elevations of 7000 ft. Rare.

dohertyi. **Y. dohertyi** *Moore* closely approximates to *methora*, so that it should perhaps be treated as a local race of this, for even the trifling deviations in the distal part of the valve may just as well be individual as due to its geographical separation from the centre of the collective species. But as *dohertyi* is unknown to me in nature I accept the opinion of Bingham and Elwes as to its status. ♂ with more prominent sexual spot on the forewing. Upper surface paler brown, the anal ocellus of the hindwing divided. Under surface whitish with small, short brown stripes, the longitudinal bands indistinct. Eye-spots of the under surface with very broad yellow iris. Localities: Upper Burma and Pegu, at about 2000 ft.

savara. **Y. savara** *Gr.-Sm.* bears likewise a distinct grey androconia-patch with dull gloss on the forewing. The upper surface is lighter brown than even in *gela* and beneath both wings are traversed by two brown longitudinal bands. The type came from Upper Tenasserim, other examples were found at Tungo in March and April and Doherty afterwards discovered this rare species in Pegu at about 600 m., likewise in March-April. *tonkiniana.* — **tonkiniana** *subsp. nov.* (99 f) differs from *savara* in the usual darker colouring of Tonkin butterflies, the consequently much widened longitudinal bands on the underside of the wings, and the larger ocelli, which are almost circular instead of oval and have the light yellow bordering still more extended. Rare in Tonkin, very local, collected by me only at Chiem-Hoa, July-August, at about 500 m.

conjuncta. **Y. conjuncta** *Leech* (vol. 1, p. 93, pl. 34 b) has the same arrangement of the anal ocelli on the hindwing as *savara*, but the ground-colour is almost black-brown and the apical eye-spot of the forewing essentially smaller. *formosana.* Central and West China, common. — **formosana** *Fruhst.* (= tappana *Mats.*) (99 f) is smaller than *conjuncta*, the eye-spots on the forewing are also considerably smaller than in *methora* from Assam and *conjuncta*, the under surface of the wings lighter grey and the ocelli more narrowly bordered with dark yellow. Not rare on Formosa, ascending to 4000 ft.

Y. sakra I consider the most striking species of the genus and the easiest to determine; it is indeed the only one which has the ground-colour on the underside of both wings yellow-brown and which bears two large ocelli, but surrounded by a single border, in the costal area of the hindwing. Three branch-races are known: *nikaea.* **nikaea** *Moore* (vol. 1, p. 93, pl. 34 e) is the form of the western Himalayas, which is paler beneath and also *sakra.* of smaller size and is very common particularly at the higher elevations from 3—11 000 ft. — **sakra** *Moore* comes in every consignment from Sikkim and Bhotan, where it must be regarded as by far the commonest species of the genus from 2000—8000 ft. Only the rainy-season form is known, which from March to November *austeni.* is a typical butterfly of the highroads, enlivening the grassy and bushy waysides. — **austeni** *Moore* is if anything somewhat larger than *sakra* from Sikkim, the ♀ considerably darker, without the fine yellow-brown marbling on the upper surface. Moreover the under surface no longer shows the beautiful colouring of *sakra*, but is inclined rather to grey-brown, yet the ocelli are somewhat larger and more uniform. Assam, Burma, not *matinia.* common. — **matinia** *subsp. nov.* surpasses *sakra* in size and the under surface, particularly that of the hindwing, is lighter, nearly whitish grey. Common in North-West India.

Y. methorina Oberth. (vol. 1, p. 93, 34 e) and *medusa Leech*, from West China, belong near *methora* and *sakra* and are discussed in the Palearctic part.

In the Philippine Archipelago, on Celebes and in Macromalayana we meet with a group of three or *pandocus.* four species likewise distinguished by their size, which closely approximate to *methora* and *conjuncta*. **Y. pandocus** is the best-known representative, and inhabits the whole of the above region, but nowhere passes over to the continent with the exception of the Malay Peninsula, which, as has already been repeatedly mentioned, produces a thoroughly insular fauna on account of its maritime climate. In the clasping-organs the species is distinguished by having by far the slenderest and most pointed valve of all the *Ypthima* examined by Elwes and Edwards. *corticaria.* — **corticaria** *Btlr.*, described from Malacca, and also occurring in an almost identical form on Sumatra and the Batu Islands, is above somewhat lighter than the figured *sertorius Fruhst.* (99 e), which also differs beneath in the dark smoke-brown hatching and broader submarginal longitudinal band on the forewing, as well as in having *moenus.* the distal area of the hindwing more broadly shaded with brown. — **moenus** *subsp. nov.*, from the Natuna Islands, bears on the forewing a much larger apical ocellus, which beneath is surrounded by a lighter area than

in *corticaria*. — **naerius** *subsp. nov.* is a small race from Nias, with reduced ocelli and much lighter beneath, somewhat recalling **alada** *form. nov.*, which I have before me in both sexes from the Battaker Plateau, North-East Sumatra, from about 1000 m.; in this the hindwing is almost entirely washed-out white-grey, showing distinctly a dry-season coloration, and is ornamented with minute eye-spots. — **pandocus** *Moore* (99 f). On the figure the under surface is not quite correctly reproduced, wanting the grey-white median shade. The figure represents the dark mountain and rainy-season form, which is met with especially at Mt. Gedé and on the Plateau of Pengalengan in neglected coffee-gardens, often in hundreds, at altitudes of 12—1500 m. Deeper in the valleys and in the almost rainless season flies a much lighter form, **dyma** *form. nov.*, the under surface of which is tinged with grey-brown, without black admixture, the whitish patch in the median area of the hindwing more distinctly sprinkled with yellowish. — **andokides** *subsp. nov.* is analogous to the form *dyma*, but smaller; very common in East Java at about 500 m. — **sertorius** *subsp. nov.* (99 e), in which the ♀ bears also above a larger apical eye-spot than even the Java form. Particularly compared with *corticaria Btlr.* from Perak, *sertorius* is seen to be larger and with more extended black-brown shading on the under surface. The differences of the ♀ of *sertorius* from that of *pandocus* may be seen by a comparison of the figures. North and South-East Borneo, Pontianak, Natuna Islands. — **jamaeus** *subsp. nov.* is an interesting race from the small Sulu Island of Banguey to the north of Borneo, and is smaller than *calanus* (99 e), but much darker and with the ocelli on the hindwing beneath scarcely half as large. Type in coll. Staudinger. — **aquillius** *subsp. nov.* is the rare race from Palawan, which forms a transition from the Banguey form to *calanus*, the ocelli being above intermediate between those of these two island representatives of the collective species. The apical ocellus of the forewing only with inappreciable yellow bordering. Upperside of the hindwing sometimes dusted with white. Type in coll. Staudinger. — **calanus** *subsp. nov.* (99 e) on the whole approaches *sempera Fldr.* from Luzon, from which, however, it is easy to distinguish by the extended white-grey distal and median part of the hindwing beneath. Moreover all the ocelli on the underside are surrounded by a light yellow border. Jolo Islands. — **chaboras** *subsp. nov.* is a geographical branch inferior in size to *calanus* and *sempera*, which inhabits Bazilan, to the south-west of Mindanao, and is not rare there in February and March. In the ♀, as in that of *sakra*, a fine, delicate, brown-yellow marbling is noticeable above and the eye-spots are relatively large, bordered with light ochre-yellow. The under surface differs considerably from that of *calanus* in having the brown shading condensed into rather large striae and patches. Judging from a figure of Semper's the Mindanao race does not differ materially from *chaboras*. — **sempera** *Fldr.* inhabits Luzon and some of the neighbouring islands, where it flies all the year round, especially from April to July and then again from October to January. According to the examples in my collection the under surface of the Luzon ♂♂ is more uniformly grey and especially on the hindwing darker than in *chaboras* from Bazilan and Mindanao. Also the submarginal band of the forewing is much widened and the distal brown border of the hindwing extends more deeply towards the middle of the wing. — In vivid contrast to the small race from the Philippines, stand the *pandocus*-branches from Celebes, of which that from the south, **loryma** *Hew.*, was given in Elwes' Monograph as synonymous with *celebensis Rothsch.* (99 g), from which it is at once distinguishable by the presence of the apical ocellus of the forewing on the upperside also and beneath by its rounded instead of oblong shape. Moreover in *celebensis* the two eye-spots on the under surface of the hindwing are either of equal size or the apical ocellus is even larger than the anal one. In *loryma* on the contrary the posterior ocellus invariably exceeds the anterior in extent. Compared with *pandocus* and *sertorius*, *loryma* bears larger ocelli on the hindwing above. *loryma* is common in the south of the island, from the bed of the Maros River up to elevations of 1500 m. As **anana** *subsp. nov.* (99 f) I designated at one time a form from East Celebes with smaller eyes beneath, as I assumed that *celebensis* should be united with *pandocus*. As a matter of fact, however, *anana* is probably scarcely more than an intermediate form. — **macrianus** *subsp. nov.*, from the Minahassa, however, differs considerably from *loryma*; ♀ a third larger, the foreground of the apical eye-spots lighter brown, the under surface in both sexes similar to that of the mountain form of *pandocus*, with an extended grey-white basal and median area on the hindwing, but sparsely scaled with brown. All the ocelli are moreover ringed with lighter yellow. North Celebes, apparently rare. — **kalelonda** *Westw.* is a strongly darkened race from the island of Talisse, near the northern point of Celebes.

naerius. *alada.* *pandocus.* *dyma.* *andokides.* *sertorius.* *jamaeus.* *aquillius.* *calanus.* *chaboras.* *sempera.* *loryma.* *anana.* *macrianus.* *kalelonda.*

Y. celebensis *Rothsch.* (99 g, wrongly printed *lorymna*), in addition to the characters mentioned above, also differs in the presence of a second median light brown longitudinal band, which stands out especially distinctly on the anterior part of the hindwing in the ♀♀. The submarginal band on both wings above and beneath is also twice as broad as in *macrianus*. Common in the lowlands, taken by me at Toli-Toli in the north of Celebes, November-December, whilst in southern Celebes I not infrequently met with the typical form, with the under surface somewhat lighter grey, in November.

celebensis.

Y. ancus *spec. nov.* (99 g) is the third species of the *pandocus* group which we meet with in Celebes. It is a pronounced mountain form, and was taken by me at the Peak of Bonthain together with *pandocus* and

ancus.

celebensis and at the same time. The upper surface differs from that of *loryma* in the uniform black-brown, which in the distal area of both wings is slightly inclined to red-brown. On the under surface, which is very well depicted on 99 g, all the yellow shading is absent, the eye-spots are rounder, bordered with more pronounced dark orange-yellow. The foreground of the ocelli somewhat paler than the rest of the ground-colour.

nigricans. **Y. nigricans** *Snell.*, previously known in a few examples from western Java, was also found by me in the east of the island at about 500 m. above sea-level. In colouring it is above very similar to *ancus*, but the under surface is different, more approaching *pandocus*, in the presence of a brown-grey tone on the forewing and a whitish median area on the hindwing. The hindwing is always more broadly margined with darker brown than in *pandocus*, the anal ocellus compared with the subapical relatively larger and all the eye-spots on the whole more uniform. — In the Zuider Mountains to the south of Malang occurs also a dry-season form (**phasis** *form. nov.*) with the ocelli on the hindwing beneath reduced to mere dots.

phasis.

Y. iris Leech (vol. 1, pl. 34 d) with *dromonides Oberth.* (vol. 1, pl. 34 d), *beautei Oberth.* (vol. 1, pl. 34 c) and *ciris Leech* (vol. 1, pl. 34 d) form a small group of Eastern Palearctic species with very obliquely placed oval, bi-pupilled ocellus on the forewing and two to three subanal ocelli, as well as an apical eye-spot on the forewing. All inhabit eastern China, partly at elevations of 5—8000 ft. and are fully dealt with in vol. 1 (p. 92—93).

clinoides. **Y. clinoides** *Oberth.* is a form or species unknown to me in nature, which should be placed near *iris Leech* and is characterized by the absence of the anal ocelli on the hindwing above. Described from Yunnan, collected by missionaries at Tsekou.

dromon. **Y. dromon** *Oberth.* differs from *iris Leech* in the smaller eye-spots, which on the under surface are nearly obsolete. Yunnan, Tsekou.

Y. megalomma Btlr. (vol. 1, p. 92, pl. 34 c) belongs to a small south-east Palearctic group, which embraces but few species, with large rounded eye-spots on the forewing and a medium sized ocellus on the hindwing above, but entirely without eye-spots on the hindwing beneath. The species was discovered at Ningpo, where it flies in April, and afterwards also in Chang-yang, Central China, as well as West China, where it ascends to 5000 ft.

megalia. **Y. megalia** *Nicév.*, discovered in the upper Shan States near the borders of China, where it likewise flies in April, is about the size of *sakra Moore* and has the hatching beneath quite as fine. But on the upper surface it approaches *megalomma*, except that the ocellus is oblong. The hindwing is beneath brown, with slight indication of a subbasal and median white-grey band and entirely without eye-spots.

Y. insolita Leech (vol. 1, p. 92, pl. 34 d) is extremely rare in West China, flying in June at elevations of 5000 ft. Under surface white-grey with brown spar-shaped band and traces of small eye-spots.

abnormis. **Y. abnormis** *Shelford*, described from a ♀, belongs in this group unless it is an aberrant form. Upper surface without ocellus. Under surface pale brown with dark, somewhat reddish stripes, which divide off three areas. Hindwing with five irregular and somewhat indistinct bands, likewise without eye-spots. Abdominal margin of the hindwing deeply excised and the distal margin slightly undulate. 57 mm. expanse. From Sarawak, but very rare. Type in the Sarawak Museum.

2. Genus: **Xois** *Hew.*

This small Australian genus is closely allied to *Ypthima* and only differs from it in the distinctly bifurcate precostal vein of the hindwing and the shorter terminal joint of the palpi. Only two certain species known, which inhabit the Fiji Islands. They are small delicate butterflies of whitish colouring, with a large eye-spot, bi-pupilled with white, in the darker apex. On the under surface the wings are finely striated, the hindwing always without ocelli.

sesara. **X. sesara** *Hew.* (= diophthalma *Prittw.*) (99 g) is a not very rare species, with the under surface in the ♂ dark, in the ♀ somewhat lighter ochre-yellow. Concerning the habits nothing is known. Viti Levu.

argentina. **X. argentina** *Prittw.* is said to come from Samoa.

fulvida. **X. fulvida** *Btlr.*, with which *X. vitiensis Fruhst.* (93 f) is probably identical, differs according to my types in having the forewing broadly margined with black above and a moderately broad black distal margin to the hindwing. The margining of the forewing shows through beneath, but the hindwing bears only a narrow, fine, brownish distal border. On the forewing only the basal and apical parts are suffused with yellowish, the median area remaining pure white. The hatching on the hindwing is more slender than in *sesara*. Apparently very rare. Both sexes in coll. Fruhstorfer. Viti Levu.

3. Genus: **Acrophthalmia** *Fldr.*

In size approximating to the preceding genus and also embracing but few species, but the butterflies differ structurally in the point of origin of the lower radial, which arises directly from the subcostal, in consequence of which the latter and the upper radial are placed on a common stalk. The upper radial strongly bent at its base. Lower radial partially united with the upper median. At this place the ♂♂ possess a membranous pouch, which is continued to the distal margin as a fold in the membrane. This fold is wanting in the ♀♀, and hence their lower discocellular is more simply developed and only shortly angled. Forewing with two subcostal veins before the end of the cell, a small oblique middle discocellular and a large angled lower one, which as in *Euploea* and some other *Satyrid*-genera emits a blind vein proximally. *Acrophthalmia* differs from *Ypthima* and *Xois* in not having the median and submedian swollen, only the costal being inflated. But few species, small, delicate butterflies of predominantly white colouring, which all bear an ocellus on the underside. Their area of distribution is the Philippines, from whence they have probably reached Celebes and the Moluccas. One continental species hitherto united with it is shown under the next genus (*Pharia*) not to belong here.

A. artemis is the only certain species of the genus and is distributed in about 5 branch-races over the Philippines and the neighbouring islands. — **leuce** *Fldr.* (90 e), found by me in northern Celebes near Toli- *leuce.*
Toli, November—December, in the lower scrub at the edges of the woods, where they fly like *Ypthima* and rest on twigs and leaves. Upper surface rather dark grey-brown, leaving a broad whitish median area on each wing. — **lacrima** *Fruhst.* (= chionides *Nicév.*), somewhat smaller than *leuce*, is above so broadly grey-brown *lacrima.*
that only a very narrow white median area remains. On the underside of the hindwing the brown median zigzag line is absent, which is distinctly shown on the figure of *leuce*. Sula Mangoli, discovered by W. Doherty October-November. — **chione** *Fldr.* (93 f), from the North Moluccas, is essentially larger than *leuce*, but simi- *chione.*
larly coloured. The distal border of both wings, however, is deeper brown, the median area more extended and purer white, ocelli of the under surface and their accessory eye-spot somewhat more distinct than in *leuce*. In my collection from Halmaheira and Batjan, according to Hewitson also on Morty or Morotai, Oberthür says on Andai, New Guinea. The latter locality still requires confirmation. According to Pagenstecher it has been found by Kükenthal on the Uliassers *). — **artemis** *Fldr.* has the largest white median area of all the Phi- *artemis.*
lippine races; according to Semper the underside has the ocelli somewhat differently pupilled and the zigzag line removed further from the eye-spots. Apparently not very common on Luzon. Flies April to July. — **misarte** *Semp.* *misarte.*
inhabits Mindoro and is a darkened island race of the preceding, with the white discal area of both wings reduced, light grey bordering and the median line on the underside of the hindwing removed somewhat nearer still to the base. Flies in December, rare. — **ochine** *Semp.*, from Samar, Leyte and Panaon, agrees *ochine.*
above with *chione Fldr.* from the Moluccas and also bears occasionally a green gloss, which is said to occur in *chione*. The submarginal line on the under surface somewhat more undulate than in *chione*. — **machares** *subsp. nov.* differs from *artemis* in having a considerably broader dark brown border on the upper *machares.*
surface and beneath in the more uniform and more extended white area, which is anteriorly rounded, particularly towards the costal region of the forewing. Bazilan; February, March; collected by W. Doherty. — **leto** *leto.*
Semp., from Bohol, is almost entitled to specific rank, but apparently only differs above in having the forewing filled up with yellow. On the hindwing the yellow tinge only extends on to the transcellular region. Likewise rare. Flies in December and January.

4. Genus: **Pharia** *gen. nov.*

The single species of this hitherto unrecognized genus inhabits western China and was discovered by me in Tonkin. *Pharia*, indeed, in common with *Acrophtalmia* has only the costal inflated, the median and submedian showing no swelling at all; yet it is so sharply separated from it in neuration as is the case in few allied genera. In the first place the scent-fold on the hindwing is wanting in the ♂♂, and the the middle and lower discocellular of the short, broad cell of the hindwing are of normal, simplest structure, the middle discocellular somewhat shorter than the lower. On the forewing the lower discocellular is not incurved, but runs obliquely distad as in *Xois*.

Ph. thalia *Leech* (vol. 1, p. 80, pl. 29 a). A single example of this butterfly, hitherto only known from Omi *thalia.*
Shan, flying in July, was detected by me from the environs of Langson, North Tonkin, June to July.

5. Genus: **Hypocysta** *Westw.*

A well defined genus, which divides into two principal groups, easy to distinguish especially by the colouring, namely the Australian, grouped round *irius*, which Fabricius already knew, of the typical Australian

*) This locality is most probably a mistake for Batjan or Ternate.

brown sand-colour (which is also repeated in other genera, e. g. *Heteronympha*), and those which inhabit New Guinea, with predominantly black and white or dark brown colouring.

Superficially the *Hypocysta*-species resemble *Acrophthalmia*, from which, however, they differ in the simple neuration of the hindwing, moreover the three principal veins of the forewing are inflated. The fore-legs of the ♂♂ small and delicate, but not so much aborted as in *Ypthima*. A series of species are already known and on every large expedition new ones are still discovered. All are small delicate butterflies with a large eye-spot on the hindwing, more rarely also with one on the forewing. The genus is exclusively Australian and Papuan and already disappears on the eastern satellite-islands of New Guinea.

irius. **H. irius** *F.* resembles in habitus the figured *antirius* (93 d) and recalls the Palearctic *Coenonympha pamphilus L.*: it is common in Queensland, where it occurs everywhere from Brisbane to Cape York. Upper surface yellowish, hindwing with two small eye-spots, which are smaller on the grey under surface and are proximally bordered by a white longitudinal band.

antirius. **H. antirius** *Btlr.* (93 b) is little larger than *irius*, without the black distal border which *irius* bears on both wings above, and beneath without the proximal white longitudinal band in the median area of the hindwing. North-West Australia, Port Darwin.

adiante. **H. adiante** *Hbn.*, unknown to me in nature, likewise inhabits North-West Australia, but extends in *undulata.* addition from Sydney to the extreme north of Queensland. **undulata** *Btlr.* is a seasonal form without essential differences.

metirius. **H. metirius** *Btlr.*, an interesting species with extended ochre-coloured area on the hindwing above, forewing grey-brown. The two eye-spots on the underside of the hindwing are separated by a narrow yellowish band. Common, distributed from Sydney to Cairns.

pseudirius. **H. pseudirius** *Btlr.* differs from the preceding species in having an ochre-coloured patch on the forewing, *epirius.* which is also slightly indicated beneath. Scattered over as wide an area as the preceding. **epirius** *Btlr.* is again a seasonal form of the collective species, which is parhaps split up into several races that have not yet been studied.

euphemia. **H. euphemia** *Westw.* (93 d), mostly somewhat lighter than on the figure, may be easily recognized by a large ocellus on the forewing, which is placed between the medians, and a small subapical eye-spot before the apex of the forewing. Both are reproduced beneath. Under surface of the hindwing yellow-grey, with fine median longitudinal stripe and a grey connecting shade between the ocelli, which are of almost equal size. Common near Sydney.

H. isis *spec. nov.* inhabits the main island of New Guinea and also extends on to some of its satellite-islands, flies apparently all the year round, but occurs most commonly from November to April and inhabits the woods in the lowlands, apparently without ascending to such considerable elevations as the preceding spe-
isis. cies. — **isis** *Fruhst.* (93 d) is to be met with in the western parts of German New Guinea. The ♀♀, however, are rare and may be distinguished from the ♂♂ by the more rounded wings and the white median area of the
pelagia. forewing, which is essentially broader than in *osyris*. — **pelagia** *subsp. nov.* flies in Humboldt Bay, Dutch New Guinea, where it was discovered by Doherty September-October 1882. The form is easy to recognize by having the forewing somewhat more darkened than in *isis* and the white band on the hindwing scarcely half
isias. as broad. — **isias** *subsp. nov.* is a very interesting race from south-western Dutch New Guinea with entirely black-grey forewing and very broad white area on the hindwing, reaching to the ocelli. Type in the Tring Museum;
senona. Kapaur, discovered by Doherty. — **senona** *subsp. nov.* is a form which closely approaches *isis*, but in which the ♂♂ also bear a distinct white band-like median area on the forewing, similar to that of the ♀♀ only not so extended. Beneath this white area is quite as pronounced, but not more extended than in *isis* from Friedrich-Wilhelmshafen. According to Hagen common in the woods near Stephansort and Simbang from November
busiris. to April. — **busiris** *subsp. nov.* already recalls *leucomelas* (93 d), but the forewing is more slender, the anal angle more distinctly rounded and the ground-colour brown instead of black. It differs from *isis*, *senona* and *pelagia* in the entire absence of any light median shade, whilst on the other hand the ♀ shows a much more conspicuous, broader white median area on both wings than the ♀♀ of all the above races. Moreover the ocellus on the hindwing is considerably enlarged and its bordering is more prominent and lighter yellow than in the *isis* races from New Guinea. Misol, discovered by H. Kühn, collected in January.

H. osyris is distinguished by the brown-grey bordering of both wings, recalling in colour *haemonia Hew.* and *fenestrella Fruhst.* (93 d), a colouring which is not brought out successfully on the plate. The basal area of the hindwing always more or less tinged with yellowish, never so pure white as
osyris. in *isis Fruhst.* There are only a few branch-races known, of which **osyris** *Bdv.* (93 d) inhabits the Aru Islands. The ♂♂ show no white median area on the forewing above, but in its place a scarcely appreciably lighter patch. The black eye-spots of the hindwing are more narrowly ringed with yellow than in the ♀. Under surface of the hindwing with a metallic, silvery submarginal band and a similar border to the

small apical eye-spot and to the anal one, which is twice as large. — **nephthys** *subsp. nov.* was discovered by Meek in the year 1899 at Milne Bay and in November to March 1904—5 on the Aroa River. Smaller than *osyris*, it naturally shows also smaller ocelli on the hindwing, with scarcely appreciable dark brown bordering. The white basal area of the hindwing is almost quadrate, does not extend beyond the cell, and is shaded with yellowish grey. On the underside of the forewing the white median area is much restricted and the distal more extended. — **frenus** *subsp. nov.* approaches *osyris* in its larger size and is distinguished from *nephthys* by the somewhat more extended white basal area of the hindwing above, and beneath by broader grey-black and metallic bands. British New Guinea at altitudes of over 2000 m. November to February. *nephthys.* *frenus.*

H. hathor *spec. nov.* approximates in both sexes to *serapis* from Dorey, but is easy to distinguish from this and especially also from *isis isis* by the very broad but short white area, which already at the cell-wall of the hindwing gives place to the ground-colour. Anal ocelli of the hindwing narrower than in *isis*. British New Guinea, January and February, collected by Meek. *hathor.*

H. aroa *Beth.-Bak.* is a particularly large and striking species, recognizable by the very broad, pure white area of the forewing and the distally pointed, dazzling white area of the hindwing, which extends far beyond the cell. Both sexes differ from all the other known *Hypocysta* in the entire absence of the yellowish bordering to the ocelli of the hindwing, which hence appear very narrow above. British New Guinea, from the upper Aroa River. Flies in March—April. — **serapis** *subsp. nov.* is the race from Dutch New Guinea, whose ♂ approaches that of *isis* in the yellowish instead of white patches on the forewing. ♀ with much narrower white area on both wings, on the under surface not entering the cell of the forewing, as in *aroa*. Dorey, Dutch New Guinea. *aroa.* *serapis.*

H. haemonia is only known as yet from the Aru Islands and Dutch New Guinea. Three local forms deserve mention: **fenestrella** *subsp. nov.* (93 d), from Sekar, Dutch South-West New Guinea, which differs in the lighter forewing and the narrower black, tri-pupilled ocelli of the hindwing from **haemonia** *Hew.*, from the Aru Islands, whose ♀ is only distinguished from the ♂ by the more rounded wings, and the somewhat more extended tripartite black ocelli of the hindwing and their broader yellow-brown bordering. Flies (according to Kühn) in September. — **pelusiota** *subsp. nov.* is a distinct form from Humboldt Bay, Dutch New Guinea, almost a third larger than *haemonia* ♂, with the hindwing also lighter, showing a grey-yellow basal area. ♀ with grey-white, very broad median area on both wings. Under surface with the silver bands almost twice as broad as in *haemonia*, the proximal one distinctly bordered with brown proximally also. Flies in September—October, discovered by W. Doherty. Types in the Tring Museum. *fenestrella.* *haemonia.* *pelusiota.*

H. leucomelas *R. & J.* (93 d) was placed by its authors in the genus *Platypthima*, but it seems to agree better with the other *Hypocysta* than with *ornata R. & J.*, the type of *Platypthima*, which we figure pl. 99 c. The under surface differs from all the known Papuan *Hypocysta* in the absence of any apical ocellus on the hindwing and the rounded instead of oblong anal ocellus. British New Guinea, Aroa River, rare. *leucomelas.*

6. Genus: **Argyronympha** *Math.*

The only species probably of this charming group deserves its name of „Silver Nymph" by reason of the brilliant adornment, which in the numerous island races decorates the under surface of both wings in the form of metallically glossy, beautifully undulated bands and fine streaks. The ground-colour of the upper surface varies from light yellow to black-brown in the different localities. It shares with *Hypocysta*, of which genus it is really the eastern continuation, the inflation of the three principal veins of the forewing and the absence of secondary scent-pencils on the hindwing. Cell of the forewing somewhat shorter, the recurrent spur in the cell likewise less developed. Cell of the hindwing more than a third shorter. Lower discocellular on both wings scarcely half as broad as in *Hypocysta*. Thus there are sufficient differences to establish the genus, hitherto founded on no scientific diagnosis. The species are not rare, apparently easy to catch and the coloration seems to become progressively lighter towards the east of their restricted range. Ribbe writes concerning the habits: „The representatives of this genus, which I have taken only on the Solomon Islands, are small, delicate insects, which love the dense forest and are mostly found where the ground is moistened by a fresh water spring. The butterflies rest with folded wings, so that the glitter of the metallic under surface is visible from quite a distance, sitting on the leaves of the lower shrubs at about the height of a man. Their flight is slow and heavy, a mere flutter from shrub to shrub. The scales are only loosely attached to the wings, so that but few good specimens are captured. I never found the insects common, although they are to be met with singly throughout the woods. *A. pulchra* is a very variable butterfly, for on the Shortlands Islands I took specimens which, in the colouring of the under surface, closely approach *rubianensis* and on the other hand *uleva*. *pulchra* and *rubianensis* are well defined forms, but *uleva* is only a casual dark aberration. *pulchra* is known from the Shortlands Islands (Alu, Fowi, Munia, Tauro, Tanua), North Choiseul, Bougainville and Treasury, *rubianensis* from New Georgia".

pulchra. **A. pulchra** *Math.* (93 f), described from Treasury Island, bears above a very broad black distal border on the forewing, which is only at the veins slightly relieved with yellow-brown and even there densely powdered *uleva.* with blackish. Hindwing uniform black. — **uleva** *Sm.*, judging from the figure, is a relatively large form with strongly darkened upper surface, the base of which is dark red-brown and distally less sharply bounded by the black distal border. Under surface reddish grey, the red-brown transcellular band narrower than in *pulchra.* *adustata.* From the island of Ulava, discovered by Woodford. — **adustata** *subsp. nov.* is probably the most melanotic extreme of *pulchra* known, found by Meek on Choiseul, one of the German Solomon Islands. The black marginal band covers almost the whole upper surface of the wings, only leaving a narrow dark smoke-brown basal area. *argentaria.* Hindwing also in the ♀ almost entirely black, under surface whitish grey. Type in the Tring Museum. — **argentaria** *subsp. nov.* from Isabel, in the German Solomons, bears already an extended light ochre-yellow basal area on both wings, but is beneath dusted with darker grey than *adustata*, and the submarginal band of the fore- *denya.* wing and the yellow patches of the hindwing are lighter. Type in the Tring Museum. — **denya** *subsp. nov.* was discovered by Ribbe on the Shortlands Islands; it differs from *argentaria* in the lighter brown basal area of the *vella.* forewing, darker grey dusting and paler yellow bands on the under surface. — **vella** *subsp. nov.* is the lightest extreme of the species, the dark leather-brown basal area considerably widened, filling up the whole cell, under surface essentially different, basal region on the forewing dark ochre-yellow instead of grey, hindwing lighter. The metallic decoration of the hindwing blue instead of silvery, both the black and the yellow spotting considerably reduced. Flies in February, Vella-Lavella, taken by Meek. Type in the Tring Museum. — The further *rubianensis.* the locality lies towards the east, the lighter become the forms, thus **rubianensis** *Sm.* considerably surpasses *vella* in the extent and lightness of the yellowish basal area of the forewing, whilst the underside of the hind- *rendova.* wing is coloured similarly to *pulchra*, that of the forewing like *vella.* Rubiana. — **rendova** *subsp. nov.* inhabits Rendova and shows a broader black distal margin on the hindwing above, darker and more yellowish grey *guizona.* proximal half of the hindwing beneath. Flies in February. — **guizona** *subsp. nov.* is above more reddish and still more broadly suffused with yellow than *rendova* and *rubianensis*, the median part of the forewing beneath darker red-brown, the hindwing basally whitish grey. Island of Guizo, November. Type in the Tring Museum.

ugiensis. **A. ugiensis** *Math.*, of which the specific rank still appears doubtful, differs from *pulchra* in the absence of the black margining of the hindwing above and of the yellow and the proximal silver band on the forewing *yanuta.* beneath. Island of Ugi, discovered by its author. — **yanuta** *subsp. nov.* is the form from the eastern British Solomon Island San Christoval, collected there in April by Meek. Under surface of the forewing reddish ochre-yellow. Hindwing grey-yellow with reddish yellow discal band. The anal silvery spot of the hindwing distally only light yellow, but not bordered with black as in all the *pulchra*-races, all the brown stripes and patches of *pulchra* light yellow.

7. Genus: **Erycinidia** *R. & J.*

Neuration according to the authors of the genus similar to that of *Hypocysta.* The upper median somewhat nearer to the lower radial than to the second median. Hindwing produced into a long lobe, somewhat as in *Dodona* and the South American *Corades.* Also approaching *Lamprolenis* in the shape of the hindwing. Eyes naked. Only ♂♂ of one species known as yet, but further allies may be looked for from German and Dutch New Guinea.

gracilis. **E. gracilis** *R. & J.* (99 c), a noteworthy species, recalling in the shape of the wings Indian Erycinids and even the South American *Corades*, whilst the markings of the under surface are somewhat suggestive of *Lethe* (*Zophoëssa*). Under surface dark brown with violet-grey patches. On the cell of the forewing a short, broad yellowish white band, further a yellowish submarginal stripe, which traverses the entire wing. Apex with three small round ocelli. Hindwing with a dentate blackish subbasal line, a somewhat straighter median band and six yellowish-black-pupilled ocelli. British New Guinea, known from altitudes of 2000 m. November to February.

8. Genus: **Pieridopsis** *R. & J.*

We are indebted also to the „leading entomologists of Europe" for our knowledge of this noteworthy genus, which through their kindness is here figured for the first time. Wings obtuse, the structure in general analogous to that of *Hypocysta*, but the cell of both wings essentially shorter. Upper discocellular of the forewing angled, lower radial arising below this angle. Hindwing triangular, the second median ending in a broad lobe, costal margin long. Eyes naked. Easy to distinguish from *Erycinidia* by the abbreviated cell of the hindwing, otherwise very near to it.

virgo. **P. virgo** *R. & J.* (99 b). Under surface dark olive-brown. Forewing white to the middle of the cell, with a broad white median band and four small, white-pupilled eye-spots, which are bordered on both sides by a grey line. ♀ beneath darker than the ♂, the white basal part reduced to a narrow stripe along the submedian. Hindwing of the ♂ with two bands, which form a Y, and a row of 5 ocelli, of which only the white

pupils stand out distinctly. ♀: hindwing beneath predominantly black with a yellow discal spot. Length of the forewing 25 mm. Only one pair yet known, discovered by Meek in the Aroa district.

9. Genus: **Platypthima** *R. & J.*

Likewise near to *Hypocysta* and hence also to *Argyronympha*, mainly with the same structure. Eyes hairy. Wings short and broad. The genus, the type of which is the figured *ornata*, embraces also a few species which for want of material cannot yet be definately proved to belong here. Only three certain species known as yet, all from British New Guinea.

P. ornata *R. & J.* (99 c). Under surface of the forewing unicolorous brown, but hindwing with varie- *ornata.*
gated markings, the arrangement of which somewhat recalls certain *Pedaliodes* from South America. Beyond the cell a spar-shaped yellowish stripe, distally bordered by a similar but red-brown one. Two larger round black, white-dotted ocelli with reddish bordering in the submarginal area. Hindwing in addition with a violet, metallic median band and a similar subterminal stripe. From 2000 m. Flies November to February.

P. simplex *R. & J.* Body and upper surface of the wings as in *ornata*, the white area of the forewing, *simplex.*
however, distally more rounded, the black admarginal line of the hindwing standing out somewhat more distinctly from the first median onwards. Under surface: forewing slightly tinged with purple, but with no trace of eye-spots, in place of which there is a fine undulate line, bordered by a small olive-coloured stripe. Hindwing densely scaled from the base to the apex of the cell, then a band-like olive-coloured median area, which is accompanied distally by a black and a metallic line. In addition about 5 ocelli and a metallic admarginal band. Length of the forewing about 18—20 mm. Only 2 ♂♂ known, from the Aroa region.

P. decolor *R. & J.* Body above dark brown, a broad lateral line on the palpi and behind the eyes *decolor.*
cream-coloured. Wings above brown, forewing in the basal half of the cell densely haired. Under surface: forewing with dark apex, a narrow, angled, cream-coloured band and three small ocelli. Hindwing dark olive-coloured, sprinkled with cream-white and chocolate-coloured scales, a yellowish white band, touching another narrower one, and four white ocelli. Length of the forewing 20 mm; only ♂♂ of this charming species as yet discovered. Locality likewise the upper region of the Aroa River, British New Guinea.

10. Genus: **Harsiësis** *gen. nov.*

The single certain species of this hitherto overlooked genus has been united with *Hypocysta*, from which, however, it is easy to separate by the broader cells on both wings and the longer upper discocellular of the forewing. Moreover in *Harsiësis* two subcostal veins arise far before the end of the cell, in *Hypocysta* only one, whilst the second arises directly at the end of the cell. The very long lower discocellular of the forewing more deeply incurved, not almost rectilinear. The ♂ bears in addition 3 tufts of hair at the anterior margin of the cell and on the submedian of the hindwing, which are absent in *Hypocysta*. Precostal straight, distally not excurved as in *Hypocysta*. Hitherto only known from the Papuan region and apparently like *Hypocysta* not even extending on to the eastern satellite islands of New Guinea.

H. hygea, of which there are three branch-races to record: **noctula** *subsp. nov.* (93 d), which is above *noctula.*
more uniform dark blue-grey than *hygea* from the Aru Islands. The subanal eye-spot on the underside of the hindwing is much smaller than in *hygea*. German New Guinea, very rare. Flies in January, mostly on the spurs of the mountains. — **hygea** *Hew.* Above differing from *noctula* in the paler grey, distinctly defined apical area *hygea.*
of the forewing. The silver-coloured median band on the underside of the hindwing scarcely half as broad as in *noctula*. Hitherto only recorded from the Aru Islands, apparently not extending to the Key Islands. Oberthür records an allied form from Andai near Dorey in Dutch New Guinea. — **jobina** *subsp. nov.* is the most *jobina.*
pronounced geographical subspecies. Upper surface transparent, light slate-grey, with brilliant blue metallic gloss in the cell. Under surface of the forewing with a broad whitish median area, the metallic band much restricted and narrowed by the large ocelli. Jobi.

H. hecaerge *Hew.*, described from New Guinea and certainly very rare, as since the time of Wallace *hecaerge.*
and Hewitson (thus the fifth and sixth decades of the last century) it has not again been brought to Europe and Hewitson's type is perhaps the only example known. ♀ differing from *hygea Hew.* in the more rounded wings and the presence of a large apical ocellus on the underside of the hindwing, so that the red-brown band encloses a double eye-spot. Forewing lighter grey than in *hygea*-♀, with a very broad pale yellow band, which is reproduced beneath. It is not impossible that *hecaerge* is only a pale aberration of *hygea*. Dutch New Guinea.

11. Genus: **Zipoetis** *Hew.*

An apparently nearly extinct genus, which has not yet been discovered outside the confines of the Indian Empire, but may probably still be expected from Tonkin.

Structurally *Zipoetis* (*Zipaetis auct.*) comes nearest *Coenonympha*, but only the costal vein is swollen, whilst there are other slight differences, e. g. the middle discocellular of the forewing is shorter than the straight lower discocellular. On the hindwing the precostal is worthy of note, its point being directed basad, not distad as in other genera. Only two species, both of which are rare.

scyllax. **Z. scyllax** *Hew.* (94 c), above black with somewhat lighter distal border, which is traversed by 2 anteterminal lines. On the underside of the hindwing the anterior ocellus is bi-pupilled. A rare butterfly, distributed from Sikkim to Tenasserim and inhabiting the hot valleys, apparently nowhere ascending above 1000 m. It flies from April to November and its habits are the same as in *Ypthima*.

saitis. **Z. saitis** *Hew.* never finds its way into continental collections, is unknown to me in nature and occurs in the mountains of South India from 300—1000 m. It is said to fly from April to September. Upper surface black with white obliquely placed subapical resp. submarginal bands, which are somewhat broader in the ♀, under surface with the eye-spots arranged nearly as in *scyllax*, but placed more in the middle of the cell, the anterior one being the largest. Larva on Ochlandra stridula (Thwaites).

Erebia Group.

This group, which is dominant in the Palearctic Region, sends off a few representatives only into southern China and the southern slopes of the Himalayas.

12. Genus: **Callerebia** *Btlr.*

Distinguished from *Erebia* by having the cell of the forewing broader, the middle discocellular only feebly angled and the lower discocellular almost straight and transversely placed. The precostal arises exactly at the point of origin of the subcostal and the structure of the hindwing further differs from *Erebia* in having the middle and lower discocellular of the same length, while the former in *Erebia* is much shorter. The habits and distribution have been already discussed vol. 1, p. 93.

narasingha. **C. narasingha** *Moore* is one of the rarest Indian butterflies, and although described as long ago as 1857 it has only once been found again, at Bernardmyo, Upper Burma, near the border of Yunnan, at an elevation of 5400 ft. above sea-level. Above the species may be compared with *Erebia cyclopius Ev.* (vol. 1, pl. 35 c), but it is smaller and beneath similar to *Ypthima megalomma Btlr.* (vol. 1, pl. 34 c) and even more to *Y. megalia Nicév.*, and thus it came about that it was originally taken by Moore for an *Ypthima* and placed in that genus. Forewing with a black, bi-pupilled, yellow-ringed apical ocellus, hindwing unicolorous grey, finely striated with black and otherwise without a trace of any marking or of ocelli.

mani. **C. mani** *Nicév.* (vol. 1, p. 110) above resembles *fasciata Hew.*, which is figured in the Palearctic part (vol. 1, pl. 35 e), and the red area of the forewing does not extend on to the hindwing. The species ascends in Ladak (Kashmir) to 13 000 ft.

kalinda. **C. kalinda** *Moore* above somewhat resembles *maracandica Ersch.* (vol. 1, pl. 35 e), but the reddish parts of the upper surface are yellowish and less broadly diffused. Underside of the forewing with the exception of the costal and submarginal areas red-brown, ocellus larger, bordered with lighter yellow than in *maracandica*, hindwing grey-brown, with very numerous delicate submarginal dots, placed at approximately equal distances. From 9—13 000 ft. in the western Himalayas, local, but not rare in places. Nicéville found it at the Nilang pass at an elevation of 16 000 ft.

shallada. **C. shallada** *Lang* (vol. 1, pl. 35 b) is somewhat larger than *kalinda Moore*, the reddish brown spots on the upperside of both wings smaller and deeper coloured and sharply separated from the eye-spot of the forewing. The iris of the ocellus less distinct. From the valley of the Upper Ganges, from about 2000—2500 m. on grassy slopes. Common in May at Dalhousie, and flying there even in the dense forests together with *kalinda*.

hyagriva. **C. hyagriva** *Moore* (vol. 1, p. 110), locally very common, at Mussourie, but only in August—September, on grassy mountain-slopes, also in Kashmir and the Kumaon Himalayas, but there local and rare.

nirmala. **C. nirmala** *Moore* (93 f) has been already discussed in the Palearctic part. Very common in the western Himalayas, where it is met with both in wet and rocky districts, and from 1000—2500 m. It is on the wing on *intermedia.* cloudy and even rainy days. — As **intermedia** *Moore* (vol. 1, pl. 35 b) has been described a form with distinct *cashapa.* median ocelli on the hindwing beneath and as **cashapa** *Moore* the Kashmir form has been separated, in which

4 ocelli are placed close together and give the impression of a rainy-season form. Larva on grasses, brown, with fine transverse stripes. Pupa similarly coloured, with a large dorsal protuberance and deep ventral incision before the abdominal segments.

C. daksha *Moore* (93 f) approaches *nirmala*, but is smaller, as has been already mentioned in the Palearctic volume, p. 94. Upper surface dark vinous red. Rare and local in Kashmir, flying at 7—9000 ft. from June to August. *daksha.*

C. scanda *Koll.* (vol. 1, p. 94, pl. 35 a). Under surface of the hindwing predominantly grey. Common everywhere in the western Himalayas from July to September, also known from Kashmir. Area of flight from 5—11 000 ft., flies most freely during the heaviest rains, resting on wet places in the damp woods or hiding in fern thickets. *scanda.*

C. annada is the largest, most variable and most widely distributed species of the genus. Larva and pupa do not differ essentially from those of *C. nirmala Moore.* — **annada** *Moore* (vol. 1, p. 93, pl. 35 a) may be regarded as the rainy-season form of the western Himalayas; **hybrida** *Btlr.* (vol. 1, pl. 35 a) is probably a smaller dry-season form of it. Both inhabit elevations of 4—7000 ft., where they are common everywhere from June to September on dry mountain slopes. — **orixa** *Moore* (vol. 1, pl. 34 f) is the well differentiated geographical form of the eastern Himalayas, where it occurs from the Khasia Hills to Manipur. In the large black apical ocellus of the forewing with red or yellow-brown bordering *orixa* already tends in the direction of **polyphemus** *Oberth.* (vol. 1, pl. 34 f), which is one of the commonest butterflies of western China. *annada. hybrida. orixa. polyphemus*

13. Genus: **Coenonympha** *Hbn.* (= Lyela *Swinh.*)

This genus, hitherto alien to the Indian fauna, seems to be slowly spreading eastwards, for it is already reported by Swinhoe from Beluchistan. Only one species is known from there, on which Swinhoe erected a separate genus which he compares with *Erebia*, although he states that the structure is identical with *Coenonympha*. On the genus cf. further vol. 1, p. 143—147, pl. 48, and vol. V, pl. 50.

C. myops, distributed from the Achalzik region and Alai, splits up into three local races: **myops** *Stgr.* (vol. 1, p. 143). Forewing with large apical eye-spot, hindwing with dark median band. From Ala-Tau and Alai. — **tekkensis** *Stgr.* (vol. 1, pl. 48 b) has the apical eye-spot still larger and the median band of the hindwing darkened. — **macmahoni** *Swinh.* approximates to both races. Upper surface brown, nearly black, in some ♂♂ and beneath even darker than above. Forewing with a large round, blackish spot with broad dark orange-coloured border. Sometimes this ocellus bears a white pupil. The ♀ has somewhat longer wings, which consequently appear narrower, and is slightly paler than the ♂. From Quetta in Beluchistan. *myops. tekkensis. macmahoni.*

14. Genus: **Argyrophenga** *Dbl.*

Nearly allied to *Erebia*, but differs in the short antennae, the long palpi and the long body, and structurally in all the subcostal veins arising distally to the apex of the cell. Only one species known, which altogether resembles the subalpine *Erebia* in its habits and flight and inhabits New Zealand, where it was discovered by P. Earl on a plain in the south.

A. antipodum *Dbl.* (93 g) above resembles an *Erebia stygne O.*, except that it has more extended and lighter red areas round the ocelli, which contain larger white pupils, those of the forewing showing two, those of the hindwing only one each. Both wings are bordered by a brown, sharply defined marginal band. New Zealand. *antipodum.*

Satyrus Group.

The numerous species of this group form a considerable proportion of the Palearctic forms, especially in the Mediterranean regions. But in the Asiatic tropics they are less numerous and there are only a few genera to record here, most of which line the boundary of the Palearctic zone.

15. Genus: **Erites** *Westw.* *)

Through the genitalia resp. clasping-organs this rather isolated genus is to a certain extent connected with the European *Perarge*. The valve is narrow, anteriorly obtusely sloping, the uncus long, with very fine, pointed, delicate lateral clasps. On the forewing only the costal is inflated, the cell long and narrow, occupying almost ⅔ of the length of the wing, closed by a short upper discocellular, a moderately angled middle and a straight and but little longer lower one. The hindwing is strongly dentate distally and has the precostal directed basad. Secondary sexual characters are wanting, the markings which in the ♂♂ are yellow beneath only, in the ♀♀ are yellow also above. Legs of the ♂♂ short, hairy, those of the ♀♀ longer, more slender, without hairs. Some transparency of both wings is common to all the species.

*) The genus *Ragadia* morphologically approximates more nearly to *Erites* in the shape of the clasping-organs than to the Mycalesids, with which, following other authors, we have included it.

The butterflies inhabit the Macromalayan region with one branch to Tenasserim and Tonkin, but do not extend eastwards beyond Bali. Early stages unknown. The *Erites* seem to prefer the plains to the mountains, on Java I did not meet with them above 600 m. and the Tonkin form occurs at about the same elevations.

The flight is weak and low, with frequent intervals of rest, when the insects settle with folded wings on lower leaves or after the manner of certain *Mycalesis* even on the ground, disappearing among the dry leaves.

E. medura is the largest and most richly coloured species and at the same time the most widely distributed on the continent, as a branch race has been described from Cachar, also found by me in Tonkin. *medura* further inhabits Burma and Java, and hence will surely yet be discovered in Perak or elsewhere on the Malay Peninsula, and affords fresh evidence of the former land-connection between Further India and Java, and even with the addition of Sumatra and Borneo, which must already have been separated when *medura* emigrated from Java to Cachar or more probably vice versa. — **medura** *Horsf.*, the first discovered species of the genus, is one of the commonest butterflies along the south coast of Java, where it begins to appear in abundance at the end of the rainy season, February—March, preferring the open woods, and can easily be taken on sunny days at the edges of the paths. In East Java *medura* is commoner than in the west of the island and Doherty told me that he had met with it on the southern slopes of the volcano of Semeru, East Java, in astonishing numbers. But *medura* does not ascend above 600 m. into the mountains. The species may be recognized at a glance by the presence of the row of ocelli on the hindwing above; this consists of five ocelli, arranged as follows: first a minute, scarcely perceptible costal eye-spot and then four contiguous ocelli of equal size, with thick black pupils and broad yellow bordering, which in this form and colouring occur only in *medura* and its subspecies. The equal size and the contiguity of the ocelli is the characteristic for *medura*. In addition the anal ocellus of the forewing in both sexes is large and prominent and shows through so strongly on the upperside that it really belongs also to this surface; it shows, however, at most in the ♀ and in East Javan specimens the trace of a white pupil; above it on the under surface there are always only three small ocelli, also distinctly visible above, and very constant, showing no variation even when a large series is examined; all the other species possess four small ocelli. The large ocellus of the forewing has on the under surface a bright silvery pupil, placed exactly in the centre. The discal, proximal band is straight, but is constricted at the point where it is intersected by the median vein; the median, distal band, which in ♂ and ♀ shows through distinctly yellow on the upperside also, has near the anal margin, exactly midway between lower median vein and submedian, a small bend distad, which is entirely absent in *angularis*. The marginal lines are very well developed. The ♀ differs from the ♂ in the lighter ground-colour, larger expanse, broader wings and larger ocelli. East Javan specimens — I possess some from Malang — are considerably lighter and the median, distal band of the hindwing beneath has in the middle, about over the third median vein, only a very indistinct black border and even shows a tendency to become confluent with the yellow foreground of the adjacent ocelli three and four. *medura* has been taken by Doherty (Nicéville, Journ. As. Soc. Beng. vol. 66, 1897, p. 679) also on Bali, the most easterly record for the genus; my collector, who worked the island for two months, failed to find it; it probably shows the peculiarities of the East Javan form intensified (Martin). — **falcipennis** *W.-Mas. & Nicév.* (93 e) is really only an enlarged *medura* with still larger ocellus on the forewing, above which, just as in *medura*, are placed three smaller eye-spots together. The ♀ bears still more completely circular and more broadly yellow-margined eye-spots on both wings and the yellow angular band on the upperside of the hindwing is as distinct as in *medura* ♀. *falcipennis* was described from Cachar from an example of the dry season (93 e 1), whilst **roduntata** *Nicév.* is the rainy-season form, of which we (93 e 2) figure a ♀, which is in my collection from Tenasserim. Of the form *falcipennis* I myself took examples identical with Moore's figure (Lepidoptera Indica II, pl. 121, fig. 3 and 3 a) in Central Tonkin at Chiem-Hoa, August—September. Both *medura* races have in common four contiguous eye-spots of equal size, strongly margined with yellow, on the upper surface of the hindwing, by which they are easy to separate from the offshoots of a species likewise occurring on the continent, but smaller, namely

medura.

falcipennis.

roduntata.

E. argentina, which shows on the upperside of the hindwing 5 widely separated eye-spots, decreasing in size from the anal angle to the costal area. In all the forms there are further 4 small eye-spots on the underside of the forewing, which are of nearly equal size, where in *angularis* and *medura* we only find 3 subapical ocelli. — **argentina** *Btlr.* (93 e as *ines*) is the race from northern Borneo, the type having come from the island of Labuan, the coaling-station of the sultanate of Brunei. It is strikingly light and much more resembles the Javan *fruhstorferi* (93 e) than **ines** *Fruhst.* (93 e as *argentina*), from the south and south-east of Borneo. *ines* again much more approximates to the Perak subspecies and the form from Sumatra than to its own sister-race from North Borneo. — **delia** *Mart.*, from Perak and Sumatra, also known from Banka, is beneath darker grey and bears somewhat narrower brown longitudinal bands than *ines*; it differs from specimens from Labuan

argentina.

ines.

delia.

and Borneo chiefly in that the median band on the hindwing beneath is well margined with black distally and is never placed so near to the fourth and smallest ocellus, but on the contrary there is always a remnant of ground-colour between band and ocellus; the anal ends of the two bands on the hindwing beneath do not converge so strongly at the margin of the wing as is the case in typical specimens. Described by Martin from 11 ♂♂ and 2 ♀♀ from Deli on the north-east coast of Sumatra, also in coll. Fruhstorfer in large numbers from the neighbourhood of Padang. — **fruhstorferi** *Mart.* (93 e) may be distinguished at once from *medura*, which flies in the same districts, by the ocelli of the hindwing being separated and decreasing in size and by showing distinctly 4 small ocelli above the large anal ocellus of the forewing. Yellower, lighter and smaller than typical *argentina* and *delia*, the underside of both wings is without the slight violet gloss („purplish" of English authors) which shows very distinctly in the forms already mentioned; the bands are yellow and not brown, but the median, distal, angled one possesses a character peculiar to the Javan subspecies, a yellow spur running proximally along the margin of the cell, which where the band leaves the cell accompanies the latter for a short distance, but does not reach the discal straight band. That Java with its rich fauna should produce more than one species of *Erites* was *a priori* to be expected. Described from a ♂ from South and a ♀ from West Java; in the Fruhstorfer collection at Geneva there are further examples; the insects must, however, be rather rare, for in numerous consignments of butterflies from Sukabumi, which I have carefully looked through, there were many *medura*, but not a single *fruhstorferi* (Martin). *fruhstorferi.*

E. angularis is chiefly characterized by having the proximal band of the hindwing angularly broken. Apex of the forewing somewhat falcate, in the anal angle of the forewing a large ocellus, and above it along the margin of the wing 4 smaller eye-spots, which, however, are wanting in the dry-season form, but may otherwise be occasionally absent. — Two branch races: **angularis** *Moore*, type from Upper Tenasserim at elevations of 3—5000 ft., also known from Pegu, is represented in my collection by a large series of examples from Perak. The dry-season form was found by me at the borders of Siam and Burma, near Kanburi, West Siam, in April. — **pseudofalcipennis** *form. nov.* In this the anal ocellus of the forewing shows through but weakly above, and the under surface resembles the figured *falcipennis* (93 e), except that the eye-spot of the forewing with its yellow bordering is pointed-oblong and the ocelli of the hindwing are a little longer. — **sumatrana** *Mart.* A local form of somewhat darker colouring, on the under surface of the forewing, in particular, it closely approaches typical *angularis* from the Malay Peninsula, but it is on the whole a decidedly darker insect; the median, distal band of the hindwing in the ♀ shows through but little yellow above and then only for a short distance along the apex of the cell, whilst in typical ♀♀ this band shows yellow on the upperside for its whole length; of the 5 ocelli of the hindwing above the second and fifth are distinctly the largest in both sexes, whilst in *angularis* from the mainland the fourth and fifth show the largest diameter; the 4 small ocelli placed over the large anal ocellus of the forewing are mostly complete, the upper, costal one is never absent, the fourth and lowest but rarely; in the ♂ the black marginal lines on the underside of the forewing show quite distinctly, whilst in continental specimens they are hardly discernible. In North-East Sumatra this species was by far the commonest of the three *Erites* occuring there. *angularis.* *pseudofalcipennis.* *sumatrana.*

E. elegans is a pretty species, and deserves its name; from all the other *Erites* it is distinguished at a glance by the absence of the large anal ocellus of the forewing, on the underside of which are placed 5 about equally large, or rather equally small ocelli. Moreover the bands of the forewing, which are very distinctly visible on the upper surface, present a characteristic feature in that they run completely parallel and are distinctly convex towards the base of the wing; in all other *Erites* the proximal band is fairly straight and only the distal one, turning aside from the large anal ocellus, shows a convexity directed towards the base. The discal, proximal band of the hindwing is straight, as in all the species with the exception of *angularis*, but the median, distal band is twice bent, the first time about over the middle of the second subcostal vein, the second time over the base of the upper median vein; only *angularis* shows exactly the same conformation of this band. In consequence of the bend above the second subcostal vein the end of the band converges strongly at the costal margin of the hindwing with the end of the discal, inner stripe and in set specimens is more inclined to meet the proximal band of the forewing than the distal one which really corresponds with it, a condition which is not found in *angularis*. The ♀ of *elegans* is larger than the ♂ and has broader wings, the bands of the forewing very distinct on the upper surface also; on the upperside of the hindwing the distal band is distinctly yellow and the ocelli have broader, brilliant yellow margins; the upper, costal ocellus of the row on the hindwing is no longer visible on the upper surface, while in the ♂ it has not entirely disappeared. A further peculiarity of the 3 middle ocelli of the hindwing in the ♀ consists in their having the black pupils not placed exactly in the centre, but removed eccentrically towards the margin of the wing, so that the eye-spots present a comical, squinting appearance (Martin). — Two geographical races may be separated: **elegans** *Btlr.* (93 e), just described, from North Borneo, which is represented in coll. Fruhstorfer by 2 examples from South-East Borneo and according to Shelford also occurs in Sarawak, where it has perhaps developed a local race, **thetis** *Shelf.* — But *elegans.* *thetis.*

distincta. **distincta** *Mart.*, from Sumatra, is certainly different from *elegans*, but may be recognized at once by the two bands on the hindwing beneath touching one another above the discoidal vein, whilst in Borneo specimens they are widely separated; the proximal angle corresponding to the two distal angles nearly touches the distal margin of the proximal band. *distincta* is moreover larger and perhaps a shade darker than typical *elegans*. From two ♂♂ and six ♀♀ from Deli, North-East Sumatra. It is certainly striking that in the comparatively small district of Deli three different species of *Erites* fly together and one might hence assume that just here there is a particularly favourable combination of all the conditions of climate and flora necessary to *Erites*; on the other hand it is not impossible that in other places also in the Indo-Malayan region *Erites* is equally well represented, but that the inconspicuous insects, having nothing to catch the eye of the dealer, have escaped observation and capture. It is still quite likely that a form of *elegans* may be added from the Malay Peninsula (Martin).

16. Genus: **Xenica** *Westw.* (= Argynnina, Geitoneura *Btlr.*).

With this genus begins a trio which only occur in Australia and Tasmania and show in common the peculiar yellow-brown colouring which somewhat recalls our *Pararge megera* (vol. 1, pl. 45 d), but must there be regarded as the result of adaptation to its surroundings. On the forewing two principal veins (the median and the submedian) are cystose, whilst the costal remains unaltered, by which *Xenica* is easily distinguished from the following genus *Heteronympha*, which has the three principal veins inflated. Upper discocellular very small, middle one proximally curved and as long as the lower. Precostal of the hindwing short, knobbed. The cell obliquely closed. There are about 9 species known.

achanta. **X. achanta** *Don.* (93 c) is the commonest species of the genus and distributed from South Australia and New-South Wales to southern Queensland. Under surface of the forewing as above, but the grey underside of the hindwing beautifully marbled with delicate brown patches of the most various shapes, among which are placed the two ocelli, of almost equal size but widely separated. Before the distal margin in addition two thin brown longitudinal bands. ♀ relatively rare, larger and lighter yellow than the ♂.

klugi. **X. klugi** *Guér.* (93 c), a smaller and much rarer species, bears above stronger black longitudinal and transverse bands and on the hindwing smaller eye-spots. Beneath in the dry-season form the apex of the forewing and the hindwing are grey with darker distal margin, inclining to brown, and an almost black, quadrate median spot. In the rainy-season form the median spot is lengthened into a band, traversing the entire wing, and the ocelli of the upper surface are distinctly reproduced. From southern Australia and Tasmania.

hobartia. **X. hobartia** *Westw.* (93 c) is always found together with *klugi* and the range of the two also coincides geographically. The under surface differs from that of the dry-season form of *klugi* in the more distinct black cell-spot of the forewing and the more distally placed transverse spot of the hindwing, which is of red-brown colour and finely marbled with grey.

tasmanica. **X. tasmanica** *Lyell* is a species which is only known to me through Waterhouse, Catalogue Rhop. Austr., 1903, and occurs only on Tasmania.

kershawi. **X. kershawi** *Misk.* (93 c) bears on the underside of the hindwing between finely divided longitudinal bands similar stripes covered with silvery scales. The ocelli are extremely delicate, the apical eye-spot of the
ella. forewing nearly suppressed. Very local, only known from Victoria and New South Wales. As **ella** *Olliff* has been described a dry-season form of this interesting species, which Waterhouse registers as a variety.

lathoniella. **X. lathoniella** *Westw.* (93 c) has more rounded wings than *kershawi*, above predominantly yellow-brown, as the black longitudinal bands are shorter than in *kershawi*. The markings of the hindwing more extended in width than in length. Silvery bands of the under surface fewer but more extended. The name *lathoniella* is
orichroa. very aptly chosen on account of the similarity of this *Xenica* to the European *Argynnis lathonia L.* — **orichroa**
paludosa. *Meyr.* is a mountain form of *lathoniella* and **paludosa** *Luc.* an insular race from Tasmania. Distribution of *lathoniella* only in Victoria and New South Wales.

correae. **X. correae** *Olliff* is the ♀ (and **fulva** *Oll.* the ♂) of a rare species, which was first discovered in 1889 and
fulva. is reported from Victoria and New South Wales. Unknown to me in nature. Has fine median band on the under surface and small anal ocelli.

lepera. **X. lepera** *Hew.*, exclusively from Tasmania, is likewise only known to me from the figure and about agrees in size with *kershawi* and *lathoniella*. Upper surface darker brown with yellowish basal half, which is slightly scaled with brown. Forewing with a small black transverse spot at the discocellular. Hindwing with an angled yellow median band. Under surface: forewing with broad

black apical patch, which is divided into two halves by a yellow stripe. Hindwing brown, in the middle with a yellowish band sharply directed basad, below which are placed two very small black eye-spots.

17. Genus: **Heteronympha** *Wallengr.* (= Hipparchioides *Btlr.*).

The few species of this sharply defined and handsome genus resemble *Xenica* in colouring, and hence again our *Pararge megera*, and are distinguished by their sexual dimorphism. In contrast to *Xenica* all the three principal veins of the forewing are thickened. *Heteronympha* differs from *Xenica* and the other allied genera of the *Satyrus* group chiefly in the regularity of the closing veins of the short cell of the hindwing. All the known species inhabit Australia and Tasmania.

H. merope *F.* (= oenomais *Hbn.*, archemor *Godt.*) (94 b) is an extremely common species, occurring in many thousands; its sexual heteromorphism is illustrated by the figures. But like *Xenica*, *merope* is also an extremely constant species, which may indicate its great geological antiquity and the consequent fixity of its development. Except that the transverse band of the ♀♀ is at times somewhat more or somewhat less strongly developed and the red-brown colour very slightly lighter or darker, long series show no deviation from the normal. Under surface of the ♂♂ uniform grey-brown with some fine red-brown undulate lines on the hindwing; underside of the hindwing in the ♀♀ sand-coloured, grey, with a darker shade across the middle. From South Australia to Southern Queensland. — **suffusa** *Skuse*, from Victoria and New South Wales, appears to belong to a dry-season form; it is only reported from Victoria. — **duboulayi** *Btlr.* is a West Australian local race, only known to me from Butler's description, who separates it on account of the somewhat differently shaped wings and the altered position of the bands and lines, the smaller ocelli of the forewing and the larger of the hindwing. Under surface of the hindwing with only one small eye-spot. — **salazar** *subsp. nov.* is a small and dark island race which Butler recorded from Tasmania as long ago as 1866. — Larva brownish, on tufts of grass, hiding by day at the roots; pupa in a loose cocoon on the earth. *merope.* *suffusa.* *duboulayi.* *salazar.*

H. philerope *Bdv.*, occurring from West Australia to Victoria and New South Wales, also known from Tasmania, is very nearly allied to *merope*, the ♂ only differing in the more longitudinal instead of horizontal black bands on the forewing, which are at the same time purer black and more sharply defined. The ♀ bears three subapical patches instead of one and a broad, black, continuous border to the hindwing, only in the median part deeply excised, with fine black undulate lines beyond the cell and a narrow distal border, which sends out a black tooth towards the middle of the second median. Under surface, as in *merope*, with blackish shading in the middle of the wings. *philerope.*

H. mirifica *Btlr.* (= digglesi *Misk.*), occurring from Sydney to Brisbane, but very rare in European collections, is a conspicuous species with black upper surface. Forewing traversed by a twice angled yellow-brown band and with a not very large, nearly quadrate subapical spot. Hindwing with a small, white-dotted subanal ocellus. Under surface as above, but with the apical part of the forewing finely marbled. Hindwing beneath as in *merope*, but with two very small subanal ocelli. *mirifica.*

H. banksi *Leech* (= gelanor *Godt.*, affinis *Luc.*) is only known to me from Godart, who again knew only the ♀. Waterhouse gives New South Wales, Victoria and Brisbane as localities. Upper surface brown-black with yellowish patches. The forewing bears six, namely two subapical and four obliquely placed in the disc. The hindwing bears five, a very large subanal ocellus, above which are placed four smaller ones nearer to the distal margin. Under surface of the forewing with a small apical ocellus on an ash-grey ground-colour. Hindwing glossy grey-violet with two small subanal ocelli. *banksi.*

H. paradelpha *Lower*, from the southern provinces of Australia, is described in an Australian periodical to which I have not access and is unknown to me in nature. *paradelpha.*

H. cordace *Hbn.*, described and figured about 1832 in the „Zuträge", is not known to me. Waterhouse records it from Victoria and New South Wales. On the upper surface it resembles *Xenica achanta*, but the black markings are thicker, almost as in *Xen. hobarta*. From the latter, however, it is easy to distinguish by the under surface of the hindwing (not bark-grey, but spotted with ochre-yellow, and with the ocelli as in *achanta*). *cordace.*

18. Genus: **Enodia** *Btlr.*

This genus should by rights be called „*Tisiphone Hbn.*", as there can be no doubt at all that the real type came from Australia. But since in vol. V, p. 184, the name has already been incorrectly employed for a South American genus (*Manataria Kirby*), it cannot be used again here and we confine ourselves to pointing out the correction, which must be taken into account in future revisions. — In size approaching *Heteronympha*, the few species of *Enodia* (all of which are rare) chiefly differ in the darker, almost predominantly

black ground-colouring and in the middle discocellular of the hindwing being even more sharply angled than in *Xenica*. — None of the species yet described is found outside the continent of Australia.

abeona. **E. abeona** *Don.* (= zelinde *Hbn.*) (94 b). An extremely variable species, no two specimens alike; in this respect the forms of *Enodia* differ considerably from those of *Heteronympha*. The under surface of the wings is even more handsome than the upper, the hindwing being traversed by a broad, pure white band, distally finely dentate, and the ocelli with their distinct, dark red iris stand out even more strongly. I have ♂♂ before *rawnsleyi.* me from Sydney in which the band is reduced to a fine white line, and **rawnsleyi** *Misk.* is a colour aberra- *joanna.* tion in which it is entirely absent. — **joanna** *Btlr.*, one of the most beautiful butterflies of Australia and of the whole East, cannot be specifically separated from *abeona*, in spite of all the differences in colouring, on account of the early stages. Both wings are traversed by yellow longitudinal bands on a black-green ground. Forewing with large blue ocelli, which on the hindwing become very small, but are broadly bordered with red. — Larva green with rounded head and 2 anal points; on grass. — Pupa emerald-green, the margins of the wing-cases yellow. — From the Clarence River.

helena. **E. helena** *Oll.* (94 b) according to Waterhouse only inhabits the mountains. This very rare species is easy to separate from the commoner *abeona* by the broad yellow band of the forewing, which is quite differently placed. From the Cairns district, Australia.

19. Genus: **Lamprolenis** *Godm. & Salv.*

Lamprolenis differs in habitus from *Mycalesis* in the elongate hindwing, recalling *Amathusia*, but has in common with *Mycalesis* the three inflated veins and the sexual mark on the hindwing. — The neuration of the hindwing approaches *Mandarinia*, the structure of the forewing forms a transition to the *Satyrus*-type, much as the shape of the hindwing leads over from *Ptychandra* to the *Lethe*-type. A character found exclusively in *Lamprolenis* is that the veins of the forewing are quite as swollen on the under surface and of transparent amber-colour. The swollen part of the submedian is strongly bent, so that between it and the fine submarginal there is a deep cavity, which is covered with dense black scales. Below the submarginal the inner margin is twice folded and bears dull glossy scent-scales. Only one species yet discovered, which is confined to New Guinea.

nitida. **L. nitida** *Godm. & Salv.* (94 c). The figure shows the characteristic of the species, a wonderful green reflection, which gradually changes distad into a more intensive and brilliant golden bronze-colour, a decoration with which no other Indo-Australian Satyrid can even distantly compare. The very rare ♀ is essentially larger, paler brown, the hindwing shows only slight traces of the metallic sheen, but is instead ornamented with a very large black ocellus with brown-yellow border, which is always well developed on the forewing also. In the ♂♂, as also on the example figured, the anal ocellus on the upperside of the hindwing is commonly absent. According to Hagen the species flies in the woods at Astrolabe Bay, in March. I myself have received it from the neighbourhood of Friedrich-Wilhelmshafen.

21. Genus: **Maniola** *Schrank.*

The few South Asiatic species of this purely Palearctic genus and its generic diagnosis have been already fully dealt with in vol. I, p. 137-—142, so that we give here simply an enumeration of the Indian species. The name *Epinephele Hbn.* is about 15 years younger than that of *Maniola*, to which it must sink. *Maniola* has also already been employed by Bingham in the Fauna of British India for the forms in question.

davendra. **M. davendra** *Moore* (= roxane *Fldr.*) (vol. I, p. 142, pl. 47 g) inhabits the north-western Himalayas, where it flies at elevations of 9—12 000 ft. on hot days in June or July over stony slopes, which are only *latistigma.* partly overgrown with brown grass and especially with Artemisia and Ephedra. — The form **latistigma** *Moore* *brevistigma.* was met with by Colonel Swinhoe near Quetta at about 2000 m. from June to August, and **brevistigma** *Moore* *tenuistigma.* appears to be the high alpine form, as it was found at Kardong as high as 14000 ft. in August. — **tenuistigma** *Moore* was taken in Beluchistan, flying in June.

M. narica Hbn. (vol. I, p. 139, pl. 46 d) is distributed through the steppes from Turkestan to Afghanistan.

cheena. **M. cheena** *Moore* (vol. I, p. 140, pl. 47 a, b) flies over grass and pasture-lands from June to August *kashmirica.* in the western Himalayas near Kunawur at elevations of 8—10 000 ft. — **kashmirica** *Moore* is a local race, which has been taken from June to September in Kashmir.

interposita. **M. interposita** *Ersch.* is the Indian offshoot of the widely distributed *lycaon*, which flies in Afghanistan from May onwards.

M. pulchella *Fldr.* (vol. I, p. 140, pl. 48 a) flies in the western Himalayas and Kashmir from June to September and ascends to 15 000 ft. — **neoza** *Lang* (vol. I, pl. 48 a) is very common in certain parts of Kashmir, such as at Goolmurg, and is said to occur from June to August from altitudes of 10—12 000 ft. — **pulchra** *Fldr.* (vol. I, p. 140), a geographical form which was recorded at the Shandur Plateau in North Kashmir and from Kunawur from June to September at 8—10 000 ft. The missionary Francke sent me the two last named forms from Kulu, where they occur together. *pulchella.* *neoza.* *pulchra.*

M. coenonympha Fldr. (vol. I, p. 140, pl. 47 a) is very rare and local, only known from Ladak. — *maiza Lang* is an aberration which was met with once at Goolmurg in Kashmir in great numbers in July from 9—10 000 ft. — *goolmurga Lang* comes from Kashmir from 11—13 000 ft. and was found sparingly in July and August.

21. Genus: **Karanasa** *Moore.*

If it is considered justifiable to divide up the species which are included in catalogues under the genus *Satyrus*, the name „*Karanasa*" must be introduced for those species which are grouped round the European „*actaea*" and „*cordula*" and were apparently left by earlier authors without generic names or united under those names which either apply to other groups of species or are synonymous therewith. That certain groupings based on the structure of the forewing are possible has also been recognized by Schatz, and the antennae of the several species likewise admit of a grouping, but this can be arrived at with still greater certainty on the form of the discocellulars of the forewing or a consideration of the cystosis of the principal veins. In this case the separation is conceivable

a) of *Minois Hbn.* with *dryas Scop.* as type,
b) of *Oreas Hbn.* with *circe* as type, but *Oreas* being preoccupied (Desmarest 1804, Mammalia) this name may be replaced by *Brintesia nom. nov.*,
c) of *Eumenis Hbn.* for *fagi Scop.*, *alcyone*, etc.

Hübner's type of *Eumenis* is *semele*, which differs indeed from the forms of the *fagi* series in the shorter antenna, but its structure affords no support to its separation under the name *Nytha*, as has been done by Bingham in the „Fauna of British India".

In *Karanasa* only the costal of the forewing is materially thickened, as is also the case in *Oreas Hbn.* = *Brintesia*, from which, however, it differs in the more strongly angled middle discocellular of the forewing and the shorter precostal of the hindwing.

K. huebneri *Fldr.* (vol. I, p. 127) is broken up into several races mentioned in the Palearctic part, thus **cadesia** *Moore* (vol. I, 43 d) is known from Kashmir, where it is very local, is but rarely found in large numbers and ascends to 13—17 000 ft. — **leechi** *Moore* is recorded from Baltistan and Ladak in the same high-alpine region. — **modesta** *Moore* (vol. I, p. 127), from Lahul and Kashmir. Flies July to August. *huebneri.* *cadesia.* *leechi.* *modesta.*

K. pimpla *Fldr.* (= monoculus *Fruhst.*) (vol. I, p. 131) is a geographical branch of our *actaea*; described from Kashmir, but also occurring in Beluchistan and Afghanistan. Flies in July to September at altitudes of about 2500 m. *pimpla.*

K. digna *Marsh.* (vol. I, p. 130), very similar to the South European *actaea*, is extremely rare and only known from the Shandur plateau and Gilgit in Kashmir. *digna.*

22. Genus: **Eumenis** *Hbn.*

The few South Himalayan species of this genus reveal the closest relationship with their trans-Himalayan sister-species and are consequently also fully dealt with in the Palearctic part (p. 127 ff.; pl. 43). The genus is distinguished by the cystose costal and median veins, and hence is distinguishable at first glance from *Karanasa* and *Oreas*. Palpus strong, with small terminal joint; antenna with shovel-shaped club; lower discocellular straight. Eyes not hairy, in which *Eumenis* differs from the otherwise nearly allied *Satyrus* (*Parage*).

E. thelephassa *Hbn.* (vol. I, p. 127, pl. 43 e) is one of the commonest and most conspicuous butterflies of anterior Asia and in Beluchistan and Afghanistan passes over into the Indian Region, occurring on rocky slopes from the middle of May from 6500—8000 ft. During the hottest part of the day the butterfly hides in the shade of rocks and stones, coming out again and flying about in the evening, when it is easy to catch *thelephassa.*

E. mniszechi *Fldr.* extends into the region of Kashmir and Kunawur in two interesting and apparently rare races, the names of which have been incorrectly transferred by dealers to Central Asiatic butterflies. — **lehana** *Moore* is discussed in vol. I, but the figure vol. I, pl. 43 f. does not agree with the examples received by me through the missionary Francke direct from Leh nor with Moore's figures of his undoubtedly true *mniszechi.* *lehana.*

Kashmir butterflies. *lehana* was discovered by Dr. Stoliczka and flies at Leh from June to September at elevations of 12—15 000 ft. The ♀♀ are larger than the figure in vol. I, and the anal ocellus of the fore-
baldiva. wing always smaller. — **baldiva** *Moore* is a darker race, with somewhat narrower ochre-coloured band on the upperside of the wings and white-pupilled ocelli on the forewing. It was discovered by Col. Lang, on the bare, brown, stony mountain-slopes of Spiti in Tibet, where it flies on hot days in June and July at
esquilinus. elevations of 7—10 000 ft. — As **esquilinus** *subsp. nov.* is described the geographical form from Alai, circulating as *lehana*, which differs from *lehana* from Kashmir in its small size, the ochre-coloured longitudinal band of the forewing, which, particularly in the ♀, is proximally strongly incised and more sharply defined, and the much darker uniform brown under surface not lightened with whitish yellow inclines more to the Turkestan Race, whilst examples from Tianshan nearly approach the true *lehana* beneath. *clarissima Seitz* is near *lehana Moore*, except that in *lehana* the bands are still broader. West China.

persephone. **E. persephone** *Hbn.* (= anthe *O.*). This beautiful, variable and abundant Anterior Asiatic race has likewise found its way across Persia to Afghanistan, where Col. Swinhoe met with it at Kandahar in May.

heydenreichi. **E. heydenreichi.** This magnificent Central Asiatic species occurs at Kashmir in the Indian Region,
shandura. where **shandura** *Marsh.*, figured vol. I, pl. 42 d, was discovered on the Shandur plateau at about 13 000 ft.
hegesander. An unusually dark race. — **hegesander** *subsp. nov.* has recently been observed in Tianshan. In this the white median bands of both wings are almost twice as broad as in *heydenreichi* from Alai and the figure in vol. I on pl. 42 d, and the under surface is marbled with yellow instead of black-brown.

parisatis. **E. parisatis** *Koll.* is in size similar to our *fagi Scop.*, but by reason of its characteristic colouring (the sharp contrast of the white distal border of both wings to the ground-colour), which varies from black-brown in the ♂♂ to slate-grey in the ♀♀, one of the most striking of the Satyrids. Like our *fagi* the species is nowhere rare. The Indian Region produces two local races, which were first correctly separated by Seitz, for neither Nicéville nor Bingham and Moore mention the fundamental difference between *parisatis Koll.*, with narrow white band on the upper surface and thread-like longitudinal band on the under (vol. I, pl. 44 e),
macroph- and **macrophthalmus** *Evers.*, with gigantic ocelli, which are also still more broadly margined with light yel-
thalmus. low, and more prominant white median band. All the above named writers on the Indian butterflies figure *macrophthalmus*. I have before me large series of *parisatis* from the Indian North-West Provinces and of *macrophthalmus* from Kashmir from 10—14 000 ft.

diffusa. **E.** *semele* **diffusa** *Btlr.* This offshoot of our common *semele L.* is a great rarity and was once taken in the North-West Provinces; it differs from its European sister-race in the reduction of all the red-brown patches and the darkening of the under surface.

The description of a few Palearctic forms, which stand in the closest relationship to the preceding Indian species, is here added:

minutianus. **E.** *regeli* **minutianus** *subsp. nov.* Allied to *corlana Stgr.*, but easy to distinguish from it by the broader black median bands of the wings and in particular by having the ocelli of the forewing almost half as large again. Moreover the anal eye-spot of the hindwing above is larger than in examples from Naryn and Tianshan. Common in Alai.

orchomenus. **E.** *autonoë* **orchomenus** *subsp. nov.* differs from examples from Turkestan and those from Naryn in its larger size and its lighter wings (as in *alcyone*), which show a yellowish submarginal area round the ocelli in the ♂ also. Under surface washed-out pale grey. ♀ very large as in *cordula miluda* from Zermatt, with a light yellow antemarginal area on both wings. From Tianshan.

aristonicus. **E.** *geyeri* **aristonicus** *subsp. nov.* is much smaller than the form from Anatolia and Armenia. Upper surface lighter grey; under surface of the hindwing with more indistinct markings and more indistinct undulate lines. From Amasia.

23. Genus: **Aulocera** *Btlr.*

A sharply defined genus even in the uniform shape and colouring of its few species, while in its structure it is the best characterized of all the series of forms grouped round *Eumenis* and *Minois*. In the first place the cell of the forewing is strikingly long, recalling that of *Brintesia*, and the markings also agree most with *circe*, the only species of the latter genus. *Aulocera* has the cystose costal in common with *Minois*, *Brintesia* and *Karanasa*, but differs from all the genera or subgenera hitherto united under *Satyrus* in the distally angled lower discocellular of the forewing and still more in the extremely narrow cell of the hindwing, which is scarcely half as long. The precostal of the hindwing arises as in *Karanasa* at the bend of the subcostal. Eyes not hairy.

The species of the genus are predominantly Palearctic and where they pass over into the subtropical and tropical region they only inhabit high alpine districts.

The genital clasping-organs differ very considerably from those of *Eumenis* in the absence of the thin, pointed, lateral clasps, in place of which there is a thick, obtuse, almost straight and sharp-edged ridge. Moreover the valve is more deeply excised than in European *Eumenis*, densely long-haired, basally with a strong protuberance.

A. brahminus *Blanch.* (vol. I, p. 122, pl. 41 c) is the smallest Indian species, and is easy to recog- *brahminus.*
nize by the narrow white longitudinal band of both wings, which is sometimes completely obliterated towards the anal angle of the hindwing. This form is **scylla** *Btlr.*, which was discovered near Nepal, but also *scylla.*
occurs in the Kumaon Himalayas, where Doherty met with it at elevations of 12—16 000 ft. He, however, regards *scylla* as a separate species, as it flies together with *brahminus* and is also said to show differences in the clasping-organs. The two forms are here united on Bingham's authority. — **brahminoides** *Moore* is the *brahmi-*
race of the collective species which is most commonly brought to Europe; it has a purer white median band, *noides.*
especially beneath, than *brahminus*, which occurs in the North-West Provinces, in Kashmir and Kulu, whilst *brahminoides* is confined to Bhotan and Sikkim. — **werang** *Lang* (vol. I, p. 122) is dusted and splashed *werang.*
with brown on the hindwing and exclusively inhabits the western slopes of the Himalayas.

A. swaha is the commonest species of the genus and it is curious that its interesting geographical variation has not been noticed by English authors. The typical subspecies **swaha** *Koll.* (vol. I, pl. 41 d upper *swaha.*
surface) was described from Kashmir, from whence I have it in my collection from elevations of 14—15 000 ft. Both sexes bear a relatively narrow light yellow median band, which, however, is always white on the underside of the hindwing. — In **garuna** *subsp. nov.* (94 c) this band is widened and is always yellowish parti- *garuna.*
cularly beneath. Common in Kulu, from whence by mistake its larva was also reported as being found on a wild blue iris, which is clearly incorrect. — **tellula** *subsp. nov.* I have received from the neighbour- *tellula.*
hood of Mardan, North-West Provinces; the band on the upper surface is about intermediate between *swaha* from Kashmir and *garuna* from Kulu, from both of which it may be distinguished by having the longitudinal band of both wings uniform pale straw-yellow, whilst in the other races the darker yellow of the forewing forms a sharp contrast to the whitish or quite white colour on the hindwing. Especially in the ♀ the under surface of *tellula* is also similarly white-banded.

A. padma, like *brahminus*, splits up into two geographical Himalayan races, of which **padma** *Koll.* *padma.*
(vol. I, pl. 41 f.) inhabits the north-western part and occurs in two generations, the first flying in May and June at the edge of oak- and rhododendron-forests on the peaks of the mountains at altitudes of 8—11 000 ft. A second brood appears in July and prefers the lower levels from 3—4000 ft. — **chumbica** *Moore* (94 c) is the *chumbica.*
westerly race, originally described from the Chumbi Valley in Native Sikkim, but recently received from Bhotan in large numbers. On the upper surface the longitudinal bands are pure white and scarcely half as broad as in *padma*, but beneath they are partially suffused with dark yellow. Flies August to September and at elevations of about 3—4000 m. — Examples from the North-West Provinces already show a darker colouring on the under surface and bear narrower bands than Kashmir specimens and are somewhat smaller; on the other hand **verres** *subsp. nov.* is considerably larger than the Kashmir form, and the under surface *verres.*
of both wings is lighter and more copiously irrorated with white. From June to August from 6—7000 ft., locally common in West China.

A. loha *Doh.* (vol. I, pl. 41 f), for the specific right of which its author strongly contends, is essen- *loha.*
tially different from *padma* and *chumbica*, to judge from examples before me from Bhotan and Sikkim, which, however, are not typical; from the former in the absence of the proximal white subapical patches of the forewing, from the latter in the much broader longitudinal bands. However, my Sikkim ♂♂ more nearly approach *chumbica* than *padma*, with which latter they nevertheless agree more in their large size. But perhaps it is only a seasonal form, either of *chumbica* or of *padma*. Doherty found *loha* in the Kumaon Himalayas in August—September from 3—4000 m. and Elwes observed it in Sikkim at Tonglo and Phallut at the same elevation in July above the pine-forests, where the butterflies flew vigorously round single trees, settled on the stems or occasionally on flower-heads. According to Leech it is common everywhere in West China.

A. saraswati *Koll.* (vol. I, pl. 41 d) can be most easily and certainly distinguished from all the known *saraswati.*
species by the rectilinear longitudinal band of both wings and by having the distal part of the hindwing beneath light brown, not black. The ♂♂ before me from Kulu differ quite considerably in having a much narrower white median area from the race discussed in the Palearctic part, which probably comes from Kashmir. *saraswati* shows a greater preference for the hotter and deeper valleys and apparently nowhere ascends above 2330 m. In Kulu, where it frequents thistle flowers, it occurs from July to the middle of October.

24. Genus: **Orinoma** *Gray.*

A monotypical genus, only containing one species of distinctive coloration, differing in the red-spotted cell of the forewing from all the known Satyrids. In neuration *Orinoma* somewhat approaches *Oeneis*, with which it has in common the weakly thickened costal, the long narrow cell and the short upper discocellular

of the forewing. On the other hand the short, broad cell of the hindwing differs from the *Oeneis* type and the straight middle and lower discocellulars point to a relationship with *Coelites*. The wing-contour is that of a Danaid.

damaris. **O. damaris** *Gray* (90 d) is beneath only somewhat paler and more copiously marked with yellow than above and the ♂♂ have narrower wings than the figured ♀. The butterfly is distributed from the Kangra district and the Kumaon Himalayas to Assam and Upper Burma and appears to have two generations, for in Nepal, Sikkim, Bhotan and Assam it is found in the autumn, whilst from Burma and Tenasserim it is reported from May. *damaris* apparently nowhere exceeds the altitude of 2000 m., is local and always
harmostus. rare. — **harmostus** *subsp. nov.* is a smaller race with lighter yellow spots and more delicate black lines on both wings and in spite of its small size with more extended yellow circumcellular patches on the hindwing. Tenasserim, taken there by me at about 1600 m. at Tandong.

25. Genus: **Rhaphicera** *Btlr.*

In habitus somewhat corresponding to our *Pararge*, it agrees with the preceding genus in not having the costal of the forewing thickened, but differs in the straight lower discocellular of the forewing, which is oblique distad, in the precostal of the hindwing arising at the point of origin of the subcostal (not distally to it) and the narrower cell of the hindwing, more recalling that of *Lethe*. Only 3 species described, which inhabit the Himalayas and western China and are everywhere rare.

satricus. **R. satricus** *Dbl.* (vol. I, p. 88, 32 c), distributed from the Kumaon Himalayas to the Naga Hills in Assam, was observed in Sikkim and Bhotan from 2000 m. to about 2500 m., where the butterflies fly rapidly and erratically, are fond of settling on wet and dirty places and also on shady or damp rocks and fly quite as freely in cloudy and rainy weather as on sunny days. The ♀ is extraordinarily rare, although it served as type. In western China occurs a smaller and darker race, which, however, is unknown to me in nature.

moorei. **R. moorei** *Btlr.* (vol. I, p. 88, pl. 32 c) somewhat recalls the European *aegeria*, is rather larger than this and smaller than *satricus*. In Sikkim it is very rare in the interior at altitudes of about 3000—3500 m. In the neighbourhood of Simla it occasionally occurs more commonly, flying there especially in August and even during the heaviest rains.

dumicola. **R. dumicola** *Oberth.* (vol. I, p. 88, pl. 32 c) is placed by Moore in his genus *Tatinga*. But as there are no differences at all in neuration from *Rhaphicera* this name must sink. — *dumicola* occurs commonly in some places in West China, rarely in Central China.

26. Genus: **Arge** *Hbn.*

There are no tenable grounds at all for giving any other name to this genus, so well-known as *Melanargia*, for the fine name of *Agapetes Billbg.*, adopted by Bingham, is about 4 years later than Hübner's name. In the Indian Region only one species has been met with, and this only on the borders of Burma and China.

A. halimede Mén. was discovered by an Indian forestry official in Burma. The form occurring there nearly agrees in markings with *montana Leech* from the Yangtsekiang, except that from Bingham's figure
leda. it does not seem to be larger than **A. leda** *Leech* (39 d), of which a somewhat darker form from Yunnan has
yunnana. been made known as **yunnana** *Oberth.* — **pasiteles** *subsp. nov.* is a race which connects *halimede Mén.* with
pasiteles. *lugens Honr.*, showing darker and broader black margins to the wings than Amur examples but not dusted over with brown. The under surface approaches that of *lugens*, but the ground-colour is pure white, without yellow admixture. As above broad, sharp, black submarginal bands stand out from the white ground. Shantung.

27. Genus: **Satyrus** *Latr.* (= Pararge *auct.*).

♂ The clasping-organs somewhat recall those of the genus *Erites*, the uncus is relatively short, thick, laterally angled, the lateral clasps slightly undulate or quite horizontal. The valve pointed like a sword, narrow, with long bristles. Jullien's rods have likewise been found in it, evidencing its relationship with the *Eumenis* and *Maniola* types. Forewing with the costal vein strongly inflated and the median less swollen. Precostal short, lower discocellular touching the point of origin of the middle median of the hindwing, by which a connection with the *Lethe* group of the Satyrids is established. Only 4 Indian species, which cannot be otherwise regarded than as Palearctic butterflies of Central Asia that have crossed the Himalayas and are slowly beginning to extend their range eastwards.

S. schakra *Koll.* (vol. I, pl. 45 e), the North Indian representative of our *maera* and like this one of the commonest butterflies from the western Himalayas to Sikkim. Flies from May to October. Prefers stony edges of streets. The larva is apple-green with pale yellow lateral lines. I have before me large series from Kashmir and the North-West Provinces which in colouring nearly correspond to those examples which form the transition from the northern *maera* to the South European *adrasta*. *schakra.*

S. maerula *Fldr.* (= laurion *Nicév.*) (vol. I, pl. 45 f.) approaches the preceding in size and colouring, but lacks the grey sexual spots of the forewing, and has the reddish ochre-coloured foreground of all the ocelli somewhat more extended. From the North-West Himalayas about Kunawur and Pangi, Mussourie. Occurring together with *schakra*, but rare. *maerula.*

S. menava *Moore* (= maeroides *Fldr.*) (vol. I, p. 135, pl. 45 f.) is a well differentiated species, the ♂ somewhat recalling our *hiera F.* in ground-colour, the ♀ recognizable by a broad, yellow-brown, obliquely placed patch in the apical part of the forewing, which is not composed of separate patches divided by black veins, but of one compact area. Upperside of the hindwing only with 2 instead of 3 or 4 ocelli. Underside darker, the distal longitudinal band straight, not angled as in *schakra* and *maerula*, and without whitish dusting in the distal-marginal area of the hindwing. **maeroides** *Fldr.* (vol. I, p. 135) is an aberration with a small cube-shaped spot below the apical eye-spot of the forewing. *menava* is local, flies from June to August. I have before me from Kashmir a fine series from an elevation of 14 000 ft. Also observed at Kunawar and at the Werang Pass at the same elevation. *menava.* *maeroides.*

S. kashmirensis *Moore* (vol. I, p. 134, pl. 45 c) is a very rare local form of the Turkestan *eversmanni*, than which it is much darker, particularly on the upperside of the hindwing. So far as is known it has only been found twice, at the Goolmurg Plateau at 2000 m. and at Pangi. *kashmirensis.*

S. masoni *Elw.* was formerly united with *Lethe*, but Moore quite correctly placed it near *Satyrus*, although the genus *Chonala* which he erected for it is not tenable. But *masoni* has nothing in common with *Lethe*, for not only the completely rounded hindwing separates it from the *Lethe* group, but also the thickened costal and median of the forewing. *masoni* agrees with *Satyrus* in all these differences, and likewise in its resemblance to *S. episcopalis Oberth.* (vol. I, pl. 45 b). Ground-colour black with the longitudinal band on the forewing somewhat broader and sharply defined proximally, and a moderately broad white distal border to the hindwing. Forewing further with two white subapical dots, of which the lower is somewhat larger than that of *episcopalis*. Under surface much as in *praeusta Leech* (vol. I, pl. 45 b), at least that of the hindwing, which is only somewhat lighter grey. Forewing with a reproduction of the broad oblique band of still more enlarged apical dots and with a large apical ocellus. — Hitherto only known from the interior of Sikkim. Elwes, whose collectors once brought him the species, suspects that it might be from the Chumbi Valley or from the border of Bhotan. I myself have only received 2 examples in the course of 20 years. *masoni.*

28. Genus: **Oeneis** *Hbn.*

That an almost Arctic genus like *Oeneis* should still be found on Indian territory is to be attributed to the enormous altitudes, which alone the butterflies inhabit, two species traversing the region from Native Sikkim to the border of Tibet. *Oeneis* is easy to distinguish from *Eumenis* by the long and narrow cell of the forewing and by having the costal vein only moderately thickened, but not swollen. Palpi and forelegs with extraordinarily long hairs.

O. pumilus is divided into two local races, of which the name-type **pumilus** *Fldr.* (vol. I, pl. 42 b) is found extremely rarely in the Kumaon Himalayas and in Kashmir. — *bicolor Seitz* (vol. I, pl. 42 b) is the local form discovered during the last English expedition to Tibet at Kambajong on the border of Sikkim, and has been sent to me from an elevation of 5000 ft. by Möller of Darjeeling. *pumilus.*

O. palaearcticus Stgr., from Central Asia, sends out an offshoot of smaller size to the borders of Tibet and into Native Sikkim, where occurs **sikkimensis** *Stgr.* (93 g), a form with somewhat darker under surface than *palaearcticus*; at Kambajong it flies together with *pumilus bicolor Seitz.* The upper surface as in *bicolor* (vol. I, pl. 42 b), only the ♀ shows paler yellow bands. *sikkimensis.*

29. Genus: **Lethe** *Hbn.*

Being structurally one of the most difficult genera to deal with, *Lethe* has met with the fate of being split up unnecessarily into numerous fragments (Moore) and has recently served as a receptable for the most heterogeneous groups of species (Bingham). A division in some degree natural must consequently lead to reducing an accumulation of some 15 generic names, but on the other hand also to breaking up a too comprehensive collection of species. Bingham has already employed a very happy grouping, founding his two subdivisions on the presence or absence of modified scales in the ♂♂. This, however, unfortunately

cannot be used for the ♀♀, but otherwise affords a safe guide. A reliable indication is furnished by the shape of the wings, whether rounded or with tail-appendages, the more or less pronounced swelling of the costal vein and not least by the fact that in whole series of species the lower discocellular of the hindwing does not touch the furcation of the upper and middle median, but the upper median vein, which is then separated by a broad stalk from the middle median. But all the members of the *Lethe* group in common have the costal and subcostal of the forewing coincident for half their length. The secondary sexual characters are very various; they may be present on both wings or only on the fore- or only on the hindwing. But in no species have hair-pencils yet been detected, which play so essential a part in the grouping of the Mycalesids, never even tufts of long hairs. The clasping-organs are sharply differentiated in the separate groups, thus in true *Lethe*, as in *Melanitis*, the lateral clasps of the uncus are apparently absent, whilst in *Hermias* they are not only distinctly present, but also bear a very broad, horn-shaped point. The valve may be narrow and very long and simple (*Lethe*) or short and with dorsal protuberances (*Hermias*). Larva and pupa are described in vol. I (p. 82); they are only known of about four species, notwithstanding the accessibility of their food-plants — bamboos and other grasses. As a rule they are mountain butterflies and the traveller encounters one species — *L. rohria* — as a living altimeter in the Sunda Islands when he approaches 1200 m., as it never descends lower, but immediately appears where the cool mountain breeze begins to be felt. All the other species love the shade and are most lively at early morning or in the evening twilight. The butterflies rest with folded wings in the bamboo thickets or on blades of grass, but rarely, like *Mycalesis*, on the ground. The head-quarters of the genus is continental. Nearly 50 species of the *Lethe* group are found within the limits of the Indian Empire, but Borneo and Java have seven, Lombok three, Celebes and the Moluccas only one species. The genus has not reached the Papuan region and Australia in its eastward course. Altitudes of 2—3000 m. suit them best, only one species ascends to 14 000 ft. (*maitrya*). According to my observations in Hong-Kong one species (*arete*) smells extremely strongly of vanilla.

Group Sinchula *Moore*.

The most insignificant forms of the genus. Hindwing rounded, without distinct point at the lower median. The lower discocellular does not touch the fork of the upper and middle median, but arises distally to it. Costal distinctly cystose. ♂ without sexual spot on the upper surface.

sidonis. **L. sidonis** *Hew.* (vol. I, p. 85, pl. 31 d upper surface and vol. IX, pl. 97 c under surface) breaks up into two seasonal forms, of which Hewitson knew and described that of the wet season (97 c), of which *gelduba.* we reproduce the under surface. The dry-season generation **gelduba** *form. nov.* is as usual smaller and is above paler with brighter bronzy sheen. The anterior ocelli of the hindwing beneath are partially suppressed, whilst the posterior are reduced. Likewise the grey-blue median stripes are frequently absent, particularly in Bhotan examples. In Assam occurs a local form, which is larger and beneath more brightly coloured. According to Elwes *sidonis* is one of the commonest *Lethe* of Sikkim, where it occurs in the forest zone from 4—8000 ft. from April to November, especially on the paths, and either remains on the ground or on lower vegetation. Sikkim, Bhotan; Assam.

vaivarta. **L. vaivarta** *Doh.* nearly approaches the preceding and might be regarded as a western race of *sidonis* if Doherty had not stated that the clasping-organs are different. Judging from Moore's figure of the typical specimens the most essential distinguishing character consists in the longitudinal bands of the forewing beneath being broader and yellow instead of violet and the eye-spots of the hindwing larger and showing through above. The dry-season form was discovered by Doherty in the Kumaon Himalayas, but the species extends further to the west; for it is also recorded from Kangra, in southern Kashmir. Larva light green with two horns on the head and pale longitudinal and transverse stripes. It lives on the mountain bamboo Arundinaria falcata Nees. Pupa green, more rarely red-brown, short, with two tubercles on the head and whitish sides and whitish speckles on the ventral side.

nicetella. **L. nicetella** *Nicév.* (97 c). Upper surface unicolorous black-brown with slight bronzy reflection, hindwing with the eye-spots of the under surface showing through. In the dry-season form some of the ocelli on the underside of the hindwing are blind and the forewing shows grey-yellow patches in the distal part. In July-August at Tunglo from 7 to about 9000 ft. on shady or wet places, sometimes in thousands. The ♀, however, is very rare. Not yet observed outside of Sikkim.

siderea. **L. siderea** *Marsh.* (vol. I, p. 85) is a rare Sikkim butterfly, only once taken in the interior of the country at 7000 ft. in the rainy season. ♀ still unknown. Under surface of the hindwing very near to *nicetella*, but with longer stripes and the ocelli with brighter orange-coloured bordering. According to Leech also found as a rarity in West China.

L. nicetas *Hew.*, of about the size of *sidonis*, is easy to recognize by the broad yellow postdiscal bands on the underside and a whitish obliqne band of the forewing, both of which show through above. Moreover, the eye-spots of the hindwing are of unequal size and transparent. Rather rare, observed at Daling in May and June, but distributed from Sikkim to Kulu, flying there even in October and occurring everywhere from 1000 to 2500 m. in dense forests. *nicetas.*

L. maitrya *Nicév.* (97 c) is the species of the group most commonly brought to Europe, which is met with, particularly in July and August, in enormous numbers, especially at the border of Sikkim and Neapel. The type came from the North-West Himalayas and specimens from there are somewhat larger than the Bhotan example figured. According to Elwes *maitrya* always flies in company with *Zophoëssa jalaurida* at altidutes of 3— about 4000 m. *maitrya.*

L. visrava *Moore* (= deliades *Hew.* and figured at 97 c under the latter name) is a very rare species, the ♀ of which has the hindwing almost entirely white and the forewing likewise white to the cell. The hindwing is adorned with large, frec black ocelli, which beneath are broadly margined with yellow. Moreover, in the ♀ the terminal border of the hindwing is reddish yellow. The ♂ only differs on the under surface in having the white area on both wings more extended and more sharply defined. Flies in June. Sikkim, Bhotan. *visrava.*

L. insularis *Fruhst.* (97 c) approaches the Chinese *procne Leech* (vol. 1, pl. 32 b), from which, however, it differs in the more rounded wings, the smaller size and the almost vertical yellow-brown submarginal band of the forewing above. Beneath *insularis* is characterized by a beautiful moss-green tinge on the basal part of the hindwing, which does not show on the figure, and especially by the twice interrupted white median band, which runs from the costal to the anal angle and is gradually narrowed. Formosa, at about 4000 ft., apparently rare. *insularis.*

The following Palearctic species belong to *Sinchula*: L. *violaceopicta Pouj.* (= callisto *Leech*) from West China (vol. 1, p. 85, pl. 31 c); *L. titania Leech* (vol. 1, p. 85, pl. 31 c) from West China; *L. helle Leech* (vol. 1, p. 37, pl. 32 b) (hitherto regarded as a *Zophoëssa*), West China; *L. procne Leech* (vol. 1, pl 87, pl. 32 b), for which the same genus was accepted, West China. — *L. callipteris Btlr.* (vol. 1, p. 86, pl. 31 e), one of the most beautiful species known, distributed in Japan from Shikoku to Yesso; Moore created the genus *Harima* for it.

Group Kerrata *Moore.*

Structure and wing-contour as in *Sinchula*, but the forewing bears in the median area narrow, elongate patches of shaggy androconia.

L. tristigmata *Elw.* (97 d). Upper surface grey-brown with transparent bands and ocelli and the sexual spot already mentioned. Very rare, hitherto only known from Sikkim, where it flies in July near the borders of Nepal at elevations of 9—10 000 ft. The ♀ was first discovered in 1888 by Möller in Native Sikkim. — **lyncus** *Nicév.* is in Bingham's opinion only a paler form of *tristigmata*: according to the figure it is rather a rainy-season form, but in the subapical spots of the forewing there are differences which perhaps justify a separation, as *lyncus* bears a short white band instead of five isolated dots; the basal part is also darker, the ocelli more fully bordered with yellow. Nicéville compares it with *ocellata Pouj.*, which it decidedly nearly approaches. Sikkim, only two ♂♂ from Native Sikkim known, which were collected in July and August at elevations of 7—10 000 ft. *tristigmata.* *lyncus.*

Two Palearctic allies: *L. nigrifasciata Leech* (vol. 1, p. 85, pl. 31 e), of which there is a smaller local race, *fasciata Seitz*; West China. — *L. ocellata Pouj.* (= simulans *Leech*) (vol. 1, p. 85, pl. 31 c); West China.

Group Magula *nom. nov.*

Structure as in *Sinchula*. Hindwing, however, with distinct tail-appendage at the lower median. No sexual spots. The few species belonging here have been hitherto united with *Zophoëssa*, from which they can be at once separated by the different position of the lower discocellular, which is formed as in *Sinchula*. But this group has as little claim to subgeneric rank as *Kerrata*.

L. jalaurida, named from the Jalauri Pass in Kulu, where Nicéville met with it in large numbers on the red flowers of a Persicaria in the midst of dense forest at elevations of between 6—8000 ft., in company with *L. maitrya*. **jalaurida** *Nicév.* (vol 1, p. 87) occurs especially in the West Himalayas, but what we meet with as such in collections belongs to **elwesi** *Moore* (vol. 1, pl. 32 c, as *jalaurida*), which differs from *jalaurida* in the paler colouring and the more sharply defined silver bands on the under surface. According to Elwes this form flies at the Nepal frontier of Sikkim from 9—12000 ft. in July and August in open places in woods, rapidly circling round even in dull and rainy weather and assembling in small groups where there is any filth to attract them. Sometimes they also rest on bamboo and on rocks, particularly in damp weather, where they can be taken off with a bottle like moths. — **gelduba** *subsp. nov.* is a local race occurring sparsely in western *jalaurida.* *elwesi.* *gelduba.*

China, of a dark olive shade above and bearing on the under surface a double instead of single transcellular stripe, but no fine silver line on the lower median such as adorns *elwesi*.

moelleri. **L. moelleri** *Elw.* (97 d), somewhat larger and above with somewhat broader yellowish bands and larger ocelli than *elwesi*, occurs at the same localities and has not yet been met with outside Sikkim.

atkinsonia. **L. atkinsonia** *Hew.* (97 d), the most highly coloured species of the group, bears above large dark ochre-coloured bands and spots. It is rather rare and was discovered at the Senchal Hill, the locality of *Teinopalpus imperialis*, and afterwards also by Elwes on the road to the hospice of Tonglo, where it occurs in July and August from 8—9000 ft., and when startled up, takes refuge in the dense thickets.

Group Zophoëssa *Dbl.* (= Putlia *Moore*).

With this group of species we reach *Lethe* proper, the fundamental character of which is that the lower discocellular touches the furcation of the two medians. It was formerly thought that *Zophoëssa* should be treated as a separate genus, on account of the somewhat longer terminal joint of the palpus, which, however, varies greatly, and the more strongly swollen costal of the forewing. But the latter character certainly rests on an error, for in no *Lethe* are the two principal veins less inflated than in *sura*, the type of *Zophoëssa*. Hence Bingham was right in merging it, and if it is here treated as a subgroup it is on account of the longer cell of the forewing, which is probably at the same time narrower than that of any true *Lethe*. All the species bear long tails, which only in a few Palearctic forms are somewhat less developed. Sexual spots are mostly present.

baladeva. **L. baladeva** *Moore* (97 d). Upper surface coffee-brown with the longitudinal bands of the under surface showing through. Hindwing with black eye-spots of unequal size, of which the last sometimes shows a white pupil. The type came from Sikkim, where the species is rather rare on the Tonglo road in June from 7—9000 ft.
aisa. The ♀ is especially scarce, somewhat larger and paler brown. — **aisa** *subsp. nov.* is the local race discovered by Doherty in the Kumaon Himalayas, which is not only darker than Sikkim specimens, but beneath also bears much narrower silver bands. Flies in June at the same elevations as *baladeva*.

ramadeva. **L. ramadeva** *Nicév.* (97 d) above resembles *baladeva*, but is traversed by broader yellow bands, which show through from the underside. The ocelli of the hindwing materially larger and a broad red-brown area before the anal angle. Extraordinarily rare, only recorded as yet from Sikkim and Bhotan, where it flies from July to August.

andersoni. **L. andersoni** *Atk.* is an interesting and hitherto very rare butterfly, of which only four examples are known, two of which are in the British Museum collection and two in the Museum in Calcutta. Upper surface brown with yellowish longitudinal bands on the forewing and small round ocelli on the hindwing. Hindwing rather narrow, under surface so similar to that of *L. argentata Leech* (vol. 1, p. 87, 32 a) from West China that they are probably both branches of one collective species. Bhamo in Upper Burma and South Yunnan.

goalpara. **L. goalpara** *Moore* (99 a), essentially larger than either of the preceding *Zophoëssa*, is above scarcely distinguishable from *sura Dbl.*; black-brown like that species, with a brown longitudinal band and five large black eye-spots on the upperside of the hindwing. On account of the peculiar, washed-out yellow-grey under surface, however, it cannot be confused with any other species. It was formerly regarded as rare, but Nicéville reports that the natives sometimes bring in thousands of specimens. Flies from the end of July to No-
narkunda. vember at 2—3000 m. Distributed to North Assam. — **narkunda** *subsp. nov.* is a geographical form from the western Himalayas with the under surface suffused with darker brown; known from the Narkunda Wood near Simla. Between Simla and Sikkim *goalpara* has not yet been observed.

L. dura is the most widely distributed *Zophoëssa*; formerly known from Bhotan to Tenasserim, it was found by me in Tonkin, Sauter has discovered it in Formosa, and *dautensis Semp.*, from the Philippines,
gammiei. must probably also be referred here. — **gammiei** *Moore* is the western branch race, described from Bhotan, paler than typical *dura* from Tenasserim, the distal margin essentially lighter. Under surface lighter with blue-pupil-
dura. led ocelli. Bhotan, September, rare. — **dura** *Marsh.*, above velvety brown, with very narrow grey-brown distal margin to the wings. Hindwing with small ocelli. Differing from *sura* in the sexual stripes of the forewing not standing out distinctly and in having the eye-spots of the hindwing mere dots instead of one to two mm. in breadth.
mansonia. Karen Hills, Burma and Tenasserim. — **mansonia** *subsp. nov.* (99 a) is a darker local race, almost without light distal border on the upper surface of the wings and mostly with the submarginal dots of the hindwing entirely absent. The under surface bears more sharply defined bands and the ocelli are bordered with brighter yellow. Tonkin, Manson Mountains at about 4000 ft. in April. A woodland butterfly, settling on lower vegetation.
moupinen- — **moupinensis** *Pouj.* (vol. 1, p. 86, pl. 32 a), known from West and Central China, judging from Leech's figure
sis. shows much smaller eye-spots, only slightly bordered with reddish, on the underside of the hindwing. — Finally,
neoclides. **neoclides** *Fruhst.* is a prominent island race, recognizable at once by a very broad whitish grey subanal area on the upperside of the hindwing, in which are placed five small, isolated, blind eye-spots which are nearly obsolete but still just perceptible. Hindwing further with a fine reddish grey anteterminal line. Under surface

with very broad brown longitudinal bands, extremely washed-out grey markings, and indistinct eye-spots with extended blue pupils. In size *neoclides* is about midway between *mansonia* and *sura* from Assam. Formosa, from about 4000 ft., apparently very rare, as I have only received one ♂. — **daatensis** *Semp.*, only known to me *daatensis.* from Semper's figure, which agrees in size with *mansonia*, but shows broader black-brown bands and the under surface of the wings more copiously decorated with blue. Only one ♂ yet found, at the peak of Monte Datà from 2250 m., flying in August. North-West Luzon.

L. sura *Dbl.* (99 a), the largest species of the group, is regarded by Bingham as identical with *dura* *sura.* *Marsh.*, which is not improbable; but as both forms occur together in Bhotan and Burma I keep them separate. If, however, they are really identical, then *dura* and *mansonia* must be regarded as dry-season forms, as well as *gammiei Moore*. But I have before me in both sexes from Sikkim evident dry-season forms of *sura*, which have nothing in common with *dura*. *sura* is met with in Sikkim in the woods from June to November at about 8000 ft., either resting on the path or on low growths. When started up the butterflies settle on tree-trunks, where they are difficult to distinguish in the darkness. Distributed from Bhotan to Assam and Upper Burma, where Doherty found it still common at Bernardmyo at 2000 m.

Group Lethe.

Only distinguishable from the preceding group by having the cell of the forewing always somewhat broader, and as a rule also shorter. The length or shortness of the cell, however, differs from species to species. Clasping-organs similar to those of *Melanitis*. Uncus without lateral clasps. — Valve very long and narrow, distally with the tip curved down without dorsal protuberance. Saccus broad at the base.

a) Without sexual spots.

L. rohria is a relatively small, widely distributed species, which was already known to Fabricius and described by him from India. Aurivillius thinks the name *rohria* ought to be transferred to the South Indian *dyrta Fldr.*, which may be quite justifiable, but the example of the Palearctic part is followed here, in order not to suppress the well-known name and introduce discrepancies into the text. — **rohria** *F.* (vol. 1, p. 84, pl. 30e) *rohria.* covers the whole of India from the Kumaon Himalayas, flying at elevations of 1200—7000 ft. and frequenting roads and the edges of woods. According to Nicéville the spring generation is distinguished by the brighter colour of the under surface; from the wet-season specimens before me I should describe the latter as larger and with more extended and more glossy whitish violet bands beneath. — **gambara** *subsp. nov.* is the Assam *gambara.* race, which perhaps occurs in the same form also in West China, and which may be distinguished from Sikkim examples by the larger size, the brighter white, more band-like subapical spots on the forewing above and by having the ocelli on the underside of the hindwing larger and especially with more intensive, broader, and brighter yellow bordering. Wood-Mason already called attention in 1887 to the delicious vanilla odour which is emitted by the ♂♂, a fact which likewise struck me in 1899 in Hong-Kong. Nevertheless the bodies taste extremely bitter on the tongue. — **apara** *subsp. nov.* is a degenerate form; examples of both sexes which belong here are not only *apara.* smaller, but the white oblique band of the forewing is also narrower, the eye-spots of the under surface become smaller and the violet-white longitudinal bands begin to disappear. Tenasserim from 4000 ft.; Tonkin from June to August from 300—600 m.; Hong-Kong; Hainan. — **enima** *subsp. nov.* (97 a) inhabits Sumatra and is *enima.* at once distinguished by having the white band of the forewing almost twice as broad and the ocelli only minute and bordered with yellow-grey instead of whitish violet. ♀ moreover strikingly pale red-brown. According to Martin the ♀♀ of this species are not much rarer than the ♂♂ and according to Hagen large numbers of *enima* enliven the Battak Plateau in the interior of the island, forming quite a feature of the landscape, with its savannahs overgrown with lalang grass. — **godana** *subsp. nov.*, smaller in size, with a more yellowish, very narrow *godana.* band on the forewing and reddish instead of black under surface. The eye-spots only with dull and obscure yellow-grey bordering. Very common in Java, where it is the first butterfly to meet the traveller on his ascent of the mountains, when he has passed the first 1000 m. In Mussourie, India, *rohria* occurs in two generations, first in April and May, and again August to October.

L. europa, already discussed in the Palearctic part, is one of the few *Lethe* which descend to the alluvial plains, a true village butterfly and to be found wherever there are bamboo hedges. Fabricius gave America as habitat of his type, which Butler was the first to correct, substituting Java, where the butterfly is indeed very common. If then the Javan branch-race is regarded as the name-type, some of the offshoots of the species occurring outside the Malay islands must be separated. But the ♀♀ of all the forms have in common a slightly broken, rather broad white band and nearly wedge-shaped ocelli, pressed flat, as it were, on the underside of the hindwing. The continental Indian race may be separated as **niladana** *subsp. nov.*; the ♀ is marked nearly *niladana.* as *nudgara*, but is smaller. Distributed from the Kumaon Himalayas to Burma, known everywhere as a lover of the shade and also of sweets. In Siam I took a strongly aberrant form, which probably occurs exclusively

gada. in the rainless period, in which season I collected it. — **gada** *form. nov.* is above easily recognizable by the larger yellow-grey patches and the broader yellow-grey distal border of both wings, which is very striking, especially as the examples are relatively of small size. ♀ with narrow white oblique band on the forewing. Under surface of the forewing with almost white, instead of yellowish subapical transverse bands. Siam and Tonkin in January
ragalva. and again from August onwards. — **ragalva** *subsp. nov.* is an absolute contrast to the preceding, forewing beneath traversed by a dark brown-yellow oblique band. Under surface of the hindwing likewise altogether darker,
nudgara. ocelli smaller, margined with dingy brown. Larva on bamboo. South India, Karwar. — **nudgara** *subsp. nov.* (96 c) is the largest branch race before me, at the same time bearing also the broadest white band of the forewing
tamuna. in the ♀♀. Andamans. Common near Port Blair. — **tamuna** *Nicév.* is a rare race from the Nicobars, only one ♀ as yet discovered, showing an ochre-yellow, instead of white band on the forewing (perhaps discoloured by moisture ?) but the form also differs further in having the band of the forewing distally more broken up, the
europa. yellow distal border broader and the median band of the hindwing more strongly angled. — **europa** *F.* (96 d) is the Macromalayan subspecies, in addition to the large islands also from Bawean and Nias in my collection, likewise known from Kangean. — Essentially different is the form from the island of Engano, which I would here
kumara. call **kumara** *subsp. nov.* The ♀ is characterized above by the white band of the forewing being only inappreciably broken, and hence almost rectilinear, and the apical ocellus of the hindwing in both sexes is almost twice as large as in Javan specimens and in the ♀ exceptionally distinctly margined with pure white. Rare, only found in April. — Towards the east *europa* first changes appreciably on Lombok. The form from this island is here introduced
mahamaya. as **mahamaya** *subsp. nov.* (96 d), ♀ characterized above by having the white transverse band rapidly narrowing posteriorly and strongly incised distally and beneath by the yellow tinge, especially on the forewing, which is not brought out correctly on the figure, accompanied by a weakening of the black cell-dots. Lombok, from the
pavida. coast up to the plateau of Sambalun (4000 ft.). — **pavida** *Fruhst.*, from Formosa, is a smaller and darker reproduction of the continental form, under surface easily recognizable by the less developed white or yellowish
alaca. longitudinal bands. Common on the whole island, as also on Hainan. — **alaca** *subsp. nov.* is the branch from the Philippines, which I have before me only from Palawan, but which probably also occurs identically on the other southern Philippine Islands. According to Semper *europa* flies there all the year round. *alaca* is beneath easy to distinguish by the unusually large and strongly elbowed white median band of the hindwing, which is
beroë. proximally bordered by very small ocelli. — **beroë** *Cr.* is the Chinese representative of the collective species, and is not known to me in nature, but according to Cramer's figure is distinguished by very large and uniform
cevanna. black ocelli on the hindwing of the ♀♀. South China. — **cevanna** *subsp. nov.*, judging by ♀ examples from Mindanao in coll. Staudinger, is the largest of all the insular races; it shows signs of island malanism in having the oblique band of the forewing narrow and appreciably darkened with yellowish.

L. arete, which by earlier authors was united with *europa* or confused with it, is doubtless the eastern representative of the western *L. europa*, but can stand as a species on account of the different shape of the wings and the round instead of apical ocelli of the hindwing. At the same time it must be admitted that the hitherto unknown South Celebes form presents in a measure a transition from *arete* to *europa mahamaya Fruhst.*
arete. from Lombok. **arete** *Cr.* (96 d), the name-type, inhabits the South Molucean islands of Amboina, Ceram and the Uliassers and is also in my collection from Buru. The chief difference from *europa* consists in the absence of the yellowish or white oblique band on the underside of the forewing, of which only a small vestige remains at the costal margin. ♀ above as in *europa* with a very broad white transverse band on the forewing, which is basally
arcuata. excurved far proximad between the medians. This is most pronounced in **arcuata** *Btlr.*, from North Celebes, whose ♀ differs from that of *arete* in its larger size and the quite thin median band on the underside of both
anatha. wings. Collected by me at Toli-Toli and the adjacent islet of Lutungen, in November and December. — **anatha** *subsp. nov.* is smaller than *arcuata*, above darker blue-grey, the subapical spots of the forewing obsolescent, all the ocelli of the under surface more compressed, but with strikingly broad, bright, glossy whitish violet
advipa. bordering. Sula Mangoli, collected by Doherty (October, November). — **advipa** *subsp. nov.* occurs on the North Moluccas: Batjan, Halmaheira and Ternate; it is always smaller than *arete* from Amboina, and the forewing is traversed by a narrower white band. Ocelli on the underside of the hindwing essentially smaller, but
velitra. more than twice as broadly margined with light earth-brown. — **velitra** *subsp. nov.* inhabits Sangir, approaches *arcuata* from Celebes, is almost as large as this, but bears much narrower white subapical bands in the ♀♀ than
nagaraja. *arcuata* and even *advipa*. — Furthest removed from the *arete* type is the hitherto unnoticed South Celeban **nagaraja** *subsp. nov.* ♂ above more distinctly spotted with yellowish white than *arcuata*, smaller, beneath with the ocelli as compressed as in *anatha*. ♀ differing not only from the ♂ but also from all the other *arete* races in having the ground-colour above light grey and beneath light, washed-out yellow-brown. Forewing with a narrow whitish band, strongly broken beyond the cell, ocelli of the hindwing also above conspicuously bordered with yellowish brown. Pupils of the ocelli on the under surface yellow, not brown as in *arcuata*, and beautiful red-brown longitudinal bands standing out in vivid contrast to the pale ground-colour. South Celebes, collected by me from the neighbourhood of the waterfall of Maros up to 1000 m. at the peak of Bonthain.

L. dyrta, probably the *rohria* of Fabricius, is one of the few species of which the earlier stages are known. The species is more widely distributed than was formerly supposed and its insular and local variation

has not hitherto been noticed. — **dyrta** *Fldr.* (vol. 1, pl. 30 d), described by its author from Bengal, is the North Indian branch of the collective species, occurs in Sikkim only in the hot lowlands, extends westwards to Kashmir and eastwards to Burma, and ascends in the Himalayas to 5000 ft. In Tonkin I observed two seasonal forms, one in April, at elevations of about 1000 m., with uniform grey, quite dull under surface, belonging to the dry season, and the rainy-season form with distinctly defined, silvery, violet-white bordering to the ocelli and longitudinal bands of the same colour (June—July). — **neelgheriensis** *Guér.* (96 d), from South and Central India, ascends in the Nilgiris to 7000 ft. Larva on bamboo, very long, slender, head and anus with long, sharp points. Light green with darker dorsal and lateral stripes. On Ceylon the larva was also found on grasses. — **yoga** *subsp. nov.* is the sharply differentiated island form of the upper surface of which Moore has given a very characteristic figure in Lepidoptera Indica; we represent the under surface at 97 b. ♀ easy to distinguish from the preceding race by the band of the forewing being broken up into three large, rounded, widely separated spots, whilst in *neelgheriensis* and all the other *dyrta* races it always traverses the forewing as a continuous broad band. *yoga* is further characterized by the darker under surface of the wings in both sexes (a manifestation of island melanism) and by the yellower, much narrower and more angled band of the forewing in the ♀. Ceylon. — **permagnis** *subsp. nov.* is the race from southern China, already mentioned by Leech from Foochow, and also known from Amoy. Whether examples from West and Central China are identical with it is still doubtful. The ♀ differs from that of *dyrta* from Tonkin in its larger size and in having the oblique band of the forewing yellowish instead of white. Under surface washed-out grey without distinct violet-white bordering to the ocelli, on which account I suspect that the ♀ type before me was collected in the dry season. Foochow. — **daemoniaca** *Fruhst.* is the branch from Formosa, which is somewhat smaller than *permagnis*, but nevertheless surpasses continental Indian examples. ♀, particularly beneath, with yellowish band and relatively small ocelli. Formosa, common on the whole island up to 1300 m, and also in Hainan. — **anunda** *subsp. nov.* is the charming and well separated island race recorded from Java since Horsfield's time, but not adequately noticed; it may be recognized by the delicate red-brown or chocolate-coloured under surface in both sexes and by the much smaller ocelli on the underside of the ♀, which are scarcely appreciably bordered with yellow. In my collection only from East Java and Bali, but it will certainly also occur in the west and probably in Sumatra. — **sambaluna** *subsp. nov.* (97 b) is the most easterly offshoot of the collective species; in contrast to the Javan form the under surface is grey and more washed-out than in continental examples. Above both sexes bear pure white subapical patches and the band of the forewing is more frayed at its proximal and distal edges. Locality the Plateau of Sumbalun on Lombok, at about 4000 ft., collected by me in April 1896. The form flies at the edge of the woods.

dyrta. *neelgheriensis.* *yoga.* *permagnis.* *daemoniaca.* *anunda.* *sambaluna.*

L. drypetis is one of those zoogeographically interesting species which are peculiar to southern India and have spread from there to Ceylon. — The name-type **drypetis** *Hew.* (= embolima *Btlr.*) (97 a misprinted *ebolina*) inhabits Ceylon, where it is met with in bamboo hedges, not very commonly. It is very local and as a rule does not occur below 1000 m. ♂ above unicolorous brown, ♀ with white oblique band, darkened into yellow at the margins, and beyond the cell twice slightly interrupted. Hindwing with three black spots, which are anteriorly and distally margined with light brown-yellow. Under surface of the ♂ similar to *daretis*, but without the yellow band of the forewing. Larva as in *neelgheriensis*, but more brightly coloured, with a lateral, pale-edged red stripe. Pupa pale green with a horn on the head and another on the breast. — **todara** *Moore* (97 e as *drypetis*), is the South Indian branch of the species, which only differs slightly from the Ceylon type. ♀ above and beneath lighter brown-yellow, transverse band of the forewing somewhat narrower, more regular, under surface with the brown shading less extended. South India, flying from May to September, and ascending to 4000 ft.

drypetis. *todara.*

L. daretis *Hew.* (97 a) is a delicate species, endemic in Ceylon and found nowhere else. ♂ above with three yellowish subapical patches. Hindwing with some black dots. ♀ with a beautiful yellow oblique band, consisting of four loosely connected patches, and two rounded yellow subapical patches on the forewing. Hindwing with yellowish submarginal area, in which are placed 5 ocelli of unequal size. On the under surface the bands are reproduced and the hindwing is lighter grey-brown, otherwise identical with that of the ♂. *daretis* flies all the year round, and is one of the few butterflies which occur at elevations of 7000 ft. on the Horton Plains. Dr. Seitz took it at Nuwara Elya. The ♂♂ are fond of resting on the upper branches of low forest-trees and fly round their tops in the sunshine.

daretis.

L. insana, a common species, distributed over the whole of the Himalayas and western China to Formosa, is better known under the name *dinarbas*. — **insana** *Koll.* (♂ = hyrania *Koll.*), described from Kashmir, is a relatively small highland form with grey-brown upper surface, the ♀ distinguished by a strikingly broad, sharply defined white transverse band on the forewing. ♂ beneath without red-brown patches on the forewing or silvery submarginal area on the hindwing. The butterflies are fond of shade, being met with at the foot of high rocks which cast a shadow all day long. Kashmir, Kulu, Mussourie and Kunawur. In Mussourie two generations occur, the first from April to June, the second in October. Larva on Arundinaria falcata Nees, the „Hill Bamboo" of the English. Green with a yellow dorsal spot, the head as usual very pointed; pupa sometimes green, sometimes brown, very similar to that of *drypetis*, only shorter. — **dinarbas** *Hew.* (97 a), judging from Hewitson's figure, seems to be founded on examples of the dry-season form and such specimens from

insana. *dinarbas.*

Assam in my collection agree best with its author's figure. Our figure shows the rainy-season form from Sikkim from the under surface. Not rare at 7—9000 ft. in the primeval forests of Sikkim and Assam. Doherty took *brisanda.* it also in the Naga Hills, from June to September. — **brisanda** *Nicév.*, described from Bhotan, is an extreme rainy-season form, easily recognized by the somewhat larger ocelli, a broader violet-white longitudinal band on the forewing and a metallic distal area on both wings. Hitherto only recorded from Bhotan, whence of *baucis.* late years it has been commonly brought to Europe. — **baucis** *Leech* (vol. 1, p. 84, pl. 30 c) must be regarded as the West Chinese local race. Band of the forewing narrow, rather sharply defined. ♀ with somewhat rounder *procris.* wings than its Indian allies. — **procris** *Leech* is a small aberration of *baucis*, and according to two examples taken by me in April at about 4000 ft. in the Mauson Mountains in Tonkin, which agree with Leech's figure, *formosana.* should probably be regarded as a product of the dry season. — **formosana** *Fruhst.* is a very small island race, about agreeing in size with the dry-season form from Sikkim; under surface, however, without the red-brown areas of *dinarbas* and with very small ocelli. From Mt. Morrison from 5000 ft., September, Formosa, rare.

margaritae. **L. margaritae** *Elw.* (97 b) is probably the largest *Lethe*, hitherto only known from Bhotan, from whence it is brought by the native collectors. Upper surface somewhat darker brown than beneath with complete reproduction of the yellowish grey bands and ocelli. The very rare ♀ is especially beautiful, showing a white oblique band on the forewing, a white median band on the underside of the hindwing and very large ocelli with yellow-brown bordering.

naga. **L. naga** *Doh.*, discovered by its author, who, however, only succeeded in finding one ♀ at the upper boundary of Assam. It approaches the ♀ of *philemon* (97 b), but bears on the forewing a white subapical band of uniform breadth running to the anal angle and on the underside of the hindwing a curved, whitish violet *philemon.* band reaching to the middle of the wing, which is absent in *philemon.* — **philemon** *Fruhst.* (97 b), from Than-Moi, in northern Tonkin (June—July), bears in the ♂ a distant resemblance to *lanaris Btlr.* (vol. 1, pl. 30 b), but the wings are more rounded and the ocelli on the underside of the hindwing, especially the apical one, are considerably larger. The number of ocelli on the underside of the forewing varies from 2 to 4 and the whitish violet bordering to the eye-spots of the hindwing is sometimes somewhat less intensive than on the figure. Very probably *philemon* occurs also in Yunnan, which may well be the true home of the butterfly, as I suspect it has spread from China to Assam and Tonkin.

b) With sexual spot on the fore- or hindwing or on both alike.

L. minerva is distinguished by the large black androconial patch of the forewing and the wide sexual dimorphism. Previously only known from Macromalayana, the species was also discovered by me in Lombok, *minerva.* the most easterly outpost of Micromalayana. — **minerva** *F.* (= arcadia *Cr.*, caumas *Godt.*) (98 a). All the names refer to the race from Java, where the butterfly is not rare either in the east or west, and comes both to fallen fruit and the same used as an artificial bait, appears nowhere to ascend above 2000 ft. Seasonal influences act upon it in so far as that examples of the dry season are smaller and a little paler than those of the rainy period. In general *minerva* is extremely constant, and the specimens collected by me in Lombok are only very slightly richer red in the ♂ and with somewhat narrower bands in the ♀. In Borneo *minerva* does not occur, and even *tritogeneia.* in Sumatra it is of rare occurrence. Doherty found it on Bali. — **tritogeneia** *subsp. nov.* is distinguished by the more extended and lighter red subanal region on the upper surface of the ♂♂ and the larger black patches of the ♀♀, and differs beneath in the darker ground-colour. Tenasserim, from January to November. Everywhere in Burma, but only sparingly. According to Distant's figure examples from Perak belong rather to *minerva* than *tritogeneia*; there too the species is rare.

dynsate. **L. dynsate** *Hew.* only occurs in Ceylon and is unknown to me in nature. ♂, according to the figures before me, brown above, with large, elongate sexual spot, formed as in the Euploids, between the lower median and submedian, two yellowish apical dots and on the hindwing five medium-sized black ocelli. ♀ with broad white oblique band on the forewing, a narrow median band, curved first distad and afterwards towards the base, and white bordering to the ocelli of the hindwing. Ground-colour light brown, hindwing distally yellowish. Under surface similar to *vindhya*, but with smaller eye-spots. Flies in March. April and July, neighbourhood of Nuwara Elya at about 5—6000 ft.

kansa. **L. kansa** *Moore*, originally described from Sikkim, comes with every consignment to Europe and is apparently equally at home in the hot valleys and at altitudes of 3000 m. *kansa* is one of the most simply marked species, above quite as uniform dark brown as beneath. Forewing without markings, hindwing with black ocelli of unequal size, which in Sikkim examples are distinctly margined with light yellow. In the Sikkim *zeugitana.* ♀ some indistinct yellowish patches are visible on the forewing. — **zeugitana** *subsp. nov.* (98 a as *kansa*), from Assam, is larger than the Sikkim *kansa*, altogether darker and the larger eye-spots of the hindwing are almost without yellowish bordering. Under surface brighter, red-brown bands more prominent, ocelli larger and more broadly margined with whitish violet. Assam, Manipur. Our figure agrees with *zeugitana*, whilst those of Stau- *vaga.* dinger and Moore distinctly represent the less highly coloured Sikkim form. — **vaga** *subsp. nov.*, collected by

me in Tenasserim at the end of the dry season at about 4000 ft., is smaller than *kansa kansa*, is above still paler brown, but beneath more sharply marked than the Sikkim race, and with the ground-colour almost white-grey. The ocelli of the hindwing are about midway between those of Sikkim and Assam ♂♂. Flies in May.

L. vindhya *Fldr.* (98 b) only differs above from the preceding in the ♀♀ showing an indistinct yellow- *vindhya.*
brown median longitudinal band. Shape of wings also somewhat more rounded, tails shorter, ocelli larger. — **dolopes** *Hew.* is the dry-season form of the species, recognizable by the lighter colouring of the under surface and by *dolopes.*
some of the ocelli being smaller. Very rare in Sikkim, Assam and Bhotan. Flies at elevations of about 1200 m. August, September. — **ladesta** *subsp. nov.* is likewise a small race, analagous to *kansa vaga* from the same district. *ladesta.*
Above with the ocelli scarcely half as large, under surface essentially darker than in *vindhya*. Eye-spots of the forewing absent, but hindwing with very distinct, although small, apical and anal ocelli. Tenasserim. Very rare, always only found singly.

L. serbonis *Hew.* (98 b), previously only known from Sikkim, received by me also from Bhotan in a form *serbonis.*
with somewhat darker under surface, is local and not very common; it is said to fly in the wet season, June to September, during which it is to be met with in dense forests at elevations of about 7—9000 ft. Upper surface uniform brown with slight bronzy reflection, ocelli of the under surface only showing through slightly, the anal one with distinct white pupil. Wings nearly quadrate, tails very short. A ♀ before me from Bhotan bears beneath very broad cocoa-brown areas and the submarginal band is twice as strongly developed as in the ♂♂. On the other hand the median brown longitudinal band of the forewing is absent in the ♀. — **davidi** *Oberth.* *davidi.*
(vol. 1, p. 83, pl. 30 b), in my collection from Mupin, is a geographical branch from West China, flying in June and July at about 8000 ft., whose relationship with *serbonis* Leech has already emphasized. **flavofasciata** *Leech* *flavofas-*
is probably the dry-season form of the ♀ of *davidi*. *ciata.*

L. sinorix *Hew.* (98 b) is a graceful species of elegant shape, easy to recognize by the sinuate forewing, *sinorix.*
the long, pointed tails and the broad, sharp, brown-red, almost rectilinear, parallel longitudinal bands of the under surface. Upper surface with three yellowish subapical patches on the forewing and a reddish, moderately extended submarginal area on the hindwing. Ocelli black, much larger than beneath. ♀ with the hindwing almost entirely light red and the yellowish longitudinal band of the forewing paler. *sinorix* is very constant, examples before me from Sikkim, Bhotan, Assam and Cachar do not vary at all. Very rare in Sikkim, it is more commonly taken in Bhotan. Flies from July to September. Dr. Manders found it also in Bernardmyo, Upper Burma, at 7000 ft.

L. samio *Dbl. & Hew.* is doubtless the Javan representative of the preceding species. Before my *samio.*
visit there, East India was recorded as its habitat. Even in Java very local and rare, occurring exclusively at Mt. Gedé at 4—6000 ft. It differs beneath chiefly in the elbowed, instead of straight distal band of the forewing. The ♂ is without the white, or more often yellowish subapical patches above, and the ♀ bears a very broad band on the forewing, composed of three longitudinal patches of unequal size.

L. satyavati *Nicév.* is beneath somewhat similar to *crijnana* (98 c) and with the ocelli of the same *satyavati.*
form, but without the white band of the forewing and of a pale grey-brown colour. Upper surface brown with the distal area but little lighter. Hindwing with small black dots in the ocelli, which show through from the underside. Only 2 ♀♀ known, which give quite the impression of an extreme dry-season form. Assam.

L. mekara is more widely distributed and much more variable than has been supposed. The species is more subject to seasonal dimorphism than the *Lethe* hitherto dealt with and almost always occurs together with *chandica Moore*. The two may easily be confused, especially as their dry-season forms are really very similar. But the under surface affords a safe distinguishing character in the distal band of the hindwing being but little excurved in *mekara*. — **mekara** *Moore* was described from Darjeeling, where it flies from the lower *mekara.*
valleys up to about 1500 m. from March to November in bamboo thickets, and when chased takes refuge among the foliage, when it is difficult to detect. Upper surface of the ♂♂ as in *crijnana*, except that the submarginal red on the hindwing is somewhat lighter and more extended. ♀ with light red upper surface to the wings and more extended white oblique band on the forewing, otherwise as in *sumati* ♀ (98 d), under surface similar to that of *crijnana* (98 c), but lighter and with much broader, glossy white median longitudinal bands. **vajra** *form.* *vajra.*
nov. is the unusually different spring generation (March, April), of which I have examples before me which show no markings at all on the underside of the wings and in which the uniform sand-brown ground bears only indistinct longitudinal bands. Together with it occurs an intermediate form, in which only the eye-spots are reduced, but distinct brown and whitish bands are still present. Moore also knew this form and figured it as the dry-season form of *mekara*. — **zuchara** *subsp. nov.* chiefly differs in the ♀ in the deep red-brown ground- *zuchara.*
colour of the upperside of the wings, the darker and more broadly brown median areas of the underside and their more conspicuous silvery whitish distal bordering. Moreover the ♂♂ are somewhat more richly coloured beneath and the spring generation does not produce such extremely small examples as in *mekara mekara*. Assam. — **crijnana** *subsp. nov.* (98 c), collected by me in Tonkin in August—September, forms a transition to the hitherto *crijnana.*
unnoticed Macromalayan races in the almost complete absence of the distal silvery bordering of the very narrow,

but dark brown median areas on both wings. Above the ♀ of *crijnana* resembles that of *sumati* (98 d), except that the bands of the forewing, which are broken up into three isolated patches, are not quite so narrow as in
gopaka. the Sumatran race. *crijnana* is probably distributed to Tenasserim. — **gopaka** *subsp. nov.* The submarginal region of the hindwing, above darker red-brown and smaller, is beneath easy to distinguish by the reduction of the red-brown median areas, in place of which the median whitish bordering of the red subbasal longitudinal
debata. band is considerably extended. Perak. Also reported from Salanga. — **debata** *subsp. nov.* (98 d), strange to say, is the albinotic extreme of the collective species: ♂ above with the subanal area of the hindwing somewhat less broad than in *sumati* ♂♂ (98 c) and the ♀♀ much paler, more yellow-red than *sumati* ♀♀ (98 d), but the under surface very washed-out, sandy grey-brown, of decided dry-form character and confusingly like the intermediate Indian *mekara*. ♀ beneath predominantly light yellow with dull brown longitudinal stripes and less pronounced whitish bands than *gopaka* ♀♀ from Perak. According to Martin *debata* is common everywhere in the alluvial plains where there are bamboo hedges, thus chiefly near villages and houses, but flies also on the spurs of the mountains. Examples from the last-named have the yellow-red colour on the upperside of the
sumati. hindwing more extended. — **sumati** *subsp. nov.* (98 c, d) is the furthest removed from the *mekara* type; ♂♂ recognizable at once by the extended light red submarginal area of the hindwing above, in which very commonly all the ocelli except the subanal disappear, and in the ♂ even the anal ocellus is also occasionally nearly obsolete. Under surface of the two sexes differing less from one another than in *gopaka*, also with less of the pure white, but marked with more intensive violet-grey. North Borneo, apparently not rare.

L. manthara doubtless represents *mekara* on Java and Bali, but is nevertheless entitled to specific rank, as is already shown by the vertical pointing of the grey-white band of the forewing, which is not obliquely placed in the anterior part as in *mekara*. The ♂♂, on the other hand, do not differ essentially either above or beneath from those of *debata* and *sumati*, although the disappearance of the red-brown bordering of the ocelli
manthara. has not advanced so far in the Macromalayan races. — **manthara** *Fldr.* (98 e) inhabits West Java at elevations of 2—5000 ft. and can be attracted with hung fruit. ♀ above nearly approaching that of *mangala* (98 e), but with more pronounced white-grey longitudinal band on the forewing and more extended light yellow-brown submarginal area. Beneath predominantly yellow-brown with light brown areas of fairly equal breadth, distally
mangala. somewhat darkened. Ocelli as in the ♂ almost uniformly filled up with violet. **mangala** *form. nov.* (98 e) is a dry-season form observed and collected only by myself in East Java, the ♀♀ of which have the under surface of a beautiful pale yellow tone, and entirely without brown bands. ♂ likewise without brown longitudinal areas, but as in *debata* and *sumati* with slight violet gloss in the median part. Elevations of 500—1000 m.

L. chandica, somewhat rarer than *mekara*, always occurs in India with the latter, at the same time and at the same altitudes. Somewhat more widely distributed than *mekara*, as it also extends into western China and to Formosa, and has spread from Luzon to Palawan. Like *mekara* it is very susceptible to local and
chandica. climatic influences and the result is a series of sharply differentiated local and island races. — **chandica** *Moore*, described from Darjeeling, is not very common in Sikkim, where it occurs from March (dry season) to October (end of the wet season) in the lower valleys. It is also reported from Assam and Manipur. Examples from Assam, however, stand in the same relation to the Sikkim type as *mekara zuchara* from the Khasia Hills to *mekara Moore*, i. e. they show a decided advance in the direction of melanism and a large series of ♂♂ in my collection differs from a similar series from Sikkim (as well as Moore's description and figure) in the more deeply coloured under surface adorned with darker brown. The ♀ is black-brown instead of red-brown at the base on the upperside of
flanona. the wings (= **flanona** *subsp. nov.*). — Further to the east, in Tonkin, the shape of the wings already differs and exam-
suvarna. ples from there (**suvarna** *subsp. nov.*) present a transition to *coelestis Leech* (vol. 1, p. 84, pl. 31 a), which has hitherto stood quite isolated. The rainy-season form does not differ essentially from *flanona* from Assam, on the other
rahula. hand the under surface of the ♂♂ in the dry-season form (= **rahula** *form. nov.*) has the colouring and the shape of the ocelli quite as in *coelestis* (vol. 1, pl. 31 a) and *ratnacri* (98 b). Moreover the ♀ closely approaches that of *coelestis*, from which it only differs in its smaller size, smaller eye-spots on the hindwing above, but larger ones on the hindwing
coelestis. beneath. Tonkin, Chiem Hoa, August—September, at about 800 m. — **coelestis** *Leech*, from Central and West China, observed by Leech also at Fuchow in southern China, shows, as is the rule in forms from the Celestial
ratnacri. Empire, a larger reproduction of the Indian *chandica*. — **ratnacri** *Fruhst.* (98 b) is a melanotic island race. Both sexes characterized by more rounded wings, shorter tails, ♂ above only with a very narrow red-brown distal line, ♀ dark red-brown with smaller ocelli on the hindwing above. Distal area on the underside of the hindwing extended, suffused with light chocolate-colour, and with a violet tinge round the ocelli, which is wanting in *coelestis*. Formosa, not very rare, especially in March and April near Kagi on the spurs of the mountains and
negrito. at the Lehiku Lake in the interior. Discovered by Herr Hans Sauter. — Under the name **negrito** *Fldr.* a whole series of heterogeneous island races are grouped together, but the name can only stand for the Luzon form, which occurs from May to August and then again from October to February. All the Philippine races approximate to

mekara Moore in the lighter or darker red-brown subanal area of the hindwing differing in breadth according to the locality. Most like it is probably **ratnapandi** *subsp. nov.*, which flies in January on Palawan and is very rare. Apart from the somewhat more rounded wings it is scarcely distinguishable above from *mekara debata Fruhst.* from Sumatra. ♀ above much lighter red-brown than even the Javan *marga* (98 c), but the white band on the forewing narrower, yet more compact, only the last intramedian spot separated. Anal angle of the forewing and costal part of the hindwing tinged with yellowish. Under surface of the ♂ about as in *ratnacri*, only the ocelli more uniformly round, but in colouring more approaching the Sikkim race. ♀ with beautiful yellow distal bordering to the brown median tooth of the longitudinal band of the hindwing. — **sisapon** *subsp. nov.* inhabits Mindoro; it is somewhat smaller than *negrito* from Luzon, but bears on the upperside of the hindwing the most intensively red tinge, the round, black ocelli being separated. — **byzaccus** *subsp. nov.* is the race from the island of Mindanao, where (judging from Semper's collection) two different seasonal forms occur, that of East Mindanao with a relatively large ♀, which has the band of the forewing still more divided than in *coelestis Leech* and even broken up into separate patches. On Mt. Sibulan, however, flies a smaller form with darker red anal border of the hindwing than in *sisapon*. — But the smallest race occurs on Jolo in the Sulu Archipelago: **jomaria** *subsp. nov.*, with much darker, reduced red anal area on the hindwing above, short, narrow white oblique band on the forewing of the ♀ and beneath with the deepest brown tinge. On Borneo *chandica* has yet to be discovered; there is no record from there at present. — **namura** *subsp. nov.*, from Sumatra and Perak, may best be described as a form of the Assam race with somewhat paler under surface, also differing from the Javan branch of *chandica* in the absence of the grey-violet tinge on the under surface; ♀ unknown to me, very rare. In 13 years Dr. Martin has only obtained one example from the Battak Plateau (North-East Sumatra). The ♀ bears a white transverse band on the forewing, which is very broad at the costa and is only once bent, and two indistinct apical spots. From West Sumatra (Padang Bovenland) in my collection. — Finally **marga** *subsp. nov.* (98 c) is the most differentiated island race, captured by me only at Mt. Gedé in West Java at about 12—1500 m., and very rare. The ♂, like the Sikkim *chandica*, bears very distinct yellow cilia on both wings, and the whole proximal side has a strong, glossy violet-grey tinge. Hindwing with a small but very dark brown spot inside the distal band, which is outcurved in the shape of a nose. ♀ above brilliant light red-brown, with yellowish costal border of the hindwing. In addition it bears on the forewing the broadest white subapical band of any of the known *chandica* branches.

ratnapandi. *sisapon.* *byzaccus.* *jomaria.* *namura.* *marga.*

L. distans *Btlr.* (98 c). An extraordinarily rare species, of which more ♀♀ than ♂♂ have been found, but relatively widely distributed, Bhotan, Sikkim, Assam and Burma. Details as to the habits of flight are not yet known. Moore thought that *distans* might probably be the spring generation of *chandica Moore*; an error which Nicéville has already refuted, for the dry-season form of *chandica* shows only very little of the red-brown shade on the hindwing above, and moreover Moore's type of *chandica* is actually based on the spring generation. For the rest the ♀ of *distans* has much more analogy with that of *mekara*, the band of the forewing being twice bent and broken up into separate patches and the upperside of both wings of a light yellow-red colour. The light grey upper surface of the forewing of the ♂♂, however, which is more suggestive of *L. kansa Moore*, is sufficient alone to differentiate *distans* from *chandica*.

distans.

L. delila *Stgr.*, above approaching *dora* (98 d), appears to replace *distans* on Borneo. The ♂ has above much more in common with *chandica* ♂♂, agreeing in the distal nose-shaped projection of the outer longitudinal band and the brown median spot on the hindwing beneath, but according to its author's diagnosis the ♀ bears a broad clay-yellow oblique band, which runs uninterrupted to the anal angle. Staudinger compares the ♀ of *delila* also with that of *darena*, which at once proves that this interesting species does not belong to the *chandica* group. Kina Balu and Marapok, North Borneo, at about 1000—1200 m.

delila.

L. dora *Stgr.* (♀ = cerama *Shelf.*) (98 d), of which we figure here for the first time the ♀, described by Shelford as *cerama*. The ♂ only differs above from the ♀ in the darker red-brown, more sharply defined anal area of the hindwing. Beneath both sexes are easy to distinguish from *delila* and *chandica* by the vertical submarginal band of the forewing, which borders a dark brown area as in *vindhya Fldr.* Very rare, type from South-East Borneo; has also been more recently discovered at Kuching in Sarawak.

dora.

L. perimede *Stgr.*, from Kina Balu. Only 2 ♂♂ known as yet. Size about the same as that of *L. europa F.*, which it somewhat resembles above, colour of the upper surface blackish brown, somewhat lighter than in *mekara sumati Fruhst.* Forewing with a sexual spot, which is placed beyond the cell and resembles that of the European *Satyrus* (*Pararge*) *maera L.*, extending from the upper median to the lower median near the cell-wall. Under surface of the forewing light grey-brown with dull steel-blue longitudinal bands, several ocelli and two anteterminal lines. Hindwing with six round eye-spots, which show white pupils. All the ocelli margined with brown-yellow. Behind the cell a glossy blue-green lunular spot and two median lines. The colouring of the under surface indicates affinity with *L. darena Fldr.*

perimede.

L. darena, the most richly coloured and most pronouncedly sexually dimorphic species of the genus, inhabits the Macromalayan region; already known from the three large Sunda Islands, its discovery on the Malay Peninsula will be only a question of the exploration of the mountainous regions, for it is only in these
sumatrensis. that this rare species seems at home. — **sumatrensis** *Stgr.* (98 d misprinted *sumatrana*) in the ♀ nearly approaches that of *borneensis* (98 e) and bears a broad yellow band, which becomes darker towards the hinder angle, shows a tendency to break up into round spots, and is proximally curved at the end. Forewing in addition with three light yellow subapical spots, of which the upper two are very small. Upper surface of the ♂ tinged with yellow-brown to beyond the cell. Locality the Battak Plateau in North-East Sumatra, where the species
borneensis. occurs all the year round. — **borneensis** *Stgr.* (98 e) differs from *sumatrensis* in the ♂ above in that the reddish ochre-coloured submarginal shading stops at the cell of the hindwing and does not enter it. The six wedge-shaped antemarginal patches of the forewing essentially larger, under surface differing considerably in the yellow subanal spot of the forewing being longer than broad and the longitudinal bands of the hindwing much broader and darker cocoa-brown. The much larger ocelli are placed in a lighter distal area and are margined with lighter yellow. ♀ beneath decidedly approaching the pattern and colouring of *chandica*, with the same median nose-shaped marking, which is distally covered with yellowish longitudinal stripes. Ground-colour reddish brown with grey-violet tinge. The oblique band of the forewing very broad beneath also and pale straw-
darena. yellow. The habitat of this most beautiful of all the *Lethe* is Mt. Kina Balu. — **darena** *Fldr.* ♂ analogous to *sumatrensis* in habitus and in the character of the colouring, but the submarginal light area on the upperside of the hindwing, as in *borneensis*, only extends to the cell-wall. Both wings beneath traversed by darker brown longitudinal bands, the ocelli more filled up with black and more distinctly white-pupilled. ♀ differing considerably from the two preceding races in the essentially narrower transverse band of the forewing, which is pure white on both surfaces, only extends to the submedian and before this has already a rounded patch separated off. Hindwing above lighter and brighter red-brown than in *borneensis* with beautiful yellow bordering to all the ocelli. Very rare on Java, found by me only in the west of the island, and there only on Mt. Gedé.

c) With sexual spots on the upperside of the hindwing.

christophi. **L. christophi** *Leech*, hitherto only known from Omishan in West China, was discovered by my collector in Formosa, so that there are now two races to register: *christophi Leech* (vol. 1, b. 83, pl. 29 e), with very large
hanako. glossy sexual spot on the hindwing, flying in July and August; and **hanako** *Fruhst.* (98 e), with somewhat smaller scent-area on the hindwing and beneath larger ocelli and stronger longitudinal bands. Flies in September and October, at about 4000 ft. Formosa.

mataja. **L. mataja** *Fruhst.* (99 a), a completely isolated species without near allies and easy to recognize by the almost deep black ground-colour, a white oblique band on the forewing running as in *verma Koll.* and a tuft of long, black, glossy hairs on the upperside of the hindwing, set between the middle and lower medians. Hindwing with the ocelli showing through from the underside. Under surface: black-brown, band somewhat widened, purer white than above. Three subapical ocelli, of which the anterior is the smallest. Hindwing with a row of 5 ocelli, of which the upper four are placed close together, whilst between the fourth and the bi-pupilled ocellus there is a large space, as the area between the middle and lower medians remains free, i. e. encloses no eye-spot. Both the wings are traversed by a thin brown antemarginal and a broader, light grey submarginal band. The forewing bears two longitudinal bands in the cell, the hindwing a fairly straight subbasal band and a sharply angled median band. At the apex of the cell there is further a light-dotted streak. All these bands are dark brown. The yellow-ringed ocelli show also a pale violet-grey border. Upper surface of the hindwing below the ocelli with a long tuft of deep black, glossy radiating hairs, in which *mataja* differs from all its allies of the *lanaris-baucis-naga* group. ♀ somewhat larger, paler than the ♂, the white band of the forewing about twice as broad. Under surface paler with somewhat larger ocelli. Rare on Formosa. Type from the Drachen Lake, afterwards received also from Polisha and Lehiku. Flies in September and October.

L. sicelis Hew. (vol. 1, p. 84, pl. 31 b) inhabits the main island of Japan, whilst on the southern island
vanelia. of Kiushiu a distinct race occurs: **vanelia** *Fruhst.*, characterized by the absence of the grey- or blue-violet bordering to the ocelli on the underside of the hindwing, which is always present in examples from Hondo and which both Hewitson and Seitz distinctly figure.

Group Rangbia *Moore.*

Both wings with sexual spots on the upper surface.

diana. **L. diana** *Btlr.*, described from Hakodate, on the north island of Japan, where an extremely elegant form occurs, which is very rare in collections, of small size and with a distinct band traversing the entire under
consanguis. surface of the forewing, which is violet in the ♂, yellow-white in the ♀. — **consanguis** *Btlr.* refers to an aber-
celeja. ration from Nikko on Hondo with large red foreground to the ocelli, whilst the normal form from Hondo,
whiteleyi. represented in vol. 1, pl. 31 a, is still without a name; I propose for it **celeja** *subsp. nov.* — **whiteleyi** *Btlr.* is the

branch race from southern Kiushiu, described from Nagasaki, and showing, according to examples in my collection, scarcely even the vestiges of a median band on the underside of the forewing. — **fixseni** *Btlr.* designates the subspecies from Korea. — *diana* is the only *Lethe* which bears a long hair-tuft on the underside of the forewing, placed below the submedian. *fixseni.*

L. scanda *Moore* (97 e). A conspicuous, easily recognizable and completely isolated species, and the only *Lethe* with distal blue reflection. The ♀ is so different from the ♂ that it has already been twice treated and described as a separate species (= nada *Moore*, dirphia *Druce*). ♀ above black-brown with two yellowish costal patches and two black intramedian dots on the hindwing. Under surface nearly alike in both sexes, dark red-brown with a paler, slightly oblique median band on the forewing, which in the ♀ may be called nearly whitish. Hindwing with six white-pupilled ocelli. Hitherto known from Bhotan, Sikkim and Assam, not rare in dense forests from 6—8000 ft. from June to September. The ♀ is very sluggish and does not fly freely. *scanda.*

L. bhairava *Moore* (97 e), recorded from the same localities and the Naga Hills in Assam, above resembles the ♀ of *scanda*, the sexes are coloured alike on the upper surface, a dull, dark coffee-brown; forewing with three rounded yellowish patches beyond the cell. Forewing with a black quadrate spot of modified scales at the submedian, hindwing with a patch of androconia beyond the cell and a tuft of glossy black hairs at the middle median. Flies from May to August and from 5—6000 ft. Nicéville says that the ♀ is not rarer than the ♂, but I have no examples before me, whilst over 20 ♂♂ have been sent to me from Bhotan. *bhairava.*

L. gulnihal one might be tempted to regard as an extreme dry-season form of *bhairava* if it did not itself occur in two sharply defined broods. Colouring as in *bhairava*, habitus essentially smaller, inner margin of the forewing convex as in a *Euploea*, hindwing above with a scent-area in the costal region much as in *Calliploea* and along the second median an androconial patch with glossy long hairs. — **gulnihal** *Nicév.*, described from Bhotan, is extraordinarily rare. Concerning its habits nothing is known, ♀ not yet discovered. — **peguana** *Moore* is beneath brighter and richer ochre-yellowish brown, the black hairy fur on the upperside of the hindwing more extended, ocelli on the under surface smaller. **issa** *form. nov.* differs from *peguana*, the type of which belonged to the rainy season, in the paler brown upper surface, from which the scent-pencil of the hindwing stands out twice as sharply, and in the almost unmarked, uniform yellow-grey under surface, on which all the longitudinal bands and ocelli begin to disappear. *peguana* was collected by me at Tandong, Tenasserim at about 4000 ft. in May, whilst I received *issa* through Nicéville from Saipha in Upper Burma (taken in March). The ♀ of *peguana* was found by Doherty in the Karen Hills, Tenasserim; it is lighter brown than the ♂ and shows yellowish patches on the forewing like the ♀ of *bhairava*. Ocelli of the hindwing showing through above. *gulnihal.* *peguana.* *issa.*

L. latiaris occurs in Sikkim in two generations, the first appearing in April and May, the second in October. The highest altitude to which the species is known to ascend is 8000 ft. There are two geographical branches to be mentioned: **latiaris** *Hew.*, from Sikkim to Assam, upper surface grey-brown, forewing only slightly convex, with a long patch of androconia at the submedian, hindwing with another very long, narrow patch, which is set as in *gulnihal* and *bhairava*. Hindwing of the ♂ rounded, that of the ♀ with distinct tail; ♀ with a yellowish oblique band on the forewing and as in the ♂ with the apical ocellus of the hindwing showing through from the under surface. — **perimele** *subsp. nov.* (97 c) is smaller than the preceding; ♀ with whitish transverse band and a whitish subapical spot on the forewing, also a row of five black eye-spots on the upperside of the hindwing. Under surface light grey-yellow with the longitudinal and oblique bands much narrower and the eye-spots on the hindwing scarcely half as large. Tandong, Tenasserim, May, collected by me at elevations of 4000 ft. *latiaris.* *perimele.*

L. syrcis forms with the next species a separate group, recognizable by the absence of sexual spots and by the rounded hindwing. The lower discocellular, however, as in all true *Lethe*, touches the fork of the upper and middle median. Two local races: **syrcis** *Hew.* (vol. 1, pl. 31 b, c); widely distributed in China, known from Ningpo to Mupin, flying in June and July; — and **diunaga** *Fruhst.* (98 e); smaller and above deeper grey-brown than the *syrcis* described by Hewitson from North China. The black ocelli of the hindwing much larger, less distinctly ringed with yellow. Under surface: essentially darker, ground-colour more brown instead of yellow-grey and the longitudinal bands, particularly those of the hindwing, red instead of yellow-brown. The antemarginal bands of both wings much broader, smoke-brown instead of light grey. Tonkin, Montes Mauson, April to May at about 3000 ft., coll. Fruhstorfer. *syrcis* is one of the most beautiful species of *Lethe* known, a purely Chinese species, which is here recorded for the first time outside of China (only, however, from a frontier-mountain, of which the northern flank is under Chinese and its southern slopes under French rule). *syrcis.* *diunaga.*

L. gemina Leech (vol. 1, p. 85, pl. 31 c), a very rare species from Omeishan and Mupin. Flies in June.

Group Tansima *Moore.*

Type, *satyrina*. Hindwing rounded; the lower discocellular terminates beyond the second median. Only Palearctic forms, thus:

L. satyrina Btlr. (vol. 1, pl. 30 d), widely distributed in China, described as from Shanghai (where it certainly does not occur, but had probably been brought there from Ningpo), but reported from Kiukiang to Mupin and Changyang from elevations of about 2000 m.

L. butleri Leech (vol. 1, pl. 30 a) is the commonest species of the group in collections. ♀ with yellow oblique band on the upperside of the forewing and yellowish apical area on its underside. From June to August everywhere in the Yangtze Valley and ascending to 7000 ft. — *proxima Leech* (vol. 1, pl. 31 e), likewise abundant from July to August and ascending to 7000 ft. Everywhere in West China. — *lanaris Btlr.* (vol. 1, pl. 30 b), described from Ningpo, but occurring in the whole of West and Central China, also belongs here. On the other hand *marginalis Motsch.*, which Moore united with *Tansima*, is a true *Lethe*.

Group Hermias *nom. nov.*

Distinguished by the rounded wings, recalling *Myealesis*, the strongly inflated costal and median of the forewing, the much shorter and broader cell of both wings, which is shorter than in any other group of *Lethe*, and finally by the lower discocellular of the hindwing touching the first median vein far above the second median. Monotypical, *verma Koll.* being the only known species. Is almost entitled to rank as a subgenus, differing considerably also in the clasping-organs, the uncus, unlike true *Lethe*, having the clasps distally widened laterally and deeply incised.

L. verma splits up into a series of geographical offshoots, which, although everywhere common, have
verma. not been noticed. **verma** *Koll.*, the typical subspecies, is very common in Kashmir and Mussourie, occurring in two generations, in April and May and again in August and September; it is fond of resting on the stems
sintica. of rhododendrons and oaks. — **sintica** *subsp. nov.* inhabits Sikkim and Assam, where it ascends to 8000 ft. and has been observed on into November. *sintica* presents very definitely the aspect associated with a rainy district; compared with *verma* from the dry west of the region, it is considerably larger, with broader bands; and
stenopa. the ocelli on the underside of the hindwing decidedly larger. — **stenopa** *Fruhst.* (99 b), the race from the most easterly part of the Indian Empire, described from Tonkin, recorded from Hainan, but distributed to the Shan States and Tenasserim, shows a reversion towards *verma*; comes likewise from districts with a small rainfall and hence again with predominantly dry-season facies. Ground-colour grey rather than black, the white oblique band of the forewing narrower than in *sintica* with a touch of yellowish, ocelli of the under surface smaller, and hence more isolated, only very slightly bordered with violet-white. Tonkin, Chiem Hoa, August and Sep-
satarnus. tember, Tenasserim, May, collected by me at Tandong at 4000 ft. — **satarnus** *subsp. nov.* is a mountain form from Omeishan, Western China, with the band still more narrowed, especially anally, and also placed further from the distal margin than in *stenopa*. Under surface with the eye-spots margined with darker yellow and with
laticineta. very slight violet bordering. Together with it occur extraordinarily broad-banded examples, **laticincta** *Fruhst.* (vol. 1, pl. 30 e, simply as *verma*), probably the extreme rainy-season form from the plains. China, June, July.
cintamani. — Finally, **cintamani** *Fruhst.* (99 b) is the melanotic island extreme, with the band of the forewing in the ♂ scarcely half as broad as in *satarnus*. Under surface of the wings very dark with large ocelli and especially distinct violet antemarginal line. June, July, up to 4000 ft. in the interior of Formosa.

30. Genus: **Neope** *Btlr.*

Differing in neuration from typical *Lethe* in the longer costal of the forewing, so that it is possible to separate them generically; moreover in the peculiarly marbled under surface they are so uniform among themselves and so different from true *Lethe*, that their group must be called an extremely natural one, and on this account they are here, as well as in vol. 1, treated as a distinct genus. Some species approximate in the long tails of the hindwing and the narrow cell of the forewing to *Zophoëssa*, to which the newly discovered *lacticolora* in particular forms a transition.

N. goschkevitschi reaches the furthest north and inhabits all the Japanese islands from Yesso to For-
japonica. mosa. — **japonica** *Btlr.* is the race from the northern island, described from Hakodate, and sent to me by Prof. Matsumura from Sapporo, smaller than *goschkevitschi Mén.* (vol. 1, pl. 33 c and d) from Hondo, on the main island, where it is common everywhere and rests on tree-trunks, from the bark of which it is difficult to distinguish. According to Seitz it also visits the gardens of Tokio and Yokohama, where it may be found on the walls, especially in September. The underside of the hindwing seems to be either light grey or dark yellow according to the season. In vol. 1, pl. 33 c, the grey ♀-form is distinctly represented. I am unfortunately
watanabei. without examples from Nagasaki but I suspect that they belong to a separate. race — **watanabei** *Mats.* was only recently discovered in Formosa; as it is unknown to me in nature I quote the original description: In shape and markings similar to *N. goschkevitschi Mén.* The distinguishing characters are the following: ♂. Palpi

much longer. Antennae unicolorous, light brownish yellow, blackish brown at the distal side, not ringed with whitish near the base as in *goschkevitschi*. Wings much darker, fringed with whitish at the distal margin; the three blackish spots in the second, third and fifth ocellus of the forewing about four times as large as in *goschkevitschi*. On the under surface of the forewing from the apex of the cell to the first vein runs a proximally curved, blackish transverse spot, which projects triangularly at the inner side. Hindwing unicolorous, dark brown, in the middle of the costal margin a triangular whitish spot, below which is placed a second lunular whitish spot; fourth ocellus at the base black nearly to the middle, at the distal side not whitish as in *gotschkevitschi*. Ocelli much smaller, the submarginal band indistinct. Expanse of the ♂: 70 mm. Locality: Formosa (Hippo), one example collected by the late superintendent K. Watanabe.

N. pulaha, originally described from Bhotan, was recently discovered on Formosa, from whence it has spread over western China. **pulaha** *Moore* (vol. 1, pl. 33 b), distributed from Kunawur and Simla to the *pulaha.* Khasia Hills, ascending in Sikkim to 11 000 ft., is fond of dark woods, in which it often rests on trunks of oaks and sycamores as well as the wild chestnut. Flies from March to August. According to Elwes *pulaha* also settle at dirty places in the roads, flying into the woods when disturbed, but returning again in a short time. — **pulahoides** *Moore*, described from the Naga Hills and Pegu, occurs also in Burma; it differs from *pulaha* *pulahoides.* in the larger and light yellow patches of the upper surface and the more extended yellow submedian area on the underside of the forewing. The hindwing is more delicately marbled, so that it might be taken for a dry-season form; a scheme of colouring which is common to many *Lethe* from Burma and Tenasserim, in contrast to the deeper-coloured forms from Assam and Sikkim. — **ramosa** *Leech* (vol. 1, pl. 33 b), described from Chang- *ramosa.* yang, Central China, but distributed in the whole of western China, flies in July and August. Differs from *pulaha* in the lighter grey under surface of the hindwing. — **didia** *Fruhst.*, from Formosa, has diverged more *didia.* widely; of smaller size, the forewing appears much darkened by the absence of the yellowish apical spot in the cell, whilst the hindwing shows a widening of the yellow foreground of the ocelli. The same applies to the bordering of the ocelli on the underside of the forewing. The hindwing finely marbled as in *pulahoides Moore*. Rare in the interior of the island at about 4000 ft.

N. lacticolora *Fruhst.* (= sagittata *Wilem.*) (99 a), one of the most splendid discoveries of my collector, *lacticolora.* Herr Hans Sauter, who found it in the interior of Formosa in the mountains at elevations of about 1200 m. ♂ upperside similar to *armandi Oberth.* (vol. 1, pl. 33 d), but with yellowish white instead of ochre-yellow markings. Hindwing with broad, deep black distal margin, dark brown cell, but otherwise entirely milk-white tinged with cream-colour anally. Under surface similar to *armandi*, but with white instead of yellowish shade on the forewing. Ocelli of the hindwing smaller, distal part suffused with darker brown, wings more pointed, especially the apex of the forewing and the tail of the hindwing. On account of the milk-white hindwing, which contrasts vividly with the black-grey of the forewing, the most striking known *Neope* and one of the most beautiful butterflies of Asia.

N. bhadra *Moore* (99 b), the largest and most conspicuous species of the group, shows some resemblance *bhadra.* to the Papilionids in its pointed wings and long tails. The butterflies love the dense bamboo thickets, in which the larva is also found. They occur from 1000 to 1500 m. and have only once been observed in October in Sikkim in any large numbers, otherwise they only occur singly. I observed them in Tenasserim at the beginning of the rainy season, when the premonitory heavy mists were descending on the mountain forests; the butterflies, which came out one at a time, and then shily and rapidly settled on tree-trunks, have a somewhat ghostly appearance, which was admirably in keeping with their gloomy surroundings. — **khasiana** *Moore* is a *khasiana.* local or seasonal form, which is distinguished by more whitish patches on the forewing and larger yellow areas on the hindwing above. Under surface predominantly white-grey. Sikkim to Tenasserim, Upper Burma and the Naga Hills. At the latter locality, according to Elwes and Moore, it seems to have developed a geographical race with which I am not personally acquainted.

N. yama is divided into three known local races, of which **yama** *Moore*, the name-type, belongs to the *yama.* western Himalayas. It was found there in the Kumaon district. at Simla and Mussourie, but is distributed to Sikkim and Bhotan. *yama* is nowhere common; it flies from May to July at elevations of 6—7000 ft. Larva on bamboo, to some extent gregarious, for three to seven have been found in a sort of nest constructed of three or four leaves. The eggs are laid early in July on the underside of a white leaf, in large numbers and in rows of up to 34 on one leaf. Larva straw-coloured with dark head, until it is nearly full-grown, when it becomes light ochre-yellow with a dorsal brown stripe and a row of dark brown dots and acquires a reddish head. The anal segment bears two yellowish points. Pupa short, very dark, and enclosed in a sort of moss nest, where it remains from September to the next June. Both the larva and pupa differ from the much larger larva and the more pointed pupa of *Lethe* — an additional reason for maintaining the group in opposition to Bingham. — **yamoides** *Moore* is larger, darker brown, beneath more strongly tinged with violet. Flies in May *yamoides.* in Assam and appears to be common at Bernardmyo in Upper Burma. — **serica** *Leech* (vol. 1, p. 89, pl. 33 a), *serica.* the darkest of the known races, above without yellowish costal spots and with the cilia scarcely yellow; re-

corded from Changyang in Central China and West China from 5—10 000 ft. It is not improbable that *yama* will still be discovered also in Formosa.

muirheadi. *felderi.* *segonax.* *segonacia.* *lahittei.* *bhima.*

N. muirheadi is a Chinese species which has spread from Central and West China to Hainan, Burma and Tonkin. Its ultimate discovery in Formosa would not be surprising. **muirheadi** *Fldr.* (vol. 1, p. 90, pl. 33 a), described from Ningpo in Tsekiang, is a form from the plains, also not rare on Hainan, whilst **felderi** *Leech* comes from the mountains of Omeishan. **segonax** *Hew.* is probably an extreme dry-season form, and **segonacia** *Oberth.* a diminutive race from Kiangsi. — **lahittei** *Janet* (99 b), known from Tonkin, where I found it in April at about 1000 m. in the Mauson Range and afterwards in August and September more in the valley, is beneath darker and bears narrower longitudinal bands, which are more white than yellow. ♀ with rounder wings, paler, with round black ocelli showing through above and a very indistinct yellow-grey longitudinal band on the upperside of the forewing. — **bhima** *Marsh.*, only known to me from Moore's figure, appears to differ from *lahittei* in the more distinct yellow bordering of all the ocelli on the upper surface, particularly those of the ♀. First discovered by Bingham in Upper Tenasserim, it was afterwards taken by Doherty also in Upper Burma. Occurs in March and April, and again October to November, and everywhere at low altitudes, not exceeding 600 m.

31. Genus: **Neorina** *Westw.*

Approximates — though only structurally — closely to *Lethe*, with which it has in common that the lower discocellular of the hindwing touches the furcation of the upper and middle median, and further the unusually short cells of both wings. On the other hand *Neorina* differs from *Lethe* in having the lower discocellular of the forewing more strongly angled proximally and in the long costal of the hindwing, with which, however, that of *Neope* already forms a connecting link; precostal of the hindwing far beyond the point of origin of the subcostal and boldly incurved basally. In one species there are also traces of a narrow precostal cell. Costal and subcostal separate, not coincident. Nothing has been published concerning the earlier stages. The genus is represented in the Macromalayan region by two species and on the continent by three. Two groups.

Group Neorina.

Hindwing rounded. Cell of the forewing short. Upper discocellular of the forewing distinctly recognizable, lower very long, moderately incurved proximally.

hilda.

N. hilda *Westw.* (94 d) differs beneath in the paler yellow bands and in the presence of a large black, white-pupilled ocellus proximally bordered with yellow, and two smaller blue-dotted subanal eye-spots. The apical part of the hindwing less broadly margined with yellow then above, in the subanal area the interspace of the submarginal brown-black double line filled up with grey-violet. In the very rare ♀ the eye-spots on the under surface are larger, and there are further some accessory ocelli between the median veins. *hilda* is a characteristic butterfly of the sombre oak and chestnut forests of the eastern Himalayas, where it occurs from June to September from 7—9000 ft. It flies up and down the forest-paths, settling either on the ground or on tree-trunks. The ♀ was found on a bare hill, flying on a sunny morning in the rainy season. Sikkim, Bhotan, Assam.

Group Hermianax *nom. nov.*

As a rule larger than *Neorina*, hindwing with long tooth at the upper median. Upper discocellular extremely short, indistinct, beneath excurved far proximad: upper and middle discocellular of the hindwing of equal length, whilst in *Neorina* the upper is much longer. Cell of the forewing much narrower and longer than in *Neorina*. In the clasping-organs the unusually long narrow valve is noteworthy for a distinctly constricted point, adorned with small teeth, recalling the European *Brintesia* (*Satyrus*) *circe* *L.* Uncus strongly curved, powerful, the lateral clasps unusually small, pointed. Type of the group: *N. latipicta Fruhst.*

pupillata. *latipicta.* *neophyta.*

N. lowi is split up into a number of easily distinguishable races, of which **pupillata** *Fruhst.* (94 c) is the most striking on account of the enlargement of the apical ocellus of the forewing; at the same time a supplementary eye-spot is placed between the middle and lower median, and is also occasionally repeated beneath, while it is present in no other species or form. The apical eye-spot in *pupillata*, as in all the other branch races of *lowi*, is beneath much smaller than above, but in *pupillata* exclusively there is here sometimes an accessory eye-spot. Otherwise the under surface of both wings only differs from the upper in having a further, relatively large, round, yellow-ringed anal eye-spot and a fine grey powdering on the distal part of the forewing and the basal part of the hindwing. Nias. — **latipicta** *Fruhst.* is larger than *pupillata*, the yellowish white spot in the anal angle of the forewing, particularly in examples from West Sumatra, more than twice as broad and the white intraneural dots on the forewing likewise larger. The apical eye-spot on the underside of the forewing is much smaller than in *pupillata*, and also the anal eye-spot of the hindwing. West and North-East Sumatra. The butterflies have a rapid, jerky, uncertain flight and are fond of the sap exuding from wounded trees. When feeding they rest with folded wings. *latipicta* inhabits the plains, is rather rare and ascends on the spurs of the mountains to an elevation of about 600 m. — **neophyta** *subsp.*

nov., from Perak, closely approaches *latipicta*, which was originally described from North-East Sumatra (Deli), but differs in the absence of the white intramedian punctiform spot on the hindwing above the anal ocellus, in place of which, however, there is sometimes an accessory ocellus as in *pupillata*. The under surface of both wings is darker, less dusted with grey than in the Sumatra form, the apical eye-spot of the forewing much smaller. The yellowish subanal spot of the forewing, also, is less developed than in *latipicta*. Perak. — **lowi** *Dbl.*, is the name-type of the collective species and is fairly constant, somewhat smaller than the races already dealt with, and apparently not rare in North and in South-East Borneo (in Pontianak). The apical eye-spot on the forewing above begins to decrease in size, sometimes completely disappearing. The anal ocellus on the hindwing beneath, on the other hand, is again very distinct, as in *pupillata* from Nias, more than twice as large as in *neophyta*. ♀, like that of *latipicta*, somewhat larger than the ♂, beneath more copiously powdered with grey. — **princesa** *Stgr.*, from Palawan, is a very different form, much reduced in size, with the yellowish patches on the upper surface broken up, and on the hindwing more deeply penetrated by the black costal tooth than in *lowi*. Under surface: in the ♂ the costal spot of the hindwing is completely broken up, but the ♀ is characterized by the band-like prolongation of the anal spot of the forewing, which reaches to the costal, on its upper parts, however, densely powdered with brown and beyond the cell somewhat interrupted. — **cossyra** *subsp. nov.* differs from *princesa*, which it otherwise nearly approaches, in the greater expanse of both wings, the larger ocelli and particularly in having the anal patches of the forewing and the costal spot of the hindwing above dusted with goldy brown. Paragua.

lowi. *princesa.* *cossyra.*

N. crishna, formerly only known from Java, divides into three local forms, two on the native island of the type and one continental, which was only recently discovered and affords the most conclusive proof as to the former land-connection between Java and Burma of any butterfly as yet known. — **archaica** *subsp. nov.*, from the Ataran Valley in Lower Tenasserim and the Yé Valley in Lower Tenasserim, discovered by Hauxwell in 1899, so closely approximates to **crishna** *Westw.*, from Java, that Nicéville declared them absolutely identical, which I at first also thought. But I find they show a number of small differences, which prove the continental origin of the species, such as their size, for the *archaica* ♂♂ surpass the largest *crishna* ♀♀ from Java; the yellow costal spot on the upperside of the hindwing is more extended and the submarginal band of the hindwing somewhat widened and proximally dusted with darker brown. But the most remarkable thing is that *archaica* more nearly approaches *crishna* from East Java (94 d) than the West Javan form of the collective species. Thus the latter bears not only essentially narrower and darker yellow bands, but also a larger black spot at the apex of the cell of the forewing than the East Javan *crishna*. The under surface is considerably darker, the goldy brown tinge on the subapical part of the forewing is absent, the basal shade of the hindwing more grey-violet, instead of mixed with yellowish, and the subanal band is bordered with violet instead of whitish. In short, the West Java race presents quite the aspect of a rainy-season, the one from East Java that of a dry-season form, which indeed is also in accordance with the climate. The occurrence of two such nearly allied branches of one species in Tenasserim and Java, however, indicates that a land-connection must have existed between the two, and that at a time when the Perak of to-day was not yet inundated with forms belonging to the Sumatra and Bornco fauna, since at the present time the *crishna* from Java and that from Tenasserim are separated by *neophyta* (described on p. 326) which belongs to quite another species and occurs everywhere in Macromalayana, whilst Burma and Java have *crishna* in common. *crishna* is a forest butterfly, which according to my observations only leaves its retirement in the sunny morning hours and flies about in the open for a few minutes either singly or in company with 3 or 4 others, or rests on leaves with the wings spread out, presenting a gorgeous spectacle, and after a short rest lazily disappears into the thicket again. In East Java it is not very rare on the southern mountain slopes in February and March, but it scarcely ascends above 500 m. Its similarity when flying to *Pap. helenus* already struck Doherty, and he thought that this mimicry might perhaps afford a certain protection to the Satyrid.

archaica. *crishna.*

N. patria Leech (vol. 1, pl. 32 d), from Omeishan in West China, where it flies in June and July, has an allied race in Assam, **westwoodi** *Moore* (94 d), which must be regarded as the largest Asiatic Satyrid and perhaps as the largest Satyrid known at all. The ♀ is even larger than the figured ♂ and has the band of the forewing paler and posteriorly more narrowed. Under surface more brilliantly coloured than the upper. the whole apical part goldy brown. At the apex of the cell a sharply angled, hook-shaped spot, hindwing with two round eye-spots, of which the upper is broadly margined with beautiful yellow. Flies in September-October, up to elevations of about 3300 ft. According to Bingham *westwoodi* has also been found in Burma.

westwoodi.

Here is to be inserted the genus **Neorinopsis** *Btlr.*

This fossil genus was discovered in tertiary deposits from Aix in Provence, where the butterflies lived at that period in the midst of a purely tropical flora, which offered them about the same conditions of existence as their modern relatives still find to-day on the southern slopes of the Himalayas. The pattern of the wings in the only species somewhat resembles that of *Neorina latipicta Fruhst.*, whilst the arrangement of the ocelli is more similar to that of *Zophoëssa dura* and *sura*. But the most important fact about this fossil is that it enables us to prove that the neuration of the Satyrids has not altered materially since the tertiary period. Two radials and three median veins are distinctly recognizable on both wings, and even the submedian

arises at the same distance from the lower median as in modern species. Only the hindwing shows a somewhat different structure from the existing one in the course of the costal. In general the neuration appears to be somewhat more simple than at the present time, e. g. the discocellular is wanting on the figure to which I have access. It is, however, interesting and valuable to be able to show, with the help of these remains of *Neorinopsis*, that the terminology of the structure employed by Bates and Schatz, and recently by me in this work, is also phyletically founded, whilst the attempt of a modern author to prove three radials but only two median veins not only contradicts the present conditions, but is also entirely untenable from the standpoint of the evolutionary history.

N. sepulta *Bdv.* is the only known species. Under surface of the forewing with 6 intramedian circular eye-spots, proximally adorned with a white dot. Hindwing with six ringed ocelli of unequal size and a white spot at the point of origin of the median vein. It is especially striking that the forewing is tailed at the upper median, and not the hindwing, as in the extant species.

32. Genus: **Anadebis** *Btlr.*

In my opinion there are only two known species of this genus, which have been divided among not less than five genera. It is distinguished by long antennae and an unusually broad cell of the forewing, which is closed by an oblique, only inappreciably curved tubular vein. The middle and lower discocellulars are of almost equal length, in which *Anadebis* is at once distinguished from *Zethera*, a genus which it otherwise nearly approaches. From *Neorina Anadebis* differs in the rounded hindwing resp. the absence of the tails and the angled lower discocellular of the forewing as well as the much longer cell. The species of *Anadebis* inhabit Anterior and Further India, and the island of Hainan.

himaehala. **A. himachala** *Moore* (94 a), described from Darjeeling, from examples collected by Schlagintweit. A true forest butterfly, which is very local in Sikkim and only occurs in the lowlands, but on the other hand is very common in Assam, flying from May to August; according to Elwes ascending in Sikkim to 4000 ft. and on the wing from April to October. According to Wood-Mason *himachala* but rarely leaves the dense forest and even then still keeps in the shadow of high trees. Bingham reports its occurrence also in Upper Burma. The under surface only differs from the figured upper surface in the grey-violet bordering of the rows of ocelli, the beginning of a grey-white oblique band on the forewing and a large apical eye-spot on the hindwing, which is somewhat out of alignment, being distally placed. ♀ larger, in the whole distal part of both wings somewhat paler than the ♂♂ and the grey costal area more extended. *himachala* possesses the most regularly and probably also the most beautifully developed ocelli of the whole Satyrid family.

diademoides. **A. diademoides** *Moore* approaches *batmara* (94 a), except that the white subapical areas of the forewing are absent and the upper surface of the hindwing bears very long, elongate-oval white postdiscal patches. *diademoides* appears to occur in two generations, like many *Lethe*, as it is reported from the months of March and April and then again from the autumn. From Tenasserim to North Burma, in the Karen
batmara. and Shan Hills, from Pegu at elevations of 3—5000 ft. — **batmara** *Fruhst.* (94 a). The ♂ differs from *diademoides Moore* in the shorter wings. Ground-colour dull black. The submarginal series of round white dots on the forewing somewhat more prominent than even in *henrici*, especially the median ones much enlarged, whilst the dots on the hindwing are strikingly reduced. *batmara* is very distinct from all its allies, particularly in the 5 elongate, white subapical ultracellular spots of the forewing, which are also reproduced on the under surface (as well as all the other white markings). Length of the forewing in the ♂ 34 mm. Cen-
henrici. tral Tonkin, Chiem Hoa; August, September. — **henrici** *Holl.* is a distinct local race, characterized by the presence of an incomplete fourth row of three subapical dots on the forewing, which is forked with the normal submarginal row of dots. By the great reduction of the white tear-shaped patches of the hindwing *henrici* is shown to be a true island form. There are only two ♂♂ known, from Hainan.

33. Genus: **Coelites** *Bdv.*

A genus with but few species, on the hindwing completely agreeing with *Lethe*, whilst the forewing differs in the proximally curved middle and lower discocellular, which are of pretty equal length. Costal strongly swollen, about as in *Tansima*, palpi very long, forelegs short. True forest butterflies, as their dark blue, dull colouring already indicates, only distributed over Further India and Macromalayana, with the exception, however, of Java, and with one branch to Celebes. Two species possess large black sexual spots in the innermarginal fold of the hindwing. The butterflies love to rest on the ground, like many *Lethe* and *Melanitis*, only rising when flushed and then immediately dropping again, and always sit with the wings closed, scarcely distinguishable from the decaying leaves which cover the ground in the woods.

C. nothis, whose habitat, which I ascertained to be Siam, was unknown before my journey to South Asia, falls into three local races, and a fourth may still be looked for from the district which has furnished
nothis. *Stichophthalma cambodja Hew.*, namely from southern Cochinchina and eventually from South Assam. — **nothis** *Bdv.*, fairly similar in both sexes, is above characterized by wonderful, dark, glossy blue reflection, which only leaves the grey-blue distal part of both wings free. Hindwing with a long, black, glossy androconia-patch, which is covered by a tuft of long hairs. Under surface similar to that of *sylvarum* (94 b), but with straight brown median band and smaller ocelli on the underside of the hindwing, which in the ♂ are all of the same size. Siam,

flying in January and February at about 300 m. According to my observations the butterflies flew there only in the afternoon and for a short time, and presented a weird appearance with their colours flashing out just momentarily. — **sylvarum** *Fruhst.* (94 b) is a smaller form with more compact wings and with darker blue reflection extending further on towards the distal border, under surface darker with broader brown longitudinal bands on both wings and large anal ocellus, which is anteriorly accompanied by a much smaller eye-spot. Tonkin, Chiem Hoa, taken in August and September at the same elevations as *nothis*. — **adamsoni** *Moore* represents *nothis* in Upper Burma, where it was discovered as a great rarity by Major Adamson in September—October in the dense, dark, damp Rotang forests. Judging from Moore's figure it appears to be somewhat smaller even than *sylvarum*, and to differ from the latter on the under surface in having two well developed subanal ocelli of equal size on the hindwing. Moreover the distal area of the hindwing beneath is more extended whitish grey, with straight, narrow median band. *sylvarum.* *adamsoni.*

C. epiminthia has the upper surface of both wings glossy violet-blue and bears on the hindwing near the anal angle above the submedian a strong hair-pencil, which shades a dark steel-blue, oval, posteriorly pointed scent-spot. — **epiminthia** *Westw.* (94 a) inhabits Macromalayana with the exception of Java and appears not to differ locally. ♂♂ from West Sumatra are somewhat larger than those from North Sumatra, Perak and South-East Borneo in my collection. — **binghami** *Moore* is only known as yet from Tenasserim, where it probably occurs in two generations, as it was observed in May and then again in October; it is very rare and inhabits dense Rotang jungle. It is easy to distinguish from the insular race by the brilliant light blue colouring of the upper surface and the row of smaller ocelli on the underside of both wings, which is altogether lighter. Forewing in addition with the apical part less strongly produced. — **vicinus** *Fldr.* is the very rare Celeban branch of the collective species, which is unknown to me in nature, and appears to be confined to the north of the island, as neither Doherty nor my collectors found it in the south. *epiminthia.* *binghami.* *vicinus.*

C. euptychioides occurs in two geographical branches, as **euptychioides** *Fldr.* (94 b) in Borneo and as **humilis** *Btlr.* in Perak and Sumatra. Above the two races differ in the absence in *humilis* of the delicate blue subanal colouring which distinguishes *euptychioides*. Under surface of the two almost alike, with an apical ocellus on the forewing and four small eye-spots and one large one on the hindwing. The large anal eye-spot has a light yellow, strikingly broad border and a white pupil. Both forms are extremely rare. Larva of all the species of *Coelites* probably on Rotang. *euptychioides.* *humilis.*

34. Genus: **Ptychandra** *Fldr.*

This genus is called by Schatz an aberrant form of the *Lethe* group of Satyrids, with the characters maintained more in the ♀, whilst the ♂ is said rather to recall Lycaenids in the brilliant blue colouring of the wings. It seems to me that on account of the three swollen veins of the forewing, which do *not* occur in *Lethe*, and the sexual characters of the forewing, *Ptychandra* should much rather be placed near to *Mycalesis* than to *Lethe*, as it has only the tail-appendages of the hindwing in common with the latter. *Ptychandra* males differ both from *Mycalesis* and *Lethe* in having the three median branches arising from one point of the median vein, a formation which is nowhere else repeated in the Satyrids. Forewing between the 2. and 3. median branch with a deep, elliptical androconia-cavity which is shaded by a long black hair-pencil and sends off an interneural furrow to the middle of the wing. Anal margin of the forewing beneath ornamented with dull, light red-brown scent-scales, with which a narrow costal area filled with dark brown specialized scales corresponds on the hindwing above. The upper discocellular of the hindwing is absent; the middle is distally somewhat incurved; the lower very long and slightly concave or straight and closing the cell off short. Only three sharply differentiated species of the genus are yet known, which again break up into easily recognizable island races. — Concerning the earlier stages and the habits of the butterflies nothing has yet been published.

A. Forewing with the lower discocellular somewhat curved distally. Androconia-cavity with deep black scales. Forewing only with short, stiff hair-pencil below the third median vein. Cell of the hindwing with long, thin hair-pencil.

P. schadenbergi *Semp.* ♂ above dark blue. Forewing with a white crescent at the costal and a white submarginal line. Under surface of both wings grey-black with red-brown undulate bands, forewing with three distal ocelli, of which the posterior ones are very indistinct. Hindwing with a row of six almost contiguous eye-spots, and a more proximally placed apical eye-spot, which is margined with reddish yellow. There are two forms of the ♀, one which Semper figures, with white anal area on the forewing and yellowish distal region on the hindwing, which is only quite narrowly margined with black-brown, probably belonging to the dry-season form and **hebetatrix** *Fruhst.* (93 g), probably flying in the rainy season, and differing in the grey-brown inner margin of the forewing and the extended brown bordering of the hindwing. On the under surface all the white areas of the upperside are reproduced and also the disc of the hindwing is broadly pure white. By this white disc and the smaller eye-spots the ♀ of *schadenbergi* is easy to distinguish from that of *lorquini*. Flies according to Semper in October, December and January. Mindanao, occurring throughout this large island. *schadenbergi.* *hebetatrix.*

B. Forewing with the lower discocellular straight and a short hair-pencil between the 1st and 2nd median veins.

P. lorquini occurs together with *schadenbergi* on Mindanao and is further distributed over the greater part of the Philippines and even the North Moluccas. ♂ above very similar to *bazilana* (93 g), but in the name-
lorquini. type **lorquini** *Fldr.*, from Luzon, somewhat darker blue with more distinct, white subapical spots and somewhat broader white submarginal line. As in *schadenbergi* there are several forms of the ♀; the typical form is larger than that of *schadenbergi*. Forewing with pure white, broader subapical band but much narrower median one. The two are connected, whilst in *schadenbergi* they are placed far apart; between the upper and middle median there is a white circle, which is wanting in *schadenbergi*. Hindwing: the basal and median areas yellowish instead of white. The white colour which in *schadenbergi* fills up almost the whole discal part of the wing has disappeared except for a few submarginal remnants, and is displaced to near the distal margin. Ocelli larger, ringed with lighter yellow. Under surface: as on the upper surface, the white markings of the forewing show a tendency
obscurior. to increase, those of the hindwing to decrease. Bordering of the ocelli lighter yellow. — **obscurior** *Fruhst.* shows
mindorana. the white parts of the hindwing strongly reduced. Luzon, flies from January to April. — **mindorana** *Semp.* has the wings shaped more as in *schadenbergi*, whilst the sexual spot of the forewing indicates that it belongs to *lorquini*. Under surface with bluish silvery markings in the ♂, not undulate but straight at the distal margin
mindanaen- of the forewing, ocelli of the hindwing in a continuous row. Flies in February. Mindoro. — **mindanaensis**
sis. *Fruhst.* is larger than *lorquini* from Luzon, the ♂ beneath more copiously marked with slate-grey and the anterior ocelli are larger. Forewing of the ♀ traversed by a broad, continuous whitish band, hindwing with the costa
bazilana. not yellowish. Flies May to October and again December and January. Mindanao. — **bazilana** *Fruhst.* (93 g ♂♀ as *caerulans* ♀). Chiefly distinguished by the ♀, in which the median band of the forewing is once or twice interrupted, and by the hindwing, which shows a broad, yellowish bordering to all the ocelli of the upper surface.
leucogyne. Bazilan, in February and March, discovered by W. Doherty. — **leucogyne** *Fldr.* is the race from Halmaheira in the North Moluccas, which is unknown to me in nature, and to which transitions will perhaps still be found on the Sangir and Talaut Island.

caerulans. **P. caerulans** *Fruhst.* is distinguished by a tuft of long hairs on the forewing, otherwise like *lorquini* ♂. In habitus and in the shape of the tail intermediate between *schadenbergi* and *lorquini*, above lighter blue than either. The white submarginal teeth of the forewing similar to those of *lorquini*, the whitish antemarginal line of the hindwing absent. The anal ocellus of the hindwing above, which is very distinct in *schadenbergi* and wanting in *lorquini*, reduced to a small dot. The under surface of the wings more approaches *schadenbergi* through the absence of the typical silver-grey bordering to the ocelli of *lorquini*. The under surface of *caerulans* is, however, somewhat less brightly coloured and with smaller ocelli on the hindwing than that of *schadenbergi*, the grey-white markings show a tendency to disappear and hence lean again towards *lorquini*. Luzon.

35. Genus: **Mycalesis** *Hbn.*

The Mycalesids are among the few genera which are common to Asia and Africa. Their area of distribution is thus very wide. Africa seems to possess the lion's share, so that Aurivillius was able to enumerate over 100 species belonging to two genera (*Mycalesis* and *Henotesia*).

Over the whole of the Indo-Australian Region about 90 species are distributed, of which continental India and the Papuan region have nearly equal numbers, a fact which is probably unique in the oriental Rhopalocera and can only be due to *Mycalesis* having developed from two main stocks, so that we must assume also two centres of distribution from which the stream of species took its rise.

Outside these centres (continental India and New Guinea) the number of species decreases comparatively rapidly even in the equatorial zone. In the Macromalayan region there are in Sumatra and Borneo only 13 species each, on Java only 10 and the same number on the Philippines. China is rather poor in them, the Yangtsekiang Valley yielding about 10, the Loo Choo Islands only two species and the two known Japanese species may have spread thence along the North Chinese coast. Celebes, which, as usual, has received contingents from four directions (Philippines-Moluccas-Flores and Java-bridges), possesses the very respectable total of 12 species, whilst from the Moluccas we only know 5 or 6. About five species inhabit the Micromalayan maze of islands and Nias has the same number. The South India-Ceylon subregion occupies a peculier position, possessing a relatively large number of endemic species which occur nowhere else, and do not even possess near allies (*M. occultus Marsh.*, *adolphei Guér.*, *patnia Moore*). South India alone produces 8 species, Ceylon 6, only 4 or 5 extend to the Andamans, on the Nicobars not more than 3 or 4 species. From Engano on the south-west coast of Sumatra only one species is known as yet; from Banka on its north-east coast six. Also to the east of New Guinea the number of species falls off very rapidly. In the Bismarck Archipelago 9 species still occur, on the Solomons about 4.

Mycalesis finds the eastern limit of its range on the Polynesian Islands, where only two species occur (*perseus F.* and *medus F.*), which very probably did not reach these isolated, sea-girt outposts by their own free will. Their transportation by men, ocean-currents, the wind, etc., would be so much the easier as their larvae are grass-feeders and not particular as to their food.

In general we find in *Mycalesis*, together with a few widely distributed species which inhabit the whole Indo-Australian Region, a striking number of strictly localized and sometimes very rare ones; this especially applies to New Guinea, which is much richer in forms than the whole continent of India, while it only covers about the same area as Burma with Tenasserim, and German and British New Guinea together are not larger than Tonkin and the northern provinces of Annam. But whereas in Tonkin we still meet with about 10 of the same species as in Sikkim, at a distance of 14—15 degrees of latitude, the adjacent territories of German and British New Guinea, apart from the banal Australian *Mycalesis*, only possess three species in common. Thus the uniform, moist climate of the equatorial zone, in which New Guinea lies, evidently favours the development of species at short distances. The climate of the Indian subtropics, with its long dry periods, hinders the modification of the species, so that new local races are only formed at long distances. Hence the species remains so much the more constant as it approaches the poles, and becomes more and more variable as it nears the equator.

All the *Mycalesis* prefer to keep among the lower bushes and near the ground, which they only leave for a higher flight on two occasions, namely during the nuptial flight and when two jealous males meet and fight.

The commoner species love open, grassy places, and especially also coffee-gardens overgrown with weeds, the rarer ones prefer the edges or even the damp interior of woods. They are however, nowhere met with in numbers together, such as are observed in Papilionids, Pierids and many Nymphalids, but though otherwise by no means shy, they show a preference for solitude. — Occasionally they are attracted by dirt on the road or by the red betel saliva which the Malays spit out, or again by the chewed sugar-cane which the natives throw away. In Tonkin they are sometimes met with in wet hollows strewn with fallen leaves, settled together in fairly large numbers. When anyone approaches they all hurry to escape unnoticed, either flying or running on their slender legs.

Together with *Ypthima* and *Neptis*, *Mycalesis* are also met with on rainy days and offer „thus to the otherwise disappointed collector solace and occupation". They fly chiefly in the early morning or late evening hours, although they also venture out throughout the day, but then always keep near the shade of the vegetation. In vertical distribution we meet with them both at the sea-coast under the fronds of the cocoanut-palm and high up in the mountains near the pines or among the prickly Rotang. In Java *Mycalesis sudra Fldr.* everywhere inhabits rough ground overgrown with low vegetation up to 4000 ft. and in Celebes *erna Fruhst.* still seems at home even at 5000 ft. above sea-level. *Mycalesis marginata Smith* was recently reported from the volcano of Singalang in West Sumatra at an elevation of 6000 ft. as one of the dominant butterflies.

Although the Mycalesids are chiefly found in wet weather, they do not entirely disappear in the dry season. Particularly in China and continental India nearly all the species occur also in the almost rainless months and their highly differentiated dry-season forms gave earlier authors a favourable opportunity for creating new species.

Although the Mycalesid larvae, like those of most Indian Satyrids, feed on grasses and could be easily bred and observed, their life-history still remains almost entirely unknown. Nicéville seems to have been the first to succeed in breeding it, about the year 1885, obtaining the dry-season form of *Mycalesis visala Moore* from the egg. That careful observer Dr. Martin first succeeded during his 15 years' residence on Sumatra in rearing five species of *Mycalesis*, chiefly because, acting on a suggestion of Nicéville's he „planted strong specimens of a tender species of grass beforehand in a large glass, into which living females were afterwards thrown". According to Martin *medus* has whitish green, spherical eggs; *mineus* greenish white ones of the same shape; *janardana* white-green eggs, which are laid singly. *anapita* eggs are yellowish white and smaller than the others, those of *marginata* dark yellow. The egg of *visala*, according to Nicéville, is almost white, with a clear transparency. The young larva of *visala* pale green, the head black with two black horns, the tail-appendages very small. The full-grown larva is $1^1/_4$ inch long and after the last moult becomes pale reddish, covered with small greenish yellow dots. Along the dorsum runs a light green line, whilst the sides are occupied by dark stripes. The horns on the head and the tails are enlarged. Head and horns covered with dense rough excrescences. The head is short-haired and the whole body roughened by a number of small tubercles. The pupa is suspended by the tail and is of light transparent green colour, the thorax convex and the abdomen constricted at the base.

According to Martin the larvae rest low down on dead sheaths and stalks in the day-time, never on green leaves, and only come up at night to feed. The pupal stage lasts 3 to 10 days; the imagines of *mineus* emerge between 9 and 10 o'clock in the morning.

The larva of *horsfieldi Moore* will only accept rare grasses from the edges of woods; it is somewhat more slender than that of *mineus* and tan-yellow. The larvae of *janardana Moore* are sluggish, let themselves fall directly they are touched and feign death; they resemble certain leaf-slugs and when full-grown measure 35 mm.; the butterfly emerges in the afternoon between 2 and 3 o'clock after about 11 days of the pupal stage.

Structurally the distinguishing character of the genus consists in the short, transversely cut off cell, and the long lower discocellular of the hindwing, which is sometimes weakly curved proximad. The latter terminate as in *Lethe*, beyond the furcation of the upper and middle median (*mnasicles*) or before it (*visala*), i. e. basally, or directly at the furcation, yet this character is only of secondary importance. More important is the position of the subcostal veins of the forewing, by which, like the African, the Asiatic Mycalesids can easily be separated into two subgenera or genera, according to the importance which is attached to the differences in question, namely species with two veins arising before the end of the cell and those with one only. From their African relatives (*Mycalesis s. str.*) the Asiatic species are easy to separate by the lower discocellular of the forewing being proximally curved, not straight, and by the hairy eyes; but from the otherwise almost identical *Henotesia*, with which they agree in the hairy eyes, only by the longer upper discocellular of the hindwing.

An important distinguishing feature of almost all the Mycalesids, especially the African species, consists in the highly developed secondary sexual characters, which misled Moore into the erection of 22 genera. Yet it is just in the Asiatic Mycalesids that these organs are especially subject to wide variation and they are so susceptible to external influences that they differ even in the seasonal forms of one species and are graduated from subspecies to subspecies in the separate races of the Philippine Archipelago. In making preparations of the neuration, however, both the androconia and the hair-pencils resist the action of the chloride, whilst the non-modified scales disappear absolutely. Lieut.-Colonel Manders has established that the yellow, hair-like appendages (*processus*) on the upperside of the hindwing of *perseus* and *polydecta* are placed immediately behind the origin of the subcostal. They mostly stand out as a tuft among the scales of the wings and are extended like a fan upwards and outwards to the oval depressions which are further described below. They are formless, but solid (so far as can be seen on a magnification of 950 diameters), run out gradually to a point and are probably chitinous in their construction.

Of the oval depressions mentioned above, one is placed at the submarginal of the forewing beneath, the other occasionally below, but more commonly above the subcostal of the hindwing above. In *perseus* and *polydecta* these depressions are black and consist of very densely massed scales with uniformly rounded ends. That all these spoon-like structures only indicate depressions in the surface of the wings is evidenced by the fact that these scales are not all in focus at once in the microscope. In some examples of *perseus* and *polydecta* these impressions have a dark iridescense, some are of deep blue, others again of light blue colour, the intensity of the colour varying according to the angle of light. Even when magnified the scales show only slight striation, but in all cases the ends are uniformly rounded. There is nowhere any glandular structure, but it is noteworthy that only the ends of the yellow hairs are placed in the depressions. In the structure of these appendages there is nothing to give a clue as to their functions, neither can it be assumed that they serve as stridulating organs, for then the scales or hair-like appendages would have to be in some wise dentate in order to produce the sound, but this is not the case.

For the division of groups in our arrangement the secondary sexual organs have been employed, because, being easily recognizable, they offer a convenient means of differentiation, whilst from differences of neuration we only achieve the object more laboriously. Moreover in *Culapa* the structure of the hindwing is even more variable than in *Lethe*, so that the use of these characters would cause confusion rather than order.

In one group (*Virapa*) even the stalk of the radials is deflected by the scent-cavity of the hindwing, offering a distinguishing character which would appear important if it did not fail in the ♀♀ of the same species. The clasping-organs afford further clues, but the time at my disposal at the moment is not sufficient to allow of my investigating these thoroughly. From the slender material before me, however, it seems quite conceivable that the species could be separated into groups according to the widely varying shape of the valve. Moreover the uncus possesses a character which finds no analogy among the other Satyrids, its clasps being in some species longer than its apices, and not curved upwards as in *Satyrus*, but downwards. The valve may attain the same dimensions as in some *Ypthima*, being more than twice as long as the uncus, with strongly upcurved, hook-shaped tip (*mnasicles*), or remain short and medially thickened with finely dentate lamellae and long bristles before the chitinized tip (*visala*). The uncus also may attain an abnormal length — be as thin as a needle and project beyond the angled, distally thickened valve (*Lohora Moore*).

Subgenus **Culapa** *Moore.*

Under this name (which dates from April 1879) must be united all those Indo-Australian species which only differ from the African *Henotesia* in the longer upper discocellular of the hindwing, but have in common with this the hairy eyes and the proximally curved lower discocellular of the forewing, by which they are distinguished from *Mycalesis*, with the lower dis-

cocellular of the forewing cut off straight and the eyes hairy. As in *Henotesia* all the three stems of the principal veins of the forewing are swollen, in contrast to *Orsotriaena*. Forewing with two subcostal veins arising before the end of the cell.

I. Group. Both wings without sexual characters.

M. inopia *Fruhst.* (91 a). Somewhat smaller than *malsarida Btlr.*, ground-colour dull black, above otherwise identical with *malsarida*. Under surface: somewhat lighter, distally more copiously irrorated with grey-brown. Median band of the forewing mostly somewhat abbreviated, but broader. Forewing with only two instead of 3 or 4 apical ocelli (a character very unessential in itself, which, however, remains constant in both ♂ and ♀ of *inopia*). Anal ocelli larger, their bordering lighter ochre-colour. All the ocelli lack the outer violet-grey margining which we observe in *malsarida*. Ocelli of the hindwing somewhat smaller and hence more isolated. Submarginal, proximal band lighter. All else as in *malsarida*, except that there is no secondary sexula character on the underside of the forewing and the upperside of the hindwing. Tonkin, Than-Moi, June to July; Chiem-Hoa, August and September. *inopia.*

II. Group. Forewing on both surfaces without sexual characters.
a) Hindwing with a scent-pencil.
a. Hindwing without androconial cavity.

M. sirius *F.* occurs in Australia in two seasonal forms, of which the dry form was probably already described by Fabricius as **zachaeus** *F.* The scent-organs are unusually primitive, but in contrast to *inopia Fruhst.* the rudiments are already present. Under surface of the forewing only with grey-scaled anal margin, which extends to the submarginal and has only quite a dull gloss. Above the submarginal only a few slightly shiny scales. Upper surface of the hindwing: costal border darker, grey-scaled, without glossy scent-patch, without scale-cavity and only with a long, thin scent-pencil with blackish hairs. Upper surface dull dark brick-red, with an apical and a median ocellus on the forewing. Hindwing with three to four yellow-ringed eye-spots. Under surface as in *canicula Fruhst.* (91 d), but more copiously decorated with light red-brown longitudinal bands on both wings. In northern Australia from Cape York to Brisbane. — There occurs also a subspecies on the Aru and Key Islands, but I have no material from these localities. — **manipa** *Bdv.* (= daidis *Hew.*) is the race from the South Moluccas, in my collection from Amboina, Ceram, Saparoea. Smaller and darker than Australian examples, with larger eye-spots on the upper surface, bordered with darker red. The ocelli of the hindwing beneath are without the pale grey bordering. — **canicula** *Fruhst.* (91 a), from Buru, where it seems to be common, is smaller and paler than Ceram examples. Apex and distal border of the forewing more broadly black. Ocelli between the lower medians larger, ringed with lighter red. Eye-spots of the hindwing more strongly developed. Under surface: lighter red-brown. Bordering of the ocelli more orange-coloured than grey-brown. The red-brown vertical median band of the forewing more indistinct, but straighter. Median band of the hindwing more strongly undulate. The red-brown subbasal band of the hindwing obsolete. — **antecanis** *Fruhst.* is about midway in size between *canicula* and *manipa* and differs from both in the darker apical part of the forewing above, with the black more extended. Apical ocellus of the forewing entirely absent. The two anal ocelli of the hindwing even more indistinct than in *manipa* and only very weakly ringed with black. Under surface: brighter red-brown, the yellowish antemarginal band of both wings more pronounced; red-brown median of the hindwing more sharply dentate, distally edged with lighter. All the ocelli smaller, those of the hindwing of almost uniform size. German New Guinea, Waigeu; according to Hagen fond of wet, shady banks of brooks in the woods. Flies from November to January. *sirius. zachaeus. manipa. canicula. antecanis.*

M. patnia is undoubtedly the prettiest known *Culapa*. The androconial cavity of the hindwing contains deep black scales. Two subspecies, which have hitherto been regarded as independent „species", although they only differ slightly in the colouring. — **patnia** *Moore* is according to Manders common on Ceylon, widely distributed and ascends to considerable heights; was observed most commonly round Kandy. The sexual forms are sharply differentiated; the rainy-season form very dark, especially on the under surface. The underside of the forewing bears the eye-spot of the upperside with light yellow bordering, standing out clearly against the red-brown-yellow ground-colour. Hindwing with three small ocelli. Submarginal area of both wings decorated with brilliant, glossy silver rings, longitudinal bands and fine transverse streaks. — **junonia** *Btlr.* only differs in the white and somewhat broader anterior bordering of the ocelli on the forewing, of which the basal yellowish tinge in the neighbourhood of the cell is absent, and in the general colouring of the underside of both wings being grey instead of reddish yellow. Larva on rice. *junonia* ascends in South India to about 1000 m., where it is met with in dense forest from April to May. Known from the Nilgiris and Mysore, it extends northwards to the Kanara district. In my collection it is represented from Karwar, taken in October. *patnia. junonia.*

M. marginata, hitherto only known from Sumatra and Borneo, may probably still be looked for from the Malay Peninsula, especially as it only occurs at elevations of over 1000 m., which have not yet been sufficiently explored there. — **marginata** *Moore* (91 d) is nowhere rare in North-East and South-West Sumatra and inhabits the mountains between 1000 and 2000 m. The eggs are dark yellow and somewhat larger than those of *anapita Moore*. Under surface yellow-brown with red-brown longitudinal bands. Fore- *marginata.*

wing with small apical spot and larger elegantly white-pupilled anal ocellus. Hindwing with three to four
pitana. eye-spots, of which the subanal is the largest. — **pitana** *Stgr.* is a melanotic race, with the distal border of the forewing so broad that the black median ocellus is covered by it and hence obliterated. Base of both wings broadly suffused with dark brown, on the other hand the black border at the inner margin of the forewing is absent. Under surface with more complete rows of ocelli on both wings. Kina Balu, North Borneo.

anapita. **M. anapita** *Moore*, described from Sumatra, also known from Perak, Banka and Billiton and in my collection from North and South-East Borneo, is somewhat smaller than *marginata*, with distinct, white-dotted median ocellus on the forewing and especially in the ♀ with the black distal border of the hindwing absent. The hindwing bears also above a row of three to four eye-spots, which increase in size from the costal region to the hinder angle. The black border at the inner margin of the forewing not so extended as in *marginata*. Under surface of the forewing with two small eye-spots, hindwing with seven slightly larger ones. On the plains in grassy places in the woods and at river-banks; not higher than to the foot of the mountain-spurs; in general much rarer than the black-brown species, but occasionally somewhat more common locally. The eggs are laid singly; they are yellowish white and smaller than the white-green eggs of *mineus*, *horsfieldi* and *janardana*. The larvae when first hatched are entirely white, but have a black head. They would not take the common species of grass, and like those of *horsfieldi* had to be provided with a selection of rare Gramineae, in which they soon found food to their taste; bamboo and several species of reed they absolutely refused. The larvae feed also by day and are not so sluggish as those of *janardana*. After the third moult they exchange their greenish youthful dress for a delicate greyish rose-colour and henceforth prefer to remain below on the stalks, whilst they formerly also rested above on the leaves. The full-grown larva is 32 mm. long and has a black head with very fine, dense hairs and with some dark yellow spots; the points at the head and anus are short and obtuse, lighter on the dorsal than on the ventral side; it bears a fine, blackish, white-margined dorsal line and above the legs a lighter lateral line, between the two some more or less distinct black spots. Before pupation, for which the larvae attach themselves to green, by preference horizontal stalks or leaves, the greyish rose-colour changes into a grass-green. The pupa is green with pointed elevation on the thorax and a fine, brown-red, white-bordered line above the inner margin of the wings; some fine, whitish undulate lines run transversely over the wings and it is further adorned with symmetrical brown-red spots. It is slenderer and more pointed than the pupa of *mineus*. After 9 or 10 days the butterfly emerges between 9 and 10 o'clock in the
fucentia. morning (Martin). — **fucentia** *subsp. nov.* is the Borneo race, which like *pitana* also shows a melanotic tendency in the widening of the black distal border on both wings, but especially the hindwing.

M. ita is one of the most interesting species known, inhabiting the whole of the Philippine Archi-
ita. pelago and varying in the colour of the hair-pencils and androconia on the several islands. — **ita** *Fldr.*, the most northerly branch of the collective species, nearly approaches *jolana* (92 d), but the forewing bears much as in *patnia Moore* a light median patch of red-yellow colour on the forewing and a submarginal yellowish area on the hindwing. Under surface of the forewing with brownish apical area, otherwise light grey like the hindwing. Forewing further with large, light yellow-bordered anal eye-spot, hindwing with a row of 7 eye-spots, of which the apical and the subanal one are a little larger than the rest. Scent-pencil black, the androconia at the submarginal of the forewing beneath red-brown. Flies from April to July, and again November to February. Luzon; examples taken in July in the mountains darker than those from the low-
sinonia. lands. — **sinonia** *subsp. nov.* is larger and darker than the name-type from Luzon. Habitat Mindoro. A ♀ in coll. Semper from Bataan is near *sinonia*, but differs in the larger yellow bordering of the anal eye-spot
teatus. on the forewing. — **teatus** *subsp. nov.* is the form furthest removed from the Luzon type, and comes from the small island of Guimaras to the south of Panay, where also a very different race of *Culapa tagala* occurs. The posterior half of the hindwing above is light reddish instead of yellowish, and the under surface is lighter than in *ita*. Semper hesitated to found a new species on the individuals in question on account of
felderi. the poor condition of his examples. — In **felderi** *Btlr.*, which lies before me from Bazilan, the customary darkening of both wings, almost always found in the South Philippine forms, is distinctly appreciable. The upper surface becomes dark red-brown with indistinct brown bordering to the ocelli and slight reddish tinge on the anal part of the hindwing. Under surface likewise with an increase of the cocoa-brown apical shade. Scent-scales dark grey. Flies from July to November. Mindanao and Siargao. In my collection from Ba-
jolana. zilan, taken in February and March. — **jolana** *Fruhst.* (92 d) represents the most primitive *ita*-form. The scale-cavity at the submarginal of the forewing beneath is scarcely recognizable, flat and covered with light grey androconia. ♂: upper surface lighter grey than in *felderi* from Bazilan, anal ocelli of the forewing surrounded by a proximally broader and lighter stripe. Ocelli ringed with lighter reddish yellow. Under surface: except for the blackish apical part particularly fine light grey, without any yellowish tone, which all
palawensis. the other *ita* forms show. — **palawensis** *Fruhst.* bears yellowish scent-pencil on the hindwing and red-brown androconia. The form is also easy to separate by the uniformly red-brown basal colouring of the upperside in the ♂♂ and the uniform grey-brown colouring of the ♀♀, which show a yellowish proximal crescent-shaped bordering to the broadly yellow-margined ocellus of the forewing and a yellow-brown foreground to the eye-

spots of the hindwing. The red-brown longitudinal bands of the under surface are essentially broader than in the other *ita* races and the white-grey distal part of the hindwing contrasts vividly with the dark grey basal half. Flies in January, collected by Doherty on Palawan.

M. itys replaces the preceding species in the Celeban subregion, and is easy to distinguish from *ita* by its more rounded wings, more pronounced sexual dimorphism, the colouring of the ♀, which more recalls that of *anapita*, and the larger apical ocelli on the underside of the forewing in both sexes. — **itys** *Fldr.*, *itys.* with the forewing 26 mm. in length, is the largest subspecies known, and inhabits the Minahassa. — **remulina** *remulina.* *Fruhst.* (91 d), the ♀ figured came from southern Celebes; this differs beneath from the ♂ in the more extended light yellow bordering of the relatively narrow red-brown longitudinal band, which is slightly elbowed beyond the cell. The apical ocellus of the forewing bears a smaller accessary eye-spot. The ♂♂ differ from those of *itys* in the smaller size (forewing 24 mm. in length) and are traversed by somewhat broader red-brown longitudinal stripes on the under surface. The ♀ was collected by me in March on the Lompa Battan at about 1000 m., and ♂♂ probably belonging to it at Toli-Toli in the plains in November and December. — **sulensis** *Sm.* differs from *remulina* in the lighter red-brown ground-colour, the almost inappreciably *sulensis.* bordered distal margin of the hindwing and the more sharply defined black apical spot of the forewing. The ♂ shows only a distinct subanal ocellus on the upperside of the hindwing, the longitudinal bands of the under surface are brown-black and the apical ocellus of the forewing considerably smaller. Discovered by Wallace's collector Allen on Sula Mangoli.

With **M. terminus**, better known as *remulia*, begins an extensive group of Australian and Moluccan species, of which *terminus* especially shows a tendency to develop local races. *terminus* and *remulia*, formerly regarded as separate species, I think should be treated as branches of one collective species, for *remulia* has not only the same colouring as *terminus*, but also especially all the same secondary sexual characters. *remulia* can only be separated from *terminus*, apart from some unessential, partly even individual differences in the ocelli, by the curved (instead of straight) red-brown median band of the forewing beneath, which is distally bordered by a broader yellow area (the foreground of the ocelli), but on the other hand shares with *terminus* even the light yellowish ground-colour. — All the *terminus-remulia* forms in common develop a broad area of black scales at the lower margin of the scent-patch of the hindwing, reaching from the base almost to the distal margin and already distinctly figured by Cramer. At the subcostal is placed a shallow, grey-filled cavity, which is completely covered by an unusually thin black-grey scent-pencil. The posterior part of the forewing beneath contains no central scale-cavity, but is bordered above by a concave area of black-grey scales. The *terminus-remulia* group has a natural continuation in the Celeban subregion, where it is represented by *itys Fldr.*, whilst we find a representative again on the Philippines in *ita Fldr.* and its races and on Borneo as *anapita Moore*. The most westerly outposts extend to Ceylon (*patnia Moore*) and South India (*patnia junonia Btlr.*); no representatives are yet known from Java. On Celebes the *remulia* colouring is still well preserved, and the scent-characters of the hindwing remain unchanged, on the other hand the posterior part of the underside of the forewing is without the upper bordering of black scales. In *anapita* and some forms of *ita* the scent-tuft already changes its colour, becoming yellow, and at the same time the cavity of the scent-patch is filled up with light grey or yellowish, instead of blackish. *anapita* and *marginata Moore* still bear no central spot of scales in the posterior part of the underside of the forewing, but in one form of *ita*, from the Jolo Islands, it is already slightly indicated, while in other races of that species the patch is well filled with red-brown scales and hence at once catches the eye. — **wakolo** *Fruhst.* *wakolo.* (91 d) differs from the well-known *remulia* in the lighter yellow colour of the disc of the forewing in both sexes and in having the basal part of the upperside of both wings only slightly shaded with grey-black. Hindwing of the ♀ light red-brown, distally changing into yellow, with the eye-spots bordered with light ochre-yellow. Under surface as in *kyllenion* (91 c), but with light yellowish distal area on both wings. Named from the Wakolo Lake in the interior of ~~Burma~~ Buru, where the form is common from March to October. From *remulia* in particular *wakolo* further differs as follows: upper surface: the yellow spot in the cell and the ocellus between the medians smaller than in *remulia*, ocelli of the hindwing with smaller black pupils, but broader and lighter yellowish bordering. Under surface: the grey-black shade at the apex of the forewing and that which connects the ocelli on the hindwing wanting. Antemarginal band of both wings lighter yellow. All the ocelli smaller, with lighter rings and proximally with more extended and lighter yellow bordering. — **remulia** *Cr.* is one of the commonest butterflies of the South Moluccas, being sent in hundreds with *remulia.* every contingent from Amboina and Saparoca. On Ceram it is apparently not very common; according to Röber it also occurs on Goram, but a specialized island race may probably be expected from there. The differences from the Buru branch have already been given in the description of *wakolo*. — From Batjan we meet with a further form, **pseudasophis** *Fruhst.*, which erroneously passes in collections as *asophis*. Hew- *pseuda-* itson, however, gives Mysol as the habitat of his *asophis* (Exot. Butterfl., 111, 1862) and figures (pl. 4, *sophis.* fig. 20, 21) an example with two ocelli on the hindwing. But its allies from the North Moluccas, and in particular *pseudasophis*, always bear three ocelli on the hindwing, the examples are larger and more brightly coloured, the ocelli of the hindwing more broadly bordered with red-brown and the blue apical dots more prominent. — **anteros** *Fruhst.* is the Halmaheira form; this differs from *pseudasophis* in the larger ♀♀ and *anteros.* the pale colouring. Base of the forewing blackish instead of reddish. Anal ocelli smaller, the foreground

paler, more rounded, more obsolete. Under surface: much lighter, the distal area lighter grey; the antemar-
lernatensis. ginal region broader and lighter yellow. Halmaheira, August, September. — In **ternatensis** *Fruhst.*, the form from Ternate, the colouring is even lighter, the base of both wings becomes almost grey, the foreground of the ocelli almost light yellow, the antemarginal area of both wings sharper. Under surface: the distal area of both wings yellow-grey instead of grey-violet. Base light red-brown. Antemarginal area broader, lighter
kyllenion. yellow-grey. — **kyllenion** *Fruhst.* (91 c) more recalls *asophis Hew.* than *terminus F.* in the darker colouring of the upper surface and most nearly approaches *flagrans Btlr.* from British New Guinea. The yellowish foreground of the ocellus of the forewing, however, is somewhat darker than in *flagrans*. Under surface. distal area of both wings more violet, base deeper brown, the yellowish antemarginal area narrower, deeper in tone. The distal yellowish bordering of the red-brown median band narrower, darker. German New Gui-
atropales. nea. — **atropates** *Fruhst.* Smaller than *kyllenion*, the yellowish bordering of the ocelli of the forewing reduced, darkened. The foreground of the ocelli proximally rounded, not sharply cut off as in *kyllenion*. Under surface: antemarginal lines of both wings more strongly undulate, the adjoining area lighter, more grey-violet. The small ocelli of the forewing more pronounced and more uniform. The band proximally to the ocelli grey-white instead of yellowish. Base of the wings lighter brown. Dorey and Hattam, Dutch New Guinea,
terminulus. Mafor. — **terminulus** *Fruhst.* Somewhat smaller even than *atropates*. Base of the forewing more reddish, ocelli smaller, their yellowish foreground more rounded. Under surface: essentially darker than in examples from Dutch New Guinea. The ocelli smaller, their bordering on both sides uniform grey-violet, so that the
flagrans. submarginal band does not stand out distinctly. Waigeu. — **flagrans** *Btlr.*, from Milne Bay, British New Guinea, appears to be more the product of a district with a longer dry season, for the disc of the forewing above and the distal part of the hindwing beneath are essentially lighter yellow resp. grey than in
asophis. *kyllenion Fruhst.* from German New Guinea. — **asophis** *Hew.*, from Mysol, on the other hand is an interesting, strikingly darkened form with the upper surface unicolorous brown and the ocelli broadly bordered with red and placed in a light grey-violet area which contrasts distinctly with the brown-black basal part of
pallens. both wings. — **pallens** *Oberth.*, unknown to me in nature, is according to its author's description and in conformity with its name, an albinotic aberration; based on a ♀, which is shaded with whitish on each side of
matho. the anal ocellus of the forewing. — Finally, **matho** *Sm.* again approaches *kyllenion*, from which it differs above in having a lighter yellow foreground to the ocellus of the forewing and especially beneath in the larger and more uniform eye-spots of the hindwing, which are black and also bordered with lighter yellow. Not rare in New Pomerania, New Lauenburg and New Mecklenburg and apparently very variable, as Ribbe furnished it with three names, so that examples seem to occur which more resemble *remulia* from the South Moluccas than *pseudasophis* from Batjan. But still more probably we are dealing with geographical races
terminus. which are not yet entirely segregated. — **terminus** *F.* inhabits the Australian continent. We figure (91 d) a ♂ of the rainy period. But an intermediate form is also known, and in my collection a pronounced dry-season form is represented, with the eye-spots of the hindwing already reduced above, while beneath they are placed in a uniformly light brown area and especially on the forewing are scarcely indicated even as small dots, so that on the forewing the moderately large anal ocellus of the upper surface is hardly recognizable. Common in Queensland. Concerning the habits nothing is known, except that Hagen, who records the species as *aethiops Btlr.*, remarks: „Very common in shady woods in November, December and April".

M. phidon is a further Papuan species with primitive sexual characters. Underside of the forewing with short friction-patch, extending somewhat beyond the submarginal, ceasing before the median band, moderately glossy and containing *no* central cavity. Hindwing with glossy costal area and an elongate and pointed androconial cavity, which is filled with light grey scales and covered by a tuft of grey hairs. The
phidon. margins of the cavity with a dull gloss. — Three local races may be distinguished: **phidon** *Hew.*, from Aru and Waigeu, differs from the figured *phidonides* in the red-yellow under surface of both wings and the small-
phidonides. er ocelli of the hindwing. — **phidonides** *Fruhst.* (91 a). Larger than *phidon* from Aru; the apical ocellus of the forewing above, which is wanting in *phidon*, very distinct. Ocelli of the hindwing more strongly expressed. The black antemarginal lines on both wings more regular. Under surface darker than in *phidon*. The brown band running proximally to the ocelli less sharply defined, lighter red-brown and shading more into the ground-colour. The black pupil of the anal ocellus of the forewing smaller, the rings bordering the ocelli larger. Ocelli of the hindwing proximally bordered with red-brown instead of whitish. German New Guinea. Common in Stefansort and Simbang. Flies in January, April to August, and then again November. Taken by Doherty also in September in Humboldt Bay, Dutch New Guinea, and reported by Oberthür from Sorong. In the Dresden Museum there are examples from Korido which will probably differ sub-
xanthias. specifically. — **xanthias** *Sm.* (= obscura *Sm.*) must be regarded as a strongly differentiated island race, with very large anal ocellus on the forewing, bordered with dark yellow, and beautiful dark yellow submarginal lines and ocelli distinctly ringed with the same colour on the upperside of the hindwing. The under surface not essentially different from that of *phidonides*. New Pomerania, New Lauenburg.

messena. **M. messena** *Hew.* (91 b) is a quite distinct species, peculiar to the North Moluccas. The under surface differs from the upper in the darker red-brown ground-colour, a broad yellow submarginal band and in the ♂ brilliant violet, in the ♀ pale yellow longitudinal stripes beyond the cell in both wings. All the ocelli beneath

broadly margined with yellow, with blue-white pupils. Sexual organs rather simple. Under surface of the forewing without scale-cavity. Hindwing with small androconial hollow filled up with brown and a short, rounded black spot of scent-scales at the lower margin of the scent-patch as well as a short, thin, grey-brown hair-pencil, which covers a layer of black-grey scales proximally to the rounded deep black distal spot. Halmaheira, Batjan, in coll. FRUHSTORFER; Morty, Ternate, according to MOORE.

M. mahadeva, hitherto only known from the main island of New Guinea and there only from the north coast, where it occurs in two local races. **fulviana** *Sm.* (91 c) is the form from Kaiser-Wilhelmsland, with *fulviana.* lighter under surface, and according to HAGEN flies in shady woods from April to July. The under surface has come out too grey in the figure. As a matter of fact its predominant shade is yellowish. The upper surface resembles that of *messena*, except that on the forewing there is a distinct median black eye-spot. ♀ lighter yellowish and larger than the ♂, with the distal border on the forewing reduced, always an accessory anal eye-spot and 2—3 median ocelli. — **mahadeva** *Bbv.* (= comes *Sm.*) is before me from Dorey and Kapaur, in addition *mahadeva.* DOHERTY has taken it also in Humboldt Bay. Both sexes of more uniform and paler red-brown tone, black distal border of the forewing more narrowed. Anal ocellus of the hindwing smaller than in *fulviana*. Under surface predominantly grey with distinct violet sheen. Bands more broadly red-brown. Both races have in common a broad, glossy friction-patch (without central dot), bordered above by black scales, on the underside of the forewing. The scent-patch of the hindwing is bordered below by a very broad layer of glossy, deep black scales. It also contains a shallow cavity filled up with grey, which is covered by the scent-pencil with its long brown hairs.

M. arabella *Fruhst.* (91 c). This pretty species somewhat recalls *tilmara Fruhst.* from Sangir in the *arabella.* shape of the broad black subapical spot on the forewing, *oroatis Hew.* from Java in its size, *messene Hew.* in the red-brown ground-colour of the hindwing and the base of the forewing, but beneath closely approaches *evara Fruhst.* and *cocodaemon Kirsch.* The forewing bears a broad triangular black apical spot, which extends on to the apex of the cell, the costal margin is also broadly bordered with brown-black. The hindwing shows two distinct, thin black antemarginal lines, which traverse the entire wing, whilst a third proximal red-brown line already begins in one example to disappear towards the anal angle. Between median 2 and median 3 a small black dot-like ocellus. Under surface: dark grey-violet with two red-brown bands arranged as in *evara Fruhst.*, of which the subbasal is moderately, the distal very broad. The two ocelli of the forewing larger than in *evara*, the hindwing with six ocelli, of which the subanal one is again the largest, whilst the others are even somewhat smaller than in *evara* and completely isolated. Of the two black antemarginal lines the proximal one is less strongly undulate than the corresponding line in *evara*. The friction-patch on the underside of the forewing remains naked as in *duponcheli*. The scent-patch of the hindwing shows only a small yellow-scaled depression, which is not surrounded or bordered below by any androconial patch. The usual scent-tuft light yellow. Waigeu, very rare, only ♂♂ in coll. FRUHSTORFER known.

M. discobolus *Fruhst.* (91 c), ♂. Length of the forewing 24—27 mm. One of the most distinct species, *discobolus.* remarkable for the pointed wings and the highly developed secondary sexual characters. The scent-scales of the hindwing are joined into a complete ring, which is strongly widened below and encloses a white oval area, covered by the usual hair-pencil. The hair-pencil is basally blackish, above yellowish. The pattern of the wings is plain black with broad red-yellow longitudinal bands. The forewing shows a subapical and an intermedian small ocellus, the hindwing a similar one between the middle and lower medians. Under surface: yellowish basal spot with a confusion of red-brown rings and a sharply defined red-brown median band, which is distally bounded by pale violet. On the forewing there are two small dots, on the hindwing six black interneural dots. In the large friction-patch on the underside of the forewing is placed a small black scent-spot, in size and shape like that of *perseus F.* Aroa River, British New Guinea and Hattam, Arfak district, Dutch New Guinea. The under surface of *discobolus* has the character of a dry-season form and is quite isolated in the series of Papuan *Mycalesis* on account of its minute ocelli.

M. barbara *Sm.* (92 e) is another very distinct species. Upper surface black with relatively broad, *barbara.* orange-coloured median band on both wings. Under surface somewhat recalling *shiva Bdv.*, but lighter grey. German New Guinea (only 2 ♂♂ in coll. FRUHSTORFER) from Friedrich-Wilhelmshafen, hitherto only known from the Sattelberg, where it flies in December and January. — **mea** *Rothsch.* is a melanotic race from *mea.* the upper Aroa River, British New Guinea, where it was taken in numbers. Median band much reduced. Together with it flies a Nymphalid, *Messaras satyrina mimica Rothsch.*, which is deceptively like it and which there replaces *Messaras satyrina felderi Kirsch* from Dutch New Guinea.

M. valeria *Sm.* A charming species. ♂. Forewing black, median part of the hindwing pure white *valeria.* Under surface with white median band on both wings, in the ♀ much widened and present also on the forewing above. Milne Bay, British New Guinea, very rare.

valeriana. **M. valeriana** *Sm.* A small species, remotely reminding of *minois Hew.* from Timor and above of *barbara Sm.* in its still broader ochre-coloured band. British New Guinea, Kapa-Kapa, very rare, like the preceding unknown to me in nature.

bitineata. **M. bilineata** *Fruhst.* (92 e). Length of the forewing 20 mm. This pretty species is beneath very similar to *bizonata Sm.* (Rhop. Exot., Myc., III, fig. 4—5, ♀, nec ♂, on the plate as *remulina Sm.*), but differs from it in the simpler and more sharply defined colouring of the upper surface. The basal half of the wings is light yellowish, the distal part uniformly broadly black. The distal black border of the wings is proximally entire, not notched as in *bizonata*, and the ocelli scarcely show through from the under surface. The costal margin, which in *bizonata* is brown-black, in *bilineata* remains light yellow. Under surface: forewing also at the costal margin unicolorous light yellow-brown instead of bordered with red-brown as in *bizonata*. Hindwing with six instead of five ocelli. The black antemarginal line nearer to the distal margin. Base of the hindwing yellow instead of grey. Milne Bay, 1 ♀.

bizonata. **M. bizonata** *Sm.* A rather isolated species, to which a convergent species has recently been discovered in *bilineata Fruhst.* With *remulina Fruhst.* from North Celebes, with which Grose-Smith associated it (and which must be regarded as a local race of *itys Fldr.*), *bizonata* has no further connection than that that author by mistake called a small yellow-red *Mycalesis* (on account of its resemblance, which, however, is only very distant) *remulina*; a name which had already been bestowed five years earlier (Berl. Ent. Zeit., 1897, p. 118). Both wings with broad black distal border and a median white-pupilled eye-spot. Under surface with yellow basal and violet distal area and forewing with two, hindwing with four ocelli. Milne Bay, British New Guinea.

M. duponcheli. To the *duponcheli* group belong the most showy Papuan species and forms, although they have hitherto received but little attention. The forms belonging here are easy to recognize by the clear, brilliant yellow on the underside of the hindwing, which is traversed by a gorgeous red-brown band. The upperside of the hindwing is broadly bordered with orange-yellow and the yellow area is sometimes continued also in the anal angle of the forewing. The scent-organs of the *duponcheli* series are very simple, none whatever being placed on the submedian of the forewing above. The friction-patch of the under surface is unusually large, very glossy and reaching to the cell; it even forces the submarginal bands in the anal angle into an outward curve, but contains no central patches of compressed scales. The hindwing bears a rather large scent-area, in which are placed a narrow groove filled up with yellowish scales and beside this the usual yellowish scent-pencil.

maforica. We know the following branches: **maforica** *Fruhst.* This differs from *duponcheli Guér.* from Dorey as follows: upper surface: ground-colour lighter brown. The orange-coloured submarginal band of the hindwing narrower, the ocelli enclosed by it larger, the black marginal bands considerably broader. Under surface: all the ocelli, particularly on the forewing, very much larger and with correspondingly broader yellow-brown rings, which on the hindwing are connected into a band. ♀ smaller, lighter and duller yellow, submarginal band of the hindwing more strongly expressed, the bordering of the ocelli more extended brown and hence confluent. The red-brown median band of the hindwing straighter and more vertical, the submarginal area darker yellow. Island

roonia. of Mafor or Mefor in Geelvink Bay (Doherty). — **roonia** *Fruhst.* The satellite-island character of this form is even more distinctly expressed than in *maforica*. The yellow on the upperside of both wings reduced, darker. Under surface: the red-brown median band of both wings is broader than in *maforica*. Island of Roon,

kapaura. Geelvink Bay, Dutch New Guinea (Doherty). — **kapaura** *Fruhst.*, smaller, ground-colour deeper black. All the ocelli considerably reduced, the yellow colouring of both wings lighter and narrower than in *duponcheli*. Under surface: the forewing almost as dark brown-grey as in *mineus Stgr.*, the distal area violet instead of yellow and the red-brown median bands darker and more pronounced than in *duponcheli*. Kapaur, south-west of Dutch

umbonia. New Guinea (Doherty). — **umbonia** *Fruhst.* (91 b, c ♂♀). ♂. The anal yellow on the upperside of the forewing has almost disappeared and is only just suggested in some examples. Hindwing: the ocelli likewise begin to be obliterated, the black submarginal lines are no longer confluent, the anal yellow becomes darker, almost red-brown. Under surface: the basal area of both wings more brown than yellow, so that the red-brown median bands do not stand out so sharply proximally. The rings of the ocelli closely approximated, without, however (between the medians), being joined in pairs as in *maforica*. ♀: the anal yellow of the hindwing begins to be darkened and to shade off into the brown basal colouring, while in the other *duponcheli* races the basal brown-

eudoxia. black remains sharply defined distally. — **eudoxia** *Fruhst.* On the forewing the anal yellow has completely disappeared and on the hindwing there is only one distinct black ocellus. Also the third, proximal, black submarginal band is already obliterated in the middle of the wing. Under surface: the proximal half of the wings light yellow as in *dorycus*, the distal (submarginal area) much darkened, in particular the very pronounced whitish violet, dull-glossy band inside the ocelli is suppressed. The red-brown median band of the hindwing is in the middle curved somewhat distad and anally narrower than in *umbonia*. 3 ♂♂ from Fergusson, 2 ♂♂ from Kiri-

duponcheli. wina, D'Entrecasteaux and Trobriand Groups. — **duponcheli** *Guér.*, described from the north-west of Dutch New Guinea and from Sorong and Dorey in my collection, differs from the figured *umbonia Fruhst.* (91 b, c) in a triangular orange-coloured spot extending to the middle of the wing, which is broader and darker than

in *kapaura Fruhst.* and *maforica Fruhst.* The distal area of the hindwing in the ♀ above more extended, tinged with darker red-brown than in *maforica* ♀. Underside of the hindwing in the ♀ with considerably lighter distal part, the distal bordering of the broad brown-red median band nearly white.

M. eminens appears to replace *duponcheli* in German New Guinea, but is a good species, extending also into the west Papuan region. — Two local races: **eminens** *Stgr.*, known from all parts of Kaiser Wil- *eminens.* helmsland — apparently flying all the year round and according to Hagen occurring in open woods. The ♀ seems to be very rare, as I have only received one from Finschhafen. Upper surface of both sexes black — only the hindwing with broad orange-coloured marginal area as in *duponcheli*. Forewing with two large, prominent white-pupilled eye-spots, hindwing with an anal eye-spot, below which in the ♀ there is sometimes an accessory eye-spot. ♀ larger than the ♂, with rounder wings and with the pupil of the ocellus three times as large, white and tinged with blue at its edge. In addition to German New Guinea, *eminens* is also known from Humboldt Bay and Kapaur in Dutch New Guinea, from the island of Biak in Geelvink bay, and appears likewise to occur on Waigeu. — **obscurata** *subsp. nov.* (91 b), differs in its smaller size, the indistinct white pupils *obscurata.* of the ocelli on the upperside and the darker underside of the forewing; also in the broader, straighter and more black-brown longitudinal band of the hindwing and the smaller ocelli, which are less strongly bordered with dark red-brown. Milne Bay, British New Guinea.

M. mucia, distributed over the whole of New Guinea and some of its satellite-islands, is a species easy to determine on account of the half red-brown, half black upper surface of both wings and the likewise sharply divided under surface, of which the figure of *etha* (91 c) gives a very good idea. The scent-apparatus of this species recalls the secondary sexual characters of *duponcheli Guér.* in the organs and their arrangement. The scent-spots on the upperside of the hindwing, however, occupy a wide space, so that the light-scaled stripe at the costal margin of the hindwing is considerably narrowed. *mucia* is split up into several subspecies, three of which inhabit different parts of the main island of New Guinea. — **mucia** *Hew.*, the name-type, comes from *mucia.* the Dutch part of the island, and is also reported from Aru. According to a ♂ in my collection the ocelli on the upperside of the wings bear almost as large blue pupils as in *eminens*. ♀: forewing at the base slightly shaded with brown, the median area pale yellow, becoming lighter distally, between the middle and lower median a very large black eye-spot. Hindwing dark brown, with larger anal ocellus bordered with light yellow, above which a small acessory eye-spot is placed. Under surface of both wings with the basal half chalk-white. Forewing with two, hindwing with four eye-spots, which are placed in a grey-violet area, proximally broadly bordered with brown. — The name **melanopis** *Godm.* must be used for the darker race from British New Guinea; *melanopis.* in it the black distal half is more sharply separated from the dark brown basal part. Ocelli of both wings smaller, the proximal half of the wings no longer predominantly white, but assuming a yellowish tone. — **etha** *Fruhst.* *etha.* (91 c), which has come out too light on the figure, is noteworthy for the distinct indications of island melanism, having a reddish brown tinge on the basal area of the under surface and the subanal ocelli on the hindwing above standing out distinctly; Fergusson, d'Entrecasteaux Islands. — **verena** *subsp. nov.* is by no means rare *verena.* in German New Guinea and is found in open woods and shady places; flies November to August. The white-pupilled ocelli on the upperside of the forewing are as rule wanting, the under surface is still more darkened than in *etha*. Two forms of the ♀ deserve mention: the one from Friedrich-Wilhelmshafen, which I regard as normal, beneath scarcely differing in colour from the ♂, with grey-powdered basal area, and above almost like the ♂♂, i. e. dark red-brown, scarcely appreciably lighter distally; — and ♀-form **valda** *form. nov.*, which I *valda.* have only received from Finschhafen; it is always larger, above, particularly distally, lighter brown with the eye-spots almost as distinct as in *mucia*; base of the wings beneath light yellow-brown not mixed with grey. — **febronia** *subsp. nov.* inhabits the island of Jobi in Geelvink Bay and forms a transition from *mucia Hew.* *febronia.* to *verena*, sharing with the race from Dutch New Guinea the very distinct blue pupils of the ocelli on the upper surface, but having the base of both wings darker above and beneath than in *verena* and *etha*. — On the Solomon Islands we find *mucia* again in a representative, but well differentiated species as

M. splendens *Mathew.* Friction-spot on the underside of the forewing as in *mucia Hew.* Scent- *splendens.* organs of the hindwing above with a black androconial spot below the strikingly small scent-area. The scent-area bears in the middle a large groove with deep black scales. The radiating hair-tuft grey. From the North Solomons: Bougainville and Treasury.

M. sara *Mathew* (= interrupta *Sm.*) (91 b). This species also resembles *mucia* above, but beneath *sara.* more approaches *messene Hew.* from the North Moluccas. The androconial patch is even more pronounced than in *splendens*, the scent-area bears a central spot filled with brown scales and below the base of the yellowish hair-pencil there is another narrow black patch of androconia. *sara*, which we figure, is the smaller of the two species from the Solomons; *splendens* differs from it beneath in having the longitudinal band of the hindwing broader and distally more outcurved and in the grey-brown ground-colour of both wings. In the ♂ the wings

above are deep black-brown, in *sara* reddish ochre-yellow. ♀ of *splendens* above dull brown, that of *sara* dark ochre-yellow. *sara* was found by Ribbe on the Solomon Island Rubiana.

Concerning the two following Philippine species, on which Moore founded his genus „*Nebdara*," some uncertainty still prevails. Semper was inclined to recognize two parallel species, which be separates by the distal or proximal position of the ocelli. To judge from the scanty material hitherto brought to Europe, two main forms can actually be separated. Thus I have before me from Mindoro *Mycalesis* with clearer light brown base, yellowish abdomen and narrow wings (*tagala*) and others with uniformly dark ground-colour, brown abdomen and rounded wings (*bisaya*). Male scent-pencils of the *tagala* series yellowish, of the *bisaya* series grey-brown, conformably with the ground-colour. The submarginal lines on the underside of the hindwing in the *bisaya* series stand out more distinctly than in the *tagala* races. But as my 11 examples from four localities permit of no exact definition, I let Semper's specific division stand, leaving the question open whether we are not really dealing with pronounced seasonal forms of one collective species.

tagala. **M. tagala** is the species that occurs throughout the archipelago, of which **tagala** *Fldr.*, described from Luzon, is the most northerly offshoot. Flies in July and again in December. Upper surface a mixture of grey-yellowish to olive-green. Forewing with a median ocellus, hindwing with an eye-spot between the middle and lower median veins. Under surface with an apical ocellus on the forewing and one on the hindwing. All the eye-spots proximally bordered by a grey-yellow longitudinal band. On the hindwing in addition two pupils *mindorana.* between the radials and the upper median and an accessory subanal eye-spot. — **mindorana** *Fruhst.* differs, especially from the figured *palawana* (91 e), in having the median band on the underside of the hindwing more *venostes.* sharply elbowed distally and a decided greenish admixture; Mindoro. — **venostes** *subsp. nov.* came from Bohol. The upper surface is of an olive-brown tone, instead of yellow-brown as in *palawana*, and without intermediate transitions; the under surfaee, as well as the whole scheme of markings, as in *tagala* from Luzon. Ground-colour *mataurus.* of the ♀ on both surfaces lighter than in the ♂. — **mataurus** *subsp. nov.* is the most striking of the branch-races; it came from the Guimaras, to the south-east of the large island of Panay, where another sharply defined race, *C. ita teatus Fruhst.*, was discovered, and which more than any other of the Philippines would repay further entomological exploration. Upper surface of the hindwing brilliant reddish yellow-brown, thus analogous to *ita teatus*. All the eye-spots with light red-brown bordering. The anal ocellus of the hindwing very small. Type *semirasa.* as well as that of the preceding branch-race in coll. Semper at the Senckenberg Museum in Frankfort. — **semirasa** *Fruhst.* ♂. Basal half of both wings lighter brown; distal part more broadly black than in *tagala* from Luzon and Palawan. ♀. Basally even lighter than Semper's fig. 3 of *bisaya* from Luzon, with very light submarginal lines on the hindwing. Under surface: darker than Mindoro and Palawan examples, almost black-brown, with strongly undulate, broad dark brown bordering to the grey postmedian band. Antemarginal part of both wings lighter grey than in *palawana* and *mindorana*. February and March from Bazilan, discovered by Doherty. On Mindanao, judging from the material in the Semper collection, two forms occur, a lighter and a darker, *palawana.* which differ essentially from those of other islands. — **palawana** *Fruhst.* (91 e), collected by Doherty in January on Palawan, is the subspecies which is brought to Europe in the greatest numbers. Upper surface darker than in *semirasa Fruhst.*, more reddish than yellowish brown. Under surface: distal part strongly darkened, ♂ with blackish violet instead of white, ♀ with light red-brown instead of black-brown median bands. Ocelli above *hernica.* and beneath much smaller. — Finally, **hernica** *subsp. nov.* inhabits the Sulu Archipelago. Type in coll. Semper, coming from Jolo, larger than the preceding, the general coloration paler and particularly beneath decorated with larger ocelli than in the race *palawana*.

M. bisaya Semper only knew from the Babuyanes, to the north of Luzon, and from Luzon itself, and only in the appendix to his work he recorded it also from Polillo, a satellite-island to the east of Luzon. According *bisaya.* to Semper **bisaya** *Fldr.* is most easily distinguished from *tagala* and its varieties by the eye-spots being placed somewhat further from the distal margin and by the more undulate distal-marginal lines, especially on the under surface. The number of the ocelli varies beneath on the forewing from 2 to 5, on the hindwing from 6 to 7. The figure of *samina* (91 c) shows the difference in colouring. Flies in May to July and again in November *samina.* and December. — **samina** *Fruhst.* (91 c). In both sexes larger than *bisaya*, ocelli and submarginal bands more prominent; scent-pencil grey-brown instead of reddish. Ground-colour of the upper surface lighter brown. Under surface: all the ocelli larger, distal part of the wings lighter, antemarginal bands almost white-grey. Mindoro (coll. Fruhstorfer).

M. mnasicles is somewhat removed from its Macromalayan relatives by its long wings, its larger size, etc., so that Moore separated it from the rest of the species of our present genus which at that time stood under the name *Mycalesis* and constituted it the type of the „genus" *Culapa*, which name happens to be some months older than the very closely allied specific group „*Henotesia Btlr.*," which embraces the African species of Myca-*mnasicles.* lesids with hairy eyes. Two local races: **mnasicles** *Hew.*, described from Sumatra, where it is the largest species of the genus and only occurs on high ground and on the spurs of the mountains. It is found in the forests,

but still more commonly in low grassy thickets and old pepper-gardens. ♀ somewhat duller brown than the ♂. *mnasicles* occurs also on Borneo in the same form as on Sumatra, and is represented from there in my collection from Pontianak and the south-east. — On the continent occurs **perna** *Fruhst.* (91 e) which I was able to separate *perna.* because all previous authors had failed to notice that Hewitson's type from Sumatra shows a reddish yellow ground-colour on the upperside of the wings, whilst continental examples (as Bingham quite correctly remarks) are dark vandyke-brown. In addition the ocelli of the forewing in *perna* are at least as large again as in *mnasicles*, the red-brown submarginal and median bands on the underside of the wings more strongly undulate and all the ocelli more pronounced. The scent-tufts on the upperside of the hindwing in *perna* consist of brown hairs, instead of yellowish as in *mnasicles*. According to Moore common in November on the Salwin River in Upper Burma, and Bingham says it flies in Tenasserim and Bhamo, where it is very rare and has only been observed in April at elevations of 1000 to 3000 ft. The figured type came from Tonkin, where I found the form in August—September at about 300 m. above sea-level as a great rarity. Examples from Perak show a smaller black ocellus on the upperside of the forewing and somewhat red-brown tinge between the longitudinal bands on the under surface of the wings. The valve of the species attains a phenominal length, being nearly three times as long as the tip of the uncus, and is curved upwards as a hook, dorsally finely denticulate and covered with long, scattered bristles.

M. amoena *Druce* (91 e) is a rare species only occurring on Borneo, which approaches *tagala* and *amoena.* *bisaya*, but may be at once distinguished above by the light chestnut-brown colouring, and is also characterized by the more quadrate wings. ♂ beneath brown-black without the violet longitudinal band of *tagala* and with smaller ocelli, otherwise similar to this. ♀ above lighter red-brown, beneath somewhat approaching *mnasicles* in colouring and also resembling it in wing-contour. In my collection only from North Borneo.

b. Hindwing with two hair-pencils (*Martanda* Moore).

M. janardana with its offshoots is one of the most easily recognized *Culapa*; it is quite isolated among its Indian relatives, as the hindwing bears costally two separated basal yellow scent-tufts, whilst the other species show only one. The species is widely distributed, from the Philippines and North Moluccas to Celebes and in the whole of Macromalayana. The several branches were formerly regarded as separate species. — **me-** *megamede.*
gamede *Hew.* (91 f), originally described from Ternate and from there and Batjan in my collection, also known from Halmaheira, bears the largest ocelli and the darkest brown under surface of the eight races at present known. The anal eye-spots of the forewing and all the ocelli of the hindwing ringed with a beautiful yellow. Upper surface unicolorous black with a fine red-yellow antemarginal line. — **micromede** *Fruhst.* Smaller than *micromede.* the preceding, chiefly characterized by the yellowish under surface of the hindwing, which is ornamented with rows of delicate, punctiform eye-spots. Longitudinal band of both wings broadly white, proximally bordered with red-brown. From Bazilan, February—March, and the same form also from Mindanao in my collection. — In the eastern Philippines on Panaon and Bohol, on the other hand, a race less developed with melanotic under surface, more inclining towards *megamede*: **circella** *subsp. nov.*, easy to separate from *micromede* by the *circella.* larger anal eye-spot on the underside of the forewing and the deeper brown colouring of the hindwing. — Celebes is inhabited by a distinct local race of *janardana Moore*, which, although it has been referred to by some 10 authors, has never been properly recognized. The Celebes form differs so considerably from the Javan *janardana Moore* and from *megamede Hew.* from the Moluccas, that it ought to have received a name long ago; I have introduced **opaculus** *Fruhst.* for it. *opaculus* is beneath more copiously irrorated with lighter grey *opaculus.* than in the more westerly races. The ocelli of the hindwing are somewhat smaller than in *megamede*, larger than in *sapitana* and *janardana* and margined with lighter grey than in the two latter. The median band of both wings is broader, and the ocelli (inside the grey rings) are bordered with lighter yellow-red. *opaculus* differs from *megamede Hew.* in having the under surface of the wings of a grey instead of a red-brown tone and in the absence of the yellowish antemarginal lines on the upperside of the hindwing. North and South Celebes, Salayer. — A race allied to *opaculus* occurs on Sangir, but I have no examples from that locality. — **besina** *besina.* *Fruhst.* forms the transition from *megamede* from the Moluccas to *opaculus* from Celebes. Upper surface: ground-colour dark black-brown with more obsolete antemarginal lines on both wings. Under surface: ground-colour yellowish grey, neither red-brown as in *megamede* nor grey as in *opaculus*. Distal border of the black median band narrower, ocelli of the forewing smaller, each three united by a grey bordering. Sula Besi. — **sapitana** *sapitana.* *Fruhst.* The Lombok form is beneath deeper and darker in colour than *opaculus Fruhst.* and *janardana Moore*. Under surface: median band and ocelli more pronounced, ocelli darker red-brown and distally ringed with lighter, more intensive grey. The grey rings are commonly pointed and the points run into the grey antemarginal line, as in many Sumatran examples. Lombok, Sapit, about 2000 m., May and June. — **janardana** *Moore.* *janardana.*
The name-type of this species only occurs on Java and Bali, but may probably also be looked for from Bawean, as it is already recorded from Kangean. *janardana* seems especially at home in the east of Java, where it ascends in the coffee-gardens from the plains to about 4000 m. The colouring of the under surface is a washed-out grey, which in East Javan examples of the dry season changes into a pale brown. In the ♀ of the dry-season form the ocelli of the under surface show through also above as black dots. — **sagittigera** *Fruhst.*, a somewhat larger *sagittigera.*

form than *janardana* from Java. The ocelli and the median band of the under surface larger and broader. The antemarginal lines more prominent. The bordering of the ocelli even more markedly sagittate and confluent with the antemarginal lines. The white-green eggs are laid singly and cannot be distinguished from those of *mineus* and *horsfieldi*, but show shortly before the larvae hatch a brownish central ring (black in *mineus* and *horsfieldi*). The larvae are on the whole very similar to those of *mineus*, only darker yellow, but can be at once distinguished by their red-brown head from the black-headed *mineus* larva. They bear a blackish dorsal line, which on each segment is thickened at both sides, but narrowed towards the head and anus; from this slender, black-dotted lines run out forwards and downwards towards the dark yellow lateral line, which sends out similar finer lines forwards and upwards, so that a delicate lozenge-shaped pattern is formed; on each segment above the lateral line a fine black dot; the teeth at the head and anus are even shorter and more obtuse than in *mineus*. The habits of the larvae are entirely nocturnal; during the day they remain hidden deep down among the stalks, preferring dead, yellow leaves and sheaths; only feed at night. After each moult the larvae become darker coloured and shorter and more compact in shape (*mineus* considerably longer and more slender). When touched they drop at once and feign death for a long time; they are in general very lethargic creatures and bear a close resemblance to certain snails. The full-grown larva measures 35 mm. Before pupation it changes colour, becoming yellow, and hangs itself up near the earth, by preference on a dead, yellow-brown stalk. The brown-yellow pupa with black markings becomes completely black shortly before the emergence of the butterfly. The latter appears after 10 or 11 days. Whilst *mineus*, *horsfieldi* and *anapita* emerge in the morning between 9 and 10 o'clock, examples of *janardana* do not appear until between 2 and 3 o'clock in the afternoon. The butterflies were much more quiet in the puparium than the other species just named and did not fly at all during the time that had to be left for the wings to harden before they were killed. Not until the twilight fell would they begin to fly — quite in accordance with the habits of the dusk-loving Satyrids (Martin).

baluna. North-East and West Sumatra, Malay Peninsula, Banka. — **baluna** *Fruhst.*, only two examples yet known, from Kina-Balu. My ♂ and ♀ differ at once from all their allies in their larger size. The upper surface of the ♂ is lighter grey-black. Under surface: median band narrower than in Sumatran specimens, ocelli considerably smaller, pupils very small, scarcely appreciably red-brown, very broadly bordered with light grey. North Borneo.

III. Group. Forewing only above without sexual character, beneath with androconial cavity on or near the submedian. The androconial cavity filled up.

a. Without scent-spot in the disc of the hindwing above. (*Mydosama Moore* 1880 partim = *Dasyomma Fldr.* 1860; *Calysisme*, *Pachama*, *Indalasa*, *Nasapa*, *Samenta*, *Telinga*, *Kabanda*, *Sadarga Moore*).

This group is the most extensive and contains the most widely distributed and best known species.

M. perseus inhabits almost the whole of South Asia and the Indo-Australian Archipelago, occurs on the continent and some dry islands in two seasonal forms and varies but little in the separate localities. A whole series of forms, however, have received names, which are here adopted, as an attempt at synonymy would rather cause confusion than order. — We are indebted to Moore for establishing that *perseus F.* is the oldest name for the species which is referred to as *blasius F.* by almost all authors. Fabricius designated as *perseus* the dry-season form (described from Australia), as *blasius* the rainy-season form of the same widely distributed

samba. species. — **samba** *Moore* is an individual rainy-season aberration from North India with only two instead of four ocelli on the underside of the forewing. Moore, Manders, etc., however, overlook the fact that the South Indian *perseus* race differs almost as considerably from the North Indian as does the South Indian *mineus polydecta Cr.* from *mineus mineus L.* from the northern provinces; and so, like *polydecta*, the South Indian branch

typhlus. of *perseus* also deserves a name, for which **typhlus** *Fruhst.* has been introduced. Wings in both sexes more pointed than in *perseus* from North India; upper surface of the wings without or almost without ocelli. ♀: underside of the hindwing as in *polydecta* with more prominent white bands and larger ocelli bordered with lighter yellow. The whitish bands surrounding all the ocelli much more distinct, more broadly diffuse, in the median part more concave and especially in the subanal region further removed from the white antemarginal line. Ma-

perseus. labar, South India (coll. Fruhstorfer), Ceylon (auct.), Andamans (?). — **perseus** *F.* (92 a), known from Formosa, Hainan, Tonkin, Annam, the whole of India (with the exception of the south) and Burma, is characterized by an unusually elegant, mostly deep black androconial spot in the centre of the friction-patch at the submarginal of the forewing beneath, which is smaller than in any other Indian species. This central spot assumes considerably larger dimensions in *mineus L.*, so that the two species — which were formerly often confused — are easy to distinguish. The ♂♂ of the Indo-Chinese *Mycalesis* of the *perseus* group can all be separated without difficulty, especially when the shape of the androconia-cavity on the underside of the forewing is compared, whilst the ♀♀ intergrade into one another; at the same time it is sometimes possible to separate the ♀♀ of the rainy season. The attempt to distinguish the dry-season forms, on the other hand, will only be possible when material with careful data is available from well-defined and accurately known localities. Yet the ♀♀ of not less than five species (*mineus*, *perseus*, *perseoides*, *visala* and *subdita*) and their

local races all bear the same almost unmarked, indefinite, blurred grey or brown colouring on the under surface of the wings. Manders observed the same fact on Ceylon and writes of it in the Journ. As. Soc. Beng., 1899, p. 182 as follows: „I have been able to examine a large series of specimens from Ceylon, and I find as a result that though it is easy to separate typical examples of each it is impossible to draw any hard and fast line between the seasonal forms; and farther I am in some instances unable satisfactorily to discriminate the species; there are certain specimens which are intermediate between *M. perseus* and *M. polydecta*." Bingham also arrived recently at a similar result, as he says (Fauna of Brit. India, p. 56): „Five oc six species belonging to Moore's genus are very closely allied. *M. perseus*, I think, can always be recognized in both sexes by the disposition of the ocelli on the underside of the hind wing, which is constant; but of the others only the males can be separated with any certainty by the shape, size, and colour of the secondary sex-marks on the underside of the fore wing. In the long series of females that I have examined, I have been unable to find a single constant character by which to distinguish one form from the other. Mr. de Nicéville considered it probable that they interbred; in which case it is quite possible that there is only one form, of which the males possess varying secondary sexual characters, that are, however, constant in certain series." Nicéville's hybridisation theory, however, is not necessary in order to explain the fact that the ♀♀ of different species are similar. In the Lepidoptera, where small causes produce great results, variability is the rule, constancy, on the other hand, the exception. Even the ♀♀ of *Mycalesis* which are specifically widely separated, such as *malsara*, *mystes* and *sanatana*, which I took in Siam, Annam and Tonkin in the dry season, are confusingly similar. Now as the female forms of the rainy season in almost all *Mycalesis*, as has been already remarked above, can be at once determined and recognized, it follows that it is the rainy season which separates the species, while the dry season levels them. But much as has been already written concerning the imagines of *perseus* and often as both sexes have been figured, there is at present no figure of the early stages, and of the larva it has only been recorded that it feeds on grasses. — In the Macromalayan region *perseus* is somewhat modified, the size becoming smaller, the under surface darkened, the white longitudinal band of the rainy-season form and the ocelli reduced. This is **cepheus** *Btlr.*, the type of which came from Penang, but which also occurs on Sumatra, Billiton, where according to Martin there is no dry-season form. The latter does not apply to Java, where the western race showed all the characters of *cepheus*, while in the east a pronounced dry-season form occurs, which deserves separation as **prasias** *form. nov.*, on account of the yellowish longitudinal band on the under surface, the ocelli reduced to dots and before all on account of the violet shade of the distal area of the hindwing. Also the *perseus* from Bali, Lombok and Sumbawa in my collection are best united with *cepheus*. — **persa** *Sm.*, described from wet-season examples, differs somewhat from *prasias* in the increase of the violet on the underside of both wings; moreover the seasonal forms are even more distinctly differentiated than on Java, in accordance with the sharper contrast between the seasons. Known from the Micromalayan islands of the Timor Group, extending eastwards to Key and Kisser. Lombok examples belong sometimes to *persa*, sometimes to *cepheus*. — **lalassis** *Hew.*, first published from Gilolo, indicates a further melanotic progression, which is accompanied by a distinct reduction in size. Here belong also examples from Celebes, the South Moluccas and New Guinea. — **zia** *Btlr.* is a very small, weakly marked form from tropical Australia. — **lugens** *Btlr.* is the most easterly branch of the collective species, unknown to me and described from Vaté. — **acarya** *Fruhst.* (93 b) was found by Doherty on Palawan. The only example before me, taken in January, appears to belong to an intermediate form. The ocelli on the upperside of the forewing broadly margined with pale brown, as in dry-season specimens from Anterior India. The under surface with delicate markings, recalling *persa*, small ocelli, which show pale grey, oblong bordering. — **caesonica** *Wall.* is the race from the northern Philippines, which closely approaches *cepheus* and was described from examples of the dry period, whilst **igoleta** *Fldr.* denotes an intermediate form. In addition to Luzon Semper also mentions the Babuanes as locality.

cepheus. *persa.* *lalassis.* *zia.* *lutgens.* *acarya.* *caesonica.* *igoleta.*

M. mineus, another protean species, but becoming somewhat rarer than *perseus* in the Malayan archipelago. From Java, for instance, I have not a single example. Yet the early stages are more accurately known. *mineus* is often confused with *perseus*, but the scent-area of the hindwing is larger and more glossy than in *perseus F.*, with a longer, narrow androconial cavity, which is filled up with red-brown or grey scales. Moreover the ocelli of the hindwing are arranged in a straighter row. — **mineus** *L.* (= drusia *Cr.*) (91 f) was erected by Linné on the rainy-season form, whilst the commoner dry-season form has received the name **otrea** *Cr.* (= mamerta *Cr.*). A common species, occurring everywhere all the year round together with *Orsotriaena medus* and inhabiting every hedge and the borders of every wood. The greenish white, spherical eggs, which are laid singly, show before the larvae hatch first a ring, then a spot of black, the head of the larva, which is intensively black, showing through. The young larvae are at first transparent and only become green after feeding. Newly hatched larvae of *mineus* and *medus* mixed together could always be at once correctly separated by noticing the black head of those of *mineus*. After the second moult the larva is white-green with a dorsal dark green longitudinal stripe, which becomes black-brown on the posterior segments; right and left of the dorsal line on the 2nd,

mineus. *otrea.*

sometimes also on the 3rd segment a small black dot; head and anus run out into two short, obtuse, light-coloured points. After the last moult the larva becomes smoky-yellow; the black head shows some dark yellow spots; the points at the head and anus have become shorter; blackish discal and lateral stripes and above each pair of legs a black lateral spot; body finely ribbed and haired. In general the colouring of the larva resembles very dead, dry blades of grass or their yellowish sheaths. The insects rest by day low down in the grass on dead sheaths and stalks, never on green leaves, and only come up at night to feed. As soon as the larvae cease to feed they change colour and become grass-green, perhaps because for pupation they are always suspended on the underside of fresh, green leaves, and the pupa is likewise grass-green. Length of the full-grown larva 30—32 mm; pupal stage 9—10 days; the butterfly emerges between 9 and 10 o'clock in the morning (Martin). As **subfasciata** *Moore* a form has been described which bears a pale yellow-brown distal border to both wings and presents an extreme dry-season facies. *mineus* occurs in the whole of India with the exception of the south, where it has developed a local form as *polydecta*; further in Tonkin, Siam, Annam, where I observed it up to elevations of about 1000 m. The dry-season form is there very common from January to the end of April and occurs in all gradations, from examples which still bear small ocelli to those with unicolorous brown under surface entirely without eye-spots. From August to October occur intermediate forms with broad yellow or yellowish longitudinal band on the underside. The tone of colour varies from sand-grey, like that of the figured *neovisala*, to red-brown. Very common also are ♀♀ with rather strong violet gloss. — **polydecta** *Cr.* (92 a) is somewhat smaller, darker, the under surface more brightly coloured, the white median band on the underside sometimes with violet bordering and all the ocelli in spite of the small size of the examples considerably larger than in North Indian specimens. On such examples is based the name **justina** *Cr.*, which describes the rainy-season form, whilst *polydecta* designates the dry-season form, which again differs from that of North India in having the under surface of both wings more richly suffused with purple. Common on the Malabar Coast, occurring in the Nilgiris northwards to the Bombay district and also inhabiting Ceylon. — **nicobarica** *Moore* is a darkened satellite-island race unknown to me in nature, in which the median band on the under surface is predominantly brownish white. It is very probable that this race also approaches the forms from Sumatra, Singapore, Java and Kangean. The specimens received by me from Singapore and Sumatra deserve, like *perseus cepheus Btlr.*, to be separated, and I propose the name **macromalayana** *subsp. nov.* Habitus smaller than in continental specimens, the under surface of the ♂♂ with grey-violet instead of white longitudinal bands and the ocelli of the hindwing margined with violet instead of white lines and their yellowish bordering darker and neater. — *confucius Leech* (vol. 1, p. 81, pl. 29 a) is a very small northern (Palearctic) race, probably from high altitudes in West and Central China, the type is founded upon the dry-season generation with uniform sand-coloured under surface. — **zonata** *Mats.* is the Formosa race, but I have before me almost exactly the same form also from Hainan, and it must probably be merged with the name-type, which comes from China. — **justinella** *Btlr.*, on the other hand, is a well differentiated island race, which I have before me only from Bazilan and Mindanao, but which inhabits the whole Philippine Archipelago in different gradations. Hindwing narrower, more undulate than in Asiatic examples, under surface of the hindwing with the anal area more finely marbled with grey-white, median band very broad, distally frayed; distal area of the hindwing in the ♀ almost pure white. Semper figures from Luzon two examples of a rainy-season form, of which one (fig. 12) approaches the North Indian race, but fig. 11 apparently belongs to the Celeban *nevayana Fruhst.* (93 b). On the other hand it is not impossible that both figures belong to a subspecies of *horsfieldi Moore*, which neither Semper nor Staudinger knew, and which I have from Palawan. In any case the Philippine forms of the *perseus-mineus* group still need revision.

subfasciata. *polydecta.* *justina.* *nicobarica.* *macromalayana.* *zonata.* *justinella.*

On the small Sunda Islands occurs a well differentiated species, which there replaces *mineus L.*, namely **M. wayewa.** This possesses a larger scent-area on the underside of the forewing, which, however, is filled up with a scarcely noticeable bunch of grey scales; in addition the scent-pencils of the hindwing are longer and lighter yellow than in *mineus L. wayewa* breaks up into four local races, of which we figure the most westerly, **delicata** *Fruhst.* (91 f). This bears a certain resemblance to *justinella* in the finely marbled surface of the hindwing, but the ground-colour is more cocoa-brown with purple gloss and in the ♀ there are above two or three anal ocelli with bright yellow margins on the hindwing. Two well marked seasonal forms, that of the wet season (91 f), with the distal part of the hindwing predominantly yellowish, yellow median band and relatively large white-pupilled eye-spots. The examples of the dry season bear a whitish violet longitudinal band, which separates a uniform grey distal area from the reddish brown basal half of the hindwing. Not rare on Lombok, flying at elevations of from 600—1200 m in April to July. — **merops** *Sm.*, described from Sumbawa and Adonara, is somewhat more sparsely scaled with yellowish and bears smaller ocelli on the hindwing. — **wayewa** *Doh.*, the name-type from Sumba, shows a whitish anal area on the upperside of the hindwing. Under surface dark brown, slightly tinged with reddish. The distal part predominantly whitish. According to its discoverer only in the higher and more humid regions of Sumba. — **undulata** *Snell.* was described from a ♀, in which two grey-brown, strongly undulate antemarginal lines are conspicuous. Flores.

delicata. *merops.* *wayewa.* *undulata.*

M. minois *Hew.* (91 d) is an interesting species, which finds an analogy in *Ypthima aphnicus Godt.*

minois.

from the same region, the islands of the Timor Group, in the strong development of light ochre-yellow submarginal areas. No local races are yet known of this small and strikingly coloured species, which closely approximates to *mineus*. Timor (type), Wetter. — From New Guinea a „*Calysisme*" has been described by Tryon, the description of which I have not been able to consult, as the work containing it is wanting in the Berlin libraries. This is **pernotata** *Tryon* (Report Administr. Brit. New Guinea, II, App. V. Brisbane, 1890). — **infuscata** *Macl.* is also unknown to me. *pernotata.* *infuscata.*

M. newayana *spec. nov.* (93 b) appears to replace *minens* on Celebes. Upper surface, unicolorous dark mouse-grey with two extremely fine, black, gently undulate antemarginal lines and long white cilia. Forewing with an entirely black, rounded ocellus of only medium size, occasionally weakly pupilled with white, and margined, though also not invariably, with washed-out dark grey-yellow. Hindwing with a pencil of long hairs of a fine yellow colour, arising near the base and overlapping a glossy scent-area of finely polished appearance. Under surface of both wings traversed by a grey-white longitudinal band, the small eye-spots first finely ringed with dull yellow, then with grey. Abdomen above dark, beneath light grey, like the ground-colour. From South Celebes, neighbourhood of Macassar, brought in by Dr. L. Martin's collectors in February. *newayana.*

M. horsfieldi. This distinct species may be known from all its allies by having distally to the scent-area of the hindwing a further long, narrow androconial patch composed of yellowish white, unusually large scales, growing out in the shape of a club from the central cavity of the scent-area, which is filled with similar scales, and only partially covered by the anal tuft of scent-hairs. The strongly glossy friction-patch on the underside of the forewing contains a very large oval hollow at the submedian, filled up with brown scales, which varies in size in the separate local forms, but is always somewhat larger than in *minus L. horsfieldi* stands in all the larger collections as „*mineus*" and a close examination of the accumulated material would reveal many hitherto overlooked local forms. Dr. Haase gave (Iris, 1886, p. 105) a description of the thickly silver-white, silky scent-spot of the hindwing, but erroneously called the species *pandocus*, confusing the name with the corresponding *Ypthima pandocus Moore*. Dr. L. Martin was fortunate enough to discover the early stages. The name-type came from Java, from whence Moore knew and described the ♂♂ of both seasonal forms. The West Javan race also extends on to Bawean and the species is nowhere rare on Java from Batavia up to about 600 m. In East Java and on Bali, through the influence of the prolonged dry season, there occurs a smaller race, **decia** *subsp. nov.*, beneath with much narrower longitudinal bands, grey-violet instead of white, smaller eye-spots only indistinctly bordered with lead-colour or grey, which in the ♀ of the extreme dry-season form begin to disappear, as in *persens prasias*. The *horsfieldi* ♀♀ appear to differ from those of *persens* and *minens* in the presence of two instead of only one subanal ocellus on the upperside of the hindwing. — **hermana** *Fruhst.*, from Sumatra and Borneo. ♂: androconial cavity on the underside of the forewing fully a third larger than in Java examples. Under surface: discal bands narrower, on the forewing more and smaller ocelli, not united into two groups, but separated, which is especially noticeable also in the ♀. Grey antemarginal lines of the hindwing thinner. — The young larvae of *horsfieldi* would not accept the common, ubiquitous grass which was readily eaten by *medus* and *mineus*, and one had to offer them a number of Gramineae, from which they chose a species growing at the edges of the woods. The larva is slenderer than that of *mineus* and tan-coloured instead of smoke-yellow, but it has the same black head and the same habits as the latter. The green pupa is smaller and more slender and has brown-red markings over the wings and abdomen (Martin). — **enganoënsis** *Fruhst.* (92 a). Larger and darker than *horsfieldi Moore* from Java, Sumatra and Borneo, with broader rings to the ocelli on the upperside of the hindwing. Under surface: median band narrower, darker; the ocelli more distinctly margined with grey-brown, all the grey-brown antemarginal bands widened, particularly on the forewing. Engano, April to July. — **niasana** *Fruhst.* Smaller than examples from Sumatra, underside of the forewing with fewer ocelli, but larger and more broadly margined with yellow, than *horsfieldi* from Java. ♀: discal band on the under surface of the wings broader and more prominent, as also the grey-white antemarginal area. — **tessimus** *Fruhst.* (92 a). Median band of both wings grey instead of white, the bordering of the ocelli on the hindwing more sharply dentate and forming more definite bands. Grey antemarginal area on the underside of the wings more sharply defined than in the neighbouring races. North Celebes: Toli-Toli. — **ptyleus** *Fruhst.* Smaller and beneath with even more pronounced and lighter bands round the ocelli than *tessimus Fruhst.* All the ocelli ringed with lighter yellow. Saleyer, flying in March. — **distanti** *Moore*, a continental form from the Malay Peninsula, above lighter grey than the Sumatra and Borneo race, beneath with paler markings in the distal area of both wings. From Perak in my collection. — **mucianus** *Fruhst.* Larger than *distanti Moore* from the Malay Peninsula. Ocelli at least twice as large, distinctly surrounded with yellow, with large white pupils. Distal scent-spot of the hindwing darker than in all other *horsfieldi*. My examples belong to a pronounced dry-season form. Annam, found by me in November and December. — **leucinoë** *Fruhst.* Under surface of the ♂: androconial spot of the forewing narrower than in *hermana*. Ocelli larger, distal area of both wings more broadly scaled with lighter grey. Palawan, collected by Doherty and in my collection from Jolo. — **panthaka** *Fruhst.* (93 b). In the large, black, distinctly white-pupilled ocellus of the forewing recalling *visala Moore*, but essentially smaller. Beneath it approaches *horsfieldi leucinoë Fruhst.* from Palawan, but differs in the larger ocelli, more broadly margined *decia.* *hermana.* *enganoënsis.* *niasana.* *tessimus.* *ptyleus.* *distanti.* *mucianus.* *leucinoë.* *panthaka.*

with yellow, especially on the forewing. Formosa, not rare and occurring from the southern point of the island (Taihanroku) to the central mountains (Chip-Chip), in July—August, from the plains up to 4000 ft.

M. perseoides *Moore.* ♂: sexual spots on the underside of the forewing longer, broader and lighter brown than in *mineus*. Scent-area of the hindwing with long, narrow androconial cavity, filled up with deep
intermedia. black scales. The rainy-season form Moore has separately described as **intermedia.** Two subspecies are known:
perseoides. **perseoides** *Moore.* (92 a), from Burma, Tenasserim, Chiem-Hoa, Tonkin, August and September, and taken by me at Than-Moi in June. *perseoides* is easy to distinguish from *perseus* and *mineus* by the narrower hindwing and by having the ocellus on the forewing above margined with much lighter and broader ochre-yellow. Under surface in both sexes a peculiar pale grey mixed with ochre-colour. The extreme dry-season form occurs from October to January in Siam and Annam, whilst in Tonkin examples of the rainy-season form were not rare
igilia. in July and August at about 300 m. — **igilia** *subsp. nov.*, first noticed by Bingham, is of smaller size than northern *perseoides* and differs above in having a still broader yellowish iris to the ocellus of the forewing. The sexual spot on the under surface is broader than in *mineus*. From Mysore.

subdita. **M. subdita** *Moore* approaches *perseoides*, but differs from it in having a double anal ocellus on the underside of the forewing. Sexual spot on the forewing beneath ochre-coloured, longer and broader than in *perseoides*, but not extending beyond the whitish median band of the forewing. This species also occurs in two seasonal forms, type from South India, at elevations of 500 to 1000 m. At Trincomali on Ceylon the rainy-season form was found in August, the dry-season form in October and November.

rama. **M. rama** *Moore.* ♂ above dark brown with black, white-pupilled ocellus, which is broadly margined with light yellow. Hindwing with a brown-yellow antemarginal line, otherwise unmarked. Above a large glossy scent-area a tuft of long yellow hairs. Under surface of a fine yellow-brown colour, scheme of pattern and sexual marks as in *perseoides*. *rama* is one of the rarest species known. Moore only met with one example during all the years of his diligent collecting; de Nicéville also only obtained, on loan, a single specimen from Udagama. — There is one ♂ of the dry-season form in the Berlin Museum. I myself took one ♂ on Ceylon in the year 1889.

M. visala is an aberrant form, differing from the species already dealt with in the position of the lower discocellular of the hindwing, which terminates before the separation of the upper and middle medians, thus basally and not distally as in *perseus*, *mineus*, etc. Hence the cell is broader and appears shorter than in the other species. The friction-spot on the underside of the forewing is broader than in *mineus*, extending beyond the median line, and possesses a very large central androconial cavity, which is filled with yellow scales. Scent-area of the hindwing with very large central hollow, filled up with yellow scales. Valve broad, with upturned lamellae, dorsally and ventrally thickened in the middle, finely denticulate, with dense bristles, tip chitinized. *visala* is easy to distinguish from all its allies by the pointed wings, the unusually large median ocellus of the forewing and the sharply angled hindwing. The rainy-season form strongly resembles *mineus* beneath and can only be certainly distinguished from it by the sexual spots, but the dry-season form is beneath more finely marbled and traversed by two sharply defined longitudinal bands (91 f). Only three subspecies have been
visala. erected. — **visala** *Moore*, best known from Sikkim and Assam, also reported from Central and South India, ascends from about 400 to 1200 m. The dry-season form is commoner and is also brought to Europe in larger numbers than that of the wet season. The egg is mostly white, semitransparent and is laid singly or in clusters on both sides of a grass-stem. Young larva pale green, head black with two inconspicuous black horns. Adult larva after the last moult pale reddish, finely irrorated with greenish and yellow, with pale green dorsal and oblique blackish lateral lines. The horns on the head now red, densely ornamented with small tubercles. Body
neovisala. rough and likewise tuberculated. Pupa green, constricted behind the thorax. — **neovisala** *Fruhst.* (91 f) is considerably smaller than *visala*. Upper surface identical with *visala*. Under surface: sexual spot at the submarginal of the forewing darker than in *visala* and only half as long. Bordering of the ocelli and the grey median bands more prominent than in *visala*. Rainy-season form, Tonkin, Than-Moi, June to July; dry-season form, Tonkin, Chiem-Hoa, August, September. *neovisala* first begins to occur in Tenasserim, where I collected the form without eye-spots in May at elevations of about 1200 m., and Dr. Anderson took many examples in the Mergui Archi-
andamana. pelago. — **andamana** *Moore* forms a retrogression to the *mineus* type in the more rounded wings and darker ground-colour, but differs somewhat from *mineus* and *visala* in the position of the ocelli. The dry-season form is not entirely without ocelli like those of the continental races and the longitudinal bands are less distinctly expressed. Andamans, rather rare.

oculus. **M. oculus** *Marsh.* (92 b). Androconial cavity on the forewing beneath rounded, of medium size, filled up with black scales, that on the hindwing above somewhat larger, likewise with black scales, covered by a very short, thin, grey-brown, radiating-hair-pencil. Under surface with narrower, red-yellow foreground to the

very small but distinctly white-pupilled apical ocellus. Both wings traversed by a whitish band. South India up to 4000 ft. Also from Trichinopolis in my collection.

M. adolphei *Guér.* (= onata *Hew.*) (92 b). This species seems to be very rare and closely approaches the preceding in its scent-apparatus. South India, Nilgiri Hills, where the specimens which are here figured were collected by Prof. Seitz in March. According to Moore the species ascends from 5—6000 ft. on wooded slopes and has only two broods with rainy-season character, which occur from May to August. *adolphei.*

M. mamerta is an exclusively continental species, distributed from South China to Assam and Sikkim in the north and the Anaimalai Hills in the south of India. In Tonkin it was the commonest *Culapa* next to *mineus*. Compared with the well-known *malsara* from Anterior India the following characters distinguish the **mamerta** *Cr.* of China and Tonkin (92 c as *tonkiniana*), of which before my expedition only the form of the rainless period was known, Cramer's figure of which is not very satisfactory. Upper surface of both sexes: lighter brown, median band of the forewing narrower. The bordering of the row of ocelli lighter and more prominent blue-grey. The ocelli ringed with lighter reddish. Antemarginal lines proximally much more broadly bordered with yellowish. On the forewing only three instead of four ocelli, which proved constant in 10 examples. On the hindwing the small third ocellus between the lower radial and the upper median is mostly obsolete. The dry-season form is much smaller than the corresponding f. *rudis Moore*, beneath much lighter and the median band, which distally occasionally assumes an orange-coloured tone, is sometimes a mere thread. Hindwing in the dry form sometimes only slightly undulate. I found *mamerta* commonly at wet places beside the road where the butterflies with their grey under surface were very well concealed in their surroundings among fallen dry leaves. When disturbed they at first move forwards running or hopping, quickly returning again to their old places, as they seem unwilling to fly, and always only do so near the ground. The form with eye-spots (**mausonia** *Fruhst.*) differs from the one without (*mamerta Cr.*) in addition to the presence of distinct ocelli also by having a broad white, instead of yellowish, median band on both wings. *mamerta* was also reported from Hainan by Crowley. Tonkin, Than-Moi and Chiem-Hoa at about 1000 ft. from June to September, rainy-season form. Mauson Mountains, 2000—3000 ft., April to May, dry-season form. — **annamitica** *Fruhst.* Both sexes somewhat larger than in *mausonia*. Forewing, but especially the hindwing, strongly undulate, with distinct white-edged excision. Median band of the under surface scarcely showing through, but the blackish ocelli very distinct, smaller than in *mausonia*, but more broadly ringed with lighter yellow. Patch of scent-scales on the upperside of the hindwing almost twice as large as in *mausonia*, covered with deep black instead of grey scales. The black centre of the scent-area on the forewing beneath broader than in *mausonia* ♂. Under surface: the median band broader than in *mausonia*, brighter yellow and standing out more distinctly. The whole of the submarginal area more copiously and finely marbled with light grey; on both wings complete, but only slightly indicated rows of small ocelli are noticeable, as well as a black submarginal zigzag line. The fringes alternately black and white. By far the most interesting character of the new form, however, consists in the nature of the secondary sexual characters. The patch of scent-scales on the hindwing above is nearly twice as large as in *mausonia* and covered with deep black instead of grey scales. The black centre of the scent-area of the forewing beneath likewise broader than in *mausonia*. Now as *annamitica* must be regarded as the product of an extreme dry season, it is seen by comparing it with *mausonia*, which inhabits a moister region, that long dry periods are favourable to the development of the scent-scales, producing a notable accumulation and multiplication of these, accompanied by a progressive development of the areas containing them. South Annam, February 1910, collected on the road from Xom-Gom to the platcau of Lang-Bian at about 2000 ft. This pronounced new local form, which on account of its wing-contour and the extension of the patches of scent-scales may almost be regarded as a species, I met with near the source of the Donnai, a river which rises on the plateau of Dran and joins the sea at Saigon. — **malsara** *Moore* differs from *mamerta* above in the broader whitish median band of the forewing and beneath in the darker general colouring, as well as the stronger longitudinal band. **rudis** *Moore* is the form without eye-spots, which, however, does not differ so considerably from the rainy-season form as *mamerta* from *mausonia*, as the longitudinal band is scarcely narrowed and only slightly coloured with yellowish, while the ground-colour remains dark and is tinged with purple in places. So far as is known, *malsara* never ascends above 1000 m., but belongs rather to the hot Terai, where it is sometimes found at wet places on the road. It flies from March to November. Whether the specimens recorded from Burma belong to *mamerta* or to *malsara*, I cannot decide for want of material from that country for comparison. — **lepcha** *Moore* (vol. I, p. 82), from Nepal and the North-West Himalayas, is a race with predominantly dry-season character and strongly reduced white longitudinal bands. — **davisoni** *Moore*, an interesting small form with very distinct white median band on both wings and smaller ocelli, ringed with deeper red. Very rare, Moore only knew one example, which was found at an elevation of 3—4000 ft. in the Anaimali Hills (South India). There are several examples from Trichinopolis in my collection. — **bethami** *Moore*, likewise known in only one ♂, is the form of the preceding without eye-spots. Locality: Central Provinces of India. *mamerta.* *mausonia.* *annamitica.* *malsara.* *rudis.* *lepcha.* *davisoni.* *bethami.*

M. nicotia, of which two local races are known: **nudgara** *Fruhst.* (92 c), from Tenasserim, from an *nudgara.*

elevation of 4000 ft., with the white median band on the underside of both wings twice as broad, also larger
nicotia. and paler. adorned with larger ocelli than **nicotia** *Hew.*, which occurs from the North-West Himalayas to the Khasia Hills and has on the underside of the forewing a brown-filled androconial cavity (recalling *mineus* and
langi. *malsara*), which becomes smaller in examples of the rainy-reason form. The latter is much rarer than **langi** *Nicév.*, the dry-season form. The rainy-season form bears on the finely marbled under surface four eye-spots on the forewing and seven on the hindwing, of which the anal one on the forewing and the subanal on the hindwing are the largest. In *langi* the eye-spots are reduced to a few vestiges, which as in *nicotia* are separated by a yellowish band from the basal part of the wings.

misenus. **M. misenus** *Nicév.* nearly approaches *nicotia*, but is essentially darker beneath, and shows a brown instead of black hair-tuft at the androconial cavity of the hindwing above. Moreover the scent-area on the underside of the forewing is larger and paler. Only the rainy-season form is known as yet; *misenus* is extremely rare both in Sikkim and Assam. — *sericus Leech* (vol. I, p. 82, pl. 29 c) is a local form from western China.

heri. **M. heri** *Moore* is a species from the western Himalayas so nearly allied that I should unite *misenus* with it as a local form if Bingham had not remarked that the scent-area on the under surface of the forewing was entirely absent. The species is unknown to me in nature, but if Bingham's observation proves to be correct *heri* must be united with the *mnasicles* group. But like *misenus*, *heri* bears a brown hair-pencil on the upperside of the hindwing. Doherty has discovered the form without eye-spots in the Kumaon Himalayas. Forewing according to Moore's figure with a smaller apical and a very large anal ocellus on the hindwing. Upper surface of the hindwing with two subanal eye-spots of equal size, the under surface with a chain of seven yellow-ringed ocelli.

mestra. **M. mestra**, the largest Indian species, breaks up into two local races. **mestra** *Hew.* (92 c), from Assam, bears a strongly reduced androconial cavity on the underside of the forewing, so small, indeed, that it does not contain any scales, but only forms a bare, vitreous hollow. Under surface finely marbled with brilliant, shining white longitudinal bands of equal breadth. Forewing with two apical ocelli and a somewhat larger
vetus. anal one, hindwing the same, but with an accessory anal eye-spot. — **vetus** *subsp. nov.* is a smaller race from Bhotan, with the median band on the forewing above nearly obsolescent in the ♂. Under surface darker, longitudinal band at the costal margin very thin, also on the hindwing narrower than in Assam examples. Is occasionally also found in Sikkim, where it occurs from May to August from 5—7000 ft.

suaveolens. **M. suaveolens** *Wood-Mas.* differs considerably from *mestra* above in the presence of a medium-sized black, white-pupilled apical ocellus and a much larger anal one, but more narrowly margined with yellow. On the hindwing the delicate white distal border is absent and on the underside of the forewing the fine greenish hatching so characteristic of *mestra*. Rare in Sikkim and Bhotan, where it occurs up to about 1000 m., preferring the dense woods, and flies from March to July. As in *mestra*, a form without eye-spots has not yet been
kagina. observed. — **kagina** *Fruhst.* (92 c). ♂: smaller than *suaveolens Wood-Mas.* from Bhotan. Anal ocellus of the forewing larger. median band on the under surface of the wings much narrower. ♀ somewhat larger and paler than the ♂, above with two fine, but dull yellow antemarginal lines on the hindwing. Formosa, flying from June to August at about 3—4000 ft.

malsarida. **M. malsarida** *Btlr.*, hitherto only known from Assam, where it inhabits the Khasia and Naga Hills, is above unicolorous black, towards the apex slightly lighter, and with indistinct brown anteterminal lines. Under surface as in *inopia Fruhst.* (91 a), only with considerably larger ocelli. Androconial cavity on the underside of the forewing very small, not larger than in *perseus*, filled with black. Hindwing with thin black or brown hair-pencil and a slightly glossy, long-haired basal scent-spot which extends into the cell. Two seasonal forms:
khasiana. *malsarida Btlr.* (rainy season), **khasiana** *Moore* (dry season). Under surface of both wings only blackish basally, the whole distal part grey with purple or violet tinge. The ocelli reduced to minute dots.

M. gotama, an East Asiatic collective species, which inhabits the Japanese islands from Hondo onwards, has spread from Central and West China to Annam and Upper Assam. Four subspecies are known: *gotama Moore* (vol. I, p. 81, pl. 29 c), originally described from Shanghai, with yellowish white longitudinal band on the under surface of the wings; *borealis Fldr.* is a form with the median band somewhat darkened proximally. Japanese examples are certainly different from Chinese, yet the examples collected by me in Nagasaki still show the yellowish longitudinal band on the underside mentioned by Moore. But together with these occur already
fulginia. somewhat larger specimens (**fulginia** *form. nov.*) with more distinct apical ocellus on the forewing, more distinct yellow bordering to this ocellus and broad violet median band. Also the series of eye-spots on the hindwing
seriphus. more strongly expressed. — **seriphus** *subsp. nov.* Essentially different from the Kiushiu form is the race from the main island of Japan, easy to distinguish from southern *gotama* by the dark grey-black instead of yellowish green colouring of the under surface, the considerably reduced ocelli and beneath by a thread-like longitudinal band, and blackish powdering. These characters are shared both by dwarfed forms, of which Seitz figures one (vol. I, pl. 29 c 5) and of which I have examples before me from Hakone, and also by others which are not

inferior in size to the largest Kiushiu specimens. According to Seitz very common in Central Japan from June onwards among Cryptomeriae in the sacred groves of the Japanese. — **madjicosa** *Btlr.* (92 d) describes a darkened satellite-island race with smaller eye-spots, which only show a scarcely appreciable yellow bordering. The median band on the under surface deeper yellow and broader than in examples from Hondo and Kiushiu. In my collection from Oshima and Ishigaki. — **nanda** *Fruhst.* is a still smaller race, ♂ above with more strongly expressed yellow bordering to the ocelli, whence the eye-spots appear larger than in *madjicosa*. But in the ♀ the eye-spots are much smaller, and the longitudinal band on the underside of both wings considerably narrower. From Tainan in the lowlands, flying in October, and from Horisha in the mountainous interior of Formosa. — **charaka** *Moore* was separated from *gotama* on account of the larger ocelli on the upperside of the forewing. But the eye-spots on the under surface, particularly those of the hindwing, are on the contrary smaller than in *gotama*. **oculata** *Moore* is the form of the dry period, almost without eye-spots. Previously only known from Assam and from Bhamo, *charaka* was found by me in Tonkin and Annam in the lowlands and up to about 400 m. in the months of June to August and November—December. — Parallel with *gotama Moore* and within the same geographical limits occurs a second species which is constantly confused with it. This is the darker *perdiccas Moore*, a species with scent-tuft on the submedian of the forewing. *madjicosa.* *nanda.* *charaka.* *oculata.*

M. unica *Leech* (vol. I, p. 81, pl. 29 c), only known as yet in one ♀, may perhaps prove to be an aberration with the apical ocellus of the forewing beneath enlarged and the anal eye-spot absent; the strongly widened discal band suggests a product of the rainy season. Mupin, China. *unica.*

M. moorei *Fldr.* (92 b). This very distinct species is as yet only known from Java, and even there I only met with it in the east of the island up to about 2000 ft. *moorei* is a forest species, but is occasionally also found in coffee-gardens, especially during the rainy season when the weeds are luxuriant. On *moorei* Moore based his genus „*Indalasa*“, which as a matter of fact does not differ in anything from *Calysisme*. The forewing shows beneath at the anal margin of the base a proximally pointed, distally widened, elongate spot covered with grey specialized scales. The androconial cavity is the same size as in *mineus L.* and is filled with blackish scales. Upper surface of the hindwing with relatively large androconial hollow, which contains grey-brown scales and over which projects a thin yellowish white pencil of radiating hairs. There are two very well defined seasonal forms of *moorei*, namely: *forma temp. pluv.* **moorei** *Fldr.*, which its author figures, with one large and 2—3 small ocelli on the forewing and seven distinct ocelli on the hindwing beneath, and *forma temp. sicc.* **kolita** *Fruhst.* Under surface: distal margin of both wings lighter, the ocelli of the forewing either entirely absent or reduced to dots. *moorei.* *kolita.*

M. aramis *Hew.* (92 b) nearly approaches *nala Moore* from Java in the scheme of markings on the under surface of the wings, but belongs to quite another series of species on account of its primitive secondary sexual organs. It bears no scent-organ at all on the upperside of the forewing. The friction-patch on the under surface is narrower than that of *mineus*, but longer, and bears in the middle only a few scarcely visible brown scales, which are rather loosely placed and do not form a complete spot. The scent-area of the hindwing is long, narrow, and bounds, above the cell, a long, deep black scale-spot, somewhat obliquely sloped distally, such as occurs in no other Indo-Malayan *Mycalesis* yet known. The usual scent-pencil of the hindwing is rather thin, longer and darker than in *mineus* ♂. The ground-colour above a peculiar red-brown, much as in *merops Sm.* and *persa Sm.* from the small Sunda Islands. Between the lower medians is placed a medium-sized black, white-pupilled ocellus. On the hindwing two black dots show through from the under surface. The distal part of the wings is a little lighter than the basal area. Under surface: similar to *nala Moore*, both wings dark red-brown to the sharply defined whitish submarginal band. Marginal area brownish with a black antemarginal zigzag line. The submarginal band, which runs much as in *nala*, whitish with a somewhat flesh-coloured tinge, costally broader, anally narrowing a little. On the forewing two white dots, on the hindwing a row of six very small ocelli. Luzon, apparently a mountain form. *aramis.*

M. kina *Stgr.* is distinguished by a grey-scaled, long, narrow, pointed scent-streak, which on the under surface of the wings runs from the distal part of the friction-patch (from the submedian onwards) obliquely downwards in a proximal direction. The upper surface resembles *M. ustulata* (93 a), but is somewhat lighter brown, bearing, however, the same black, round, non-pupilled eye-spot on the median area of the forewing. Under surface dark grey-brown with very broad, deep red-brown longitudinal bands. Forewing with two minute apical ocelli and a large anal one, hindwing with a series of seven eye-spots, of which the subanal is the largest, with white pupil and margined with a beautiful yellow. From *amoena Druce*, which occurs with it and belongs to the *tagala* group, *kina* differs in the larger eye-spots and the lighter brown-grey distal area of both wings. Examples from Kina Balu are somewhat smaller than ♂♂ taken by Everett in Lawas, more in the lowlands. *kina.*

M. thyateira *spec. nov.* belongs like *kina* and *amoena* to the endemic species of Borneo, and although distributed over the whole island it must be very rare, for Shelford does not mention it in his catalogue of the Borneo butterflies. The types are in the Staudinger collection, where I discovered this very distinct new species in the autumn of 1910. ♂♂ above very near to *kina* and *amoena*, but light fawn-coloured. Forewing *thyateira.*

with two eye-spots showing through from the underside. Hindwing at the base with long yellow hair-pencil. Under surface as in *ustulata* (93 a), but red-brown instead of blackish and with very broad violet median band traversing both wings. Forewing with two black, white-pupilled ocelli ringed with yellow-brown, hindwing with seven eye-spots, of which the first and fifth are the largest. Locality: Brunei in North Borneo and Tandjong in the south-east of the island. The South-East Borneo race is smaller than that from the sultanate Brunei, darker, beneath with less violet, but above with a slight violet or purple sheen.

fuscum. **M. fuscum** is a purely Macromalayan species and inhabits the hot lowlands, scarcely ascending to the spurs of the mountains, but usually keeping near the rivers. The name-typical form **fuscum** *Fldr.* came from the Malay Peninsula, but the same form also occurs on Sumatra, and is likewise reported from Banka. The ♂♂ are dark brown with a reddish tinge on the upper surface, whilst the under surface, especially that of the hindwing, is yellow-red. The larger and lighter ♀♀ bear on the upperside of the hindwing 6 ocelli in a yellow band. In West Sumatra together with ♀♀ of the *fuscum* form, which Distant figures (Rhop. Malay., pl. 5, fig. 1), others also occur in which the ocelli on the upperside of the hindwing are surrounded, especially distally, *macularia.* by a broad red-brown border (♀-f. **macularia** *Fruhst.*). — *diniche.* **diniche** *Hew.* inhabits Java. Here the species is smaller than typical examples from the Malay Peninsula and on the underside of the forewing darker, on that of the hindwing much lighter. The hindwing in particular shows at both sides of the ocelli a broader and lighter red-brown bordering. Java, Palabuan, January. *diniche* is rare on Java and I only observed it in the woods on *adustata.* the south coast. From East Java I have never seen the species. The ♀ is still unknown to me. — **adustata** *Fruhst.*, the North Borneo form, is the furthest removed from the name-type and is noticeable in the ♂ for the red-brown, in the ♀ for the light yellowish grey tone of the wings above. The under surface is likewise lighter, especially in the basal half of the wings, which is light yellow-brown instead of blackish, as in the other forms from the Sunda Islands. The red-brown longitudinal bands of the hindwing narrower than in *fuscum Fldr.* from Malacca, all the ocelli, especially the one in the anal angle of the forewing, very much larger. Lawas, North *musculus.* Borneo. — **musculus** *Fruhst.* (92 d), the Nias form of *fuscum*, approximates (as has already been repeatedly noticed in other species) more to the Javan race than to that from Sumatra. It is somewhat smaller even than *diniche Hew.* from Java, the upper surface lighter grey-black, particularly in the ♀. The under surface of the ♂ recalls *diniche*, but is still somewhat lighter and more uniform red-brown. The red-brown bordering to the ocelli of the hindwing is considerably narrower, hence the light yellow-grey rings which surround the ocelli are widened, especially in the ♀. *musculus* is further characterized by having all the ocelli larger than in Sumatran and Javan examples. The anal ocellus on the underside of the forewing in particular is enlarged. *fuscum* differs somewhat from allied species in having the middle discocellular of the hindwing strongly curved basad.

periscelis. **M. periscelis** *Fruhst.* (93 b). ♀. Under surface: basal part of both wings blackish brown-grey, distal part light grey with almost whitish grey submarginal bands. Forewing with four ocelli, of which the second is the smallest, hindwing with an unusually large apical eye-spot and five contiguous ocelli of which those placed between the medians are again very large. All the ocelli black with white pupils and yellow bordering, which discally is further ringed with brown. The whole of the eye-spots stand on a broad, grey-violet band. Hindwing further with a dark brown median band, strongly elbowed at the upper median and distally produced into a nose, a course which otherwise is only found in Celeban species. — Formosa, Taihanroku, August. *periscelis* seems to be a species standing quite alone, for we know no allies from the adjoining countries; but it is possible that we are dealing with a Philippine element, and that its relatives should rather be looked for in that direction. The ♂ is still unknown and until that is discovered it cannot be settled whether *periscelis* belongs near *fuscum* or in another group of species.

nerida. **M. nerida** *Sm.* This species is rather isolated, in colouring and shape it somewhat resembles *oroatis Hew.* from Java and *kina Stgr.* from North Borneo; Grose-Smith not inaptly compares it also with *tagala Fldr.* In the sexual characters, however, *nerida* differs from all the above species and least of all does it belong in the *remulia* group, as Grose-Smith supposes, for the bordering of black scales at the lower part of the scent-area of the hindwing is absent, while in *remulia Cr.*, *asophis Hew.* and other forms of the *remulia* group it is strongly developed. From the *tagala* series *nerida* differs in the brown central androconial spot at the submarginal of the forewing beneath, which it has in common with the *bazochi* group. The organs of the hindwing are remarkably simple; there is only a light, glossy scent-area with a shallow, apparently scaleless depression and the basal *elia.* brown-black scent-tuft. Milne Bay, British New Guinea. — **elia** *Sm.* (92 d). In the structure of the scent-organs *elia* most nearly approaches *nerida Sm.*, to which it has otherwise not the least resemblance morphologically. Friction-patch on the underside of the forewing with a strongly developed, deep black androconial patch. Scent-area of the hindwing large, light, with long, very deep hollow filled up with black scales. Scent-pencil brownish, long and very thin. At the lower extremity of the scent-area a slight patch of scent-scales is observable. German and Dutch New Guinea. Upper surface of the ♂ very similar to *messene Hew.* (91 b), but with narrow black distal border and light yellow ground-colour, which particularly in the ♀ is very washed-out in the distal parts. Forewing in the ♂ with a median ocellus and in addition an apical eye-spot. Hindwing with a row

of five black eye-spots, broadly bordered with light ochre-yellow. Common in the shady thickets of Friedrich-Wilhelmshafen in German New Guinea, from March to June. Doherty found the species also in Humboldt Bay in September and October. — **theophila** *Fruhst.* ♂: smaller, darker, wings more rounded, ocelli larger, colouring stronger, all the bands more pronounced than in *elia*. Under surface: darker, all the bands broader, more reddish. The three apical and the two anal ocelli of the forewing confluent. Androconial spot of the forewing much smaller. ♀ likewise darker on both surface, more grey-brown than yellowish. From Finschhafen, German New Guinea. *theophila.*

M. bazochi *Guér.* (= milena *Sm.*) (92 d). This distinct species has been very well figured by Smith both above and beneath, better than by Guérin. Smith's statement that *milena* has the brown basal half of the wings lighter and more extended than *bazochi* I do not find confirmed by my examples from almost the whole of New Guinea. *bazochi* somewhat recalls *mucia* above, *durga Sm.* beneath. The secondary sexual characters rather complex, under surface of the forewing with central bunch of scales in the friction-patch. Scent-area on the upperside of the hindwing with a shallow, rather large depression with yellowish scales, surrounded below by a broad, glossy black border of scales, above which projects a brownish hair-pencil. Proximally to the submarginal of the hindwing arises further a rather long shaggy tuft of brown hairs, which is also found in *oroatis Hew.*, *durga Sm.* and *mystes Nicév.* Under surface basally dark brown, the distal part grey-violet. The latter is divided off by a moderately broad, red-brown longitudinal band from the proximal half. Forewing with three small apical ocelli and a larger anal one. Hindwing with six eye-spots, of which the last but one is the largest. All the ocelli margined with yellow. Examples from Etna Bay in Dutch New Guinea are somewhat smaller than those from Dorey and Kapaur. *bazochi.*

M. cocodaemon *Kirsch* (92 d) forms with *evara Fruhst.* a group which is characterized by a collection of black androconia in the friction-patch on the underside of the forewing. *cocodaemon*, however, is again rather isolated, as it has on the upperside of the hindwing in addition to a very long brownish scent-pencil a central scale-spot in the scent-area, but shows no massing of androconia below the scent-area. Under surface grey-black with slight purple gloss and two black longitudinal bands. Forewing with a small apical and a larger subanal ocellus. Hindwing with six eye-spots, ringed with ochre-yellow, of which the fifth is the largest. A rare species, described from Jobi, whence also it is represented in my collection; according to Oberthür also occurring on Andai, Dutch New Guinea. *cocodaemon.*

M. evara *Fruhst.*, ♂. Length of the forewing 23 mm. The scheme of markings on the upper surface of the wings copies that of *mucia Hew.* in its red-brown proximal and broad black distal half. The costal border is broadly margined with black. Under surface: this recalls *cocodaemon Kirsch* with its grey-violet tone and broad red-brown median longitudinal bands. The forewing bears two ocelli, the hindwing five. On the forewing the anal one is the largest, on the hindwing the subanal. All the ocelli are yellow-ringed and isolated, with the exception of the upper two apical eye-spots of the hindwing, of which the iris is joined together. Like *cocodaemon evara* has also two black antemarginal lines, the proximal one strongly dentate. The scent-area of the hindwing is very broad, light and glossy, with a deep narrow depression at the subcostal which is filled up with yellowish scales. Below it is placed a broad glossy black scale-spot, which extends nearly to the base and from which arises a thin yellowish hair-pencil. The friction-patch on the underside of the forewing is bipartite and consists of a crescent broadly margined above with grey, which is placed across the submarginal vein and reaches to the broad brown submarginal band. The part below the submarginal is narrow but very long and traverses almost the entire anal margin of the forewing. At the submarginal (in the middle of the friction-patch) is placed a bunch of yellow-brown scales. Milne Bay, British New Guinea. Rare, only 2 ♂♂ in coll. Fruhstorfer. — **evarida** *subsp. nov.*, an extremely rare and elegant form, a sort of „missing link" between *cocodaemon* and *evara*, and indeed intermediate between them in having a semicircle of glossy, deep black androconia on the upperside of the hindwing, which is less extended than in *evara*, but better developed than in *cocodaemon*. Shape likewise intermediate, also the habitus, only a little larger than *cocodaemon*, smaller than *evara*. ♂ as in *evara*, except that the upperside of the hindwing is narrowly (instead of broadly) suffused with red-brown. ♀ with more rounded wings, lighter, more ochre-coloured, beneath predominantly yellowish red instead of black-grey. Finschhafen, a pair in coll. Fruhstorfer. This may be the species which Hagen cites as *cocodaemon* in his list of the butterflies of Kaiser-Wilhelmsland. Flies according to Hagen in December—January. *evara.* *evarida.*

M. taxilides *spec. nov.* is the only species yet known with dark blue colouring on the upper surface recalling *Taxila thuisto Hew.* and *Dicallaneura arfakensis Fruhst.* Both wings with a white-pupilled, black subanal ocellus, whilst the others only show through slightly from the under surface; otherwise without markings. Ground-colour of under surface grey, with two dark brown longitudinal bands on each wing, forewing with a violet transcellular band, ocelli arranged as in *barbara Sm.* (92 e). Scent-area of the hindwing with black androconia-cavity and a basal hair-pencil. Aroa district, British New Guinea, from 4—5000 ft., taken by Meek in May 1905, type in the Tring Museum. *taxilides.*

The synonymy of the three following species (*aethiops, shiva* and *lorna*) has not yet been satisfactorily cleared up. From the figure I think it is safe to regard as **M. aethiops** a species which stands out from the circle of its allies by its almost black ground-colour, but in the scheme of markings may easily be confused with

shiva Bdv., and I almost suspect that *lorna Sm.* also belongs to it as a local form. *aethiops* possesses a strongly glossy friction-patch in the costal region of the hindwing, from which the usual scent-pencil grows out. This scent-pencil is in *aethiops* dark grey, in *shiva* white. The scent-cavity of *aethiops* has below a rather large deep black scale-spot, which is wanting in *shiva*. In the friction-area on the underside of the forewing is placed in *aethiops* a small, round, deep, glossy grey cavity, which is filled with red androconia, in *shiva* a shallow, glossy red one without androconia. Forewing with a large, brown-ringed ocellus, hindwing with three similar isolated ocelli, of which the middle is the largest. Under surface of both wings uniformly blackish, with the exception of the narrow, dark smoke-grey antemarginal region. Ocelli of the hindwing except the two smallest between
aethiops. the radials free. **aethiops** *Btlr.*, described from Dorey, is the most amply provided with sexual characters on the upperside of the hindwing, as somewhat distally to the hair-pencil is placed a further distinct spot of deep black glossy androconia, which is wanting in *shiva* and is also not shown on the figure of *lorna*. ♂ above almost entirely black-brown, forewing with a black median ocellus, pupilled with pure white, hindwing with two somewhat smaller eye-spots, surrounded by a dull brown-red bordering. Under surface of both wings basally deep brown, the distal area grey, separated by a violet longitudinal band. Forewing with four small and one large eye-spot, hindwing with seven of about equal size. ♀ apparently still unknown, yet I have before me from Finschhafen the ♀ of a local race, which may nearly approach that of the true *aethiops*, and beneath shows some resemblance to *exheredata* (93 a). Upper surface black-brown, all the ocelli with dull brown bordering,
lornides. forewing with a very distinct apical eye-spot, hindwing with five ocelli. — **lornides** *Fruhst.* Lighter brown, ocelli of the forewing ringed with yellowish instead of brown. Hindwing with five distinct ocelli, their yellow bordering confluent. Under surface: basal half of both wings distinctly separated from the white-grey distal part by a red-brown band; this light distal area is traversed by two widely separated submarginal lines. All the ocelli ringed with yellow instead of brown, their borders likewise touching. Island of Mefor.

lorna. **M. lorna** *Sm.*, described from examples from the following localities: Korrido (type), Jobi and Humboldt Bay, may prove to be a mixed species, but doubtless includes various local forms, as the *Mycalesis* belonging here become modified at quite short distances. Thus the race from Mefor is essentially differentiated and the
copiosa. same applies to the following local form. — **copiosa** *Fruhst.* (92 e). Distinguished from *lorna* by the amount of the white distal colouring on the upper and under surface of the forewing and the still separated ocelli of the hindwing. German New Guinea. According to Ribbe and Pagenstecher a species allied to *lorna* or *aethiops* occurs on New Pomerania and New Lauenburg.

M. shiva, apart from secondary sexual differences, is easy to separate from *aethiops* by the red-yellow
shiva. or tawny colouring of the upper surface. — **shiva** *Bdv.*, the name-type, came like *aethiops Btlr.* from Dorey. Ocelli as in *aethiops*, but larger, only the one placed between the lower radial and the upper median always smaller than in *aethiops*, ocelli of the hindwing not so uniform, but the apical and anal ones essentially larger
australis. than the others, general colouring of both wings beneath lighter than in *aethiops*. — **australis** *Oberth.* Ground-colour light grey, the ocelli on the under surface of the wings almost uniform in size. South New Guinea, German
gopaka. New Guinea. — **gopaka** *Fruhst.* (92 e), from Waigeu (type) and Aru. Ground-colour of the upperside lighter brown, especially in the distal part of both wings and the anal area of the hindwing. Submarginal band of the hindwing lighter yellow-grey. Distal half of the forewing beneath grey-yellow instead of violet. ♀: considerably smaller than ♀♀ from New Guinea, the ocellus on the forewing, however, much larger. Under surface: distal part of both wings whitish violet instead of brown-grey, anal ocellus of the forewing and subanal of the hindwing considerably larger, the other eye-spots of the hindwing much smaller than in ♀♀ of *shiva* from New Guinea and on Grose-Smith's figure. According to Ribbe there is also a species or race allied to *shiva* in the Bismarck Archipelago (New Lauenburg).

maura. **M. maura** *Sm.*, from New Pomerania, which I have not seen, probably belongs to the *shiva-aethiops* group. Both wings resemble *aethiops*, but the bordering of the ocelli is lighter red-brown and the foreground distinct. Hindwing with four ocelli on the disc, all characters which indicate that it belongs rather to *shiva* than *aethiops*, although Smith compares it exclusively with the latter.

b) With scent-spot in the disc of the hindwing above (= *Suralaya Moore*).

The single, very distinct species which belongs here, **M. orseis**, inhabits Macromalayana with the exception of Java. A true forest butterfly, and an inhabitant of the plains, scarcely ascending on to the spurs of the mountains. *orseis* with its branches closely approaches the *visala-perseus* group. The ♂♂ are distinguished by a relatively large submarginal scent-spot of specialised black scales between the medians of the hindwing, such as occurs in no other Asiatic species. The androconial cavity on the underside of the forewing recalls *visala Moore* in size and is filled in fresh specimens with deep black scales, which in worn examples change into brownish. The cavity on the upperside of the hindwing is surrounded with red-brown hairs, above it is placed a very long, deep black hair-pencil. *orseis* is together with the recently discovered *taxilides Fruhst.* the only *Culapa* with blue gloss on the upper surface of the wings in the ♂, which, however, seems to be only retained by fresh examples. Specimens which have been in collections for 15 or 20 years lose it.

orseis *Hew.* (92 e), was described from Sumatra and according to MARTIN is a true denizen of the forest and like so many wood butterflies has a violet blue gloss. On the upperside of the hindwing near the marginal border the ♂ has a large dull velvet androconia. The ♀ is notably larger with dull grey-black upper surface. — **nautilus** *Btlr.* is a smaller and on the underside somewhat paler local race from the Malay Peninsula spreading up to Tenasserim and the Naga Hills in Assam. — **borneensis** *Fruhst.* displays brighter colours and a lighter violet than the typical *orseis Hew.* from Malacca and Sumatra. The peculiar black scentscales of the hindwing are much smaller and are composed of two nearly distinct spots which in *orseis* are largely confluent. The underside is more richly coloured, all lines and bands sharper and the eyespots smaller. The basal half of both wings is washed out and pale yellow instead of gray-brown. It is found all over Borneo. — **orsina** *Fruhst.* ♂. Upperside: deeper violet than specimens from Sumatra and Malacca, not so lustrous however as *borneensis*. The eyespots all bigger than in any of the other *orseis* races being almost as big as in *Myc. dohertyi Elwes*. The median bands are broader, the eyespots however more narrowly bordered with gray than in the typical *orseis*. The basal region of both wings reddish instead of blackish brown, rather resembling in this respect the Borneo butterfly. The subbasal tortuous black line of both wings is much finer and is even hard to discern. Nias. — **flavotincta** *Stgr.* ♂ upperside somewhat duller than *borneensis* ♀, characterized by a broad antemarginal yellowish band on forewing. The prevailing colour of underside is yellowish instead of gray, the longitudinal band with more violet and the distal area of both wings has yellow instead of gray submarginal bands. The island of Palawan, in January, rare. DOHERTY took an allied form in South-Celebes about which I can only say that they suggest a Westmalayan element in the Celebes fauna, and at the same time one of those rare species that Celebes has in common with Borneo not occurring jointly in Java.

orseis. *nautilus.* *borneensis.* *orsina.* *flavotincta.*

Group IV. Upperside forewing with scent scale cavity in the submedian, generally covered with a hair pencil.

Underside of forewing with androconial pocket the sack of which is in contact with the scent hairs of upperside. Hindwing as in groups II and III.

a) Without subapical scent area of upper side forewings. (Virapa, Gareris, Dalapa, Moore).

♂ with extraordinarily broad discocellulars (4—5 mm) on hindwings, owing to the stem of radial on further side of subcostal being extremely concave. One species (*sudra Fldr.*) has moreover the base of the subcostal and the radials of forewings except the third exterior enlarged and provided with a deep groove formed by fold. The form of the cell is quite changed by the peculiarly bent-down radial stem. The ♂♂ alone possess this very special attribute, the ♀♀ being deprived of all these characteristics are connected by the discocellular formation to non-*perseus* species with inbent discocellulars.

To this group belong the showiest species provided most profusely with secondary sexual distinctions, **M. anaxias** being the best known. They and their nearest kin live in India and the island regions of the Andamans and Nicobar. — **anaxias** *Hew.* originally described from the Nilgheries and named from an intermediate form is the only species having a white transversal band on un. s. of f. w. reminding us of *Lethe rohria F.*, it is very like *deficiens* (92 f), but has white bands more than twice as broad, and smaller eyespots, the ♀ has a broad violet-shot longitudinal band. The form without eyespots is but little different from the rainy season form. — **aemate** *subsp. nov.* is bigger than *anaxias* from Sikkim with yellowish instead of white bands on up. s. of f. w. and a broad light brown distal border on both wings. Burmah, Tenasserim. The Malay peninsular race described by DISTANT from a Perak type, **bisaltia** *subsp. nov.*, is allied to my species from Assam, and these differ from the Sikkim butterflies, being smaller with broader bluer subapical bands on f. w. Eyespots un. s. more showy, violet longitudinal bands and bordering of same enlarged. — **radza** *Moore* from Andaman is a distinct race with bluntly terminated transversal bands of f. w. and a big broad yellow bordered eyespot on the same. Un. s. more yellow brown and the remainder of a white median line on h. w. — **mani** *Doh.* from Nicobar is unknown to me, the subapical band of f. w. is said to be more conspicuous than in *radza*. H. w. with a broad violet discal line. *anaxias* is found more in the lowlands but unlike the Birma race rises as high as 2000 m. Probably appears the whole year round.

anaxias. *aemate.* *bisaltia.* *radza.* *mani.*

M. adamsoni *Wats.* is a very rare species up till now only reported from Upper Burmah but has been taken by me in Tonkin. Up. s. with eyespots which are faintly visible on un. s. The ♀ has a short white subapical streak on f. w. less oblique than in *anaxias* and bent off vertically to the rear. Upper Burmah. — **deficiens** *Fruhst.* (92 f) somewhat like fig. 36 Pl. 7 of DISTANT's Rhopaloc. Malayana, but the colouring appears darker because the subapical band of f. w. is narrower. This band too runs farther in and turns towards the apex of cell. Un. s.: antemarginal bands paler and broader, eyespots more distinctly pupilled. The f. w. band

adamsoni. *deficiens.*

of ♀, is straighter than in ♂, nearly reaches the yellow bordered eyespot which is as pronounced as in *radza*. Both wings show white-gray antemarginal lines very distinctly. Un. s.: apex yellowish gray instead of white. The gray submarginal band within the anal angle of h. w. is curved more strongly upwards. The band itself is narrower, eyespots smaller than in *anaxias*.

anaxioides. **M. anaxioides** *Marsh.* is a third species of the group, also bigger than *anaxias* with more rounded wings, subapical band of ♀ f. w. curved inward and broadening as it runs backward as in *radza*, with better marked median eyespot of f. w. Tenasserim, apparently rare. I have only the ♂ of an intermediate such as is described also by MOORE. The *anaxias* groups are wanting in Sumatra and Borneo but occur occasionally in Java in the form *sudra Fldr.* further mention of which will be made below as a relict of a past connection between Java and Tenasserim.

M. francisca is a butterfly of many forms, spreading from Japan to Annam and westward to Sikkim, appearing side by side with *gotama Moore* which it resembles, but from which it is easily distinguished in the ♂♂ *francisca.* by the big black hair pencil up. s. f. w. — **francisca** *Cr.* the first described form comes from South-China and *pencillata.* is a dry season form. It is figured with slightly violet-shot brown-gray un. s. of both wings. — **pencillata** *magna.* *Pouj.* is presumably simply the eyespotted form and **magna** *Leech* an intermediate form which according to *perdiccas* its author is restricted to West China. — **perdiccas** *Hew.* with particularly large eyespots is presumably from the main island of Japan. Japanese *perdiccas* present season and local varieties. The material I have before me, collected in late autumn does not suffice to enable me to form any judgement about the butterfly and the odd specimens I have from Japan are unprovided with dates and localities. A traveller starting off from Yesso and winding up at Okinawa should be able to collect a long series of geographical forms. We will only mention *vercella.* here **vercella** *subsp. nov.* whose un. s. corresponds to the fig. b. Pl. 29 Vol. I and to LEECH's *magna. vercella* differs from HEWITSON's insect, the eyespots of F. W. being considerably smaller, the gray-violet of the receding longitudinal bands of h. w. having a more washed out appearance and the median eyespot of h. w. is miniscule. *formosana.* — **formosana** *Fruhst.* (= horishana and coronensis *Mats*) is a dark island race, generally scarcely bigger than *mara* (92 c) and consequently smaller than *magna* and *francisca* from China and with smaller eyespots on un. s. than any of its allies. The dry season form (= hirtia *Fruhst.*) has a broader violet-white band on un. s. Seemingly common in Formosa and from Taiwan on the coast (dry season form from Feb.) to the mountainous *ulia.* interior (wet season form July—August). — **ulia** *Fruhst.* from Tonkin is a passage from *magna* China to *sanatana* Assam and Sikkim. The wing is quite as round as in Chinese specimens and the paler un. w. has nearly the tint of the Japanese specimens. The eyespots, especially the apical eyespot un. s. h. w., are bigger and their rings a paler yellow and broader than in any others of the *francisca* group. Tonkin, Than-Moi, June— *gomia.* July, rainy season form. — **gomia** *Fruhst.* (92 c). ♀ with an expansion of 29 mm, bigger than *ulia* (25 mm). H. w. of an uncommonly long rounded sack form, not pointed as in Tenasserim ♀♀ or round like the *ulia* ♀. F. w. with only one eyespot which is much smaller than in any of the *francisca* race. Ground colour uniform light brown as in the Tenasserim form. Un. s.: The light brown submarginal region in contrast with the dark *mystes.* green-brown basal half of wing, the white median band equally broad and sharp as in **mystes** *de Nicév.*; **gomea** *gomea.* has also generally a jagged blaek submarginal line, its un. s. too reminds one greatly of *mystes* as I have it from Siam and as NICÉVILLE has described it. *gomia* is however easily distinguished from *mystes* by the existence of a brown red diagonal line across the un. s. f. w. running from the costal margin through the cell to the anal margin. In *mystes* the median band starting from rather below the costal margin runs in a straight line while in *gomia* it begins at the extreme edge of costal margin and is curved toward the proximal region. The median band of gomia does not run upwards as it does in mystes and the eyespot of f. w. is considerably smaller. *sanatana.* — **sanatana** *Moore* is a very common subspecies in Bhutan, Sikkim and Assam, less frequently found further west in the Kumaon Himalaya and Kulu. — **sanatana** is met with in the woods from 1 to 6000 feet altitude and the dry season form (the first known) is taken from Feb. and the eyed form **gopa** *Fldr.* from June onwards. Intermediate forms are taken when the year begins with heavy rains. — **sanatana** is a darker brown with a dash more of green than *gomia* and *gopa* and resembles more closely the Formosa race but is somewhat smaller and has a narrower median band on un. s.

sudra. **M. sudra** *Fldr.* differs from *nala* (93 b) through the failure of the subapical androconia, the rounder cut of the wing, the prominent and somewhat smaller eyespots ringed with brownish yellow, the appearance of an anal eyespot in the ♂. The wing form of *sudra* is much like that of *oculatus Marsh* from South-India, but as shown by the "tuft" on the submarginal part of up. of f. w. evidently does not belong to the same group. Un. s.: f. w. in ♂ and ♀ with only two eyespots, while *nala* possesses six of which several however are mere

dots. Whereas I possess *nala* exclusively from the east of the island where it hardly ever rises more than 1500 feet above the level of the sea, *sudra* lives more in the west, never flies below an altitude of 4000 feet and was particularly plentiful on the Pengalengan tableland, where it simply swarmed on the weeds in the somewhat neglected coffee plantations and together with *Ypthima* was the only butterfly to be caught on dull days. — **volsina** *subsp. nov.* is a smaller race from the east of Java with a more sharply marked pale distal region on up. s. and a darker brown marginal border on both wings. It flies on the Tengger mountains at about 4000 feet. — **tannis** *subsp. nov.* from Bali island, where it was captured by the Javanese *chasseur* of Dr. Martin. Insular melanism is clearly expressed by the darkening of the distal region of up. s. of both wings in ♂ and by the submarginal parts un. s. of both wings in either sex being completely covered with dark brown. The yellowish submarginal band of ♂ much narrower, though in ♀ even rather broader than in *sudra*. *volsina.* *tannis.*

2) without concave discoidal cell h. w.

M. maianeas. is after *oroatis Hew.* the species the most richly provided with secondary sexual characters in Macromalayana. The speculum of h. w. very big, costal border strongly concave. Hair pencil whitish, androconial depression deep, narrow and white scaled. Submargin of f. w. with a black spot above which are yellowish scent scales. Un. s. with a large scaleless bare spot and a sprinkling of white-yellow scales on submarginal. Two geographical forms have been described, **maianeas** *Hew.* from the Malay peninsula and Borneo, distinguished by a splendid reddish yellow-ochre subapical band f. w. that is but slightly intimated however in the ♂. — **maia** *Nicév.* (92 f) generally surpasses the Borneo form in both sexes and is characterised by the yellowish subapical part of f. w. being considerably darker in both sexes. N. E. and W.-Sumatra, Banka. In forests on mountain spurs, not common, is fond of settling on the bare earth. The dainty violet shot dark brown ♂♂ are most delicate creatures and it is scarcely possible to obtain a faultless specimen. *maianeas.* *maia.*

b. With subapical scent scales on f. w.

M. nala *Fldr.* (93 b). This highly interesting *Culapa* is distinguished at a glance from all known Asiatic *Mycalesis*, it bears a deep-blue scent-pencil on the distal between the radial and upper median of f. w. This sexual distinction is some 5 mm. broad at upper median, narrows off somewhat and consists of short velvety thickly standing scales. On the submarginal is a further sexual characteristic, a short thin tuft of brown hair springing from a narrow scaleless, almost flat scent region, a reminder that *nala* is akin to *sudra Fldr.* The h. w. bears the usual hair pencil at the furcation of the subcostal. This pencil is pale yellow throughout while *sudra*'s pencil is a deep black at the roots. The f. w. has a remarkably sharp cut, barely rounded apex and is more pointed than that of any other *Culapa* from the Sunda Islands. The antennae are also essentially different, being finer and of a pale gray instead of being ringed with yellow like *sudra*. The palpi and legs of *nala* are light gray, those of *sudra* brown-yellow. Coloring of up. s. of wings similar to that of *sudra* but of an even dark Vandyk brown with a touch of red brown. Un. s. except the sharply defined yellow gray submarginal region of a deep black so that the apical region of the wings seems to be made of velvet. The f. w. has six and the h. w. seven small eyespots. The rest as in *sudra*, save that the marginal zone seems narrowed and sprinkled over with darker scales. Strange to say, no closely connected species are known from Borneo and Sumatra, though a nearly allied form, *anaxoides*, is found in Tenasserim and Malacca. West-Java, rather rare. Commoner in the east, southward from Malag in the chalk hills up to 500 m and on the spurs of the Tengger range up to about 600 m. All the year round but chiefly in March and April. *nala.*

Vth. group, h. w. with a subcostal and subbasal hair pencil.

a. F. w. un. s. without deep androconial cavity. (*Myrtilus Nicév.*)

M. mystes *Nicév.* Of this rare insect up till now only two ♂ of the dry and one ♂ of the rainy season form are known. I was fortunate enough to net a ♀ in Siam belonging to the dry season form which only differs from De Nicéville's fig. of mystes ♀ in the rounder cut of the wing, a bigger eyespot f. w. and a broader median band un. s. — **tunicula** *form. nov.* (93 a) Siam, in January at about 500 m altitude. The eyed form strongly resembles *mara Fruhst.* (93 b), but has four instead of one subapical eyespot f. w. un. s. It is not certain that *mystes* is not merely a local race of the following species. *mystes.* *tunicula.*

M. sangaica, a Chinese species with an offshoot at Formosa, is still very rarely met with in collections. — **sangaica** *Btlr.* (Vol I p. 81 fig. 29 b) described from Mongolia is the northern geographical race. — **parva** *Leech* (Vol. p. 81, fig 29 b) an interesting mountain form, and **mara** *Fruhst.* (92 c and 93 b) smaller and darker than *sangaica*, with broader white discal bands on un. s. and bigger eyespots especially in the ♀. Formosa. *sangaica.* *parva.* *mara.*

Kansirei June 15th to 30th; Taihanroku July 1st to 7th 1908; Shinchiku and Hokuho, July till September.

M. Dohertyi appears in Macromalayana (but not in Java) and is one of the rarest butterflies. Dr. Martin only netted four in Sumatra in 13 years. I received from Waterstradt the one ♀ out of a collection containing 20 000 specimens; from Perak only two pairs are known, viz. the pair discovered there by Doherty in
dohertyi. 1889 or 1890 and a pair in my collection. There are two geographical races: **dohertyi** *Elw.* (93 a) reminds one by the design of its. un. s. of the Genus *Ragadia* and forms as it were a transition. *M. dohertyi* and *Ragadia crisia* have the un. s. of both wings crossed by three bands, the outermost of which touches the marginal row of eyespots; lighter spaces lie between the dark bands. Ragadia has in addition on the f. w. a fourth
excelsior. basal dark band. January, April, September. — **excelsior** *Fruhst.* ♀ Up. s. paler, all eyespots bigger, lighter and more clearly ringed with yellow gray than in *dohertyi* from Malacca. Un. s.: The dark bands narrowed and the pale gray broadened, also ringed with a paler yellow and on both sides having a broader gray margin. North-Borneo, Kina Balu, 1 ♀ Coll. Fruhstorfer.

atrata. **M. atrata** *Rbr.* from the Spice Islands, somewhat resembles *messene* on the under-side but thanks to the scent marks on submarginal of h. w., up. s. belongs to the *oroatis* group. Mr. Roeber remarks that besides the usual scent tufts *atrata* exhibits a hair pencil on the submarginal of h. w. Whether the f. w. possess a scent patch or not is not specified; I surmise however that it is wanting otherwise Roeber would have mentioned it. Batjan, very rare.

durga. **M. durga**, the only Papuan representative of this peculiar and widely spread group, in form and colour very near *shiva Bsd.*, *bazochi Guér.* (92 d), *maladeva Bsd.* and other species from New-Guinea, but easy to differentiate through a pencil of long black hairs on subbasal region of h. w., shows also on costal border a yellow
jobina. scent tuft. Three geographical races: **jobina** *Fruhst.* (93 a). Bigger than *durga Sm.*; darker red brown with rounder h. w. Eyespots of f. w. smaller, merging rather into the black ground colour of wings. Up. s. of both wings otherwise just like *durga.* The un. s. of *jobina* is much nearer to *bazochi*, for the eyespots are quite as big as those of *bazochi* and far bigger than *durga's.* The distal median band shows a very broad black
exheredata. brown like *bazochi* instead of the red brown of *dunga.* Jobi island, discovered by Doherty. — **exheredata** *Fruhst.* (93 a) from Emperor Williams Land, according to Hagen flies close to the ground and is fairly common in shady woods. Up. s. with bigger eyespots, un. s. distinguished by its dark brown bands and intense yellow ochre instead of gorgeous red yellow ringed eyespots. The ground colour is also of a darker gray throughout than in *durga* from the Bay of Humboldt and from Dorey. ♀ bigger than ♂, noticeably paler un. s., the red brown bands on both sides lightened by an admixture of yellow gray, eyespots above larger than in ♂, brighter, ringed with more orange yellow, the black apical margin wanting and the upper eyespots thus standing out better.

Subgenus **Lohora** *Moore.*

Easily distinguished from Subgenus *Culapa* by the second subcostal nerve branching off on the further side of the cell, f. w. Discoidal cell of f. w. bent out strongly basally, that of the h. w. pushing nearly onto the furcation of the first and middle median. F. w. rather long and straight, h. w. bent basally inwards and notably longer. A well defined group and with richly varying exception confined to the Celebes.

a) H. w. without subbasal hair pencil

a. F. w. without androconial patch and without scent pencil. (*Lohora Moore*).

dexamenus. **M. dexamenus**. This species peculiar to Celebes occurs on the island itself in three local races: *dexamenus Hew.* Type taken by Wallace at Tondano. Specimens from Toli-Toli give one the impression that they are darker than those from Minahassa and those from the island of Lembeh. are still gloomier, with up. s. h. w. a deeper brown red. dexamenus is a true wood dweller and in common with the other yellow *Lohora* from Celebes is easy to catch if lured by bananas alongside running brooks or particularly shady spots in the forests . The dainty butterflies in their, for the genus, strikingly bright attire, settle by ones and twos on the fruit and suck so greedily that they seldom notice the approach of their enemy. I took many hundreds in this
dinon. way. Minahassa, Toli-Toli, November, December, Island of Limbeh. — **dinon** *Hew.* has been considered up till now no variety but a species on account of the broad pale yellow discal region of its f. w. I have met with it up to an altitude of 3000 ft. and believe that it flies the whole year round. Makassar, Patunuang, January
transiens. and Lompa-Battan, 3000 ft., March. — **transiens** *Fruhst.* (91 e). This peculiar form combines the characteristics of *dexamenus* from N. Celebes for its uppersides with those of *dinon* from S. Celebes for its undersides. The up. s. differs from *dexamenus* through the somewhat lighter more sharply defined black at apex of f. w., in which the black eyespots are more clearly marked than in *dexamenus.* The hind wings seem a trifle paler;

it is easy to confound *transiens* and *dexamenus* if their up. s. alone are glanced at. Their is no analogy between the up. s. of *dinon* from S. Celebes and *transiens* because the broad pale yellow subapical sloping band so conspicuous in *dinon* is completely wanting. The h. w. of *transiens* are too of a pale yellow instead of a blackish ground colour. On the other hand the un. s. of *transiens* harmonises so fully with *dinon* that it can only be distinguished by a difference of small importance, viz. the red brown crescent is separated from the lower eyespot by a yellowish space 4 mm in breadth which in *transiens* is nearly 4 mm broad. In typical *dexamenus* the distance is still greater and the approach to the eyespot takes a violet (instead of a yellow) tint. Further *transiens* differs from *dinon* through a darker gloss at costal border of f. w., through the somewhat broader median band and the less sharply zigzagged inner antemarginal line of h. ws. *dinon* and *transiens* possess common secondary sexual characteristics distinguishing them from *dexamenus* of N. Celebes. Both have a narrow deep black patch of scales near the basis of subcosta h. w. up. s., their distal rests on a bed of yellowish scent hairs which *dexamenus* does not possess any more than its relation *ophthalmicus* does, though it is found again in *haasei Rbr.* from Bangkai. The mutability of the scent patches in *dexamenus* supplements what has been already said about *malsara*, *mausonia* and *annamitica*. Here too the salient point is the variableness of scent organs within a species and the grounding of possibile modifications on a greographic i. e. climatic basis. Increase of scent apparatus in droughty *) and decrease of same in damp **) regions.

M. tilmara (91 f). Groundcolour the pale orange of *M. ophthalmicus* from the Celebes. The f. w., like that of *dinon*, has a broad sloping black apical patch, the proximal between the middle and lower median veins is somewhat curved out, approaching within 2 mm of the cell at the apical and suddenly narrowing at anal angle under M. 3. Two white pupilled black eyespots on the un. s. are visible by transparence. H. w. with two black antemarginal black lines. Base of wings somewhat darker. Un. s.: Fairly uniform red yellow, with well marked brown red median bands and a striking pale yellow crescent in the region of lower eyespots f. w. Two black and one proximal red brown wavelines. Eyespots as in *dexamenus* from N. Celebes only somewhat smaller and ringed with paler brown. The red brown median band of h. w. narrower than in *dexamenus*. Ground colour reddish yellow instead of blackish brown and the pale yellow approach to the anal eyespots f. w. double as broad and brighter. Scent organs of h. w. similar to those of dexamenus, the scaleless patch rather bigger and lighter, the radiate hair pencil pale yellow instead of brown. *tilmana* is rather smaller than *dexamenus* and if intermediate forms be found on the islands between Celebes and Sangir will possibly be considered a subspecies of the same. Sangir. *tilmara.*

M. ophthalmicus *Westw.* (91 e). This species described as "*Messaras*" is, through the secondary sexual characteristics nearly allied to *dexamenus* and *haasei* and possesses in common with them a narrow shiny androconial region on up. s. h. w., covered by a thin scent brush. On f. w. no sexual markings on either side. *unipupillata Fruhst.* is a passage from *ophthalmicus* to *hassei*, with similar markings on h. w. un. s. and the general light colouring. Talisse Island, Lembeh Island, W. Celebes. *ophthalmicus.*

M. haasei. Same sexual markings as in *dexamenus transiens Fruhst.* Androconial patch of h. w. up. s. rather narrower. Two vars.: **haasei** *Rbr.* Bangkai. Up. s. dark red brown with gray black distal border, which is isolated from the darker basal part of both wings by a pale yellow ochre longitudinal belt. Un. s. as in following form. — **unipupillata** *Fruhst.* (91 e). Much paler than *haasei*, submarginal bands of h. w. un. s. more wavy. Up. s. of wings shows great similarity with *ophthalmicus Westw.* Habitat, Tonkean, East Celebes. *haasei.* *unipupillata.*

M. deianira *Hew.* the fourth of the *Lohora* group from Celebes, f. w. without sexual markings whereby it is easily distinguished from *pandaea Hpff.* of the next group. Up. s. like *dexamenus* reminds one of *Clerome menado Hew.* Ground colour red brown, lighter toward extremity of h. w., and changing to a green black near apex of f. w. on which is a black median eyespot. Un. s. as in *deianirina*, but yellowish instead of blackish and the antemarginal lines nearer together. N. Celebes, up till now only known from Minahassa. *deianira.*

b. F. w. with black hairpencil on submedian (*Celebina Fruhst.*, Physcon *Nicév.*).

M. pandaea, likewise only taken hitherto in N. Celebes, and, there too, in two local or season forms. — **padaea** *Hpff.* somewhat larger than *deianira* and minus the black median eyespot up. s. f. w. — **deianirina** *Fruhst.* (92 f). Submarginal lines of both wings more deeply waved. F. w. darker, h. w. lighter particularly in anal angle, h. w. un. s. with four instead of three eyespots. Very rare in Toli-Toli, November, December. *pandaea.* *padaea.* *deianirina.*

*) S, Celebes with its dry climate, consequently light woods, the trees bein frequently interrupted by stretches of prarie.

**) N. Celebes with its wet climate and real tropical thick forests almost always dripping with rain. In the south are the pale and in the north the dark forms.

erna. **M. erna** *Fruhst.* (92 f). ♂ Length of f. w. 29 mm. Upper side ground colour of wings reddish yellow in every shade, lightest in the median region of f. w. and darkest at basis of h. w. Base of f. w. similarly tinted with reddish brown, so too the inner boundary of the broad intensely black apical region, which is somewhat scalloped and narrows gradually, shades off towards the anal angle. H. w. without markings save blackish costal and marginal border, two fine submarginal lines and eyespots of un. s. seen through by transparency. I took only one example of this very special form at Bua-Kraeng, S. Celebes, at an altitude of 5000 ft. in February.

inga. **M. inga** *Fruhst.* (92 f) is up. s. a faithful portrait of *Clerome sulana*. Base of both wings a dark red brown, blackish at apex of f. w. and at distal border of h. w. No further markings. Bigger than, and with broader brown bands on un. s. Sula-Besi, captured by W. Doherty.

b) h. w. with basal hair pencil (*Loesa Moore*).

The only species of this group lives in Macromalayana and differs from the true *Lohora* in its shorter cell h. w., while the lower discocellular inosculates the furcation of the two median veins, the middle one is also straight.

oroatis. **M. oroatis** *Hew.* Type from Java where the species is very rare. The ♀ is still unknown. I have before me four ♂♂ from the West and one from the East of the island and these are identically the same. Doherty also found *oroatis* in Bali. *oroatis* is remarkable for a tuft of thin yellowish hair situated just above the centre of submarginal of h. w. This tuft gave rise to the forming of a genus *Loesa*, containing only one species; fully described forms must fall into the *oroatis* group. Java. Dry-season form has not *ustulata.* been examined by me. — **ustulata** *Dist.* (93 a) lives at foot of fore-alps in company with *orseis* and *fuscum*; the darkest of the yellow species in Sumatra. The ♂ has a lustrous red-brown, the larger ♀ a dull light brown ground colour on both wings. Malay peninsula, N.-E. and W. Sumatra. In Tenasserim appears as a *surkha.* great rarity **surkha** *Marsh.* (= fervida *Btlr.*) in two seasonal forms, it is based on the form without eyespots which apparently does not arrive at full development in Sumatra and Java. Moreover the Tenasserim race is so close to *ustulata* that Elwes will only recognize it as a rainless season aberration.

Genus: **Orsotriaena** *Wallgr.*

Although both species of this genus are closely allied in general properties to *Culapa* and the structure of h. w. can scarcely be distinguished from that of the *perseus* group, yet must the genus be separated because only the stem of the costal f. w. is puffed out, and the eyes are naked. The secondary sexual organs are very primitive. F. w. with a fold above submedian which bears a black (*medus*) or yellow (*jopas*) star of hairs. H. w. up. s. with a tuft of long bristles in and beyond the cell between the lower and sub-median. The lower discocellular inosculates distally from the cell at furcation of the two median veins. Martins finds only insignificant differences between the larvae of *culapa inter se*, while those of *Orsotriaena* have quite a different biology and are easily distinguished from the larvae of *culapa* by their slimmer form and longer horns on their heads.

C. medus spreads from India proper to the most remote South-Sea-Islands and appears on the mainland in three seasonal forms which have not been noted on the islands east of Java. On certain islands *medus.* e. g. Borneo exist however butterflies with narrower and others with broader median bands un. s. — **medus** *F.* (= doris *Cr.*) named from species of the rainy form with un. s. like the depicted *zipoetina* (91 a) but the ex- *hesione.* tensive lead-lustre of h. w. is missing. — **hesione** *Cr.* is a passage having the eyespots of un. s. of both *runeka.* wings already reduced but retaining the white median band. — **runeka** *Moore* is a dry season form with some eyespots failing but with still clearly marked median band and *turbata Fruhst.* an extreme dry season form with eyespots practically disappearing and with median bands wanting or only represented by a blackish gray shading. Throughout India except the South mounting up to 1000 m. above sea level. Larvae on rice *mandata.* and grass. — **mandata** *Moore* lives in the southern Indies and Ceylon, is rather smaller than the northern races, but has decidedly broader discal bands and on un. s. of both wings larger eyespots, ringed rather with brown than with red. The dry-season form is known as *mandosa Btlr.* In Sumatra species are frequently taken with enlarged eyespots, a fine glossy lead coloured periphery and with a washed silver shine between the eyespots (f. zipoetina *Fruhst.* [91 a]). According to Martin the whitish green spherical eggs are laid singly on the un. s. of grasses and turn to a milky white before the appearance of the larva; the newly hatched larva is white and only turns green after the first food has been taken.

After second instar the larvae are whitish green without any darker dorsal markings and possess very long fork shaped diverging prongs at head and anal segment and these are of a delicate pink colour. The whole body is covered with fine diagonal fluting and sparsely haired. After last instar the head and anal appendages are nearly double as long and are still of the same delicate pink, whereas with respect to the general colouring there are two distinct types of larvae: 1⁰ whitish yellow larvae which before pupating become gradually paler, and 2⁰ those in which the pink of the appendages covers the whole body. Either type has a stigmatal line of a creamy white colour. The appendages often stick straight out beyond the head and makes the larva look like a leaf snail with its outstretched horns. They never hide deep in the grass but stay up high near the spikes which afford colour protection and feed in broad daylight. They hang up high on the stalks to pupate and look like ripe oats. The pupa is of a yellow brown often with a metalic glitter. As the larva hangs up, not on horizontal, but on vertical stalks, the pupa projects at a bold curve from the stalk. The full grown larva measures from 35 to 37 mm. After exactly nine days the butterfly comes out at between 9 and 11 A. M. Yet another species is found from Celebes to New-Guinea which has a white median line threadlike in fineness and described as **licium** *Fruhst.* From Pommerania we have butterflies having the median nearly as broad as in those we have observed in the Southern-Indies. These should be **mutata** *Btlr.* — **modestus** *Misk.*, the Australian representative of the genus is spread over the country between Cooktown in Queensland and Thursday-Island. *licium.* *mutata.* *modestus.*

O. jopas is found in Celebes and the Sula-Islands. The scent fold below the submarginal of f. w. of *jopas* is bigger, deeper, better developed than in *medus*. The scent pan apparently filled with lighter scales, the scent pencil rather yellower and longer. The costal border of h. w. also lighter than in *medus* and the silky glossy bristles shorter and appressed. There are three local races of *jopas* to deal with: **paupercula** *Fruhst.* (91 a). Smaller than the Celebes race. Antemarginal lines on up. s. of both wings more sharply marked. Un. s.: The white median bands narrower, of a cleaner white and more sharply defined. The eyespot region of h. w. wider spread and paler. The eyespots themselves more oval, larger and with linear pupils. Sula-Besi, collected by Doherty. — **jopas** *Hew.* habitat only vaguely known by its author as East-India and considered by him an ab. of *medus*; it is one of the commonest found near human habitations in N. Celebes, bigger, darker than *paupercula*. Taken by me in numbers at Toli-Toli in November, December. — **mendice** *subsp. nov.* produced by a locality with a lighter rainfall, appears in S. Celebes from September to December. Smaller than *jopas* with clearer white bands and antemarginal lines, differing from *paupercula* through the darkened antemarginal lines of h. w. up. s. *paupercula.* *jopas.* *mendice.*

Genus: **Mandarinia** *Leech.*

Leech forgot to mention the fundamental characteristics of this peculiar genus, to wit, the base of none of the veins is distended and the h. w. cell is sharply acuminated. *Mandarinia* differs again from *Culapa* through the concave form of the anal border of f. w., reminding one of *Euploeen*, *Taenaris* and *Antirrhaea*, and the broad brush of hairs on h. w. which recalls the peculiar scent apparatus of *Antirrhaea philoctetes L.*

Only one species is known to science, it comes from China where Leech tells us it is very local and by no means common. **M. regalis** *Leech* (Vol. I, p. 80, Fig. 29 a). It is highly probable that *regalis* may yet be discovered in Yunnan, whence it must have passed on to Tonkin where I found a local race *baronesa Fruhst.* (93 c). With an expanse of 27 mm it is smaller than *regalis* which is never less than 30—33 mm. The blue transversal band of f. w. is much narrower especially in the upper part, the spots are more isolated and are distally more incisive. The band runs inward irregularly, reaches at the very farthest the submarginal and on account of its want of breadth is farther from the anal angle, i. e. it is pushed back inward. The band too is of a deeper blue. Tonkin, Than Moi, June and July. ♀ rounder winged, with pale blue submarginal band, which is noticeably narrower than in ♂. *regalis.*

Genus: **Drusillopsis** *Fruhst.* (= *Hamadryopsis Oberthür, nom. nud.*)

This peculiar genus of which the only known species was discovered by Doherty in Dutch-New-Guinea must be placed near the Mycalesides on account of its distended veins f. w. and the scent pencil on costal border of h. w. up. s. So far as one may judge the veins from Oberthür's figures, the cell of h. w. is just as acuminated as it is in the genus *Mandarinia*, but in Drusillopsis the lower discocellular pushes against the furcation of the two nearer medians of h. w. and does not inosculate distally from them as in Mandarina. Position and build of discocellulars as in other Papuan *Culapa*.

dohertyi. **D. dohertyi** *Oberth.* (= Hamadryopsis drusillodes Obert., ♀). The ♂ looks like a *Hamadryas* male, the ♀ a very small Taenaris (*Drusilla olim*) and the two sexes give us an example of extreme sexual dimorphism, similar to that of *Elymnias agondas Bsd.* This has misled Oberthür to form from one species two genera, however no systematic value can be accorded to the same as no diagnosis has been given, and a diagnosis, had Oberthür given one, would necessarily have indicated to the author that he had before him a heteromorphic species and not two genera — a monument of human error! ♂ f. w. black with two large and two smaller square spots. H. w. white with broad black distal border and yellow hair pencil on costal. Each wing has one eyespot. In the ♀ white predominates, but there is a narrow black-gray distal border. Apical eyespot of f. w. as in ♂, anal eyespot of h. w. is very big with a yellowish border below, h. w. un. s. with an apical eyespot that is also present though smaller in ♂.

Genus: **Palæonympha** *Btlr.*

The author of this interesting genus places it in the vicinity of the neotropical genus Euptychia, with which in truth *Palaeonympha* has the swollen out costal and median and the long cell of h. w. in common. However the physical properties of the only known species are so close to those of the *Mycalesides* that I have no hesitation in placing them here, the more so as two costal bifurcating before the end of cell f. w., the bow-shaped central discocellular, and the hairy eyes remind us of this group, yet through its long cell on both wings this genus is distant from the *Culapa* and takes up an isolated position.

opalina. **P. opalina** *Btlr.* (Vol. I p. 148, fig. 48 i) spread from Ningpo to the frontier of Thibet. Lately also captured in Formosa where a dark island race appears, *macrophthalmia subsp. nov.* only differing from the type in the darker colours, to wit, black instead of red brown bands un. s. and larger more dilated black-centred eyespots on both wings.

Genus: **Ragadia** *Westw.*

This genus is closely allied to Mycalesis by the secondary sexual signs of the ♂, which bear a (glandular ?) cavity on un. s. of h. w. above the lower discocellular vein, but which, like certain Danaids has the opening on the up. s. of h. w.; this opening is round and stretches outwards like a fissure. Moreover the very characteristic design of un. s. of both wings has been, as observed, alluded to already in *Culapa dohertyi.* The semi transparent wing, the delicate build and weak flight of the butterfly seem to suggest a relationship with the following genus *Erites.* The veins of h. w. are so divergent from other *Satyrids*, that Herrich Schaeffer placed *Ragadia* in a special family. On the other hand a relationship with the *Mycalesides* (the group *Virapa*) is established through the discocellular of h. w. of ♂ being displaced by the sexual cavity, a most remarkable anomaly. In the ♀ also the fore and middle discocellular are missing on h. w. which is only closed by a long lower discocellular running to the furcation of the lower median. The f. w. has only the costal distended and as in *Lohora* has only one subcostal vein branching off before the end of the cell. There is some uncertainty about the few species belonging to this charming genus and it is not at all sure that all the forms do not really belong to two or three species alone. Habitat; the eastern region, no longer occurring at Bali.

latifasciata. **R. crisilda**, the continental species, broken up into four varieties. — **latifasciata** *Leech.* (Vol 1, p. 80, fig. 29 a) remarkable for the broad white median part of f. w. and the extensive black approach of eyespots h.
crisilda. w. un. s. Apparently very rare. From West China, Mupin. Flies in July. — **crisilda** *Hew.* (90 e) till now. only reported from Assam and Upper Tenasserim but taken by me in Central Tonkin also (Aug. Sept. at about 1600 feet altitude). Un. s. like *crito* (90 e) only the row of eyespots h. w. is ringed with somewhat paler yellow.
critolaus. — **critolaus** *Nicév.* (90 e) till now has only reached Europe from South Tenasserim; gives the impression of being an extreme dry season form. Ressembles *latifasciata* in its broad white discal stripes, and differs from the same and from *crisilda* in its narrower black bands h. w. which is occasionally split up into isolated patches. This butterfly was once taken by Bingham in the forest at the foot of the Donat chain in large numbers, the butterflies flew in the shadow of the high trees amid the low bushes, settled frequently and in the easiness and
crito. delicacy of their flight had *Leptosia Xiphia* alone as rivals. — **crito** *Nicév.* (90 e) was for a long time only known from Bhutan where it was very local but in certain favoured spots was observed in great numbers. Doherty discovered it later in Upper-Assam. (Margherita). Easily seperated from the other sister forms by the almost entire disappearance of the white bands of up. s. of both wings which too seem more or less covered with slate gray especially in the case of ♂♂. ♀ as in all *Ragadia* has rounder wings and of a paler colour than the ♂.

Easily seperated from its congeners by the almost complete failure of white bands of both wings which appear more or less covered with slate-gray, especially in the ♂♂. As in all *Ragadia* the ♀ has paler, more rounded wings than the ♂.

R. annulata *Sm.* (= melita *Stgr.*) (90 e) is closely allied to *melindena Fldr.* from the Southern Philip- *annulata.* pines and differs from all described forms in its excessively broad black distal border and the narrow median band of both wings. The up. s. of ♀ is of a yellowish white throughout with only a little discal stripe seen though by transparence. *annulata* is also distinguished from *crisilda* by the row of eyespots un. s. h. w. being nearer the outer border, moreover only two, instead of three of said eyespots (median), lie in the same patch of yellow. Kina-Balu, North Borneo.

R. melindena *Fldr.* takes the place of *crisilda* in the Philippines. Is very close to the above species *melindena.* but differs in the subbasal bands un. s. h. w. being shorter, reaching only to the middle of wing, and up. s. similarly by the rudimental median stripes of ♀♀. Line of eyespots more complete and homogeneous than in *annulata.* Everywhere in Mindanao from June till October and December till February. A darker race is reported from Camiguin de Mindanao and Sarangani.

R. crisia is the commonest and best known species and is found in every part of the Macromalayan region, where it occurs in four not not very sharply divided geographical races. — **crisia** *Hbn.* (= makuta *crisia.* *Horsf.*) (90 e) the typieal form is found, so far as my observations go, exclusively in West Java, where I found it plentifully in the woods of the Bay of Palabuan which were dripping with wet, yet it flies too in the chalk hills of Southern Preanger up to 1600 ft. altitude. *crisia* is the most broadly stiped with black, but is yet the most uniform of the group with a preponderance of yellowish bands. It appears too that the chain of eyespots on un. s. consists of larger eyes more richly provided with silvery pupils than in the other forms. — **minoa** *subsp. nov.* from N. E. Sumatra. Common everywhere in the plains and on the mountain *minoa.* spurs up to 1000 ft.; not to be found in the lofty woods but everywhere in the new copses where grass still grows. Very abundant in nutmeg gardens, for these offer in addition to the rich grass the half shades of the nutmeg trees. Flies feebly near the ground, settles frequently and by preference on the bare earth or on dead leaves and in spite of its jerky irregular flight is easily netted. This species is strongly inclined to vary with regard to the depth of ground colour up. s. and the breadth of the dark bands un. s. The up. s. is however darker than in *crisia* and is rather of a smoky brown than of a yellowish white colour, the bands too of un. s. are yellowish rather than white. There occurs a variety or form (**pallida** *subsp. or form. nov.,* *pallida.* 90 e) exclusively on the Battak Mts. in West Sumatra which is very close to *crisia* but has taken on a pale whitish gray colour especially on up. s. of h. w. — **siponta** *subsp. nov.* I have before me species from Perak *siponta.* in the Lingga Archipelago and from the Natuna Islands. Smaller than *crisia* and *minoa*, a black-gray colour encroaches on both wings up. s. and on the un. s. of h. w. the yellowish delimitation of the eye-spots is narrower in the ♂♂. — **umbrata** *subsp. nov.* from Borneo exhibits the darkest smoky brown coloring of up. *umbrata.* s.; the ♀♀ are larger than in *minoa* and *siponta*, the black bands of un. s. are somewhat narrower and more sharply marked. N. and S. E. Borneo, and, too, in my collection from Pontianak.

R. luzonia is the northern representative of an insect from the Philippines whose membership to the *crisia* group is disputed. Semper opines that it should be seperated and I have not material enough to enable me to judge. — **luzonia** *Fldr.* differs chiefly from *crisia* in the vertical striping of both wings and the chain *luzonia.* of eyespots h. w. runs straighter, the latter is seen more clearly in transparence and is composed of larger eyes. F. w. with a yellow median stripe, h. w. with a pale yellow expanded approach to the black eyespots. Un. s. of both wings with broad sharply defined median band. April to June. Only from Eastern Luzon and the island of Polillo lying just in front of it. — **mindorana** *Semp.* from N. E. Mindoro, flies in December *mindorana.* and January and differs from *luzonia* in that the double pupilled eyespots are surrouded by a common yellow periphery, beyond which each eye seems to be separately ringed. — **crohonica** *Semp.* is nearest to the *crohonica.* Javanese *crisia* but has smaller eyespots and the ♀ is almost entirely white up. s. From Eastern Philippines, Leyte, Panaon, Samar. Apparently rare, from May to November.

Genus: **Melanitis** *F.*

Structurally characterized by the uncommonly short middle discocellulars of f. w. and the nondistended principal veins. Eyes naked, palpi broad, hair thick and pressed down, spurs of middle and hind legs split. Fore and middle discocellulars of h. w. of nearly the same length, the third discocellular pushing out beyond furcation of median veins. Larva never varying from common type, green, rather thicker in the middle. Head with two horns. Pupa green, rather long, thicker in the middle and with truncated head end. Generic organs extremely primitive, uncus without lateral clasps, valve long, a narrow distal with obtuse end, long and thickly bristled. Uncus with a sharp point as in the *Eumenis* group.

These butterflies avoid the sun and are never found in the heat of the day; dawn and twilight are their favorite hours and they drag out their evenings so long that they are indeed occasional visitors to the lamp light, keeping the moths company. They fly very short distances, settling down with folded wings to rest on the bare earth or on dark damp tree roots. The coloring of un. s. affords them an excellent protection even against sharpsighted enemies. They are moreover very shy and fly off before one can get near them. One species is spread over three continents, others are found only in the orient, others again are peculiar to Molucca and New Guinea. They are butterflies of the low lands, and are found in the neighborhood of human dwellings and prefer copses and orchards. Cf. Vol. I, p. 88.

M. leda (Vol. I, p. 88, Fig. 32 a) a species which occurs everywhere in South and East Asia where
ismene. rice is cultivated and on all islands up to the most remote ocean islets. — **ismene** *Cr.* named from a dry season form, appears to be the oldest name for the continental race of this species which in certain
determinata. regions, e. g. the Western Himalayas occurs much more frequently as **determinata** *Btlr.* the oldest name for the rainy season form, better known by the designation *leda*. Now, Butler has asserted that the Lynnean type of *leda* comes from Amboina where an island form quite different from the *leda* of continental India occurs.
mycena. A most interesting aberration is **mycena** *Cr.*, originally described from the coast of Coromandel, it is very rare but widely spread, for I have specimens before me from Formosa, Sikkim and Borneo. Resembling the dry season form it is characterized by a broad red-brown approach to the apical eyespot f. w. up. s. and un. s. by the unrelieved red or yellow-brown coloring which towards the distal margin changes suddenly and makes room for a narrow yellowish or brownish yellow marginal band which looks as if had been drawn with a ruler. Such specimens, if un. s. alone be examined, run the risk of being confounded with specimens of *bela* and *zitenius* which also possess a sharply delineated distal margin. As Seitz has already clearly demonstrated, no two specimens are exactly alike, and, just as dry seasons produce most uncommon forms (*nycena*), we likewise find abnormal forms in the eyespotted generation. Thus I have before me a ♀ from Tonkin which bears as large and as broadly yellow ringed eyes on the f. w. un. s. as on the h. w. and a ♀ from Sikkim shows four longish white streaks instead of ocelli. Generally speaking it can be said that both sexes of *ismene* have a broad projecting apex and *determinata* shows a more cleanly demarcated apical margin of f. w.; a peculiarity which is again very noticeable in the genus Kallima. Hagen has remarked that *leda* does not visit blossoms in Sumatra but is met with in large nimbers on fallen, rotten fruit, especially figs, most frequently in the early morning or late evening. These butterflies enjoy their meals when all others are asleep, at 6 A. M. or at dusk. Fallen fruit of the oreng (sugar) palm and fallen blossom of the pising (banana, plantain) are also favorite dishes of the *Melanitis*. Quarrelsome males often rise high in the air and then sweep back in regular spiral curves to their resting place, throwing off sharp silhouettes against the gold
simessa. of the tropical sunset (Martin). — **simessa** *Fruhst.* (= arcensia *Fruhst. olim*) I venture thus to distinguish the Javanese from the continental specimens. Of this subspecies there is a particularly large spotted rainy season form, already known and figured by Hübner, un. s. a prevailing brown yellow with very sharp dark brown bands. The dry season form too is characterized by uncommonly broad black-brown bands partially invaded by black or brown on the inner side and forming a lively contrast with the yellow or red-brown
ismenides. of un. s. (**ismenides** *form. nov.*). Dr. Piepers remarks that *simessa* sometimes settles by day on the dining-room ceiling and that then the wall lizards (Hemidactylus) which is so well provided with olefactory organs come forth from their lurking places, evidently attracted by their smell, first lick the butterflies so as to be quite sure of their prey and only seize them when they move. *simessa* is common everywhere in Java where rice is cultivated, likewise in Bawean. Specimens from Lombok are a passage to the Wetter form,
obsolescens. I have from this place both *mycena* and *ismenides*. — **obsolescens** *Fldr.* up. s. somewhat darker and un. s.
desperata. more uniform gray than *simessa*, common in North and South Celebes. — **desperata** *Fruhst.* approaches closely to the Molukka race through its dark brown flush up. s. and its uniform, very broad, rust-red proximal
leda. region of eye-spots f. w., a fact that Doherty has remarked. Island of Wetter, Alor. — **leda** *L.* (95 d) described by Linné with the locality "Asia". Through Butler who discovered the type, it was ascertained that it originated however in Amboina, whence Linné is known to have received numerous insects. Up. s. always red-brown, not black gray as in the continental macro- and micromalayan specimens. Un. s. with a distinct purple sheen and always more or less cocoa coloured; it does not vary as much as *ismene* or *simessa*. Even
buruana. the different generations are not easy to determine. Amboina, Ceram, Uliasser. — **buruana** *Holl.* is the name given to a form peculiar to the island of Buru. Had the author been aware of Butler's find, he would certainly never have described it, still this butterfly has a brighter and more intense red-brown up. s. than
moluccarum. my pair from Amboina. — **moluccarum** *Fruhst.* (96 a) [= fulvescens *Fldr.* (1867) a name preoccupied by Guenée

since 1863]. Un. s. a. little paler than *buruana*, otherwise very close to the latter. Batjan, Halmaheira Obi. — **offaka** *Fruhst.* Both sides darker coloured than *destitans* particularly the ♀♀ which even show a darker red- *offaka.*
brown colour up. s. than specimens from Molukka. Waigiu, Dutch New Guinea. — **destitans** *Fruhst.* (95 a) *destitans.*
is most closely allied to *moluccarum*, being a passage from this form to *bankia* from Australia. ♂ Up. s. a more intense brown, un. s. with smaller eyespots, distally less clearly bordered with brown. ♀ The whole apical region of f. w. much paler, almost whitish yellow, ground colour of up. s. more gray-black, un. s. in the distal region equally paler. German New Guinea. — **kiriwinae** *Fruhst.* A distinct island race, notable larger *kiriwinae.*
than any of its relations, with a rounder cut to wings and a much bigger yellowish field around eyes of f. w. Kiriwina. — **dominans** *Fruhst.* (96 a). I thus described the rainy season form from the Bismarck Archi- *dominans.*
pelago, it is nearly as big as *kiriwinae*, is coloured a more intense red-brown in ♀ up. s. and bears smaller eyespots un. s. on much darker ground. Bismarck Archipelago, type from New Mecklenburg. — **salomonis** *salomonis.*
Fruhst. up. s. is nearer to *destitans* but shows a more regular wing form without salient apex. Un. s. easily distinguished from any known *leda* race through its much bigger eyespots with broad yellow rings, especially on f. w. Salomon. — **solandra** *F.* (Insula Otaheity 1775) (= *Cyllo leda v. taitensis Fldr.* 1862) Tahiti (I do *solandra.*
not possess it). — **palliata** *Fruhst.* (95d misprinted *pallida*). The smallest local race known to me, and so *palliata.*
far as ♀ is concerned the palest; light gray brown throughout with a somewhat darker narrow brown distal border. The un. s. shows sharply outlined bands and a comparatively broad brown margin, rather reminding one thereby of forms of *phedima Cr.* Eyespots very big, broad, ringed with yellow. Palau, taken by Mr. G. Semper. Yap. (Semper). — **levuna** *Fruhst.* is about half way between *salomonis* and *palliata*, differing *levuna.*
from the latter un. s. by the darker surface of both wings traversed by a broad median band and connected with the former up. s. through the pale apical region. The ♂♂ are darker than Australian ♂♂ and resemble *buruana Holl.* in colour. Viti-Levu. — **bankia** *F.* is the only certain name for the Australian local races which *bankia.*
seperate into temperature forms much more sharply than does *ismene* from India. Some of them have received names from earlier authors, but not having seen the types in England I could not venture to describe them. In any case there is a very considerable difference in specimens from New South Wales, such as there are in Staudinger's collection in Berlin and those that I have from Queensland. The former belong to a spendid rainy season form with a straight cut distal border f. w. and without salient apex. Up. s. a beautiful red-brown with relatively small apical eyespot, in the ♀ there is a pale yellow approach to the first eyespot. On un. s. the eyes are not very large. Not far from these is **crimisa** *subsp. nov.* from Staudinger's collection, *crimisa.*
a handsome island race with extremely red-brown distal patch f. w., whereby it is easy to distinguish it from *desperata* with its indistinct reddish approach to apical eyespot. — **africana** *Fruhst.* The dry-season form *africana.*
of the African race differs but slightly from the analagous Indian form, however the ♀♀ of the African rainy season form that I have before me have the yeliow of the apical region far broader than any Indian ♀♀ of the most extreme dry season type and the eyespots of h. w. up. s. are ringed with a far paler yellow. The African *leda* race deserves a name too, because colour variation occurs in Africa such as we nowhere meet with in Indo-Australia, for example, dry season ♂♂ with the f. w. covered with a yellowish red tint (**zitenides** *zitenides.*
Fruhst.) = fulvescens *Guen.* (Vol. 13, Fig. 26 b). Réunion, Bourbon, Rodriguez, Madagascar.

M. phedima is the name of a widespread collective species that is even more subject to the influence of climate and locality than *leda* is but having less individual variability than Linné's butterfly. In the oriental region it appears side by side with *leda* but is wanting in Micromalaya and is not found east of Celebes. Decidedly rarer, it haunts the higher parts of the plains and the mountain spurs, occurring there rather in the low woods and woodsides than in the fields and gardens as *ismene* and *leda* do. These butterflies love to settle on split or wounded tree trunks and suck up the flowing sap, so great a love have they for it, that forgetting their natural timidity, they allow you to pick them up with your fingers rather than abandon the banquet. Larva somewhat shorter and thicker than that of *leda*, more prettily striped laterally, head with red stripe. Pupa rather thicker than *leda's*. Little difference in generic organs of this insect and *leda*, valve apparent but distally more bowshaped, less thick and with shorter bristles. — **mukata** *Fruhst.*, *mukata.*
the northern branch, differs from the Indian rainy season form *bela forma aswa Moore* through its superior size, lighter un. s. of both wings and expanded yellowish apical region of f. w. up. s. With *mukata* exists a rather smaller rainy season mountain form described as forma **patra** *Fruhst.* with no apical patch in ♀ *patra.*
and a more distinct chain of eyespots h. w. un. s. ♂ (extreme rainy season form) The dry season form of the Chinese *phedima* race (*forma* **autumnalis** *Fruhst.* was represented by Leech as *ismene* ♂ and ♀ (figs. 2 and *autum-*
5) and by Seitz Vol. I fig. 32 d. This insect differs from the Indian dry weather specimens in being bigger *nalis.*
with a more bleached red-brown at apex in ♀, which is more extended in ♂; West-China from the lowland and Omei-Shan. — **ganapati** *Fruhst.* Specimens from Tonkin, Annam, Tenasserim differ, partieularly in the *ganapati.*
dry season form, from their Indian and Chinese sisters, through their much smaller size, greatly reduced apical red brown colouring and in forms of either season through the small eyespots un. s. h. w. The rainy

aswina. season form (**aswina** *Fruhst.*) differs from *aswa Moore*, the un. s. of h. w. being more richly edged with brown-red. Tonkin, Annam, Tenasserim up to about 1500 m altitude, in Tenasserim exceptionally to about 3600 ft; I took *ganapati*, the dry season form, at Annam in February, Tonkin in April and Tandong in Tenasserim in May, while I possess a long series of *aswina* from an altitude of from 500 to 800 m from Than Moi,
bela. June and July and from Chiem-Hoa, August and September. — **bela** *Moore*, from Sikkim and Assam is the
aswa. best example of seasonal dimorphism from the continent, **aswa** *Moore* (*tristis Fldr.*) being the rarer wet season generation. ♂ resembles *polishana* (96 b) but without the distinct subapical marking f. w., the h. w. less cut away. Un. s. blackish finely marbled with gray, h. w. with six widely separated, distinctly white-pupilled eyespots. Un. s. f. w. either with eyespots scarcely as big as points or clearly perceptible. ♀ up. s. with dull gray approach to eyespots, un. s. a washed out red brown with broad brown bands and a sharply delineated somewhat foxy red distal margin. *bela*, the far commoner and more stately looking dry season form is remarkable, especially in ♂ through the margin of both wings being broadly powdered over as with flour; it has too a striking square red-brown subapical patch. The big black apical eyespot with two significant white pupils the larger of which is above the eye. ♀ with a broad red brown apical zone, with a still larger eyespot, above and occasionally below which are the broad feathering beginnings of accesary ocelli. Un. s. of ♂ like a fallen beach leaf but marbled with gray and with blind gray ocelli; in the ♀ red brown predominates with more distinct, darker bands. In Sikkim from April to November but only in the lower regions. — In Western Himalayas, Kashmir, Kulu and the Kumaon districts appears a hitherto unno-
galkissa. ticed, far smaller local race which I only possess in the eyeless dry season form, **galkissa** *subsp. nov.*, scantily dusted with gray, reddish approach to ocelli generally missing, un. s. pale gray with diminutive blind eyes. Type from Kulu. Occurs according to Moore from 2500 to 4000 ft. The eyeless form appears in April and
bethami. October, the rainy season form in August and September. — **bethami** *Nicév.*, is treated as a separate species by Bingham, it is the eyeless or slightly pupilled representative of *phedima* in Central India; the ♂ of the rainy season form which flies in August has a double sized subapical yellow spot f. w. and this in the form taken in October attains large dimensions, filling up the whole transcellular region of f. w. and in the ♀ passes on to the discoidal cell itself. Un. s. sandy gray as in *galkissa*. Till now only reported from Pach-
gokala. mari, a Sanatorium in the Satpura Hills in the Central Province. — **gokala** *Moore* is a well differentiated mountain form from the Kanara and Mysore districts and from the Nilgeries where it rises to from 3000 to 3500 ft. Larva on bamboo. A transitional form from *bela* to *varaha* from the Malabar coast and resembles *zitenius* with which I should have associated it had not Bingham united it to *bela*. The not very remarkably dif-
aculeata. ferent dry season form was described as **aculeata** *Hmps.* and is found in April, September, November and December while the wet weather generation appears in July. The subapical patch of f. w. is a dull brown yellow, h. w. up. s. with three and un. s. with from six to seven white spots. Unknown to me in nature;
varaha. its position here is questionable. — **varaha** *Moore*, named from specimens of the un-ocellated generation, is
ampa. one of the commonest butterflies on the coasts of Marabar and Coromandel. — **ampa** *Swinh.* is the eyed form, very small, ♀ up. s. black-gray, un. s. predominant gray with reddish powdering and with a large triangular submarginal spot. The dry season form (*varaba*) is of the same size as *galkissa*. Both sexes have two white submarginal markings f. w. but the red eyespot periphery is wanting. Type of both generations from Kanara; in the Nilgeries and Travankore rising to 3000 ft., flutters about in the shade of the trees.
tambra. *varaha* in November, December and January, *ampa* from June to August and in October. — **tambra** *Moore*, whose life history is known, flies in Ceylon the whole year round. It is met with in the lowlands and up to 3000 ft. Seasonal forms less sharply separated than in *varaha*, the ♀ of rainy season bears white submarginal spots h. w. up. s., that of the dry season is red-brown instead of gray up. s. in the apical region. Un. s. without
abdullae. the pretty white markings which characterize *vahara*. — **abdullae** *Dist.* takes the place of *bela* in the Malay peninsula and in Sumatra, where it is never seldom from the North East to the mountainous West. Rainy season form alone is known, ♂ being very like *sumati* (96 b) but smaller. The ♀♀ have the gray brown colour
sumati. of apical region f. w. paler, a characteristic that in **sumati** *Fruhst.* from Nias (96 b) is nearly, and in speci-
enganica. mens from Engano (**enganica** *subsp. nov.*) quite fails. Larger than *abdullae* with more conspicuous white subapical points f. w. Both ♂ and ♀ lighter un. s. and more richly spotted with red-brown; appears still earlier than *leda*; Hagen has seen it banquetting on rotten figs at 5 A.M. When *leda* appears, at the latest at
phedima. 8 A.M., *abdullae* withdraws fully fed and is not to be seen again till late in the evening. — **phedima** *Cr.* (suyudana *Moore*). ♂ up. s. black, often too with a white subapical point, as Cramer has observed. ♀ in two forms, one of which is of the extreme rainy season, without yellowish gloss f. w. up. s. (specially men-
arcensia. tioned by Cramer to differentiate his species from *ismene*), ♀ *fa.* **arcensia** *Cr.*, and one presumably from a dry period with dull brown yellow subapical square spot f. w., which is moreover tinted distally with red
fulvinotata. and yellow-brown. — **fulvinotata** *form. nov.*, Un. s. of ♂ richer gray with darker black-brown ground colour,

while ♀ has a more intense red-brown than *abdullae* ♀ and *sumati* ♀. East and West Java up to about 2500 ft. fairly common and always in company with *ismene*. Most frequently met with in months of December to March. The species appears to be wanting in Micromalaya and Borneo. On the contrary it is found in two well separated forms here and there in North Celebes: — **linga** *Fruhst.* a small form from the plains: *linga.* apex more salient, tails of h. w. longer and un. s. of a lighter gray than in Macromalayan allies. ♂ with smaller white subapical spot f. w. In Minahassa however there is a form with larger wings and more conspicuous apical spot f. w. ♀ un. s. lighter and more gray yellow than *phedima* and *abdullae* ♀, up. s. with bigger, blacker, more conspicuous eyespot f. w. (**niyaga** *form. nov.*), type in Staudinger's collection. — **polishana** *niyaga.* *Fruhst.* (96 b, c). Of smaller size, un. s. darker, all white points reduced as in the other *phedima* races from *polishana.* E. and S. Asia, but particularly in the Chinese local forms. Formosa; Polisha, July ♂. Kagi, August ♀. There are two forms of ♀ in the Fruhstorfer collection: one relatively small with indistinct subanal spots h. w. up. s. and un. s. with barely noticeable eyespots. The second form is adorned up. s. with well marked ocelli and bears un. s. a complete row of fine white pupilled eyespots (Chip-Chip, July, August). — **nuwara** *nuwara.* *subsp. nov.* is the name of an insect that Semper has erroneously referred to *ismene Cr.* and which figures in his work on the Philippines Pl. 9 fig. 12 *nuwara* is however much closer to *polishana* than to any member of the *leda* group. Un. s. like *linga* from Celebes, f. w. with apical part powdered with gray and two rather large white subapical spots. H. w. with complete row of six submarginals points, standing well apart from one another as in *polishana*. Mindoro, flies in December.

In **M. atrax** we have a species belonging to the *phedima* group and exclusively found in the archipelago of the Philippines, about which it is scattered in various forms. — **atrax** *Fldr.* (96 a) wing rather narrower than in *phedima*, up. s. rather brown than black with a distinct purple shimmer. F. w. with a gray-blue band rather narrower in the fore part, this is broader in the ♀ and rather of a fallow colour, and is more or less variable in colour and breadth in the Islands. Un. s. not easy to distinguish from *phedima abdullae*, but with a somewhat livelier gray-violet tint distally from the brown median band. ♀ up. s. of a light coffee-brown, un. s. a predominant yellow-red dusted with violet and on the f. w. an almost extinct white band. April to June in Luzon, Polilo and Burias. — **erichsonia** *Fldr.* is an extremely variable sub- *erichsonia.* species of which three season forms are known: 1) The typical butterfly is of the rainless period, it has broader wings than *atrax*, ♀ with but a remnant of a yellow gray subapical band f. w.; 2) **violetta** *Fruhst.*, *violetta.* an intermediate form with more violet and washed out diagonal bands, and 3) **pseudaswa** *Fruhst.* an extreme *pseudaswa.* dry weather form, ♂ with a mere trace of a dark brown band f. w., and this, though certainly narrower in ♀ than in *atrax* ♀ is bordered by a delicate red periphery. Mindoro, from Dezember to February. — **cajetana** *Semp.* very like the last mentioned but the ♀ has a white diagonal band f. w. Type from Samar *cajetana.* but Semper says it is also found on the Camotes Isles, Bohol and Cebu. Appears from May to October and again from December to February. — **lucillus** *Fruhst.* (96 a) the ♀ has as a rule a still broader whitish yel- *lucillus.* low band f. w. than in our figure, the h. w. has a rather extended but sharply set off red brown terminal border, the apical region of un. s. f. w. is mainly white. H. w. with white instead of violet border to pale red brown median band. Type taken by Dr. Platen at Mindanao. According to Semper also in Camiguin de Mindanao. — **bazilana** *Fruhst.* differs from *lucillus* in its narrowed vertical band f. w. of ♀, the brown *bazilana.* gray is powdered over and often encloses a significant small black white pupilled eyespot. Apical part of f. w. un. s. yellowish instead of white as in *lucillus*, h. w. tinted in median region either with purple or gray-violet instead of white. Bazilan Island, February and March discovered by Doherty. — **clya** *subsp.* *clya.* *nov.* is a small island race, the ♂ a dull black, darker then than its Philippine allies, un. s. even more fallow coloured than *lucillus* from Mindanao. Jolo Islands. Type in the Staudinger collection. — **pitya** *subsp. nov.* *pitya.* is the form found the furthest south; ♂ up. s. with a violet gloss, the ♀♀ bigger and paler than those from Jolo. Sangir; Type in the Staudinger collection at the Berlin Museum.

M. velutina, another very special species of the *phedima* group, and by far the most remarkable, as indeed might be expected from a butterfly coming from the Celebes-Molukka region. **velutina** *Fldr.* (96 b, c), *velutina.* differentiated from *phedima* by its superior size and its far reaching sexual heteromorphism, to which there is hardly anything corresponding in this genus, is separated un. s. from all allied species by its being largely powdered with white and by its well disseminated, clean white submarginal points on both wings. ♂ un. s. ground colour black which becomes brown distally, ♀ un. s. yellowish with broad, reddish brown bands and fine gray-white marbling. North Celebes, ♀ taken by me on the wood covered coasts of Toli Toli. — **ribbei** *Röb.* described *ribbei.* from Tombugo, East Celebes, likewise collected by me in the south of the island at Lompa Battan ca. 3000 ft up and noted by its author at Bangkai. *ribbei* is not very well differentiated from *velutina* by somewhat bigger

panvila. white spots f. w. and richer white dusting un. s. of both wings. — **panvila** *subsp. nov.* s on the other hand a finely differentiated island race of which Dr. Platen discovered on the Sula Mangoli 2 ♂♂ and 3 ♀♀; these are in the Staudinger collection. ♂ f. w. with smaller, ♀ with more striking white marks. ♀ basc of both wings up. s. red brown instead of yellowish as in *velutina* and *ribbei*. Un. s. likewise darker, rather red-brown than
gigantea. yellowish as in Minahassa specimens. — **gigantea** *Fruhst.* from Ceram and Buru, differs in being bigger than *velutina*. Very rare, but few specimens are known.

M. zitenius, a distinct species, far more widely spread than has been hitherto suspected, the micromalayan races have indeed been confounded with *constantia Cr.* by some authors. Is commonest in north of India,
zitenius. in certain islands e. g. Borneo it is very rare. — **zitenius** *Herbst.* the dry season *forma zitenius* has the synonyms *vamana Moore* and *duryodana Fldr.* ♂ up. s. rather like *zenon* though with less distinct yellow brown diagonal
decolorata. band f. w. This band is sometimes quite wanting so that the ♂♂ resemble *niasicus* (95 d). This is **decolorata** *Fruhst.* an aberration of the dry period generation. The ♂♂ of the rainy period (*semifasciata Fruhst.*) bear a broad short rectangular spot above the black apical eye of f. w. Un. s. of *zitenius* and *decolorata* very variegated,
semifasciata. marbled gray or red-brown, and, especially on f. w., velvety brown or black patches. The rainy season ♂ (**semifasciata**) however is eaily confounded with ♂♂ of *ismene* and *leda* through the uniform dark sand-gray coloring of un. s., in which the submarginal ocelli disappear as in *leda*. ♀♀ of *zitenius* un. s. are even more handsome than ♂♂, the apical part of f. w. and the costal border of h. w. yellowish, as too the anteterminal border. ♀of *zitenius* like that of *sumatranus* (95 c) but the red-brown region of f. w. seem still more extensive, the apical eye-spot handsomer, more strongly pupilled with white. The rest of the wing surface is spotted with black and looks like a dry leaf covered with fungi. ♀ of the rainy season form is a more uniform red-brown or yellow with striking red-brown longitudinal bands. I only possess *zitenius* from Sikkim where it is common enough from April to November and whence Moore described it as *vamana*. The name *duryodana Fldr.* was given to specimens from Assam, Doherty found it in the Kumaon Himalaya at from 2000 to 4000 ft. and Moore mentions specimens from the Andamans that certainly belong to a special
kalinga. island race. The south Indian race **kalinga** *Moore* is distinguished at a glance by its small size and unpupilled black subapical spots that lie closer together f. w. I surmise that *gokala Moore* represents the rainy season
auletes. form of the more recently named *kalinga*. — **auletes** *Fruhst.* Bingham mentions in his Fauna India p. 162 that two ♀♀ found by him in Tenasserim approach the Javanese *ambasara Moore*, in that the black subapical marks are wanting. In my Tonkin ♀♀ the said marks are certainly suggested but are far less developed than in the Sikkim specimens. Moreover the Tonkin ♀♀ approach *semifasciata*, from which they differ in the more intense red tint on the farther side of the discoidal cell. Tonkin, Chiem-Hoa, August—September 1900, Tenasserim,
sumatranus. Perak. — **sumatranus** *Fruhst.* (95 c). An island race of which the ♀ reminds one rather of *zitenius* (dry season). The ♂♂ have a rounder cut of wing, un. s. much darker, the yellow apical region in ♀♀ remains far narrower and is tinted with darker red-brown on borders. The un. s. of *sumatranus* ♀♀ takes a brighter and more uniform yellow-brown and is crossed and bordered by more sharply set lines. Sumatra, neighborhood of Padang. N. E. Sumatra. According to Martin it is the rarest species occurring in Sumatra, does not fly lower than 500 ft. and from there up to 2000 ft.; is of larger size than *ismene* and *abdullae* and is easily recognized by the lighter, brighter, brown-yellow colour of wings, the failure of pupils in the well formed apical ocellus and the broad yellow band which traverses at apex of f. w. of ♀. In the course of 12 years only 8 ♂♂ and 5 ♀♀ captured. Expanse of wing of Sumatra ♀♀; *Melanitis leda* 64 mm., *ismene* 74 mm., *abdullae* 70 mm., *zitenius* 90 mm.
rufinus. — **rufinus** *Fruhst.* Up. s. ♂♀ dark red brown, apex of f. w. more embellished, more prominent and narrower than in any of the above island races. There is no sign of black marking on f. w. of ♀. Un. s. lighter than in *sumatranus*. Very rare; in the Sarawak Museum only one specimen has been received in the course of many
niasicus. years. S. E. Borneo, 1 ♂ from N. Borneo. — **niasicus** *Fruhst.* (95 d). ♀ is close to the preceding but the ochre of diagonal band f. w. is still darker, ground colour of up. s. a more intense red-brown, that of un. s. brown-violet. ♂ has un. s. of h. w. almost entirely black, up. s. however going over to the Javanese race with its pe-
ambasara. culiar brown-violet gloss on yellow-gray ground. Nias. — **ambasara** *Moore*, a splendid island race differentiated from the other Macromalayan forms by the dominant feature of dry season colouring. Both sexes appear in
grisescens. two colour varieties, in which the un. s. may be either predominant gray with black velvet patches (**grisescens**
gnophodes. *form. nov.*), or red-brown with reddish brown interspersion. — **gnophodes** *Btlr.* with reddish yellow un. s. and an analogous form to *grisescens* with washed out gray. I possess the latter form however only from E. Java. ♂♀ up. s. gray-brown, ♀ rarely with reddish gloss. ♀ always with narrower, shorter diagonal band f. w., generally sharply detached, without the extended reddish apical zone that characterizes *zitenius* and the Macromalayan
zenon. races. E. and W. Java up to about 2500 ft. Lombok in April and May up to about 1900 ft. — **zenon** *Fruhst.*

(95 4). ♂ bigger, up. s. lighter brown-gray, un. s. more uniform and paler gray-brown than the Javanese. The yellow transversal band f. w. is narrower, more broadly shaded with brown on the inside, going over distally to the dark ground colour. Sumbawa. — **xanthophthalmus** *Stgr.* up. s. like *niasicus* (95 d) but of dull gray- *xanthoph-*
black colour without a sign of the red-brown tint that characterizes the Macromalayan sister races in general. *thalmus.*
The subapical spot larger, yellowish. Un. s. yellowish without the purple gloss of the other *zitenius* variations. Very rare. Taken by Doherty in January, only a couple of specimens in the Staudinger and Fruhstorfer collections.

M. belinda, a species which is very near to *zitenius* un. s., but the splendid colouring of up. s. reminds one rather of species from the Molukkas or of *boisduvalia* from the Philippines. It is however easily distinguised from any other species by its nearly vertical submarginal band f. w. and it is the only *Melanitis* with homomorpheus sexes. Also differentiated from *zitenius* by a shorter valve bent downward distally instead of a long one curved upward. Uncus likewise shorter, much thicker in the middle. Valve longer but less thickly bristled. Only in the Micromalayan district and there too only on a few islands of the Sumbawa group. — **cruentula** *cruentula.*
Fruhst. (95 c), un. s. extremely variable, yellow, running through the whole scale of shades, predominating. The commonest is a form that is marbled with reddish brown and has a broad, dark velvet-brown longitudinal band. With it appears a ♀ with a more red-brown ground colour and washed out band. The type is based on a dry season specimen and bears on h. w. un. s. small, black eyespots with yellowish pupils and scarcely perceptible gray-yellow rings. The rainy season ♂ (**vada** *form. nov.*) exhibita a deceptive hue like a dry gray leaf, *vada.*
and narrow dull brown dissimilar median bands, which however, like *leda* are provided with distinct ocelli, rather oval than round, surrounded by a beautiful yellow colour. Collected by me at Lombok from April to June, not rising higher than 2200 ft. and occurring in village orchards. The sap of the sugar palm seems to tempt it and I took several specimens on fallen fruit. — **belinda** *Sm.* is easily separated from *cruentula* by its *belinda.*
more intense yellow, narrower vertical bands f. w., which have smaller black ocelli and reduced white points. Un. s. predominant gray with hardly a touch of yellow, the longitudinal bands in the eyeless form too are less prominent than in *cruentula*. A pair of a decidedly dry season brood is un. s. of a rather monotonous purple-brown with lighter parts of a whitish violet. One ♀ of a quite washed out sandgray colour like the ♀ of *zitenius ambasara* from E. Java. In my collection from Alor, April. The type comes from Andonara, east of Sumbawa and Doherty has found the species in Sumba and Sumbawa, but confounded them with *constantia Cr.*, giving them this name in his famous work on the Fauna of the islands.

M. boisduvalia replaces *zitenius* in the Philippines, where it is spread from Luzon to Sangir and does not count among the commoners of the butterfly world. Semper only saw 15 specimens and Doherty sent me only one ♂ among 2000 butterflies from the island of Palawan. The sexes are nearly monomorphous, ♀ being only larger, more fallow coloured and with broader, lighter bands f. w. The colour of un. s. reminds one very much of *zitenius zenon* from Sumbawa. Gray, with yellowish apical region of f. w. and costal border of h. w. is the ♂, while the ♀ is red brown with whitish yellow submarginal zone. — **boisduvalia** *Fldr.* from Luzon is *boisduvalia.*
not in my possession; **carales** *subsp. nov.* inhabits Mindoro and is very like the *palawanica* that we figure but has *carales.*
narrower yellow transversal bands on up. s. of f. w. which is indeed a darker red brown. ♀ like the ♀ of the Mindanao form but of a livelier red-brown. Un. s. of both wings have richer colours with more intense black marbling. Type in the Staudinger collection. — **pompeja** *subsp. nov.* shows in the middle of the band *pompeja.*
f. w., beyond the cell, a considerable narrowing, the band itself is entirely of a powdered brown, the ♀ on the other hand bears a very broad pale yellow subapical band with fine red-brown periphery, which, as too in the ♂ has but rarely a diminutive black, blind eyespot and above this a second white or yellow one. Un. s. of both wings with narrow red-brown bands. Submarginal ocelli reduced to small white cuneiform spots. February March on the island of Bazilan. — **palawanica** *Fruhst.* (95 c). Rounder wings, ground colour up. s. darker red- *palawanica.*
brown, the yellowish submarginal band of f. w. of more uniform breadth, not tapering off so noticeably as in *pompeja*. The black eyespot of f. w. band is wanting. According to Staudinger the f. w. bands are sometimes a smoke-gray. January, very rare, collected in Palawan by Doherty. — **ernita** *subsp. nov.* differs from the *ernita.*
preceding through the pale yellow un. s. of both its wings and up. s. through a strikingly broad and pale yellowish subapical band; apex of f. w. of ♀ far more salient than in *pompeja*, the tails of h. w. longer. Semper knew *boisduvalia* also from Cebu, Bohol and Camiguin de Mindanao, these must have been geographical forms differing from *carales* and *pompeja* which have since then escaped observation.

M. pyrrha, a remarkable and very confined species, only known from N. Molukka and the Celebes. They should however be also found on the Sula Islands for without crossing these could not have passed from Celebes to Batjan or vice versa. The probability is that they migrated from the Celebes for they occur there evrywhere in the lowland and are also known at Bangkai. The ♂♂ un. s. rather resemble *ziteius grisescens* from Java, with up. s. of *ismene* and the distribution of eyespots of *leda*. The ♀ is the very image of *velutina* from

hylecoetes. Celebes. There are three local races: **hylecoetes** *Holl.* described from S. Celebes, taken by me in the north of the island at Toli-Toli, November, December, ♂ up. s. with the same arrangement of black apical and transcellular bands as in *oinoë* ♀ (95 d), but ground colour pale slate-gray, un. s. yellowish with gray-brown marbling. ♀ like oinoë ♀ but with smaller whiter subapical spot f. w. un. s. yellowish brown with weak red brown *pyrrha.* median band. — **pyrrha** *Röb.*, the typical form coming from the Isle of Bangkai; I have only one ♀ that shows *oinoë.* a more fallow yellow up. and un. s. than *hylecoetes* and *oinoë* ♀♀. At Batjan is found **oinoë** *Fruhst.* (95 d) easily separated from *hylecoetes* through the predominant gray tint of un. s. of both wings, which appear cross-hatched with fine white. Eyespots sometimes without yellow periphery. ♀ of a more intense yellow ochre, with eyespots un. s. h. w. in stronger contrast than in *pyrrha* and *hylecoetes*. Batjan. ♀ appears commoner than the ♀, but the latter certainly escapes the collector in Malay, thanks to its resemblance to the valueless *leda*.

M. constantia is one of the most startling examples of sexual dimorphism among the Satyrids. It inhabits the Molukka district but its numerous local forms push on eastward as far as the Salomons. Plentiful at the centre of their geographical distribution in Molukka, they are of rare occurrence at its periphery; thus I have only seen three specimens from German New Guinea. The most contradictory views prevailed about this species formerly, they have been tacked on to *M. leda* and again to *M. amabilis* which is to be treated below. The ♂ has always irregular, more or less distinct, yellow-ochre bands, proximally and distally f. w., and these in the ♀ are paler or darker yellow according to locality, but are always notably broader. Ground colour of ♂ always dark, that of ♀ a somewhat pale cocoa brown. Seasonal forms well marked but not so much so *constantia.* as in the *zitenius* and *phedima* groups. — **constantia** *Cr.* the nomenclature type was described by its author from a ♀ which is not far removed from the *dictatrix* ♀ (95 a) but with the interior of the eyespot of. f. w. more strangled and the band moreover narrower. The costal part of f. w. is paler and intermixed with a whitish colour. ♀ un. s. pale cocoa-brown, the brown longitudinal bands with whitish bordering. Ocelli ringed with yellow, rather oblong than round. Two forms of the ♂ exist, one like the ♀ with broader oblique band, *depicta.* the other with a disappearing yellow-ochre stripe (= **depicta** *Fruhst.*) Un. s. looks like a dry leaf and varies *dictatrix.* from red to yellow-brown. S.Molukka. — **dictatrix** *Fruhst.* (95 a), smaller, with rounder wings than *constantia*, but still with much broader, more uniform and essetially paler submarginal band f. w. Un. s. lighter, richer *obiana.* colours, but with smaller ocelli than *constantia*. Buru. — **obiana** *Fruhst.* ♂: f. w. band very broad near costa and narrowing anally. ♀: the submarginal band f. w. as wide again as in *constantia*, with black subapical marks reduced however to dots. Un. s. of ♀ especially apical region of f. w. much paler, light yellow instead of gray-*batjana.* white or brown as in *constantia* and *dictatrix*. — **batjana** *Fruhst.* (95 a). ♂ with strongly darkened cross band f. w., ♀ with very pale yellow transverse band that is proximally deeply toothed. Un. s. somewhat darker than *obiana*. Both sexes usually smaller than preceding races. The dry season form is remarkable in the ♂♂ for *microph-thalma.* its reduced ocelli, only narrowly ringed with yellow (= **microphthalma** *Fruhst.*) N. Molluka, Batjan, Halma-*salapia.* heira. — **salapia** *subsp. nov.* is not so big as specimens from Amboina and Buru, the band, particularly of ♀ is considerably reduced and the eyespots of h. w. un. s. are smaller than in the specimens from S. Molukka. Sula, Mangoli. type in the Staudinger collection from the original species of this spendid island group collected by Dr. Platten; every species he took wears a different colouring from that of any species from the other Molukkas or from Celebes; many of these races have been reformed into distinct species, as for example, *gylippa.* in the Culapa, Clerome, Euthalia and also the Danaid groups. — **gylippa** *Swinh.*, described as a species having no near relation, is most closely akin to *geluna* (95 a). Specimens in which the band of f. w. is only preserved *minuscula.* as a square patch are described as **minuscula** *Fruhst.* Un. s. of both wings melanising as in *batjana*, and with *geluna.* smaller ocelli of latter forms a passage to the Papuan races. Key. — **geluna** *Fruhst.* (95 a). ♂. With its handsome appearance and darkened band of f. w. approaches *depicta* from the S. Molukkas, differs however from all known races by its almost eyeless un. s. The type at all events is of the dry season. German New Guinea, Mt. Gelu *kapaura.* of Finisterre chain. According to Hagen from October till January, then again in June. — **kapaura** *Fruhst.* ♂. Band of f. w. rather narrower than in *constantia*, of a dark yellow-ocre coulour and reaching to the anal angle *meforica.* as in the Obi form, somewhat darker and with smaller eyespots. Kapaur, Dutch New Guinea. — **meforica** *Fruhst.* ♂ near *kapaura*, f. w. band broadened costally, yet somewhat narrowed in the middle, neater cut of wing, smaller size. Un. s. rich violet-gray. Mefoor Island. — *jobina Fruhst.* Very near the above but with band more *despoliata.* obsolete, as in *geluna*, un. s. very dark, ocelli as in Key form. Jobi Island. — **despoliata** *Fruhst.* Specimens from the Shortlands with strikingly small f. w. band, narrowed off anally. Salomons, New Pommerania (Ribbe), New Hannover (Pagenstecher).

amabilis. **M. amabilis**, rarer and less subject to geographical polymorphism than the preceding, but dissimilarity of sexes here reaches its climax. Ground colour of ♂ intense coffee-brown,

with a broad, sharply defined band on the forewings, more or less ochre-yellow, but in the ♀♀ always pure white on a red-brown ground. Underside in the ♂♂ black-brown, in the ♀♀ rufescent with greyish cellular and subbasal streaks. Apical ocellus on the underside of the hindwing always larger than the pointed oblong anal ocelli. Forewing with a small eye-spot, above which there is always a tiny ocellus. Distribution extends from the South Moluccas to the Bismarck Archipelago, more common than **constantia** in New Guinea. — **crameri** *Btlr.* (96 c) the yellowish band on the under surface of the ♂ is narrower, the interspaces on the hindwings smaller and more even in size. The scarf-like band on the upper surface of the forewings is also dark ochre-yellow; Amboina, Caram. — **kalejana** *Fruhst.* has a rather broader ochre-yellow scarf on the forewings. The ♀ is similar to the *valentina* ♀ figured, but the oblique white band posteriorly narrower. Upper surface in both sexes lighter red or grey-brown than in *crameri*. Buru Island. — **valentina** *Fruhst.* (96 b) is characterized by a dark ochre yellow band in the ♂♂ and the much deeper colour of the underside in both sexes. The ocelli are smaller and ringed with dark yellow. — **amabilis** *Bsd.* can be at once distinguished from *valentina* by the much narrower evenly bordered band on the forewings of ♀, which also show more rectilinear contours on the under surface. Throughout the Bismarck Archipelago.

crameri. *kalejana.* *valentina.* *amabilis.*

Genus: **Cyllogenes** *Btlr.*

Differs structurally from Melanitis in the strikingly short submedian vein in the forewing of the ♂♂, which is basally concavely curved and ends on the inner margin shortly before the middle. This does not apply to the ♀♀, in which the inner margin is not produced as in the *Euploeas* , and the submedian extends to the distal margin in the normal manner, being thus almost twice as long as in the ♂♂. Butler has already drawn attention to the presence of a very large sex-mark, formed of rich, glittering, deep black scales, as a character differentiating it from *Melanitis*. The marking on the under surface somewhat recalls that of the neotropical *Narope*, being yellowish, irrorated with brown, and with white subanal spots as in *Narope*. Habitat: the eastern Himalaya.

C. suradeva *Moore* (96 c) has on the upper surface in both sexes a moderately broad subapical band, extending only to the middle of the wing; there are no other markings excepting the above mentioned scent patch. ♂ rather darker than ♀, with brighter purplish gloss. On the under surface the ♂ has an indistinct violet, the ♀ a diffused brownish band. A submarginal incomplete series of white spots, which are larger in the ♂. Sikkim, rare and local at about 2000 feet. On the wing from April to June.

suradeva.

C. janetae *Nicév.* ♂ without sex-mark on the forewing, the preapical band in the ♂♂ broader, in the ♀♀ longer, extending to the inner margin. Hindwings with yellow distal margin. Under surface darker and the central band larger. Taken first in Bhutan and later discovered by Doherty in the Naga Hills; only four specimens appear to have been identified with certainty. Nicéville assumes that both species of *Cyllogenes* are single brooded.

janetae.

Genus: **Parantirrhoea** *Wood.-Mas.*

An apparently archaic genus, verging upon extinction, with a name suggesting some connection with the South American *Antirrhaea*. Subcostal branch of the forewing coalescent with the costal nervure, emitting four short branches towards the costal margin. The structure of the hindwing recalls that of *Elymnias*, tails long. Only one species known, from South India.

P. marshalli *Wood.-Mas.* ♂ with a rather broad, short, bright violet subvertical band on the forewing. Hindwing with an elongate oval, black subanal brand. The under surface again recalls that of *Narope*, yellowish with very fine brown striae and a blackish subanal mark between the median nervures. ♀ unknown. Habitat: The Ashambo Hills near Trevandrum, Travancore, South India. Flies in May. Probably single brooded.

marshalli.

Genus: **Bletogona** *Fldr.*

This monotypical genus is also restricted to a confined area, the South and East Celebes. Whereas the ♀ recalls the yellow Mycalesidae *Lohora dinon* and *ophthlmicus* and other yellow butterflies of the Celebes, such as *Messaras maeonides*, *Clerome menado* and *Melanitis pyrrha*, the ♂ appears with the shape of wing and the livery of a *Callerebia*. The fine striation of the under surface points equally well to *Melanitis* or *Elymnias*. The cell in the forewing is broader than in *Melanitis*, and the discocellulars are turned more outwards, thus making the cell apically more pointed. The shape of the wing differs from *Melanitis* in being more gently rounded and without any projections.

B. mycalesis *Fldr.* (= *erebia Snell.*) (94 a) ♂ upper surface black, similar to *Melanitis phedima*, all wings distally somewhat paler, hind wings narrowly white bordered. ♂ underside yellowish with whitish and red-brown irroration. Forewings with four, hind wings with six isolated, distinctly white centered oval eye-

mycalesis.

spots. The habits of this species resemble those of *Mel. ismene*, they keep to the neighbourhood of watercourses in woods or dense undergrowth, and appear in the dusk, shortly before six o'clock, then, after a brief troubled flight, disappear ghostlike into the darkness of the night. Observed and taken by me at Patunuang near Maros in South Celebes in January. Kühn found this species at Tombugo, East Celebes.

Genus: **Elymnias** *Hbn.*

This large and well defined genus has hitherto been subjected, systematically, to contradictory treatment, being considered by some as merely a genus of the Satyridae, by others, myself included, as an independent subfamily. Examination of the clasping organs has now shown its connection with the other Satyridae to be so close, that the genus has again taken the more humble place, though certainly at the head of the family, in which its highly developed organs are scarcely surpassed, except by *Mycalesis* and *Zethera*. That it belongs to the great host of the Satyridae is proved, in the first place, by the form of the larvae, which are like those of all other Satyridae in their elongate shape, the two horns on the head and the two anal projections. The costal vein only of the forewing being swollen basally establishes a sort of connection with the *Eurytelidae*, but the subcostal cell in the hindwing indicates an approach to the *Brassolidae*. Among the Satyridae the *Elymnias* stand nearest to *Mycalesis* in the morphological characters of the tertiary sexual organs, yet without being very closely allied to them. — In *Elymnias* the sexual organs remain absolutely constant throughout the whole series of species, whereas in *Mycalesis* these organs vary not only from subspecies to subspecies, but are even modified in the seasonal forms of some species. In the fine striation of the underside of the wings the *Elymniidae* present both oriental and aethiopic forms as from one source. No other group of butterflies possesses such a thoroughly conservative design of markings, which strikingly proclaims their family relationship. Two species only form exceptions from this rule, the Papuan *thryallis* and *agondas*, in which the mimetic resemblance of the ♀♀ to Danaidae resp. Taenaridae goes so far, that they have even put off their family livery in order to conform to that of their models. And what is true of these purely external characters, applies also to the structural peculiarities which are unusually constant, hence the attempts of Butler and Moore to split up the oriental *Elymniidae* into "genera" was foredoomed to failure. — Egg spherical, whitish. The larvae are green, centrally somewhat thickened, finely pubescent; the head narrow, yellow or brown; the body with dorsal and lateral longitudinal stripes. The central segments bear a few red, blue ringed spots. The pupa is fastened at the anal end only, in a horizontal position, with two pointed horns on the head. The ground-colour is green, with red or yellow streaks and spots. The *Elymnias* caterpillar is an undoubted Satyrid larva, whereas the form of the pupa shows some leaning towards the Indian Morphidae (*Amathusia* and *Discophora*), the mode of life also, the flight in the shade, the frequent resting of the ♂♂ with folded wings, seem like a transition towards the Amathusiidae; yet the flight in the dusk, practised by many Amathusiidae, also by the closely allied *Melanitis* (which was formerly generically united with them) is entirely wanting, for the *Elymnias* fly only when the sun is high. *Elymnias* is probably an archaic Satyrid type, possibly a survival from the Tertiary Period, which far distant time, when the Palms — which even now furnish the sole food of the genus — had attained their maximum in number and variety, may also have possessed the greatest number of species. Just as other Satyridae live only on monocotyledonous Gramineae, so *Elymnias*, and also *Amathusia*, feed solely on monocotyledonous Palms , which are in many points allied to the Gramineae. In their native palmgroves the flying and resting *Elymnias* offer to the entomological eye a picture similar to that of *Erebia* and *Epinephele* in our own woods (Martin). The imagos love the shade, fly chiefly in the morning hours along woodland tracks, and, according to my observations in Java, they disappear entirely towards midday, when they conceal themselves in the thickets. One meets with them in the afternoon only when accidentally disturbed. A few species, as *Elymnias ceryx* and *maheswara* are found only in the mountains, but the greater number prefer the woods of the plains, up to about 2000 feet. In the Malay Archipelago I never met with them above 4000 feet, whereas Moore records of *tinctoria* that it goes up to 6000 feet. Few species are common, most are local and some extremely rare. Thus of *El. papua*, Wallace, there are known at present only one ♂ in the British Museum, and one in my own collection; of the famed *Hestia-* or *Ideopsis*-like *E. künstleri* there are known only one ♀ from Perak and the ♀ taken by me in Java; of other species, as *harterti*, *peali*, *dohrni* but few specimens have been received in Europe. We meet with the *Elymniidae* from West Africa to the Solomon Islands, distributed through those tropical and subtropical regions where the rainfall is very heavy, or which at least lie within the range of the monsoons. The Macromalayan region and the neighbouring Tenasserim furnish the main contingent, the number of species diminishes rapidly in the Micromalayan Archipelago, also in the Philippines. Formosa appears to be the most advanced post to the North and the Bismarck Archipelago to the East; while there are still 4 species in Celebes and 5 in New Guinea. Claspers of the simplest formation, uncus apically without medial thickening, with two very slender clasps. Valve broad, anteriorly slightly attenuate, lightly laterally raised, dentation sparse or wanting, feebly spinose. Two

genera in the oriental region. In Africa the genus is represented by *Elymniopsis Fruhst.* clearly distinguished from its asiatic relative by the elongate upper discocellulars and the pointed precostal, also by the centrally emitted first subcostal of the hindwings.

Subgenus **Elymnias** *Hbn.*

Hindwing with the cell elongate and with androconia-cavity, which is wanting in *Elymniopsis*.
a. Hindwing with only one hair-pencil.

E. panthera. One of the most multiform species of the genus, and at the same time, one of the few whose transformations from egg to imago are known to us. *panthera* has a general resemblance to the Euploeas of the *Crastia* group. The sexes differ only in the lighter colour of the margins of the hindwing and of the whole under surface. The forms of this widely distributed species fall into two groups; a) those of the purely Macromalayan Region, b) those of the chain of islands from the Nicobars to Engano. Both groups contain surprisingly similar elements, yet are separated by great contrasts. Under a) are forms with pale bands on the wings and small ocelli, under b) forms with obsolete bands and large ocelli. Most striking is the contrast between the Sumatran race and that of the sumatran Satellite Islands, which all resemble the Nicobar form, and the more so the nearer they are to the Nicobars. Thus with the *Elymnias* we find repeated a phenomenon to which I referred under the *Danaidae*. Like the *Danais melanippus* forms of the Trabantes of Sumatra, so also the *Elymnias* gravitate towards the Nicobars, wherein (quite apart from the Satellite Island characters of the said species) we may conjecture the influence of an ancient land connection, which ran parallel to but independent of Sumatra, from the Nicobars to Engano. Genetic factors, such as climate, inbreeding and prolonged isolation have done the rest in increasing the influence of evolution, whereby insular differences have arisen, in spite of the general similarity in the markings. — Egg spherical, milk white, a few black spots on the pole, and slightly flattened where it rests on the upper side of a palm leaf. The larvae emerge in four days, previous to which the spots unite into an irregular black patch extending to the equator. On emergence the larvae are yellowish-white, after feeding they become yellow-green with black head, which bears two black spines inclined backwards like the antlers of a stag, from each of which a pale line runs along the back of the caterpillar to the blackish anal spines. After the first moult the larva is little altered, only that there are two other yellowish longitudinal stripes below the dorsal stripes already mentioned, and when examined with a magnifying glass it is seen that the whole body is covered with small yellowish pimples. The second and third moults make no difference in the green, slender cylindrical, flattish, black horned larva. After the fourth moult the full grown larva is three centimeters in length and sap green like the palm leaves on which it feeds, it has two yellow dorsal stripes, running onto the anal spines, between them are two finer yellow median lines. Each of the first, more lateral stripes bears on the third segment a blue spot, on the fourth segment a red and a blue spot and on the fifth another red spot. The entire creature is covered with delicate apically knobbed hairs, and shows fine transverse ridges. The head is now red-brown with a frontal marking like two arms of a greek cross, beneath which are two yellow protuberances. The black horns on the head are directed backwards and end in three points. On the temples, below the insertion of the horns is a broad yellow streak, in the centre of which are two small yellow cones. A long time elapses before the larva has settled down to pupate on the upper surface of the leaf, during which it repeatedly alters its position, possibly to lay its web over the whole space to be covered by the pupa. The green pupa is remarkably like that of *Elymnias nigrescens Btlr.* does not hang, but rests with the ventral surface against the leaf, with which it is actually connected only at the anal end. The pupa has two spines on the head and a pointed, nasute, yellow, red bordered prominence on the thorax, the coloursapis richer than in *nigrescens*, all the angles are yellow, with red streaks, and there are in addition four white, black margined spots, which are wanting in *nigrescens*, as well as a few tiny black spots on the dorsal part of the ventral segments. The imagines appear in eight days. — Passing from West to East we meet with the following offshoots of the main species: *panthera.*

mimus *Wood.-Mas.* Upper surface, especially distally, pale brown; ocelli on the under surface little transparent. Hindwings beneath with almost black-brown distal region and very large ocelli, with small blue centres. Niéville considers this to be a mimic of *Euploea camorta*, a very common species in the Nicobars, which are the sole habitat of *mimus*. — *mimus.*

dolorosa *Btlr.*, so similar to the previous form., that Moore and Bingham simply synonymized it. Upper surface uniform black-brown. ♀ with much narrower pale yellow-grey submarginal region of the fore wings than *mimus*. Under surface paler, bright red-brown, distal region yellowish, ocelli proximally with rich blue scales, always six in number, instead of 5 as in *mimus*. Nias. — *dolorosa.*

enganica *Doh.* is the darkest of the yet known races of *panthera*. Doherty took only ♀♀. I have received about 10 ♂♂, which approach *dolorosa Btlr.* from Nias, but have entirely dark forewings, without paler subapical region. On the upper surface of the hindwings the ocelli showing through from beneath are obsoletely yellowish ringed. The *enganica.*

under surface of the wings of the ♂♂ comes nearest to *panthera dusars Horsf.* from Java, and differs only in being generally darker and in having a larger white subapical spot in the hindwings. The other ocelli of the hindwings are not so large as in *dolorosa* and *lacrimosa*, but rather more distinct than in *dusara*. Hence it appears, that *enganica* takes a middle place between the Javan and Bornean races, thus inclining more to the East than towards Nias and Sumatra. The ♀ is lighter than the ♂. In 2 examples there is a reddish brown submarginal band on the forewings and a rudimentary greyish yellow band on the hindwings, whereas the *panthera* ♀ has broad light yellow bands on all the wings. The upper ocelli on the lower surface of the hindwings are pure white, the lower black and violet centered, while the *dusara* ♀♀ have only one white and 5 blue centred ocelli, which are also usually smaller. The ♀♀ certainly differ greatly from the Sumatran in the much narrower, darker yellow-brown submarginal band on the hindwings, but approach them by the presence of a broadly extended, reddish brown gloss on the anal region of the forewings. It is also further noticeable, that *enganica* has 3 white apical ocellli on the under surface of the hindwings, where-

taudra. reas in all its allies there is only one. Engano, not uncommon, flies chiefly in April. — **tautra** *Fruhst.* leads on to the Perak race and the name-type, from which it differs in the absence of the red gloss on the forewings of the ♂♂ and the rather darker underside of the ♀♀. One ♂ has uniformly black-brown forewings, a second has traces of a yellowish subapical band, and specimens are said to occur which have even a violet band. Probably this species is not as searce as would appear from the few specimens in collections; but its great resemblance to the usually very common brown *Euploea* seems to protect the inseet from the native collectors. The ♂ has only a broad, black tuft of hair above the scent patch on the upper surface of the hindwings. The paler and larger ♀♀ differ very greatly in the transverse band on the forewings, which is often distinctly yellow, sometimes even violet, but may also be entirely absent; the extent of the red colouring on the upper sur-

panthera. face of the forewings is also variable. Both sexes have distinct ocelli on the hindwings (Martin). — **panthera** *F.* In the Museum at Copenhagen I saw a specimen, which was probably the type of Fabricius, as Aurivillius also assumes. This specimen agrees in so far with Distant's figure, that it has no yellow band on the forewings, and the hindwings are also very dull coloured. Following in the steps of Aurivillius, I also remove the habitat to the malayan Peninsula, especially since various species which were said by Fabricius to come from "Tranquebariae" have since benn shown to be from the Malaya. (*Taxila haquinus F.* etc.)

arikata. Malay Peninsula, Perak, Singapore, Banka. — **arikata** *Fruhst.* (88 b). Submarginal band of the hindwings white instead of yellow, much broader, with large black ocelli; distal border of hindwings much broader black,

labuana. tails longer. Natuna. — **labuana** *Stgr.* Submarginal band of all wings whitish instead of yellow, prominent at the apex of the forewings, very narrow on the hindwings. *labuana* may represent the dry form of the next following *alfredi*. According to the type in Staudinger's collection, which I recently had an opportunity of seeing, it might also be an alpine form. At any rate, Staudinger has gathered together a large series of specimens, of which the supposed type represents the most richly white marked *Elymnias* of the whole group. Both ♂♂ and ♀♀ occur in two forms, with and without a yellowish white submarginal band on the forewings.

defasciata. Staudinger has three aberations of colour in the ♀♀, with a simple brown upper surfaee of the wings (**defasciata,** *form nov.*) then a female with a reddish gloss over the whole upper surface (*pantherina Fruhst.*) and lastly, those with a broad white-yellow subapical band on the forewing (*labuana Stgr.*), which also appear more or less glossed with violet. All are said to come from Kina Balu, but some specimens from the lower lands may also be among them, especially as the type is said to come from Labuan, as indeed the name denotes.

alfredi. — **alfredi** *Fruhst.* (88 b). A large series of specimens from South Borneo differ from *labuana Stgr.* in the absence of the white golden yellow submarginal band on the hindwings, of which only occasionally a few yello-

pantherina. wish rudiments occur. There are two forms of the ♀♀; ♀ forma **pantherina** *Fruhst.* with dull, but extensive, red gloss on the forewings. The pale region on the under surface of the hindwings much more reduced than in *panthera typica*, which it otherwise closely resembles. — ♀ forma *alfredi Fruhst.* with much narrower, darker yellow-brown submarginal region of the hindwings, which is also covered with brown scales The above described larva and pupa were discovered by Dr. L. Martin at Sintang. South-east Borneo, Pontianak, Sin-

suluana. tang. — **suluana** *Fruhst.* Larger than the other races of *panthera*, with narrover, elongate produced wings, recalling the shape of *Elym. pellucida Fruhst.* Hindwings with broad white band on both sides. Sulu Archipelago,

bangueyana. Type in the British Museum. — **bangueyana** *Fruhst.* The whitish bands on all the wings more prominent and more extended than in *labuana Stgr.*, wings more rounded than in *suluana Fruhst.* Under surface with only 4 black eye-spots. Submarginal region of the hindwings yellowish, sprinkled with grey and brown. Under

parce. surface richly white spotted. Banguey, Type in the Museum at Hamburg. — **parce** *Stgr.* The smallest of the island forms, with a withered appearance. ♂ ocelli in hindwing not showing through. Wings rounder than in *alfredi*, darker brown. ♀ with the external region much lighter, pale greyish yellow, without any black distal border to the hindwings. Ocelli in both sexes more elegant and pointed than in all the other *pan-*

lacrimosa. *thera* races. Palawan. — **lacrimosa** *Fruhst.* (88 b, c, under the name of *panthera*) *lacrimosa* is one of the most pronounced island forms, and has scarcely any resemblance to *dusara Horsf.* from Java, but approaches much closer to *enganica Doh.* in the ocelli of the hindwings which show through, though much larger. The ♂♂ have a whitish grey, indistinct submarginal band on the forewings, which in the ♀ is sometimes broader and apically prominent and appears almost entirely white. All the wings are further characterized by a relatively

sharply defined whitish submarginal region, which is much purer, though considerably narrower than in *panthera F.* from Malacca. The ocelli are almost as large as in *mimus* and *dolorosa*, but more equal in size. Bawean; flies in July to September. — **lacrima** *Fruhst.* Very close to the preced ing, but rather larger; yellowish grey submarginal band on forewings narrow, on hind wings broad. Under surface darker red-brown, especially on the distal border, more diffusely and finely brown-black marked. Subapical band on the forewings yellowish. Band on hindwings very much narrower and darker than in *lacrimosa*, the ocelli larger and proximally still more richly blue bordered. Habitat unknown, probably islands near Sumatra, 1 ♂. — **dusara** *Horsf.* This distinct local form belongs especially to West Java, where it is found up to 2000 feet above sea level, but nowhere common. ♀♀ from the Preanger Principalities agree well with Horsfield's figure of a ♀, which Wallace took for a ♂, and has therefore redescribed the ♀. It thus happens that we have no exact diagnosis of the ♂. ♂; ground colour dark brown, submarginal tract slightly paler. Scent tuft on hindwings black. Under surface; basally dark, distally lighter brown, irrorated with grey-white. Hindwings with small black, proximally white centred ocelli and a large white spot at the base of the anterior radical. — **dulcibella** *Fruhst.* (88 b). ♀♀ females from East Java have in the place of the pale band, violet blue, subobsolete spots, which sometimes become rudimentary and dull yellow downwards. I have at present only four specimens from East Java, whose small size and the pale ground colour of the under surface of the wings proclaim them the product of a region with small rainfall. This materialis insufficient to decide, whether only this form occurs in East Java, in which case we have to do with a local race. *dulcibella* is a neat illustration of the fact that, first of all, aberrations occur in the species due to climatic influences, the further action of the dry and wet periods fixes these as seasonal forms, these next become constant and gradually assume a dominant position, according to the greater or less duration of the periods. If to this is added the influence of local inbreeding, then a subspecies is developed, which may become so far consolidated as to assume specific characters. Thus simple may be the history and course of many species. — Nothing is known of the larva of *dulcibella*, Dr. Piepers writes that the larva of *dusara* lives of the leaves of various palms. — **balina** *Mart.* should properly incline towards *dulcibella* of East Java, but the ♂ comes closer to *dusara* ♂ from West Java, only that the ground colour is somewhat paler, with a slight red-brown cast; the marginal band on all the wings is not ashy brown-grey, as in *dusara*, but darker, browner, while on the hind wings the band is submarginal, not marginal, because there is beyond it a streak of the ground colour, whereas in *dusara* this is seen at most on the dentations. But the ♀ of *Balina*, the colour, of which justifies its elevation to the rank of a subspecies, is yet more remarkable. The ground colour is a ruddy brown as in the ♂, but the marginal band of the forewing is only yellow in its upper, apical part, which is much narrower than in *dusara* ♀, on the terminal margin it becomes a brilliant red-brown; this colour remains precisely restricted to the band, instead of spreading out over the inner surface of the wing as in the ♀♀ of *panthera panthera* and *panthera tautra*. The submarginal band on the hindwing is yellowish red-brown, the ocelli are placed on its external margin, on the inner side of the band follows the ground colour, outwardly and downwards is a stripe of red-brown including the whole scalloped area, somewhat less brilliant than on the forewings, whereas *dusara* ♀ has on both wings much broader, uniform yellow-grey marginal bands. The under surface does not present any special differences, only that both sexes from Bali have the characteristic costal triangle of the *Elymnias* much less developed than the examples of *dusara*. This new subspecies is rather smaller than *dusara*, but larger than *dulcibella*. Bali Island.

lacrima. *dusara.* *dulcibella.* *balina.*

E. dara, a very sensitive macromalayan species, for, like *panthera*, it splits up into two local forms even in Java. All the yet known varieties are scarce. — **daedalion** *Nicév.* ,the northern race, is as yet known only from two specimens from Burma and Tavoy in Tenasserim. *daedalion* differs from the figured *dara* (88 b) chiefly in the much narrowed, whitish longitudinal band on all the wings. — **darina** *Fruhst.* described from Sumatra, but probably also occurring in Perak. The ♂ has only one yellow hair tuft. In the larger and paler ♀♀ the blue of the male wings is exchanged for grey. Distinct ocelli on the hindwings in both sexes. Sumatra, Battak Hills, not below 2000 fet. — **deminuta** *Stgr.* (88 b). A charming local form, smaller, with narrower bands and darker than the others. Staudinger knew only a worn ♀ from East Java, the ♂ is not yet described. In these the otherwise characteristic white of the submarginal band disappears and is suffused with a rich dark violet. East Java and probably also in a closely allied race on Bali, where Doherty discovered it. *deminuta* was observed by me in East Java at about 1500 feet, in the Wast especially at Palawan, on the coast. They fly only on very hot sunny days in the deep woods, but remained cautiously in the shade and were enticed by banana skins. In West Java, under the influence of the hot, damp climate, they reach a stately size and assume a deeper violet tone. The whitish blue submarginal bands of the ♀♀ become narrower and the under surface of the wings remains dark red-brown; these West Java specimens have been separated as **bengena** *Fruhst.* The scent brushes of both races form an extensive rosette of delicate grey-black hairs with pure white curled points. West Java, Palabuan, January and February. — **dara** *Dist.* (88 b),

daedalion. *darina.* *deminuta.* *bengena.* *dara.*

scent brushes red-brown. ♂ with broad, whitish longitudinal band on the forewings with a slight violet edging. The submarginal bands on the under surface are also purer white and more extensive than in the Ja-
albofasciata. van forms. North Borneo. — **albofasciata** *Stgr.* has grey scent tufts, is smaller than *dara*, has less distinct black submarginal spots on the upper surface of the hindwings, but which are much more prominent on the under surface and placed in a pure white discal zone, which again is narrower than in dara. Palawan, January, scarce.

E. patna formerly known only from the Himalayas, was discovered by me on my travels in Tonkin, and has recently been found by Dr. Martin in the Singapore Museum from Perak. There is also a similar form in Sumatra, which, however, has probably already attained specific rank. *patna* is not common, it recalls *Stictoploea binotata*, and is characterized by elongate triangular pointed submarginal streaks, on the forewings, and in the ♀♀ by a large, distal pointed blue spot before the apex of the cell, which is also sometimes
patna. present in the ♂♂ in a rudimentary form. — **patna** *Westw.* extends from the Kumaun Himalayas to Assam, and is one of the largest *Elymnias*. Upper surface of hind wings with four white submarginal spots, which reappear on the underside as a complete series of 7 small spots, accompanied externally by groups of small white
patnoides. striae. — **patnoides** *Moore*, of which I has a cotype from the author, is a dry season form, it is not restricted to Burma, as Moore assumed, but occurs in the same livery in Assam and Sikkim. The blue on the upper surface of the hindwings is less intense, the red-brown colour being more predominant, and with the smaller form the blue streaks on the forewing are also diminished. Nicéville states that *patna* flies from April to
stictica. October on heights up to 1000 m. — **stictica** *Fruhst.* (88 c) smaller than *patna*, with reduced blue spots on the forewings, white centred in the ♂ and still more distinctly in the ♀. June to August at about 500 m in Ton-
hanitschi. kin. Rare. — **hanitschi** *Mart.* The only known specimen of this subspecies is from the Maxwell Hills in Perak, where it was taken in April at a height of 3500 feet. Smaller than *patna* with rather more even wing-contours, this new subspecies has the six submarginal metallic blue spots on the upper surface of the forewings greatly reduced, the three subapical being well separated, whereas in *patna* they are united into a band; on the other hand there is no blue spot in the cell of the forewing, as is usual in *patna*. None of the six submarginal spots are white or outside the line as are the lower three in *dohrni*. On the under surface of the hindwings there are on the distal and inner margins pure white striations, which are brownish in *patna* and in *dohrni* far more numerous and even showing through on the upper surface. In *patna* the apex of the upper median branch is produced into a distinct, prominent tail, in *dohrni* the hindwing is completely rounded, in the new subspecies from Perak the contour of the hindwing shows a distinct toothing at the ends of the veins, but these projections are not sufficient prominent to be called tails. The new subspecies is distinguished from *patna stictica Fruhst.* from Tonkin by the absence of the series of large white spots on the upper surface of the forewings.

dohrni. **E. dohrni** *Nicév.* hitherto known only from one ♂ in the Tring Museum, forms the southermost representative of the *patna* series; but if the figure is correct, and I can only judge from that, then this form is probably entitled to rank as a species, on account of the rounded shape of the wings, which have no tails, the three submarginal spots on the forewing which are moved far inwards, and also from the presence of white antemarginal striation on the upper surface of the hindwings. In place of the large blue submarginal streaks the forewings have four fine subapical darker striae. North Sumatra. September, from the plains.

E. beza has also on the upper side of the hindwings a series of blue spots, a colour character which does not appear elsewhere in the *patna* group. In size it equals *patnoides Moore*. The under surface is characterized by a series of five submarginal spots on the forewings, and seven on the hindwings, which are of a delicate violet blue colour, instead of white as in *patna*. The anteterminal striation on the hindwings is wan-
beza. ting. Hindwings roundish, lightly scalloped, not dentate. — **beza** *Hew.* differs from *patna* only by the ♀♀ being in no way different from the ♂, excepting in the smaller spots. In South-east Mindanao there are two
plateni. forms, namely specimens with normally sized dark blue submarginal spots on the forewings, and form **plateni** *Fruhst.*, belonging probably to the dry season, with more or less pure white subapical and median spots
kochi. on the forewing, which are repeated on the under surface. *plateni* provides a connection with **kochi** *Semp.*, of which only one ♂ has yet been received in Europe, the resemblance of which to *Trepsichrois megilla Er.* has been already noted by the author. Upper surface shining steel blue with a tripartite white spot at the apex of the forewing and a series of bluish dots running parallel with the distal margin, of which four are on the forewing and two on the hindwing. Middle Luzon. Flies probably from June to August. The two above described forms of *beza* are analogous to the two species of *Euploea*, which were dealt with in detail in this volume, p. 277, *El. beza* resembling the hitherto unnoticed *Euploea praelymnias Fruhst.* and *El. plateni* the well known *Eupl. dufresne.*

b. Hindwing with two hair-pencils.

hypermnestra. **E. hypermnestra,** better known by the name of *undularis L.* may be considered the commonest species

of the genus. Like *panthera* and *dara* it is subject to local influences, it inclines to individual variation, and in some districts with strongly contrasted seasons, like Siam and Java, it it has a slight tendency to seasonal forms. Its geographical distribution is discontinuous, since it appears on the Continent and in Java in a form with a *Danaida genutia*-like ♀, in Tonkin to central Annam, on the Malay Peninsula and in Macromalaya with an *Euploea*-like ♀, having the upper surface blue. It is very probable, that the form with the blue ♀, generally known as *nigrescens Btlr.* will prove to be nothing more than a modified *undularis*. But the phenomenon is so interesting, that the two forms are here kept distinct, the more so as the valve shows differential characters, not considerable, but probably worth noting; also because in certain groups of the Satyromorphae the clasping organs are subject to but slight variation from species to species. It is true only a few specimens have been examined and it is not impossible that intermediate stages occur even in the genitalia, as may be confirmed by the colour of the wings, since in Perak ♀♀ occur in which the forewings still bear remnants of the orange-red median spots. Larva yellowish green with yellow dorsal and lateral stripes and a subdorsal series of elongate, yellow spots, which are red centered and posteriorly blue. Head brownish with two pubescent horns. Pupa light green, with yellowish markings and red spotted. — **undularis** *Drury* inhabits the whole of India excepting the south, and passes from Assam to Upper Burma, where it is replaced by a sister race (*tinctoria Moore*). ♂ with rather darker blue and more widely separated spots on the forewing than in the figured *Hypermnestra* (87 a). ♀ very close to *violetta* (87 a), but the oblique white bar on the forewings with delicate violet outline. The ♀ is an excellent mimic of *Danaida plexippus L.* The ♂♂ is known to diffuse a strong vanilla scent, but the ♀♀ are scentless. This species flies throughout the whole year and reaches heights of 1000 m. In the west it extends in the Himalayas as far as Naini Tal, the Kumaun district, where Martin found ♂♂ which differ from the Sikkim specimens in the much paler marginal band on the upper surface of the hindwings, so that they already form a transition to the Ceylon race. — **tinctoria** *Moore*. The ♂ differs in the purple glossed marginal region of the hindwings and the extended, more diffused pale blue of the forewings. The ♀ bears prominent white submarginal spots on the hindwings. In one ♀ the entire disc of the upper surface of the hindwing is white, instead of redbrown and powdered with brown (**paraleuca** *Fruhst.*). Very common in Burma and Tenasserim, observed up to 2000 m, also reported from the Mergui Archipelago. — **violetta** *Fruhst.* (87 a). All the ♂♂ taken by me in the dry season in Central Siam, Muok-Lek, Febr. 1900 at about 1000 feet (one of which still showed wet season colouring on the under surface) recall *tinctoria* in the dark claret distal margin of the hindwings. Together with these ♂♂ I took also one ♀, which deviates from all allied races in having a very narrow violet, instead of white, subapical bar on the forewings, the cell of which is almost entirely black. In Bangkok, on the contrary, I took in January 1901 four ♂♂ and 1 ♀ of an entirely different form, which I denote as **fa. epixantha** *Fruhst.* In these the submarginal spots on the upper surface of the forewing run still further apart than in *tinctoria* and have a more vivid, lighter blue colour. The hindwings become light yellow with a reddish brown gloss, as in *fraterna Btlr.* ♂♂ from Ceylon. A similar form appears to fly in Burma, as Marshall writes that a ♂ from Akyab approaches more closely to the *fraterna* than to any other continental ♂. The ♂ figured by Staudinger also tends somewhat in the direction of *fraterna* and *epixantha*. The ♀ of *epixantha* (85 a) is distinguished by a unusually broad oblique white bar on the forewings and the black framing of the hindwings. I took a similar but smaller ♀ in East Siam, near the ruins of Angkor in December 1900. — **meridionalis** *Fruhst.* The ♂ approaches much more closely to the Sikkim ♂♂ than those of *violetta* and *epixantha*, and has only medium sized light blue marks on the forewings and a dark claret coloured outer border to the hindwings, containing three blue-grey dots. The ♀ resembles the *epixantha* ♀, from which it is distinguished by the very much broader black distal border of all the wings. In one specimen the oblique bar on the forewing is very broad, white, with the outline a vivid intense blue, in another it is narrowed similar to *violetta*. The latter specimen **fa. orphnia** *Frust.* is further noticeable from the dark brown disc of the hindwings, which is traversed by white median nervures, is distally slightly paler and in which the apices of the inwardly produced white submarginal ocelli run out. The red-yellow disc of the forewings is broadly bordered with claret colour as in *violetta*. South Annam, February. I took normal *meridionalis* at the same place, also at Saigon, January, 1900. I would again call attention to the interesting fact, that in South Annam *meridionalis* supersedes *nigrescens* which advances as far as Central Annam. Thus the distribution of *hypermnestra* on the continent is discontinuous, since we have *undularis* in Sikkim, South India, Ceylon, Tenasserim, Siam and South Annam, with enclaves of nigrescens on the Malay Peninsula and in Tonkin-Hainan-Formosa. All the *hypermnestra* forms from Further India have in common a very large whitish apical spot on the forewings, with a dark chocolate brown, sharply defined basal half on the under surface of all the wings, characters which are especially distinct in specimens showing dry season characters. — **fraterna** *Btlr.* ♂ with rudiments only of the blue submarginal spots on the forewings and broad only proximally very slightly reddish distal margin to the hindwings. ♂ can only be distinguished from *undularis* ♀ by the somewhat narrowed black border in the anal angle of the forewings, the broader distal border and more prominent white eye spots on the hindwings. On the under surface the light brown border of the hindwings appears slightly narrower in continental specimens. The ♂ thus

undularis. *tinctoria.* *paraleuca.* *violetta.* *epixantha.* *meridionalis.* *orphnia.* *fraterna.*

differs greatly, the ♀ only slightly from the general type, hence, among the *hypermnestra* forms the ♀ is the most conservative, whereas in other species, e. g. *agondas*, the ♂♂ resist, the ♀♀ incline to variation. Larva similar to that of *undularis Drury*, but head more yellowish brown. Pupa green with yellow longitudinal stripes, which are bordered by red strokes and spots, head and thorax with three short tubercles. Ceylon, nowhere uncommon. — **hypermnestra** *L.* (= *leucocyma Godt.* [?] (87 a) comes much nearer to the North Indian *undularis* than to *tinctoria Moore* or *violetta Fruhst.* like the *fraterna Btlr.* ♂♂. Some Java ♂♂ are in fact identical with *undularis* and most of them differ only in the rather darker, violet rather than blue submarginal markings of the forewings. The ♀ of *hypermnestra* is as a rule rather smaller than *undularis* ♀, and the more or less darkened forewings together with the diminution of the white markings on the hindwing stamp it as a melanic Island race. The apically broader, oblique white bar on the forewings has the periphery more richly glossed and darker blue than in *undularis* ♀, yet I do not possess a single ♀ in which this gloss is so brilliant as in Cramers otherwise excellent figure, which is perhaps somewhat fancifully equipped in this respect. East javanese ♀♀ are characterized on the upper surface by brighter red-brown and paler interspaces in the forewing and especially strongly white spotting on the hindwing; on the underside by the richer white decoration of the apical and submarginal tracts of the hindwings. ♂♂ of the east-java dry season form approach the balinese race (*baliensis Fruhst.*) in their dwarfed size, the light violet gloss of the forewings and the pale reddish external border of the hindwings. The entirely dull under surface is divided into a somewhat darker basal, and a faded brown-grey distal half. Such ♂♂ I have designated as ♂ **fa. perpusilla** *Fruhst.* — In Java *hypermnestra* extends from the sea coast up to about 3000 feet, and is one of those butterflies which the native collectors first supply in large numbers. Wherever we find, in or near the villages, gardens shaded by groves of bananes or other fruit trees, there at all seasons we meet with the sluggish *hypermnestra*, which always sit in the thickets, dull and tired, and, even when roused, only fly a few meters forward, when they at once assume the attitude of rest, close their wings and turn to the observer their finely striate under surface. The ♀♀ are again and again mistaken for *Danais intensa Moore*, which is common in the same localities, but whereas the Danaidae are always searching for blossoms, the *Elymnias* never go upon flowers. West and East Java; Basean, Kangean (Snellen). — **baliensis** *Fruhst.* According to the statements of Elwes and Nicéville, it appears that two species of *Elymnias* of the *hypermnestra* group occur on Bali. This view is founded upon a great error, for Bali only yields *hypermnestra baliensis Fruhst.*, the sister form of the javanese *protogenia Cr.* (recte *hypermnestra hypermnestra L.*). *baliensis* comes very near the *fa. perpusilla Fruhst.*, but is larger, has more strongly dentate wings and a darker type of colouring. (Satellite Island character). The violet subapical marks of the forewings seem to be considerably broader than in the Java ♂♂, brighter violet, and the other lower spots are also more prominent. Distal border of the hindwings cacao-coloured, under surface darker, more black in place of red-brown. Bali, October. Elwes and Nicéville state that *baliensis* does not differ from the javan *protogenia*, an observation on which one cannot place much dependence, since both authors (Journ. As. Soc. Beng. 1886) were also unable to detect any difference between *undularis Drury* and *tinctoris Moore*, but compare Moores figures of the these unusually pronounced races in "Lepid. Indica".

hypermnestra. *perpusilla.* *baliensis.*

E. caudata *Btlr.* (87 a, b), a brancli of the *undularis* series, which has departed furthest from the type of the species, with entirely different coloration larger size and longer tails on the hindwing. The *undularis* colouring is almost entirely retained especially in the ♂, with its extended white instead of blue spots on the forewing gives a totally different impression. Larvae on the Areca, Phoenix and Coco palms, also on Caryota urens L. and Calamus pseudotenuis (which also belong to the Palmaceae). Larva with longer processes on the head, shorter and thicker than in the *undularis* larvae. Throughout South India, in Bamboo forests.

caudata.

E. cottonis has a very circumscribed habitat, only Burma and the Andamans. Two geographical races: *cottonis Hew.* (87 b) probably a mimic of *Euploea simulatrix*, not uncommon at Port Blair in the South Andamans from April to August. Dry form (87 b) small, with almost orange distal margins to all wings. Wet form with dark red terminal margin to all wings. — **obnubila** *Marsh.* To Bingham belongs the credit of having not only discoveder *obnubila*, but also of having assigned to its the correct systematic position, for Binghams "race" which he applies to *obnubila*, is always identical with the conception of subspecies. It is almost certain that *cottonis* represents *undularis* on the Andamans, while occuring together with it in the Mergui Archipelago. The under surface is very similar to that of *undularis*, but the existence of *obnubila* side by side with *undularis tinctoria Moore* in the Mergui Archipelago supports the specific rank of the former. *obnubila* belongs to the few recent species of butterflies which are common to Burma and the Andamans, and their simultaneous presence must be traced back to a land connection in the Tertiary Period, from which also probably dates the broadly black framed *Hestia* common to Burma and the Andamans. Central and South Tenasserim, Mergui Archipelago, Salanga Island.

cottonis. *obnubila.*

E. nigrescens *Btlr.* the commonest, most widely distributed, and at the same time most inconspicuous species of the *Elymnias*. Common as it is, the larva is still unknown, though Martin (Iris 1895, p. 251) assumes

nigrescens.

that it lives on the Rotang palm, but has hitherto evaded detection in consequence of its admirably protective coloration and its retiring habits. Yet Martin frequently found the elegant green hanging pupa, decorated with fine red double streaks. The collective species itself is local, horodimorphic and subject to individual variations, which frequently mislead authors into setting up "new species". It is often impossible to distinguish the ♂♂ from the *undularis* ♂♂, a proof of the close relationship of the two species. This makes the ♀♀ all the more remarkable, since those of *nigrescens* must be described as cuploeid, those of *undularis* as salaturoid. The discontinuous distribution of *nigrescens* is also remarkable, especially in the Macromalayan region, where Borneo, the Malay Peninsula and its Satelite Islands have *nigrescens* in common, while in Java the continental *undularis* reappears. This north-indian-Javan affinity is repeated within the genus in *Elymnias casiphone*, and probably owes its origin to the tertiary land connection between Java and the Continent.—Larva in Sumatra on the Rotang palm, on Borneo according to Martin's observations on the Coco palm. The white, spherical egg of *nigrescens* lies slightly flattened on the leaf, becomes gradually yellow, on the third day it is citron yellow, and on the last day (the sixth) before emergence of the larva it is dark and discoloured. A pupa found in the open is fastened on the under side of an old, hard coco leaf, on which it lies rather than hangs; it is a sappy yellow green with two processes on the head, containing the palpi, and there is a pointed nasute prominence on the thorax. This latter, a median line running backwards to the ventral segments, the processes on the head and a short, thick longitudinal mark right and left on the eight ventral segments are all yellow, bordered with red. This red bordering is on the inner side of the two first, on both sides of the third, which is lighter yellow, and only on the outer side of the remainder. The wing sheaths of the pupa become nigrescent by midday on the day before emergence, in the evening the entire pupa is deep black, the butterfly appears very early, towards 5 o'clock in the morning, while it is still quite dark. The *Elymnias* pupae, of which Martin knows three species from the Celebes, *panthera*, *nigrescens* and *hewitsoni*, is of a peculiar type, and differs greatly from the, certainly closely allied pupae of *Amathusia*, *Discophora* and *Thaumantis*, which are very similar to each other. — **formosana** *Fruhst.* (87 b). Comes very close to the dry form of *tonkiniana Fruhst.* — ♀ usually dark blue also on the hindwing, which has strikingly large white submarginal spots. Disc of both wings with a dark red gloss. Distal margin of the hindwing broadly black. Takau, Sept.-Oct., Taihanroku, July, August, and in other localities, nowhere scarce on Formosa. — **hainana** *Moore*, judging from the ♂♂, which alone are at my disposal, differs, like *formosana*, in the very broad pale violet gloss on the forewing, which extends to the distal margin. Hainan. — **tonkiniana** *Fruhst.* This and *formosana* differ in common from all the other now known races of *nigrescens* in the much broader, dark claret distal margin on the upper surface of the hindwing. The majority of the ♂♂ have relatively large, blue submarginal spots, of which the upper ones are sometimes confluent, yet without ever forming complete bars, as in *nigrescens* from Borneo or Sumatra. In the dry season ♂♂ the blue is paler, and related to this is also the disappearance of the red distal bordering of the hindwings. My type is based on the wet season form. The ♀ has white, only peripherally blue submarginal marks on the fore wing and a rufescent disc. Hindwing with red distal border and white submarginal spots. Tonkin, Haiphon, in November, and Central Annam, Phuc-Son, Nov.-Dec. — ♀-fa. **depicta** *Fruhst.* includes the dry form. Forewing uniform dark steel blue, with dull blue, not white centred submarginal spots. Hindwing unicolorous black. Tonkon, Chiem-Hoa, August—September. — **beatrice** *Fruhst.* in the specific malayan region, therefore Malay Peninsula, Borneo and Sumatra, including perhaps the extreme south, ♀♀ maris colore. "It appears to be necessary to treat briefly of my material of Sumatra *nigrescens*, as Fruhstorfer declares himself to be in doubt about the Sumatra race in consequence of insufficient material. On the island-continent of Sumatra there are at least three different forms of *undularis*, possibly more, as I have no material from the West coast and from Atjeh at my disposal. In Deli, Northeast Sumatra, the males taken were all very slightly blue spotted on the forewing, with the very dark marginal bar on the hindwings but little developped, the ♀♀ also had only exceptionally the bluish-white spots on the forewing, such as are always well developped in the ♀♀ from the Malay Peninsula; they are even frequently exactly like the ♂♂, only the ground colour is duller and paler. In Central Sumatra (Indragiri) on the contrary have the ♂♂ a richer blue attire than is found elsewhere, the 3—4 apical spots coalesce into a broad, brilliant blue band and on the terminal margin there are in addition three other, very deep blue spots, the upper surface of the hindwings is almost unicolourous with only a very indistinct brown marginal zone. The commonest species of the region, which inhabits the gardens and lighter woods of the plains throughout the year. The ♂ has a double tuft of hair, consisting of an inner and an outer section. The larva undoubtedly lives on the rotang palm, but must have either an excellent protective colouring or very retiring habits. On rotang palms set in tubs in front of my house in Bindjei I often found distinct traces of the ravages of caterpillars, but in spite of careful search, never the larva itself, but frequently the elegant green hanging pupa, with fine red double streak" (Martin). Valve decidedly smaller than in *undularis* from Sikkim, distally strongly attenuate, the lateral dentate upcurved margin considerably narrower, furnished with a number of delicate dentations. The following variations have been described; **typica** *Fruhst.*, forewing with the usual blue submarginal spots, which coalesce towards the costa. — **decolorata** *Fruhst.*, forewing entirely without blue spots or with only an obsolete costal spot. Both from Sumatra. — **beatrice** *Fruhst.* (87 b), fore-

formosana. *hainana.* *tonkiniana.* *depicta.* *beatrice.* *typica.* *decolorata.* *beatrice.*

wing with unicoloured blue submarginal spots. Mal. Peninsula. There are transition forms between this and the
ornamenta ♀-fa. **ornamenta** *Fruhst.*. Hindwing with a series of 3—5 large white submarginal spots. Malay Peninsula; —
agina. ♀-fa. **agina** *Fruhst.* Forewing with large white submarginal spots, which are only peripherally glossed with blue
discrepans. or violet. Hindwing with or without white spots. Singapore, Perak, Deli-Sumatra. ♀-fa. **discrepans** *Dist.* Forewing with blue submarginal spots, median area broadly grossed with red-brown. Probably a dry form. I have a transition form from *ornamenta* to *discrepans*, with a reddish gloss on the disc of the forewing. Malay Peninsula.
nigrescens. Only one ♀ known. *beatrice* inhabits Perak, Singapore, North-east Sumatra, Lingga, Riouw. — **nigrescens** *Btlr.* the type of the name comes from Borneo, where there are two named ♂ forms; *nigrescens*, probably the
hecate. common *Elymnias* of the Lowlands, and **hecate** *Btlr.* a hill form, unles it be the dry form of the preceeding, smaller and less marked. The Borneo *nigrescens* differ from *beatrice* generally in the much darker hindwings, also the ♂ form *decolorata* appears to be more frequent than in Sumatra. As the special differentiating character for *hecate Btlr.* I would take the more sharply, and in *hecate* pointedly dentate terminal margin of the hindwings.
pseudagina. — ♀-fa. **pseudagina** *Fruhst.* Corresponds with the *beatrice* ♂-fa. *agina*, from which the Borneo ♀ differs in the dominating white of the submarginal spots. The almost black, scarcely blue shaded forewings are ornamented with rich white cilia, which are wanting in *agina*. In this ♀ form the prominent limbal toothing of all the wings
edela. is very striking. Underside darker, more uniformly red-brown than in *agina*, Sarawak, May, — ♀ fa **edela** *Fruhst.* Analogue of the ♀ form *beatrice*, but always smaller with duller and darker pure blue submarginal band on the forewings. Under surface as light and as richly checkered with white as in *beatrice* and *agina*. Pontianak.
virilis. — ♀-fa. **virilis** *Fruhst.* This form is peculiar to Borneo, and even there it seems very scarce, as I only received one specimen in about 20 years. Both wings with narrow red distal border, the blue submarginal spots on the forewing reduced, otherwise of the same brown-violet ground colour as the ♂. Hindwings uniform black-
melitophila. brown, without a trace of white spots. Lawas, North Borneo. — **melitophila** *Fruhst.* This remarkable Island form departs from all the other races of *nigrescens*, in the brilliant red, rather broad distal border of all wings, especially in the ♀, and in the ♀ through the brown, instead of blue or violet ground colour of the upper surface. The submarginal spots on the forewing are more widely separated, the costal spots are either reduced (in ♂) or entirely wanting (in ♀), whereas in *beatrice* etc. it is just in the costal area of the wing that we find an assemblage of blue spots, usually coalescing into an oblique bar, and widely spread. Under surface of *melitophila* uniform red-brown, without any sharply defined darker distal margin on hindwing, and without the apical, triangular, white spot, as present in *baliensis Fruhst.* and all the macromalayan and continental *nigrescens*.
orientalis. Only one ♀ form. Lombok, Sapit, April, 1896 at a height of about 2000 feet. — **orientalis** *Röb.*, distal border of hindwing reddish-bluish, indistinctly defined. Röber's cotype now in my possession appears to be a wet season form. I also now possess what, if we may judge by its appearance and the date of capture, appears to
dohertyi. be the dry form. This I have already briefly described as **dohertyi** *Fruhst.* But I would now call it forma temp. sicc. *dohertyi.* ♂; habitually smaller than my *sumbana* ♂♂. The red distal border of the forewings entirely wanting, that of the hindwing narrowed and darker. The blue markings on the forewings shorter than in *orientalis* and *sumbana*. Under surface; the light apical spot on the forewing narrower than in *orientalis*, the pale distal border of the hindwing, entirely absent in *orientalis*, is straighter and appears more sharply defined than in
sumbawana. *sumbana*. South-east Flores, harbour of Endeh, Oct. — **sumbawana** *Fruhst.* (87 e). ♂ larger than *Flores* ♂, submarginal spots of the forewing lighter blue and more imposing than in *orientalis*, more than twice the size of those in *melitophila*, broader and confluent towards the costa. Hindwing with narrower red-brown border than in the Lombok form, but paler and broader than in *nigrescens* from Flores. Forewing with a light reddish distal tinge, which is not nearly so bright as in *melitophila*. ♀. Forewing deep blue, instead of red-brown as in *melitophila*, with twice as large white, dark blue or violet ringed submarginal spots. Hindwing with 3 —4 prominent white spots. The claret and yellow-reddish distal bordering, which is so distinct in *melitophila*, is reduced to a minimum. Underside darker red-brown, submarginal area more richly white marked than in *melitophila*. Tambora, Sumbawa. Martin took *sumbawana* on Bima, immediately behind the first houses on the
sumbana. coast. — **sumbana** *Fruhst.* represents, as is usual with the Sumba butterflies, the smallest race in the above named islands of Lombok, Flores and Sumbawa. The type of colouring resembles that of *melitophila*, the submarginal spot on the forewing are intermediate in size between those of *nigrescens* from Lombok and from Sumbawa, but are somewhat broader towards the costa. The under surface differs from all other micromalayan races known to me in the larger, oblong, paler apical spot of the forewing, together with the unusually broad, light grey-yellow distal margin of the hindwing strongly contrasting with the red-brown basal half. Sumba;
timorensis. appears rather scarce. — **timorensis** *Fruhst.*, ♂ with light blue submarginal bands than in the Sumba specimens. Timor, apparently rare; the ♀ is wanting. We find *nigrescens* also in the Philippines, but in a form so greatly modified, that we must grant it specific rank.

E. congruens. The determination of the type of this species presents some difficulties, because Semper certainly says in the first part of the text; "Received 31 specimens from Mindoro etc." but in the detailed description of the species "the only specimen received from Mindoro possibly belongs to another species". All forms of *congruens* have in common gently rounded forewings and relatively sharply angled hindwing. The

fore wings have a rather diffused, sometimes very short, almost always continuous band, and only rarely any isolated spots, as we see them in all races of *nigrescens*. The hindwings of the ♀ with a whitish or grey-yellow submarginal area, which is repeated on the underside of the ♂♂. The subdivision of the forms of *congruens* may be carried out as follows, going from North to South. — **subcongruens** *Semp.* differs from the southern branches chiefly in the very long tails of the hindwings, with a very short, narrow, greyish white, violet tinged subapical band on the forewing; upper surface of ♂♂ only dull purple, hindwing mostly brown, ♀ almost entirely brown, excepting a brownish grey submarginal zone on the hindwings. Underside with distinct series of ocelli, consisting of six black, proximal delicate blue bordered eye spots, which are wanting in the other races of *congruens*. Mindoro, December to February. According to the views of his time, Semper was quite right in granting specific rank to this sharply differentiated race, and we await with considerable interest the discovery of other geographical offshoots in the unexplored central Philippine Islands, Tablas, Sibuyan, Masbate etc. — **congruens** *Semp.* from the Camotas, relatively small islands between the large Leyte and Cebu. Upper surface blackish brown, with very slight violet gloss, a light bluish violet terminal band, which is wanting on the hindwing. Underside with small whitish spots near the distal margin. ♀ agrees with the ♂, but with paler markings and colouring on the hindwing. December to February. — **endida** *subsp. nov.* occurs from December to February in Bohol Island, the ♂ has a narrower blue subapical band on the forewings and the distal border on the hindwing scarcely half as broad as the races from Mindanao and Bazilan. ♀ with the band on the forewing broken up into isolated spots, submarginal area of hindwings yellowish, but lighter than in *subcongruens* from Mindoro and with shorter tails. — **photinus** *Fruhst.* Subapical part of the submarginal band on the forewings dazzling white, becoming broadly blue towards the anal angle, on the hindwings extensively violet. North Mindanao, flies in October. — **phaios** *Fruhst.* All the bands on all the wings much darker and greatly reduced. ♀. Retains only a rudimentary violet band on the forewing in the subapical region, it has entirely disappeared from the anal angle. Hindwing with dull brown submarginal band and dark brown distal border. South Mindanao. — **rafaela** *Fruhst.* (87 c). Runs smaller than *phaios*, from which it differs in the more vivid and more extended bands and the red distal framing of the upper surface, and on the underside by the brighter, also broader subapical area of the forewing and the diffused whitish submarginal zone of the hindwings. Hindwings with the submarginal band entire and commencing broadly on the costal margin, whitish grey in colour. Distal border broad, dull cacao coloured. Bazilan Island. February, March.

subcongruens. *congruens.* *endida.* *photinus.* *phaios.* *rafaela.*

E. nesaea, better known as *lais Cr.* distributed from North India to Siam and in the Sumatran Archipelago to Kangean and Bawean, having a general resemblance to *Danaida grammica Bsd.*, the ♀♀ of the blue streaked races of the macromalayan region nearer to *Euploea mulciber* ♀♀ and their varieties. — **timandra** *Wall.* (87 c, ♀ not ♂) the sexual differences are slight, the ♂♂ are smaller than the figured ♀, upper surface of all wings greenish passing slightly into greenish blue. Striae on the hindwing white. ♀ not so light as the figure, frequently with blue or grey-green streaks on the forewing. ♂ underside with a broad black-brown area on both wings, extending from the base to the middle of the wing. The anal portion whitish with scattered brown scales. ♀ underside entirely white with diffuse brown or yellowish shading but without darker or even defined basal region. Rare in Sikkim, from whence only a few specimens are known with certainty, and up to 2000 feet in Teesta Tal, but common in Assam. — **cortona** *subsp. nov.* is a race from Burma and Tenasserim, everywhere scarce, with the streaks on the upper surface decidedly blue instead of greenish and with proportionately longer forewing than in *timandra Wall.*, from Sylhet and Assam. — **apelles** *Fruhst.* (87 c). Wings shorter and more rounded than in *timandra*, but hindwing with longer tails. The black marking along the nervures spreads out as in *baweana Hag.*, but coalesces towards the apex into a broad spot. Upper surface of hindwing coloured almost as in *timandra*. On the under surface of the wings the sharply defined, broad, dark-brown basal spot on all wings also recalls *timandra*, from which *apelles* again differs in the much lighter, more yellowish grey, instead of whitish blue colouring of the distal portion of all the wings, which is further much more delicately irrorated, similar to the malayan races of *nesaea*. *apelles* thus presents in every way a transition from the continental to the macromalayan races, whereby *timandra* loses the appearance of a species, and sinks to the position of the most northerly form of *nesaea L.*, which is spread over all the larger Sunda Islands. Siam, Bangkok, January, apparently scarce, since I only took 2 ♂♂ and there is also only one ♂ in the British Museum. — **lioneli** *Fruhst.*, ♀ above and beneath rather darker than *laisides*, Nicév. from Sumatra, with more extended brown marking along the veins and more gloss in the cell of forewing. ♂ larger than *laisides* ♂, apex of forewing more broadly black, ground colour darker green. Malay Peninsula. Billiton (?). — **laisides** *Nicév.* Larva probably lives on bamboos, the butterfly always remains in the vicinity of human habitations, and, like *timandra*, appears in some years in immense numbers. In consequence of the large violet apical spots the ♀♀ on the wing are often not to be distinguished from *Euploea mulciber* ♀♀. There are two forms of the ♂. a) those with light green streaked wings, b) those with the forewing blue streaked, especially towards the apex. Sumatra, Deli and Padang. — **neolais** *Nicév.* ♂. Smaller, the under surface considerably darker brown marked. ♀. Violet apical marking much reduced, hindwing more extensively brown. Nias. — **kamerina** *Fruhst.* (87 d).

timandra. *cortona.* *apelles.* *lioneli.* *laisides.* *neolais.* *kamarina.*

A well marked local form, ♂ with narrower black streaks along the veins, the interneural striae light green, in ♀ almost whitish green. ♀ with large brown apical spot, broad black distal border, three confluent subapical, and 3 isolated median submarginal spots in the forewing, which are proximal black bordered. Nervures much more narrowly brown streaked than in *neolais* and *laisides*, especially on the almost entirely whitish grey hindwings, the interspaces of which have black, instead of brown scales. The under surface recalls *timandra* in the white, instead of yellowish grey ground colour; irroration black instead of brown, as in *neolais*, and in
hypereides. the ♀♀ much denser than in the ♀♀ from Nais and Sumatra. Batu Island, Pulo-Tello. — **hypereides** *Fruhst.* (87 d). ♂; Upper surface darker green and much more broadly black streaked than in the sumatran *laisides*. ♂; cell of forewing darker, much more richly irrorated with brown-black than in *laisides* and *lioneli*. Apical striae of the forewing more extended, more dark blue than light violet irridescent, the long pointed spot before the cell narrower and blue violet, in place of white. The brown ground tone of the underside reminds more
coelifrons of *neolais* than *laisides*; the ♀♀ are also much darker than the Sumatra ♀♀. North Borneo. — **coelifrons** *Fruhst.* The coloration of the ♀ is very close to that of *hypereides* ♀♀, from which it differs in the more extensive brown markings along the veins on the upperside of the hindwings. The ♂ departs from all known races through the presence of 3 large, dark blue subapical spots, giving a certain resemblance to *neolais* ♀, and in the markings along the veins being almost confluent and deep blue in place of black. South-east
nesaea. Borneo. — **nesaea** *L.* (= *lais Cr.* et auct.). The javanese *nesaea* ♀♀ differ from their sister forms of the macromalayan Archipelago in the absence of the apical violet tinge on the forewing, and the more regularly and sparsely brown scaled under surface. In my collection I have many specimens from West Java, where the species was found from the sea coast up to about 2500 feet high; it lives in thin woods and village copses, where the butterfly moves slowly and quietly in the slight shade during the morning hours, but is nowhere frequent. Herr Piepers in a letter dated 31 March, 1907, informs me, that he had discovered *hypermnestra* and *nesaea L.* in Batavia itself, had bred them from larvae both kinds of which lived on the coco palm, and had made good drawings of the earlier stages. Among the other javan species of *Elymnias*, the larvae of *panthera*, which lives on the foliage of several palms, has often been found in Hill tracts and bred up, but there are no drawings of it. I have three ♂ forms from Sukabumi; a) with light green, b) with dark green (like Cramer's figure) and c) with blue green internerval striae on the forewing. Of form a there is in my collection one hermaphrodite, left ♂, right ♀, abdomen ♂. West Java. *nesaea* comes much nearer to the north indian *timandra* than to *laisides*, *lioneli* and *hypereides* of the remaining macromalayan region, just as *E. casiphone* and *E. hypermnestra L.* are more analogous
hermia. to the vicarious north-indian forms than to those of the neighbouring macromalayan islands. — **hermia** *Fruhst.* Usually smaller than the west-javan, wings more rounded, tails more obtuse. Internerval striae in ♂ lighter grey. ♀ cell lighter, more yellowish than green powdered, distal border red-brown instead of black, the black streaks along the veins very narrow. Lower surface paler, the red-brown spots on the ♂♂ evenly distributed. In the strikingly pale ♀♀ the brown marks disappear almost completely, especially on the hindwings. *hermia* has thus all the characters of a species inhabiting a region of little rain fall. East Java, around Lawang, a.
bawcana. 2000 feet. — **baweana** *Hag.* is the characteristic butterfly of the Island Bawean and appears to occur in enormous numbers, as it is included in every parcel which reaches Europe from thence, and my collector, who was working on Bawean in Oct. Nov. 1904, took several hundred pairs. ♂ and ♀ are characterized by the unusually broad, black, sharply defined distal border on all wings, and, especially in the ♀, by the very broad markings along the veins, which displace the internerval grey streaks to such an extent, that they remain distinct on the submedian only, become obsolete in the median portion of the wing and entirely disappear towards the apex. Ba-
vordermani. wean. — **vordermani** *Snell.* In this race insular melanism is even more pronounced than in *baweana*, since the transverse striae of the forewing disappear entirely and the black colouring invades the hindwing, on which of the original ground colour only large greenish grey submarginal spots remain; the lower surface is also much darker than in *baweana*. Snellen compares *vordermani* with *esaca Westw.*, but also refers casually to its relationship with (*lais*) *nesaea*; moreover he makes *lais* occur on Kangean together with *vordermani*. I suspect, that Snellen certainly mistakes the ♀♀ of an island race closely allied to *casiphone*, *Hbn.* for "*lais*", since, as I believe, „*lais*" (recte *nesaea*) is represented on Kangean by *vordermani*, and two subspecies of one species cannot occur on one small island. If *nesaea* really exists on Kangean, then *vordermani* must be acknowledged as a species, and a name will be required for the Kangean race of *nesaea*. Kangean Island.

casiphonides. **E. casiphonides** *Semp.* (88 a). *casiphonides* varies from the indo-australian *casiphone* type especially in being monomorphic instead of dimorphic, so that the ♂ wears the same dress as the very light ♀. Semper, who was at first acquainted with the ♀ only, connects this species with *casiphone Hbn.*; Butler, (Trans. Ent. Soc. 1870 p. 488) on the contrary, compares the ♀ much more correctly with *timandra Wall.* ♀; the fact is, that *casiphonides* only resembles *casiphone* in the colouring of the upper surface, whereas the larger, more irregular black marking on the underside distinctly proclaims closer relationship with the *nesaea* (*lais*) group. The connection with *nesaea* is also shown in the ♀ by the strikingly curved lower discocellular of the hindwing, a trustworthy structural character, which is equally prominent only in *ceryx Bsd.* Mindanao, Flies in April and May.

E. malelas went for a long time by the name of *leucocyma Godt*, an absolutely indefinite species, of which we are uncertain whether it is a synonym for *hypermnestra*, *nigrescens* or *panthera*. There is, however, no doubt as to *malelas*, because Hewitson has very accurately figured a ♂ of the wet season form. *malelas* must be considered as the continental stock of *casiphone Hbn.* which is also distributed over the whole of the macro- and a part of the micro-malayan region, and surpasses its insular descendents in size and beauty of colouring, but not in individual and geographical variation. The ♂ is a splendid imitation of *Stictoploea binotata Btlr.*, the ♀ a perfect mimic of *Trepsichrois mulciber Cr.* **malelas** *Hew.* (87 e) is the commonest form. ♂ sometimes with white discal marks on the forewing, and occasionally with two blue spots in the cell, which are always white in the ♀. Specimens with a white submarginal band as in the figure are comparatively scarce (= **subdecorata** *fa. nov.*). The under surface varies somewhat with the season. Those of the spring brood are light brown with very indistinct and finely divided variegation, and it looks as if Hewitsons figure was taken from such a specimen. ♀ the dry form is whitish beneath with pale coffee brown basal area of the forewings and delicate brown shading on the hindwings. Those of the wet season are dark cacao brown with more decided redbrown markings on the hindwings, ♀ of the wet season with broadly brown bordered nervures on the hindwing, those of the dry season more like the figure of *saueri* (87 c), but with white internervular streaks on the hindwings. Sikkim, Nepal, Assam, nowhere uncommon in the hot valleys, where the banana grows, on the leaves of which the larva feeds. — **nilamba** *subsp. nov.* was first noted by Doherty in the Kumaun Himalaya. This form there occurs at heights from 2500—3000 feet, and may be separated from the Sikkim specimens by a series of irregular white terminal spots on the upper surface of the hindwings, and by a more broadly white streaked and dotted underside to all the wings. — **ivena** *subsp. nov.* was taken by me in Tonkin and Siam, and I have hitherto considered that it might be united with *saueri Dist.* from the Malay Peninsula, and had the ♀ figured as *saueri* (87 e), but the ♂♂ differ on the underside by the absence of ~~by~~ the distinct close yellow-brown marbling on all the wings, recalling *casiphone*. ♂♂ from Tonkin (August—September) show dry season characters, are just as small as the analogous specimens from Sikkim, and agree with them in markings and colour. ♀ (*saueri* ♀ 87 e) has a more extended bright brown basal colouring and small blue striae on the forewing. Hindwing with predominant brown, in place of black neural markings, the interspaces yellowish, instead of whitish. Under surface paler than in the dry season ♀♀ from Sikkim and with finer and more regular irroration especially on the forewings. Tonkin, Siam. — **saueri** *Dist.* first described from Wellesley, Malay Peninsula, makes its earliest appearance in Tenasserim, just where *malelas* reaches its southern boundary. ♂♂, as already stated, form a clear transition to *casiphone* in the striking and chiefly yellow striation if the under surface. — *saueri* has been placed in connection with the ♀♀ of several other species, but the true ♀ is still unknown. Moore thought he had discovered it in *Elymnias kunstleri Honr.*, and absurd idea, which Nicéville rightly rejected. (Journ. Bombay Nat. Hist. Soc. 1900, p. 164). Unfortunately at the same place Nicéville incorrectly brings forward another ♀ as that of *saueri*, namely *Elym. nesaea lioneli Fruhst.* an error which is all the less intelligible, because Nicéville himself compares his *saueri* ♀ with the neighbouring sister form *laisides Nicév.* from Sumatra, "to which it comes remarkably near". According to my view, the true *saueri* ♀ will be somewhat darker than *malelas* ♀ and probably display a broad, brown distal border on all the wings; it is possibly indetical with, or very close to the ♀♀ which I took in Siam, which differ from the north indian in the rather reduced white on the forewing, and are figured on 87 e. Tenasserim, Thoungyeen Valley, Tavoy, Malay Peninsula.

malelas. *subdecorata.* *nilamba.* *ivena.* *saueri.*

E. casiphone is one of the least sharply defined species of the genus, since, on the one hand, the ♀♀ of some races resemble the *nesaea* ♀♀ of their region, and on the other hand there are so many transitions towards *E. kamara Moore*, which always occurs side by side with it, excepting in the sumatran region *, that in two directions it is impossible to define any boundary line. *casiphone* is, in fact merely an insular descendant of the former species (*malelas*), but much more interesting, though less in evidence, by its far reaching capacity for modification. The hindwings are distinctly tailed, which is not so in *malelas*. Under surface of the ♂♂ darker, without white striation. In *casiphone* the basal hair pencil on the hindwings is yellow, the distal deep black, in *malelas* the basal is black, the outer paler, certainly brownish. — **casiphone** *Hbn.*, the best known branch, was erected by Huebner from West Java ♂♂. The ♀ was not described till 1907, and is best characterized by noting its mimetic resemblance to *Trepsichrois mulciber basilissa Cr.* from Java, whereas *casiphone* ♂ deceives by its resemblance in flight, shape of wings and the glorious blue iridescence of the forewings to *basilissa* ♂♂. As is the case with so many Java butterflies, the East of the island produces a local race of *casiphone*. The ♂♂ of that part lose the blue iridescence, and their submarginal spots on the forewing appear ringed with violet instead of with dark blue. — **alumna** *Fruhst.* (87 e). The discal white marks on the forewing are wanting, but there is almost always a distinct yellow grey submarginal band on the hindwings (transition to *kamara*). Sometimes the nervures of the hind wing are sprinkled with yellow nearly to the base (transition to the colouring of the ♀). Occasionally the wings alter from dark blue to brown (leaning towards *kamara*). The west javan *casiphone* almost always bear white discal spots on the underside of the forewing, as Hübner has

casiphone. *alumna.*

*) Where *casiphone* has not yet been observed.

illustrated; in the east-javan these are uncommon. In general it may be said, that *alumna* presents resemblanees to *Euploea mazares Moore*, and that *alumna* ♂♂ have the hindwing more variable than in *casiphone* ♂♂, for there are some without a trace of a submarginal band, and others with a yellow-brown band, then again transitions with white decoration (leaning towards *praetextata Fruhst.* ♂♂ (88 a) from Lombok). The markings on the forewings vary from white to light steel blue, whereas in *casiphone* from West Java there is only an increase or decrease in the white markings on the disc. In the former case the median spots coalesce with the submarginal and thus form rudiments of those internerval streaks which are peculiar to the ♀. I have *casiphone* from Sukabumi, West Java, where it goes up to 600 m and *alumna* from the chalk hills south from Malang
djilantik. in East Java at 500 m and on the spurs of the volcanic Tengger hills where it sent up to 800 m. — **djilantik** *Mart.* comes near to *alumna* from East Java. The blue gloss on the apical half of the forewings is retained; there are no longer any discal white spots on the upper surface, on the distal margin of the forewings there is an outwardly convex series of 6 blue, white centred dots, of which the 3 upper are larger and with large white centres. The white dots on the disc of the underside in the upper wing remain, but are less prominent than in *casiphone casiphone*. The yellow-grey submarginal band on the upper surface of the hindwing in only slightly indicated, less than in the typical *casiphone*, there is no yellow colouring on the veins inwards; the black pubescence on the upper surface of the hindwing downwards from the main median nervure is much stronger and more bushy than in all my specimens of *casiphone*; The lower surface of the hindwing does not show any difference. Described from 2 ♂♂ taken by Dr. Martin's javanese collector Saimun in August 1906, on Bali near Boeleleng. — *Elymnias casiphone praetextata Fruhst.* from the neighbouring island of Lombok is naturally also very closely related, but may be at once distinguished by the red-brown apical border, especially mentioned by the author; also in *praetextata* the "obsolete" submarginal row of spots on the upper surface of the hind
praetextata. wing is narrower than in *casiphone* (Martin). — **praetextata** *Fr.* (88 a). A well defined geographical race, characterized by the rounder wings and more prominent pure white, but deeper violet bounded spots on the forewing, especially also by the greatly darkened ♀, in which all wings assume a deep brown colour, which entirely conceals the greyish white striation except for a few rudiments on the hind wing. On the under surface also the influence of the eastwardly increasing insular melanism is clearly expressed; the whitish admixture is wanting and is replaced by brown-yellow, so that *praetextata* appears on the underside just as fully brown as the javanese *kamara* ♀. Lombok, up to about 700 m, in the vicinity of human dwellings in palm groves. The absence of *casiphone* from Sumatra is remarkable, but *nesaea* ♀, which can scarcely be separated from *casiphone* ♀♀ from West Java, occurs there.

E. kamara. In 1907 I thought myself justified in considering this to be merely a form of *casiphone*, but Dr. Martin drew attention to the fact, that *kamara* inhabits a more circumscribed district than *casiphone*; thus, for instance, no form of *kamara* is known from the Malay Peninsula, where *casiphone* is represented by *saueri*, further, in North-east Sumatra we find *kamara erinyes Nicév.* but no *casiphone*, and last but not least, the javan *kamara* has quite different irridescent interference colour to *casiphone*, namely a dark lilac, otherwise found only in the genus *Terinos*. But a not unimportant difference in the clasping organs, which I am only now able to confirm, is decisive for separation at the present time. The clasps of the *kamara* uncus are more robust, longer, anteriorly stouter. The valve is basally unusually explanate, suddenly narrowed towards the middle and produced into a sharp point, whereas the *casiphone* valve is dorsally scarcely constricted and distally almost to be called roundish. The lateral raised margin is less regular, centrally broader, anteriorly dorsally excised like a scalpel. Further, from Sumatra to Lombok, *kamara* is represented by an unbroken chain of insular races, while *casiphone* first occurs in West Java; on the other hand *kamara* has no representative on the continent. On Lombok *kamara* flies side by side with *casiphone*,
erinyes. but in Java it is more confined to the higher altitudes. — **erinyes** *Nicév.*, only known to me from the author's figure, has like all *kamara* races, uniform brown forewings, without any violet tinge. Hindwing of ♂♂ whitish with brown scaling along the nervures. Very similar to *kamara* (87 c), but the white less prominent. ♀ duller and more faded brown. Hindwing with more even, but duller yellow streaks in the interspaces. North-east
kamara. Sumatra, very scarce in the woods of the plains and promontories, only a few specimens yet taken. — **kamara** *Moore* (87 e), the javanese dwarf race, ♀ as a rule with the interspaces broken up and enclosing a row of round-
pareuploea dish, black submarginal spots. The figured specimen, belongs to a rare individual aberration **pareuploea** *form. nov.* from its resemblance to *Euploea sepulchralis* and *terissa*. The ♀ varies in three directions; 1) ♀ similar to the ♂, but submarginal, yellowish spots always present on the forewings. Hindwings with rather more extensive yellow-brown streaks; 2) ♀ analogue of *pareuploea* ♂ with almost whitish submarginal area on the hindwings, bearing scarcely any trace of brown scales; 3) ♀ joins on to the east-javan *casiphone*
pseuda- with elongate white, even slightly violet glossed distal striae on the forewing on pale brown ground (**pseudalumna**
lumna. *form. nov.*). Under surface of all forms of *casiphone* recognizable by the more black-brown coloration of the forewings, and the absence of white admixture from the hindwings of the ♀♀. West and East Java, partly
exclusa. together with, partly at higher altitudes than *casiphone*, rising to about 1000 m. — **exclusa** *Nicév.* discovered by Doherty, a great rarity in the island of Bali. Only ♂♂ hitherto taken; their melanic colouring is especially denoted by the reduction of the striae in the hindwings, which have only a submarginal band like that of *prae-*

textata instead of longer striae. — **lombokiana** *subsp. nov.* represents the most eastern branch. Differs from the ♂ of *exclusa* in a broader, almost pure white submarginal band on the hindwings. ♀ close to *kamara* ♀ from Java, but larger, wings rounder, underside more closely sprinkled with dull yellow. Lombok up to about 800 m. Always in company with *casiphone praetextata*. *lombokiana.*

E. melias appears to replace *kamara* in the Philippines. Hitherto received in Europe from Luzon only, it is nevertheless certain, that it will yet be discovered in the southern Philippines also, especially as *pellucida Fruhst.* (88 a) a vicarious species, certainly inhabits North Borneo. — **melias** *Fldr.* has black hair pencils in common with *pellucida* and recalls to some extent *Pap. palephates*, *Euploea swainsoni* and *Eup. simillima*. ♂ upperside almost black with large tripartite, pure white subapical spot on the forewing. Hindwing with a series of six elongate similar submarginal striae and both wings with white terminal dots. Under surface brown, the markings correspond with those of the upperside, only that the distal region of the hindwings between the submarginal spots and the terminal border is finely white marked. — **malis** *Semp.* from north eastern Luzon, although erected as a species, is merely an aberration with longer white streaks on the hindwings. — Luzon. *melias.* *malis.*

E. pellucida *Fruhst.* (88 a) approaches *melias*, but the forewings of the ♂♂ are rather narrower and longer; colour black-brown with slight reddish tinge in the submedian area of the forewings. ♂ with 5 white submarginal marks in the forewings and finely divided, almost white internervular streaks, interrupted by black-brown longitudinal bars, on the hindwings. ♀ under surface but little paler than the upper whereby it may be distinguished from the ♂. North Borneo, Kina Balu, very scarce. *pellucida.*

E. ceryx, one of the most perfect mimics of Danaidae, hitherto only known in two Island races, but perhaps to be expected from the Malay Peninsula and Borneo. — **ceryx** *Bsd.* the name-type is very similar to the figured *nigrita* (87 d), but the forewings are ornamented with far more imposing, absolutely circular white spots. The black distal border very narrow in both sexes on the forewing. Upper surface of hindwings in ♀ without red tinge. Under surface in ♂♂ with slight red-brown shading in the submarginal area, but ♀ chiefly greenish white without distinct red gloss and both wings richly white striated in the anteterminal area. With it in Java appears another form, which has hitherto remained unnoticed; it is a faithful reflection of *Hestina mimetica Btlr.* together with which it occurs. I almost suspect, that we have here a product of a particularly wet period, and the modification is very considerable, the wings are narrower, the distal margin of all wings broadly black, with only small, more oblong white submarginal spots. Hindwings with proximal red tinge in ♂ and ♀. Under surface also with melanotic appearance, the ♀ also with extensive red-brown area on the hindwings. White striation on the forewings much reduced. It may be denoted as **hestinia** *form. nov.* — *E. eryx* so closely resembles *Danaida albata Zink.*, in mode of flight and in appearance, that I repeatedly mistook it for a Danaid, when I saw it in the midday hours, solitary and calm, floating in clearings of the woods among bamboos or on the woodland paths. It is very probable, that *Elymnias ceryx* became distributed over Java and Sumatra when both were connected, and at a period following that of the land connection between Burma and Java. The extention of *Danais albata Zink.* to Sumatra, where a dark local race has recently been discovered, may have occurred at the same time. West Java 4000—6000 feet. I never found *ceryx* more to the east than the plateau of Pengalengan, and it is doubtful whether it occurs in the East. — **ceryxoides** *Nicév.* inhabits the mountainous Sumatra at the southern end of the Tobah Lake and Batoe-Gadjah, the high pass between Asahan and the southern Tobah plateau. A somewhat scarce species, whose ♂♂ bear a distinctly double hair tuft, while the ♀♀ are distinguished by larger size and duller colouring. Comes very close to the javanese *ceryx Bsd.*, but has more blue on the upper surface, corresponding to *Danais tytioides Nicév.* which flies in the same localities in the district, while *ceryx* is more yellow and like the javanese summer form of *albata Zink.* The ♂♂ of *ceryxoides* vary on the upper surface of the hindwings, and are sometimes red. sometimes black; in the first case they recall *tytioides*, in the second *Danais banksii Moore.* The upper surface of the forewings also is in certain specimens almost entirely blue, in others roundish yellow spots show through the blue. I possess a darker aberration, corresponding to *hestinia*, from Padang, West Sumatra. — **nigritia** *Fruhst.* (87 d), in which, in contrast to *hestinia*, the red tinge on the upper surface of the hindwings is wanting. Otherwise also *nigritia* is less differentiated than *hestinia*, since the outline of the wings and the shape of the white submarginal spots are in no way altered on the forewings. If no further subspecies of *ceryx* are found in the specifie malayan region, this *Elymnias* belongs to the few creatures entirely restricted to Sumatra and Java; at this moment I know among the Rhopalocera only *Charaxes kadeni* and *Dodona fruhstorferi* which are similarly restricted. For the rest, *ceryx* is perhaps the most beautiful, and to the human eye, the most elegant form in the long series of the species of *Elymnias*, the delieate blue of the forewings, permeated with fine white striations, the broad black border, in which is a series of very regular and highly plastic white spots, *hestinia.* *ceryxoides.* *nigritia.*

and the strongly contrasting deep red-brown of the hindwings, produce an unusually attractive appearance. which is further heightened by its stately size and the distinguished cut of the wings (Martin).

E. künstleri may truthfully be called one of the rarest butterflies, being, at the same time, the only species of the genus which resembles a *Hestia* or rather an *Ideopsis*. Two prominently differentiated geographi-
künstleri. gauroides. cal branches are known, **künstleri** *Honr.* from Perak, of which only one ♀ has been taken, and **gauroides** *Fruhst.* The differences will be seen from the following copy of the original diagnosis of *gauroides*. "The ground colour is a dull shining white. Forewings with the costal margin variegated grey and white; the nervures are outlined with smoke brown shading, which leave white, partly rhomboid patches in the cell, near the outer margin and between the first median and the submedian. Hindwings lighter than the forewings, because on them the shading of the nervures is less confluent and there is also on the terminal margin a very irregular, smoke brown band, much permeated with white. Under surface almost as above, only that the brown tinge is less marked, especially on the forewings. Palpi brown, laterally white pubescent, head and sternum black, with white and grey pubescence. Abdomen brown, ringed with whitish scales, tarsi fawn brown, antennae red-brown above, pale brown beneath, apically paler. Expanse 80 mm." Closely allied to *künstleri Honr.* from Perak, from which it is distinguished not only by the size (*künstleri* has an expanse of about 100 mm) but especially by the absence of all black markings and by the much broader, brown shading of the nervures, chiefly in the apical area, where it is entirely absent in *künstleri*. In *gauroides* the violet iridescence on the wings is wanting, as is also the blue tinge in the cell of the forewings and in the abdominal region on the under surface. *gauroides* must be very rare, as I was unable to obtain more than the one described specimen, which I took on 16 November 1891 on a hill about 2000 feet high near Tjisewu (district of Tjidamar, West Java). The species appears to be a mimetic form of *Ideopsis gaura Horsf.* to which it shows a decided resemblance in colour and the shape of the wings.

nepheronides. **E. nepheronides** *Fruhst.* This curious species was discovered by Everett on Flores and the originals are in the Tring Museum. The ♂ or ♀ resemble the ♂ or ♀ of *Nepheronia valeria Cr.* Habitat. Flores Island, only one pair known.

singhala. **E. singhala** *Fldr.* (88 d), a peculiar species, allied to *panthera*, but also to *casiphone*, *Hbn.* The larva feeds upon the leaves of a certain species of palm in the Botanic Gardens at Peradeniya, which has up till recently been the sole locality for this fine *Elymnias*. According to Mackwood's observations it is now gradually spreading to other districts. The under surface differs from *panthera* in the absence of the roundish white submargi-spots on the hindwing, and by the presence of a sharply defined dark brown zone on the forewings, the distal part of which is dusted with yellowish. Ceylon, not uncommon in collections.

E. harterti must be included among those rare species, the isolated occurrence of which point to deca-
harterti. dence of the species. **harterti** *Honr.* from Perak, has a certain similarity to *E. singhala*, especially on the upper surface of the hindwings, which bear a yellowish distal border. Forewings with a narrow greenish submarginal band, composed of six elongate spots. Under surface nearest to *panthera*. Hindwings with small, blue centred
brookei. ocelli and long tail, somewhat as in *subcongruens Semp.* A second race, **brookei** *Shelf.*, is habitually rather larger, but appears to be much darker, for Honrath has already noted, that the cream coloured distal band on the upper surface of the hindwings is replaced by a narrow green border. ♀ coloured rather like *E. esaca Westw.* but the shape of the wings is again that of *panthera*. The Shelford type came from Sarawak, where Dr. Platen took 1 ♂ and 2 ♀♀, there is also a ♂ from Labuan, North Borneo in Dr. Staudingers collection in Berlin. There is probably only one known ♂ of *harterti*, now preserved in the Adams collection at Enfield.

peali. **E. peali** *Wood-Mas.* An extremely interesting species, and like *harterti* very rare, only two or three specimens being known, of which two were collected by Doherty in Upper Assam at Margherita, May and Aug. — Dec. The ♂ is remarkable from the light grey diseal area of the forewings, the ♀ from a large orange anal spot on the upper surface of the hindwings. Assam.

E. penanga distinguished by the striking sexual dimorphism and the pointed form of the wing, so that Moore erected the genus *Bruasa* for the only species belonging to this group. *penanga* belongs to those chiefly maeromalayan species which extend aeross Perak to Tenerim and, in this ease, as far as Assam. *penanga* is the small west known *Elymnias*, and while the ♂♂ have in general retain ed the habitus of the *Euploeae*, the shape of the wings in the ♀♀ recalls *Mycalesis*, without keeping to any one Danaid model. It eontains the following subspe-
chelensis. eies; **chelensis** Nicév. (88 c). To judge by my two ♂♂, *chelensis* differs from the delicately streaked *penanga* in the larger size and broader blue submarginal streaks on the forewings. *chelensis* has a reddish distal border on the forewing and almost entirely blaek, instead of irideseent blue hindwings. Like *penanga* and *konga*, *chelensis* is very rare. There are 5 speeimens known in England and 2 in my eollection. Assam, Upper Burma,
penanga. Shan States, Pegu. — **penanga** *Westw.*, the name-type is known from the Island of Penang, also from Singapore,

where Wallace met with it, and specimens from Perak are in my own collection. It somewhat resembles *patna*, and an approach to *hypermnestra* is noticeable on the under surface. There are two varieties of the ♀; ♀-fa. **mehida** *Hew.* l. c. with white subapical bar on the forewings and white submarginal area on the hindwings, *mehida.* ♀-fa. **abrisa**, without these markings. — **sumatrana** *Wall.*, described by its author from a ♀ form, here figured *abrisa.* (88 c). ♂ differs from *chelensis* in the more uniform blue streaks on the forewings. Three variations of the *sumatrana.* ♀♀ must be placed on record; 1. ♀-fa. *sumatrana Wall.*, with imposing white apical bar on the forewings, occupying more than one fifth of the costa, thence passing towards the terminal margin, which it does not quite reach, so that a small part of the dove coloured ground remains at the extreme edge; in the cell between the two upper median nervules the ground colour sends an angular projection into the white area which is anteriorly exactly defined by the upper median. 2. ♀-fa. *abrisa Dist.*, erroneously considered by its author to be a ♂, forewing unmarked, uniform dove colour, with an imperfectly defined, white, discal band on the hindwings. 3. ♀-fa. **immaculata** *Mart.* Both wings with uniform dove coloured ground. — The underside in all *immaculata.* three forms harmonizes so completely with that of the ♂, that there can bo doubt as to their connection; but in the fa. *sumatrana* the white triangular marking on the costal margin of the forewing is most distinct and most like the ♂, while fa. *abrisa* has the least developed white spot on the costa of the hindwing. The brown tones described by english authors are entirely wanting in the Sumatra ♀♀. From the apex of the forewing to the middle of the inner margin of the hindwing a shadowy line runs across both wings, having a certain resemblance to the leaf marking on *Kallima*; the pale costal triangle on the forewings is placed inside this line, while on the hindwings the area beyond it is paler. Both sexes of the *penanga* form have indications of a series of ocelli, indistinct, sometimes white centred, black dots; they are most distinct in the continental *chelensis.* — **konga** *Sm.* (= *borneensis Sm.*, *trepsichroides Shelf.*, *penanga Btlr.*). This is the most progressive race, *konga.* and the only one which can be recognized at a glance. The ♂ has 3 subapical blue streaks on the upperside of the forewing instead of 5, like the other local forms. There are 3 forms of the ♀: 1. the typical *konga Sm.* corresponds to the form *abrisa Dist.* from the Malay Peninsula and Sumatra. 2. **mehidina** *Fruhst.* This ♀ *mehidina.* form Shelford describes as analogue of *mehida*, only the subapical bar on the forewings is narrower and more oblique. Expanse 65 mm. 3. fa. **ptychandrina** *Fruhst.* At present peculiar to Borneo, but it is not improbable *ptychandrina.* that similar ♀♀ also occur in Malacca. *Ptychandrina*, apart from the absence of tails, is very similar to *Ptychandra schadenbergi Semp.* from Mindanao in size, shape and markings. There is also in Staudingers collection a ♀ analogous to *mehidina*, but with the cell entirely white in the forewings and the hindwings almost entirely white. North Borneo.

With **E. cumaea** begins a series of four interesting species, striking from their size and beauty, as well as from their pronounced sexual dimorphism, and extremely difficult to separate, because both ♂♂ an ♀♀ possess many characters of the markings in common. All four occur exclusively in the Celebean subregion, and are separated into local races even in the main island. It is an interesting fact, that two species occuris, only in the north and east of Celebes, two only in South Celebes and its satellite islands, yet all four appear in all their characters as coming from one source, whereby the celebean subregion of the great indo-malayan region shows itself unusually well defined. To this subregion belong, besides the main island, the satellite islands of Saleyer, Buton, Muna, Sula-Mangoli, Sula-Besi, Bankai, Peling, the Togian islands and the absolutely unknown Kambaena, which is most difficult of access. **cumaea** *Fldr.* (89 a) ♂ wings with peculiar, *cumaea.* light violet blue, slightly shining distal border. The ♀ is much larger than the ♂, having an expanse of 49 mm as against 43—44 mm in the ♂. The ground colour is dark cacao brown with pale blue terminal border, which has a violet tint in the hindwings. The costal margin of the forewings is checkered white and pale grey. In addition there is a broad, whitish, violet tinged, oblique subapical bar, whereby the *cumaea* ♀ somewhat recalls *mimalon* ♀, but the white dots found on the hindwings of *mamalon* and *thyone* are wanting. The under surface of all the wings is chiefly red-brown, with a distinctly paler subapical zone on the forewings, which is more extended than in the ♂♂. The submarginal area of the underside of the hindwings is also lighter. Minahassa, North Celebes, rather rare, especially the ♀♀. — **toliana** *Fruhst.*, runs smaller *toliana.* than *cumaea* from Minahassa, distal border narrower, light grey-blue, rather darker than in *bornemanni Ribbe.* Under surface much lighter than in the typical *cumaea*, richly sprinkled with white, which is especially noticeable at the apex of the forewings. ♀ with the distal bordering more purple, in place of blue-green. Lower surface of ♂ rather brown than black. One ♀ has the lower surface strikingly light brown, and this colour also extends to the upper surface (**pseudeuploea** *form. nov.*), the dark brown is associated with whitish violet *pseudeuploea.* subapical bars on the forewings and yellow-brown subterminal area on the hindwings. Lower surface of hindwings with 5 light blue shining spots besides the usual conspicuous white subcostal mark, which is so characteristic of all the four Celebes species. Toli-Toli, North Celebes, November, December; Tawaya, Central Celebes, August-September. — **bornemanni** *Ribbe*, is intermediate in shape and markings between *hicetas* *bornemanni.* and *cumaea*. The ♂ has on the upper surface of the wings just the same deep blue-black satiny colouring as the two species named. The bands on the terminal margin, which are blue, passing into grey in *hicetas*, are bright skyblue and considerably broader in *bornemanni*. In the forewings the blue marking running along

the costal margin is narrower than in *hicetas*, whitish, in some specimens almost pure white, and does not cover the apex of the wings. As in *cumaea* the spots on the lower surface often show through onto the upper, in both fore-and hindwings. On the lower surface *bornemanni* approaches very close to *hicetas* in the wavy white markings, but the wavy lines being much fewer, the whole appearance is much darker; the forewings are much paler towards the apical angle than any of the allied species. The white spots on the underside of the hindwings are placed similarly to those in *cumaea*, but are much smaller, especially the upper marginal spot. The spots on the forewing, which are sharply defined in *cumaea*, but wanting in *hicetas*, are present but inconspicuous in *bornemanni*. The ♀ is entirely different from *hicetas*, coming near to *cumaea*. The white marking of the forewings starting from the costal margin, stands nearer to the apex of the wings, as in *cumaea*, in contrast to *hicetas*, but leaves the apex more broadly black than in *cumaea*. Along the distal margin it is clearly defined as far as the submedian, leaving the border black. The hindwings also deviate in their markings greatly from the two above named species. A bluish white band runs from the costal margin as far as the submedian, parallel with the terminal margin, of which 5—6 mm is left black; the strongly prominent white spots which *cumaea* bears in place of this band, are seen only slightly in *bornemanni* in the internervular spaces on the band. The whole upper surface of the ♀♀ has very strong violet iridescence. The underside recalls *cumaea*, but the spots have disappeared entirely in the forewings and partly in the hindwings, one can also clearly recognize the presence of the band on the upper surface by the lighter colouring towards the costal margin of the forewings. The subapical bar of the forewings is narrower, and thus appears placed more inward, its colour and that of the distal band on the hindwings is a dazzling whitish blue. Apical area of the forewing more richly white marked than in the celebean forms of *cumaea*, approaching *phrikonis Fruhst.* Median area of forewing almost black, even less marked than in *phrikonis*. Hindwing with 7 prominent white submarginal spots on the underside, which are scarcely visible in the celeban *cumaea*. ♀ with broad white submarginal bands, with a general resemblance to *thyone* ♀ (89 b). Bangkai Island, appa-

phrikonis. rently scarce. — **phrikonis** *Fruhst.* (89 a). The distal margin of this melanotic island race is obsoletely greenish, greygreen towards the apex of forewings. The ciliae purer white than in *cumaea*. Wings rounder. Under surface; the apical region of the forewings and the basal margin of the hindwings more richly white marked than in *cumaea*. Hindwings similar to *bornemanni*, with 6—7 white dots. Ground colour darker

relicina. brown-black than in *bornemanni*. Sula-Mangoli. — **relicina** *Fruhst.* (89 a). The apical border of the forewing appears more extensively grey-green on the upper, more richly white marked on the lower surface. The submarginal spots on the under surface of the hindwings rather more prominent, and in one ♂ they are repeated on the upper side. Sula-Besi.

sangira. **E. sangira** *Fruhst.* (89 a) diverges to such an extent from the *cumaea* type, that I am in doubt as to whether it can pass as a local race, or is a species, differing from *cumaea* in the more pointed form of the wings and the red-brown under surface. A pure white, triangular subapical area on the lower surface of the forewings is very striking. The ♂ has a greenish costal margin and apex on the upperside of the forewings, and a strongly curved, white submarginal band, which extends to the anal angle of the forewings.

The velvet blue **E. mimalon**, the beauty of which species has been already noted by Dr. Staudinger occurs more frequently than *cumaea* in North Celebes. Even if the splendour of its interference colours places *mimalon* somewhat apart from the other celebean *Elymnias*, it nevertheless bears on the upper surface of both wings a distinct pale silvery blue marginal band, which proclains its connection with the fauna of Celebes, since there is a similar band on each of the other species. It is, without doubt, a highly interesting fact, that the ♂♂ of the four species on Celebes have exactly the same general outline of markings, the result of unusually powerful homoeogenetic influences operating in that region. The *mimalon* ♀♀, which still show strong traces of the blue ornamentation of the ♂♂ — they are the bluest of all the celebean ♀♀ — are distinguished from *cumaea* ♀ by the broader, bluish violet, subapical and submarginal band, often broken up into spots, which is more sharply defined in *cumaea*, and more conspicuously entire; besides this, the *mimalon* ♀ has almost always on the upper surface of the hindwings some white ocelli, which are entirely absent from *cumaea*, the latter, on the other hand, has a strongly developed costal triangle on the lower surface of the forewings, which one

mimalon. seeks in vain in *mimalon* ♂ and ♀. There are two local races on the island; **mimalon** *Hew.* (89 c). ♂ above uniform dark blue, ♀ brown with slight violet gloss; both sexes without white spots on the hindwings above

ino. or below; in **ino** *Fruhst.*, probably the dry season form, the ♂ has on the upper surface a greenish subapical band, and on the lower a submarginal series of white spots (Central Celebes, Tawaya, August-September).

leucostigmata. thyone. — **leucostigmata** *Fruhst.* Hindwings brown, with a submarginal series of very large bluish white marks on both sides. Toli-Toli, Nov.-Dec. — forma *thyone Fruhst.* (89 b). This ♀ form is so greatly differentiated from the ♀ forma *typica* by the rounded shape of the wings, that I at first regarded it as a separate species and described it as follows; "In size *thyone* is nearest to the ♀ of *cumaea phrikonis Fruhst.* from the Sula Islands. "The ground colour of all the wings is dark blue violet, with the exception of the black apical area and the pale violet, white streaked marginal band. In the subapical area are two large white spots, bordered with a light bluish tinge. On the hindwings are 5 white dots, of which the uppermost, between the subcostal and the radial is the largest. These white spots are also furnished with a beautiful

blue tint. The lower surface recalls *mimalon* ♂, but the wings are darker brown and less distinctly checkered with white; only the submarginal spots on the hindwings are very much larger. *thyone* ♀ might be a mimic of *Salpinx viola*, which it recalls in the large white markings. Expanse 44 mm as against 48 of *mimalon* ♀. The antennae are reddish yellow and white ringed, apically pale yellow. The scape is brown red before the apex. The palpi are black beneath, laterally yellowish. The upper part of the whole body is brown, the lower is analogous to the colour of the wings. The legs are grey brown." Minahassa, North Celebes, 1 ♀ Koll. Fruhstorfer. Probably the ♀ of a dry season form. — **nysa** *Fruhst.* ♀♀ from East Celebes differ from those *nysa.* from Minahassa in the uniform brown upper surface of the forewings, the violet subapical bar, present in *mimalon* and *leucostigma*, is wanting. Hindwings with 5—6 small white spots on both sides. Tombugu, East Celebes. South Celebes, mentioned by me in the original diagnosis, is incorrect.

E. hicetas. ♂ above somewhat similar to *cumaea Fldr.*, from which it differs in the still more pronounced sexual dimorphism, the ♀ (89 b, c) is a deceptive mimic of *Euploea eupator Hew.* and *Hypolimnas fraterna Wall.* with which it flies in company. The ♂ can also be distinguished by a series of 3—4 white ocelli on the upper surface of the hindwings, which are wanting in *cumaea* ♂, which also has the costal triangle on the forewings. Among all the celebean *Elymnias hicetas* has the largest brand on the under surface of the forewings. The black distal scent tufts on the hindwings appear also to be somewhat larger, especially in *hicetina*, than in *cumaea*, *mimalon* and *hewitsoni*. The androconia patch consists of two parts, of which the upper is greatly reduced and covered by a short hair pencil. I observed *hicetas* in the malayan burial ground in Macassar, where the butterflies flew in the shade of the sugar canes and bamboos in the full midday sun. but always keeping within the shelter of the foliage. — **hicetas** *Hew.* the name type, inhabits the western part of *hicetas.* the southern arm of Celebes, Macassar and the neighbourhood of Maros and Taneta near Pare-Pare and flies throughout the year. ♀♀ are scarce. — **bonthainensis** *Fruhst.* (89 c ♂, b ♀) is shown by its darker colouring *bonthainensis.* to be a typical mountain form. The ♂ is smaller than *hicetas* ♂ from Maros and East Celebes, without blue on the costal margin, and narrower, but more intensively coloured marginal band. ♀ the oblique bar on the forewings shorter and darker than in *hicetas* from the coast districts, and dusted with blue, the band on the hindwings also much reduced, much narrower and shorter, runs almost straight and only extends from the lower radial to near the submedian. The submarginal spots on the hindwings are wanting on both sides. The ground colour of the underside in the ♂♂ is a dark redbrown in place of the grey brown of *hicetas*, the white spotting is obsolete, and does not form such conspicuous bands on the upper surface. White costal spot on the underside of the hindwings much smaller than in *hicetas*, only punctiform. Bua-Kraeng, Febr. at 5000 feet. Lompa Battan, March, 3000 feet. — **hicetina** *Fruhst.* ♂♂ from East Celebes larger than those from South Celebes. Lim- *hicetina.* bal margin on all wings more greenish, in place of light blue. Under surface of all wings, especially basally, more darkly checkered. The white spot at the apex of the cell of forewings much larger, as is also the white mark between the subcostal and the anterior radial of the hindwings. ♀ much larger than the specimens from South Celebes; the white band on all wings broader, the white submarginal spots on the hindwings smaller than in *hicetas*. East Celebes, Tombugu. — **butona** *Fruhst.* differs from *hicetas* as follows; Framing of wings *butona.* paler, bounded by dark olive green, in place of bluish white on the costal margin, with almost obsolete submarginal spots. Under surface; pale grey, instead of blackish or red-brown. All wings more richly white checkered, especially basally. Costal spot in hindwings larger than even in *hicetina* ♀. Expanse 44 as against 40—42 in *hicetas*. North Buton. 1 ♂ in January, taken by H. Kühn.

E. hewitsoni *Wall.* (89 b), the commonest *Elymnias* of the south Celebes, is met with by the collector in the *hewitsoni.* gardens of Macassar, and, as Martin says, may even enter the houses. In October 1906 a fertile ♀ visited a crippled, dwarfed arenga palm, planted in a pot, and used to ornament a covered verandah in the house; From his seat Dr. Martin was able to watch the deposition of the eggs, and subsequently the emergence of the larvae, their growth and pupation, and on 14—15 November obtained a series of rather small imagines. The pupa was extremely like that of *nigrescens Btlr.* from Sumatra. The same shape, the same green colour with red streaks, so that the pupa of *hewitsoni* would join on directly to the *undularis* group. *hewitsoni* has the largest roundish submarginal spots of all the celebean species; they are especially conspicuous on the upper surface, bluish tinged in the ♂, pale violet ringed in the ♀. Under surface in both sexes more richly white marked than in *hicetas*. Two types of the ♂ can be separated, 1. those with 3 white subapical spots on the forewings and large round, white, blue ringed ocelli on the hindwings (August to September, November, Maros and Samanga. 2. ♂ without the spots on the forewings and with reduced ocelli. (March, Macassar). — **sumptuosa** *sumptuosa.* *Fruhst.* is a dry season form; both sexes with pale subapical region of the forewings; ocelli on hindwings broadly white diffused. The ♀ has all the wings extensively white bordered. Taneta, south from Pare-Pare. *hewitsoni* flies throughout the year in and around Macassar, but specimens collected in all months yielded no seasonal differences. There are certainly in South Celebes transition forms to forma *sumptuosa* as described from Taneta, ♂♂ and ♀♀ with very large, broad ocelli on the hindwings and the ♀♀ with white costa and broader,

whiter subapical bar on the forewings, which continues along the terminal margin as a series of spots. *sumptu-*
atys. *osa* is thus probably the most northerly form of *hewitsoni*. — **atys** *Fruhst.* The ♂ approaches *sumptuosa* ♂, but the terminal margin of the wings violet instead of white. Ocelli on hindwings not broadened. Ground colour more violet, not black or greenish blue as in *hewitsoni*. ♀: submarginal band on forewings paler, more conspicuous. Ocelli on hindwings more prominent. Under surface lighter brown, more richly white marked.
meliophila. Wings rounder, habitus smaller than in *hewitsoni*. East Celebes, Tombugu and vicinity of Bonthain. — **meliophila** *Fruhst.* (90 a). A satellite-island race of such greatly altered appearance, that I first took it to be quite a different species, and placed it with *cumaea Fldr.* until recently the four, certainly only rudimentary, white submarginal spots on the lower surface of the forewings made me doubtful and set me on the right track. It seemed also suspicious, that *cumaea* should have a form on Saleyer, whereas it had not yet been observed in South or East Celebes. Runs smaller than *hewitsoni*, upper surface dark steel blue with violet tinge. Hindwings, upperside with 4 whitish violet spots, forewings with slight, pale grey green apical tint, otherwise unmarked. Under surface rather duller black-grey than *hewitsoni*, less white marked, instead of the large white ocelli only 4 inconsiderable spots on the forewings and 7 similar ones on the hindwings, the ♂ is less decorated and more uniform coloured than *hewitsoni* ♂ and has only four small ocelli on the hindwings. The chief difference is in the ♀, in which the terminal margin of the forewings is fiery yellow-brown, with blue grey iridescence with which the three greenish white subapical spots are finely contrasted, whercas the terminal margin of the hindwings, which has five white ocelli, is tinged with violet, a truly grand butterfly. Salayer Island, taken by me in March.

To the east of Celebes the species of *Elymnias* become less numerous, only two species usually, sometimes but one on some islands. The contour of both wings, already considerably rounded in the *Elymnias* of Celebes, becomes rounder and more even in those of the Moluccas and Papua, the former of which retain the peculiar streaking only on the under surface of both wings along the terminal margin, while the latter have no trace of this marking which is so typical for the whole genus. The following sexual characters are common to the Celebes and Molucca species; forewing, a brand of pale yellow scales below the base of the submedian, which is distally much curved. A very large, strongly shining and depressed sex mark from the inner margin to the cell. Upper surface of hindwing; a distinct precostal cell, similar to that in the *Brassolidae*. Rather below the origin of the radials are two tufts of stiff black hairs, which cover two oblong patches of scales covered with thick black androconias. The covered part on the costal margin palish brown. In *holofernes Btlr.* and *cumaea phrikonis Fruhst.* the hair tufts are shorter. The South and North Moluccas are each inhabited by one species, which can be easily separated from one another.

In **E. cybele** the North Molucca species, the white ocellar submarginal spots are placed exactly parallel with the terminal margin of both wings, whereas in *vitellia Cr.* the South Molucca species, they have a superficial resemblance to a constellation, which is produced by their irregular, distorted position. The fresher the specimen, the darker the ground colour of the under surface, and the more distinct the appearance of stars; Butler named the form "*astrifera*" having undoubtedly received the same impression. On the forewings the three central of the five ocelli are displaced towards the base, so far that the whole series forms an inwardly angled line; the fifth lowest spot stands at the same distance from the margin as the first, uppermost. As an indication of relationship the otherwise rather straight series in *cybele* has also a slight inward convexity. The hindwing with its 6 ocelli is similarly conditioned; in *cybele* a regular curve, parallel to the margin of the wing, in *vitellia* a straight line from the upper costal to the 2nd outermost apical spot, from which each further spot recedes more inwardly in a rather straight row, the 4 and 5 to the greatest extent, so that the line shows a slight inward convexity. If we take the white spot at the apex of the cell as a starting point for the whole series, the spots take the form of the upper half of a note interrogation or of a 2. For the rest, the contour of both
cybele. wings in *cybele* is one degree rounder than in the still scalloped *vitellia*. — **cybele** *Fldr.* from Batjan, ♂♂ especially
astrifera. common in August, but ♀♀ very rare. Butler gave the name of **astrifera** to small specimens, which may re-
opaca. present a dry season form. — **opaca** *Fruhst.* larger than the last named but smaller than *cybele*. White marking of the under surface less conspicuous. ♀ darker and uniform brown, without the reddish tinge on the median area of the upper side of the wings. The white submarginal spots on the under surface much more deli-
ternatana. cate than in *cybele*. Halmaheira. — **ternatana** *Fruhst.* ♀♀ Smaller than *cybele* and *opaca*. Ground colour uniform light redbrown, which is also noticeable beneath. White marking and striation of the underside of
obiana. the hindwings much reduced. Ternate, May. — **obiana** *Fruhst.* (88 e) departs further from the name type than any other insular races of the North Moluccas, the ♀ especially presents a splendid appearance with the blue-violet subapical marks on the forewings, reminding one of the ♂♂ of *E. vitellia Cr.* (88 d). *obiana* is also easily recognizable on the lower surface by the large white submarginal stars; the distal portion of the under surface on the fore and hindwings is not black, but light brown, and the ♀ has in the discal part of the upperside of the forewings a broad, light brown spot, which passes into the dark brown ground colour beyond the submedian. By means of this spot *obiama* somewhat recalls *thryllis Kirsch* ♀ from New Guinea, and certain *Euploeas* (*Sarobia confusa, Btlr.*). *cybele obiana* has nothing in common with *vitellia Cr.* since in *obiana* the white sub-

marginal spots on the under surface of the forewings stand in a straight line one under the other, whereas in *vitellia* three are moved convexly inwards. On the hindwings in *obiana* these spots are placed near the marginal border, in *vitellia* they are almost in the middle of the wing, therefore proximal. Obi, not uncommon. — A form described as **adumbrata** *Fruhst.* is rather smaller than *cybele*, forewing black, without blue tinged apical portion. The white spotting on the underside more prominent than in *cybele*, the subterminal area less richly sprinkled with white. Boru and Amboina are named as its habitat, but this is almost certainly due to an error on the part of english dealers, from whom I obtained the three specimens in my collection. Further east, in the Bismarck Archipelago, we meet with *cybele* again in a much purer form as **holofernes** *Btlr.* In the colour and disposition of the submarginal spots it closely follows the *cybele* type, only that both ♂ and ♀ have two tiny, but very constant white dots near the apex of the forewing. The *holofernes* ♀ is similar to the ♂, but paler, there is often a third subapical dot on the forewing , while the ocelli on the under surface are larger and more distinct. If we do not place *thyrallis* and *holofernes* as subspecies of *cybele*, then we must at least make *holofernes* a subspecies of *thryallis*. Further, since we do not at present know of any *Elymnias* from the Solomon Archipelago nor fron the more distant islands of the South Seas, we have in *holofernes* the most easterly, and certainly most melanotic representative of the genus — an inconspicuous and not very beautiful insect. *thryallis Kirsch* on the other band, has been so essentially modified, that it was considered by its author, and later also by myself, as a separate species. The ♂ of *thryallis*, with its now bluish, now bronze green marginal band on both wings, shows a reversion to the Celebes forms, but has the subapical spots of *holofernes*; the under surface has ocellus-like white submarginal spots in the typical *cybele* arrangement. We have already seen in *cybele* pale, red-brown ♀♀, whose appearance resembles the *Euploea* type of *usipetes Hew.* or *confusus Btlr.* and this livery is the rule with the ♀♀ of *thryallis Kirsch*, which is described from one of these pale females. In contrast to the sister races, *thryallis* inclines extremely to individual variation. Especially among the ♀♀ no specimen is the same as any other. The resemblance of the ♀♀ to *Euploeae* is so deceptive, that Staudinger placed one of the commonest ♀ forms, as figured by us, in his collection of *Euploeas*, as *Euploea nov. spec.* near *usipetes Hew.*, after another great and celebrated entomologist had identfied it as *Euploea usipetes* ♀. — **thryallis** *Kirsch*, the name type from the island of Mysore, is only known in the ♀ sex, and rather darker than **glauconia** *Stgr.* (88 e) which is now so frequently received in Europe, and of which there are two ♂ aberrations, like the figure, and specimens with luxuriant green colouring on the distal margin (**chloera** *Stgr.*). No less than five main forms of the ♀ must be mentioned, namely 1. ♀♀ with unicolorous brown upper surface and very small submarginal spots (= **brunnescens** *form. nov.*); 2. ♀♀ with whitish violet lighter tinge on the disc of the forewings, inclining towards *Euploea confusa Btlr.* as it occurs on Waigiu only (= **violacea** *form. nov.*); 3. ♀♀ with red or yellow-brown disc (88 e) nearest to the name type and a pronounced mimic of the rare New Guinea *Eupl. confusa catana Fruhst.*; 4. ♀♀ with very large white and violet submarginal markings, broad, brown-yellow anal margin on the forewings and distally lighter hindwings, somewhat like *Salpinx nemertes* fa. *sexguttata*; — finally 5. as very rare **pseudosalpinx** *form. nov.* ♀♀ with white subapical spots on the forewings and distally paler yellowish marginal area on all wings; certainly a parallel form to *Eupl. zurianassa terentilia Fruhst.* and therefore indicated as **terentilina** *form. nov.*

adumbrata. *holofernes.* *thryallis.* *glaucomia.* *chloera.* *brunnescens.* *violacea.* *pseudosalpinx.* *terentilina.*

E. vitellia, one of the commonest butterflies in the South Moluccas, is split up into three local races, **vitellia** *Cr.* (88 d) inhabits Amboina, Saparua, and other Uliassa Islands. A ♂ form is named **basium** *Fruhst*; forewings with four large light violet white centred subapical spots, placed one under another, hindwings with 3 whitish circumcellular dots. Under surface more sparsely white marked than in the normal specimens from Ceram and Amboina. — **ceramensis** *Mart.* an insular race with a more stately shape of the wings than the name type, has usually only two subapical spots, which are duller than in *vitellia* ♂♂ and not white centred. The ♀♀ are unicolorous brown without subapical bar, but with a lighter marginal zone on both wings. A secondary form of the ♂ is known, **suavium** *Fruhst.*, forewings with enlarged violet apical spot and 2 transcellular blue dots. Hindwings with a blue streak between the lower radial and the anterior median. Ceram. — **viminalis** *Wall.*, from Buru Island, appears to be very rare and I have no specimen of it. Wallace knew only one ♀, which differs from *vitellia* in the striking yellowish bordering of all the wings. Even the ♂ has a pale distal margin.

vitellia. *basium.* *ceramensis.* *suavium.* *viminalis.*

E. papua *Wall.*, a small, elegant species from Dutch New Guinea and Waigiu. ♀ dark purple black above, the hindwings paler towards the terminal margin, but with a few pale inconspicuous ochre spots in the middle. Beneath velvet brown with pale margins, hindwings with 3 round blue-white spots. — **lactentia** *Fruhst.* (90 b, as *papua* ♀). ♀ Forewings dark brown with light brown distal margin, which commences at the base, remains rather narrow to the apex, and then widens slightly as far as the anal angle. Hindwings only basally dark brown with with a broad paler submarginal region; the actual distal margin is somewhat broadly black. Under surface; costal margin of forewings dark brown, distal margin of both wings also dark brown; fore- and hindwings with 3 large white spots, lying between the 2nd subcostal and the upper median. A narrow area between the anterior radial and the submedian is closely white striated. Scape light brown, club dark

papua. *lactentia.*

brown. (Type from Waigiu in Coll. Fruhstorfer). The still undescribed ♂ is in Staudingers collection and resembles a miniature *Elymn. moranda* (90 a). Ground colour black brown, forewings with greenish costal margin, hindwings distally slightly bordered with pale brown. Very rare, only 1 ♂ and 2 ♀♀ known.

viridescens. **E. viridescens** *Sm.* from Humboldt Bay is noted by its author as a closely allied species to *papua Wall.*
kakarona. Hagen has discovered an allied race, **kakarona** *Hag.* on the Sattelberg in German New Guinea. ♂ forewings short roundish, expanse 32 mm. Upper surface dark velvet brown. Costa slightly glossed with steel blue. Forewings with a narrow bluish white streak, commencing on the anterior third of the costal margin and narrowing inwards. Hindwings with light brown submarginal margin. Under surface dark brown, bar on forewings paler, broader; hindwings with a few transcellular, small blue spots. Forewings with a brown hair-pencil, springing from a yellowish pocket on the inner margin. Hindwings with a yellowish speculum, which also bears a brown hair tuft.

If in *thryallis* we find great female dimorphism, this condition is augmented in another, somewhat isolated race in the Papuan region, *E. agondas*, and its numerous subspecies. *agondas* has no trace of the fine striation, otherwise so typical of the whole genus, the contour of the wings is entirely rounded, and both ♂ and ♀ have on the underside of the hindwings on the inner half of the terminal margin, a yellow band, in which are placed black, blue centred ocelli. The ♀♀ are very light coloured, entirely pure white in the most extreme forms, excepting the margins of the wings, and have then a great resemblance to the Amathusiidae genus *Taenaris* which inhabits the same region. The forms here included are among the most interesting and most peculiar butterflies of the Papuan Region. The ♂♂, indeed, do not differ essentially from their relations on the Moluccas (the *vitellia-cybele* group), the ♀♀ on the other hand form a true paradigm for the most extended sexual dimorphism in their altered shape of wing and their inclination towards the *Taenaridae*. *agondas* inclines to the formation of local races, and joins on the the Taenaridae in this detail also. In general the races of *agondas* in New Guinea and the subjacent Islands resemble *Taenaris bioculata Guer.*, with blue ocelli on the upper surface of the hindwings; only *melagondas Fruhst.* is an exception, its marking and the distribution of the colours recalling *Taenaris mailua Sm.* from the same locality (Convergence). All *agondas* have a strongly shining friction-spot on the under surface of the forewing, as well as a yellowish, quadrate band at the base of the forewing, similar to that in *mimalon Hew.* The corresponding speculum on the costal margin of the upper surface of the hindwing is partly covered with red-brown, slightly shining scales. On the upper border of the cell are two tufts of long hairs, which cover a large, elongate androconiapelt. The colour and mode of arrangement of the androconia, as well as the colour of the scent tufts, differ slightly in the individual local races; these scent tufts are usually composed of entirely black hairs, only in *melagondas* the hairs of the proximal tuft are basally red-
agondas. brown, apically whitish. The distribution of the *agondas* races is as follows; **agondas** *Bsd.* Boisduval figures an unicolorous dark green specimen and gives Vanikoro, the southermost of the Santa Cruz Islands, as the habitat of his type, but *agondas* has not been found recently more eastward than Woodlark, so that we must not expect to meet with it in Micronesia, Polynesia or the Solomons. It is much more likely than *agondas* originates from a papuan island near Waigiu, or even more probably, from the Dutch part of the main Island itself. Compared with my material, the figure harmonizes best with specimens from Sorrong, the north-westerly corner of New Guinea. H. Kühn has collected there repeatedly, and rediscovered several forgotten old types, as for instance, *Taenaris artemis, Voll.* and *T. dioptrica, Voll.* We may therefore, for the present transfer the still doubtful locality to Dutch New Guinea. ♀♀ from Sorrong have a narrow, black apical margin to the forewings, which is also slightly brownish as is the distal area. Hindwings with two large oblong, only narrowly black ringed blue eye spots, a black brown, comparatively narrow distal margin, which is proximally slightly lighter brown. The similarity of the *agondas* ♀♀ from Sorrong to *Taenaris bioculata pallida Fruhst.* from the same locality is fascinating. Only a few degree of latitude eastward, at the foot of the Arfak mountains in Geelvink
bioculatus. Bay we meet with a new ♀ form. This answers best to **bioculatus** *Dbl.-Hew.* (89d 1, misprinted *biocellatus*). The broad, black-grey frosted outer area of all wings somewhat resembles the same appearance in *Taenaris bioculatus charonides, Stgr.* from the far more easterly Humboldt Bay. I have unfortunately no specimens of *bioculatus* from Dorey, but I am convinced they would have the same distribution of colouring as *bioculatus*. — In German New Guinea we meet with a geographical offshoot so greatly differentiated, that Staudinger took
glaucopis. it for a separate species, and described it as such; **glaucopis** *Stgr.* (= *melanippe, Sm.*) a migrant from the South, rare on the Sattelberg and Finschhafen, not occurring in Stefansort and Friedrich-Wilhelmshafen. The ♀♀ of this form do not follow their Taenaris model so closely, their almost entirely black hindwings being more like *bioculatus charon Stgr.* from British New Guinea and on the hindwings *Taenaris dina Stgr.* from German New Guinea. The ♂♂ of *glaucopis* vary from the ♂♂ from Dutch New Guinea in the presence of a narrow orange subanal band on the hindwings, which are more elongate and accompanied by a brightning of the forewings
melagondas. in **melagondas** *Fruhst.* (89 d ♀, 90 a ♂). Specimens from Collingwood Bay are rather darker than those from Milne Bay, where examples with greenish white entire submarginal band on the forewings are not uncommon. The ♀♀ of *melagondas* recall *Taenaris mailua, Sm.* on both upper and lower surfaces. Collingwood Bay, Milne

Bay and Aroa River, British New Guinea. — If we keep to the south side of New Guinea and penetrate westwards into the Dutch territory, we meet with a new form on the Onin Peninsula in Kapaur; **muscosa** *Fruhst.* (89 d). ♂♂ from Kapaur show light yellowish green markings on the wings. The bordering of the wings recalls *melagondas Fruhst.*, but is broader, light green on the forewings, pale mossgreen with a rudimentary orange subanal band on the hindwings. The ♀ again tends towards the normal *Taenaris bioculatus, Guér.* type. The distal border of the hindwings and the rings round the 2 large circular blue eyespots become broadly black. *muscosa.*

If we now pass over to the Trabantes of New Guinea, we find **melanthes** *Sm.* ♂ Black with steel-blue submarginal band, ♀ almost white, reminding of *Taenaris artemis affinis*, Kirby and *artemis electra Fruhst.* Woodlark Island. — **moranda** *Fruhst.* (89 d 2 lettered as *biocellatus*, 90 a); The ♀ showa great similarity to *Taen. bioculata Guér.* ♂. Upper surface broadly blue-green bordered. Waigiu. — **agondina** *Fruhst.* ♀ with the blue eye-spots on the hindwings reduced to mere dots with unusually broad black rings. Distal border of all wings broadly diffused, almost deep black. Distal border of ♂♂ a peculiar violet blue. The ♀ recalls *Taenaris dimona Hew.* Salwati Island. — **melantho** *Wall.* Gagie Island. Apparently near *melanthes Sm.* because the ♂♂ bear a bluish border on the wings. ♀♀ with black basal and apical area on the hindwings. — **melane** *Hew.* is a rare race from the Key Islands, which flies in swampy places in woods. The ♂♂ betray an inclination to *agondas australiana Fruhst.* in the much broadened greenish white subanal band on the hindwings. Both sexes are decorated on the under surface with a series of 5 small broadly ochre ringed occlli. The ♀♀ show the same general Taenarid likeness, but without inclining to any special species. Four main forms are worthy of mention; The first, most like the ♂, *melane* ♀, has only a diffuse greyish lightening of the black groundcolour on the forewings, a large, pure white discal spot on the hindwings, which does not reach the ocellar space, the ocelli stand entirely in the black ground; on the under surface of the hindwings the ochre-yellow band, in which the three anal ocelli are placed, has an anterior broad black boundary. The second ♀ has on the forewings a white discal band, which is divided into four parts by the black veins; the hindwing is extensively white, so that the inner half of the ocelli comes within the white ground; hindwing underside as in the first ♀, only that the discal spot is purer white. The forewing of the third ♀ is white with the exception of the basal area and the costal and terminal margins; on the hindwing the two upper anal ocelli are entirely on the white ground, the third, most anal, is still surrounded by black; on the underside of the hindwing the ochre yellow band bearing the ocelli is entirely on the white ground, only the costal and terminal margins of the wings are still black; the ochre yellow band is finely bordered with black on both inner and outer sides. The fourth ♀ has fore- and hind-wings pure white, excepting the costal and terminal borders, the ocelli on the upper surface of the hindwing are entirely on the white ground, the same on the underside, where the ochre-yellow band has still the black bordering, which is never found in the ♂. In the latter the yellow of the ocellar area passes into the white of the submarginal band without any bordering. Thus we see in these 4 ♀♀ accurately portrayed the gradual transition from a somewhat dull habitus, scarcely recalling *Taenaris*, to a pure white, which has a striking resemblance to *Taenaris.* — **aruana** *Fruhst.* Aru, both sexes darker than in *melane* from Key. — **goramensis** *Fruhst.* ♂ the most broadly greenish white banded of all the *agondas* forms, ♀ still unknown. Goram. — **australiana** *Fruhst.* (90 b). ♂ smaller than the Goram form. Bands rather narrower, underside of hindwing with 3 instead of 5 ocelli. Otherwise very similar to the preceeding. Cape York, North Australia. *australiana* is the only representative of the genus *Elymnias* yet known from Australia, and which Waterhouse has forgotten to include in his "Catalogue of the Rhopalocera of Australia, Sidney 1903". *melanthes. moranda. agondina. melantho. melane. aruana. goramensis. australiana.*

E. paradoxa *Stgr.* (= *erastus Sm.*) may here be mentioned, as a form allied by the shape of the wings, but otherwise quite isolated, inhabits German New Guinea. Upper surface black with dull white-grey disc of the forewing, but with large, pure white area on the hindwing, which is oblong in shape and scarcely enters the cell. Forewings beneath with paler grey-white interspaces, beginning broadest on the costa. Hindwing as above, but the median area towards the basal margin backwards and outwards rich cinnamon brown. Extremely rare. ♀ from Constantine harbour in Astrolabe Bay; ♂ from the Sattelberg near Finschhafen. *paradoxa.*

II. Forewing with scent tufts on the submedian.

Subgenus **Mimidelias** *Moore* (*Agrusia Moore*).

The few as yet known species of this group differ from *Elymnias s. str.* in the more rounded wings, shorter cells, the concavely produced anal margin of the forewing — similar to *Mandarinia*, *Taenaris* and some *Euploeas* — and the very slightly angulated and much longer discocellulars of the hindwing. Forewing of ♂♂ with an elongate, deeply impressed androconia cavity, from which spring yellow or black hair pencils. Hindwing with a subcostal tuft. The false prediscoidal cell or precostal cell of the hindwing is not wanting in the *Mimadelias*, as some authors state. The *Mimadelias* with their ♀♀ deceptively like the Pieridae, and the ♂♂ furnished with scent tufts, form a natural group. Yet really important generic characters do not exist, and the separation of *Agrusia* contemplated by Moore is entirely superfluous.

E. vasudeva falls into four, not very sharply defined local races, which occur from Sikkim across Burma and Tenasserim south to the siamese Malay States. — **vasudeva** *Moore* (♂ = *thycana Moore*) is somewhat similar *vasudeva.*

to *Delias pasithoe L.* The ♀ differs from the figured ♂ in the more extended green-blue streaks on the forewing and the reduced grey-black distal border. Sikkim, rare in the hot valleys from June to October, up to about
thycana. 2000 feet, and then again high up at 4000—6000 feet, higher than other species of *Delias.* — **thycana** *Wall.* (90 b. c) a type of ♀ differing from *vasudeva* in more broadly black bordered nervures and reduced whitish sub-
deva. apical spots. The forewing is also darker beneath, and more extensively striated with black. — **deva** *Moore* is a dry season form, which differs greatly from the same brood in Sikkim, and, to judge by Moores figure, has broad greenish yellow interspaces on the forewing and entirely yellow hindwings, and in the ♀ the forewing is almost entirely white-blue, traversed by only narrowly black bordered nervures. Assam, very scarce.
burmensis. — **burmensis** *Moore*, has the forewings in the ♂ more streaked with green, in the ♀♀ they are crossed by a confluent black median band. ♀ under surface without the rich claret coloured subbasal spot on the underside of the forewings, which is sometimes wanting even in ♀♀ from Assam. In Upper Burma in February, in Upper
oberthüri. Tenasserim in January, at Tavoy in March, and ascending to 5000 feet. — **oberthüri** *Fruhst.* Stands about halfway between *godfreyi Dist* (= *esaca Westw.*) and *thycana Wall.* Wings somewhat more rounded than in *thycana*, and with darker black borders. The black striation on the underside finer and closer than in the specimens from Assam. The red basal spot on the underside of the hindwing smaller than in *godferyi Dist.* Renong, Siamese Malay States, 1 ♀ taken by Doherty. Type in Coll. Oberthür.

E. esaca is a species in which the ♂ differs essentially from *vasudeva* in the black-blue upper surface and broad blue or greenish submarginal markings on all the wings, yet the ♀ approaches *vasydeva* ♀ to such an extent, that, for instance, in the race from the Malay Peninsula there was considerable doubt as to which
andersoni. species could claim the only ♀ (*godferyi Dist*) known from thence. — **andersoni** *Moore* is a particularly lovely form with broad green distal border to the hindwings; only 1 ♂ known, which is deceptively like an *Euthalia.*
esaea. — **esaca** *Westw.* (= *Godferyi, Dist. esacoides Nicév.* ♂) of which only one ♀ is known, from Sungei-Ujong, is like a diminutive, much darkened local form of *vasudeva Moore* with strikingly extended red basal spot on the underside and broad black distal border on the upper surface of the hindwings. The habitat of the ♂ was for-
pseudo- merly given as Assam and Borneo, but must be sought in Penang or Perak. — **pseudodelias,** *Fruhst.* extremely
delias. rare in the woods of the plains, spurs and hills; Dr. Martin only obtained 5 specimens in his long residence. The ♂ has a hair tuft on the hindwing, which has also on the underside near costa and base a well developed
leontina. ocellus. The ♀ is still unknown. Flies in February, August and December, North-east Sumatra. — **leontina** *Fruhst.* comes from Nias Island; ♂ easily distinguished from all its allies by the scarcely recognizable grey-green distal border of the hindwings and the very narrow submarginal spots on the forewing. An allied form
taeniola. flies on Palo-Tello in the Batu Island. — **taeniola** *Fruhst.* Green-grey submarginal spots on the forewing much broader. Hindwing basally more extensively and darker blue-green scaled. Black distal margin anally much broadened and the yellow median area thus greatly contracted. Under surface; All the black eye-spots three times as large as in *borneensis*, as Staudinger has drawn it, the red basal spot on the hindwings obsolete; instead of the broad light yellow median zone of *borneensis*, *taeniola* has a narrow median band, the upper part of which is
borneensis. pure white, the lower, shorter part dark yellow. Southeast Borneo. — **borneensis** *Wall.* differs from *taeniola* in the darker blue-green submarginal spots on all wings. ♀ underside with the yellow median area twice as
egialina. broad. Very scarce, North Borneo, Kina-Balu district. — **egialina** *Fldr.*, known to me only from the figures
georgi. of Felders and Sempers, inhabits Luzon. — **georgi** *Fruhst.* ♂. Apical area of the forewing lighter beneath, the submarginal spots on the hindwing smaller. Upper surface; darker, distal markings reduced, less whitish. Hindwing with only 3 median marginal spots (instead of 6) which all appear much smaller than in the Luzon ♂♂. Mindanao.

maheswara. **E. maheswara** *Fruhst.* (90 b). I hesitate to pass as a "species", it being, in fact nothing more than the Javanese sister of *esaca* from the macromalayan district. Yet until transition forms are discovered (possibly in Sumatra) *maheswara* must stand as a species, in consequence of its larger size, the shading of the under surface of all the wings, more recalling *nesaea, L.* and the absence of the apical ocelli on the underside of the forewings. The ♂♂ have a more obtuse, the ♀♀ a more elongate wing and the submarginal streaks on the upper surface of the forewing of the ♀♀ approach more closely to the distal margin. West Java, Vulcan Gede, about 5000 above sea level.

Genus: **Zethera** *Fldr.*

This remarkable genus varies in so many points and so greatly from the other Satyridae, that Felder even placed it among the Nymphalidae, probably deceived by the longer antennae. We place it here, at the end of the Satyridae, because of the finer posterior discocellulars of the hindwing, which is in itself a transition towards the Nymphalidae, in which the closing of the cell is only merely indicated, if not entirely wanting, but especially because of the highly developed clasping organs, the luxuriant formation of which has no analogue among the Satyridae. The uncus is almost normal, medially strongly incrassate with two comparatively short lateral points. The valve broad, contracted anteriorly, with long scattered setae but with a cunicula recalling that of the Ornithoptera.

of a peculiar snake's head shape, with a broad, deep dorsal orifice, into which the uncus passes, and appears to be swallowed by the snake's head. In their tendency towards Danaid models the few known species surpass even the *Elymnias*, and their inclination to develope polymorphic ♀♀ is unexampled in the whole Satyrid group. Besides this, two species are noteworthy from their faithful copying of species of *Ideopsis*. They inhabit the Philippines and the northern arm of Celebes. There are two groups of species; sexes dimorphic (*Zethera*), sexes monomorphic (*Amechania*).

Specific group Zethera.

The lower discocellular touches the point of separation of the upper and middle median nervules.

Z. pimplea from the northern Philippines, recalls in the ♂ sex *Euthalia recta* and *teuta* though the broad white, black framed band. Several interesting races; **pimplea** *Er.* (90 c) from Luzon is the subspecies most commonly found in collections, ♂ with white, longitudinal iridescent band on all wings, and fine white ante-terminal marking, which are larger on the dull brown underside, and are accompanied by paired streaks on the veins in the submarginal area. — Besides the common ♂ form of the plains figured, there is also the ♂-f. **arayata** *Fruhst.* smaller than the normal *pimplea* and with narrower white band, which is greatly contracted costally and anally. Arayat Mountain, Luzon; Flies in April. — Of the ♀, in addition to the normal form which flies in the neighbourhood of Manila, there is a series of notable varieties. The above mentioned name-type has no spot on the forewing before the apex of the cell, which has only a bluish-white longitudinal streak, the remaining striae on the forewing are reduced, with a blue-violet gloss. Hindwing as in *aganippe*, only blue in place of yellowish white; a general resemblance to *Trepsichrois* ♀♀. — **crastimima** *Fruhst.* has entirely black forewing with only a broad, oblique, white subapical spot and a few subanal white dots. Hindwing like the type form, streaks without violet or blue gloss. An excellent mimic of *Euploea* (*Crastia*) *tobleri Semp.* Bataan, Central Luzon, where it flies in company with *E. tobleri*. — **parnassia** *Fldr.* Forewings with only 4 white subapical spots. Hindwing black, excepting a few white ante- and sub-marginal dots. Mimetic form of the common *Euploea swainsoni Godt.*, especially in the ♀. Sta. Rosa, Central Luzon. — **diloris** *Fruhst.* The white band occupies at least one fourth of the entire surface of the wing and is confluent with the submarginal spots in the anal angle. Undoubtedly a local race from the Babuyan Islands, north of Luzon. The ♂♂, judging from Semper's collection, are the largest of all the *Zethera* from the Philippines, with the broadest white median band, distal area more richly decorated with white than in the sister race *pimplea*. The type from Camiguin de Luzon. — **manisa** *subsp. nov.*, inhabits the island Polillo, eastwards from Luzon, and is also as a rule, larger than the Luzon ♂♂, the median band on the ♂♂ rich blue-white glossed and the distal area blue-marked instead of white. — **gadrosia** *Fruhst.* (90 c), the Mindoro race; ♂♂ smaller than all its relations, median band proximal greenish bordered, distal area not so pure white streaked as in *dilris Fruhst.*; ♀ recalling the colouring of *Trepsichrois*. Forewing with subobsolete transcellular spots, but prominent subapical marking. Cell with only one longitudinal streak, median striae whitish, bounded by pale blue. Hindwing white streaked, all the remainder as in Staudinger's figure, which differs from my type only in the blue-green tinge on the forewings, and the yellowish streaking of the hindwings. Mindoro. — **thermaea** *Hew.* I believe I am right in looking upon *thermaea*, which Hewitson dealt with as a species, as being the most southerly of the hitherto known offshoots of *pimplea*, since it differs from *pimplea* in other localities in having the median band glossed with blue or violet here and there. Samar, Bohol, Panaon.

pimplea. *arayata.* *crastimima.* *parnassia.* *diloris.* *manisa.* *gadrosia.* *thermaea.*

E. musa *Fldr.* Semper considers that the ♀♀ of this species are as variable as those of *pimplea*. This cannot be confidently asserted from the scanty material at my disposal, as only two ♀ forms are known, of which the paler occurs on Bazilan in the dry season only. Semper has already observed, that there are two local forms of *musa* on Mindanao, the ♂♂ of the northern half of the island having narrower bands than those on the southern half. It is quite natural, that, for example, on the narrow south-west tongue of land on which Zamboanga lies, the marine atmospheric influences should be stronger than in the main land at Mindanao I call the narrow-banded northern form **septentrionalis** *Fruhst.* There are two ♀ forms of *musa*; 1) the typical ♀ form (probably a wet form). Ground colour brown, surprisingly like *Euploea snelleni Moore* ♀. Hindwings with relatively large elongate white streaks in the median area. 2) ♀-fa. **radenoides** *Fruhst.* The first light ♀ discovered by Dr. Platen on Bazilan, and has a general resemblance to *Radena*. *radenoides* is probably a dry season form. Mindanao. — **mixta** *Fruhst.* (90 c). From the Island of Bazilan, standing at the end of the south-western arm of Mindanao, from which it only separated by a narrow strait, I received a new *Zethera*, whose ♂ shows affinity with *musa Fldr.* and the ♀ shows analogies to *pimplea*, *Erichs.* The ♂ differs from *musa* in the more extended greenish white spotting of the forewing, larger marginal spots on the hindwing, and the somewhat broader pocket-like mark which extends from the costal margin to the 2nd median nervule of the hindwing. On the under surface also the white markings are all larger and more distinct.

musa. *septentrionatis.* *radenoides.* *mixta.*

The female of *mixta* somewhat recalls *Elymnias ceryx* from Java, and the ♀ of *pimplea*, but is duller and the upper surface is whitish green instead of white and violet. The hind wings are more broadly black bordered, and the terminal margin has only two, in place of 3, rows of white spots, as in *pimplea*. The under surface of the wings has no trace of violet, and is lighter on the forewings, darker on the hind-wings than in *pimplea*. Hindwing; the triangular marginal spots are higher and more pointed, the next following adnerval wedge-shaped spots are narrower and rounder, also always isolated. The contiguous submarginal band, which bounds these wedge-spots above, is broader, darker brown and fills the internomedian area, becoming obsolete, and is thus less sharply defined than in *pimplea*. ♀ expanse 43 mm. ♂ 36 mm; on Bazilan, Febr.—March, 1898, discovered by W. Doherty. De Nicéville figures a strikingly pale ♀ form, which varies from my ♀♀ in the whitish instead of greenish tint of the streaks on all wings. Probably de Nicéville's ♀ belongs to a more extreme dry form than my types. The dark brown ♀ form is as yet wanting. — **musides** *Semp.* The ♂ differs from *musa* in the enlargement of all the white spots and bands and presents the extreme albinotic variation of *musa*, as *diloris Fruhst.* does that of *pimplea*. Zebu, Guimaras and probably Negros. — **mindorona** *Fruhst.* (90 d). ♂: the whitish spots on the forewing subobsolete, the median pouch of the hindwing shorter, broader, and is resolved on the under surface into entirely isolated, partly dwarfed oval spots. ♀ of the brown *Euploea* type, similar to *musa* ♀ fa., but with reduced spotting on the forewings and much shorter yellowish streaks on the hindwings. Mindoro, sexes monomorphic.

musides.

mindorona.

Specific group Amechania.

Z. hestioides *Fldr.* (90 d). This species, distantly connected through the same sexes of *incerta*, differs from all other species of *Zethera* in that the median nervules are given off beyond the cell, and if this character had any real significance, a genus could be better founded on *hestioides* than on *incerta*. ♂ and ♀ of *hestioides* somewhat resemble *Ideopsis glaphyra Moore*. ♀♀ decidedly larger and purer white than the ♂♂. Mindanao.

hestioides.

Z. incerta *Hew.* (90 d). This splendid species is a true *Zethera* and, excepting as to the monomorphic sexes, differs much less structurally from the typical *Zethera* than does *hestioides Fldr.* as the median nervules are given off close to the lower apex of the cell in the hindwings. *incerta* appears to occur only on the northern arm of Celebes, and has not been observed south of Donggala. Both sexes mimic the very common *Ideopsis vitrea, Blanch.*, in company with which they are taken. The ♀, first described by me in 1909, is larger than the ♂, with much paler costal area of the forewing, and almost white cell only traversed by two black streaks. In the forewing the interspace between the radials is yellow in the boldly curved submarginal projections, and in the ♂ the ochre coloured parts of the hindwing are paler. The nervures appear to be more delicately black bordered. The peculiar genital organs described in the diagnosis of the genus are those of this species. North Celebes, Toli-Toli (taken by me in December). Donggala (August) discovered by W. Doherty.

incerta.

Additions and Corrections.

On p. 293 insert under the **Ypthima** *pandocus* races; **mentawica** *Hag.* from the Mentawej Islands. — ♀ darker than that of *corticaria Btlr.* Anal eye-spot on the hindwing beneath larger, above smaller, its yellow ring narrower.

mentawica.

p. 313 **Lethe** *gelduba Fruhst.* already occupied p. 312 and altered to **plistia** *nom. nov.*

plistia.

p. 326. *obtusangula Fruhst.* is an older name of **Neorina** *pupillata Fruhst.* and already occupied in January 1897 in the Societas Entom.

Alphabetical List

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5. Family: **Amathusiidae.**

After Schatz had, in 1889, separated the interesting though few genera belonging here as "*Morphidae of the old world*" and compared them to the "*Morphidae of the new world*" Moore in 1895 selected the name *Amathusiinae* to include scientifically a group of butterflies, which until then had occupied an extremely uncertain place in the System. For were not the Amathusiidae often treated as Nymphalidae, whereas by far the larger part of their characters incline to the Satyridae, as the genial Felder had already recognized in 1866, and Erich Haase first circumscribed them by his descriptive title of *Satyromorpha* (1891).

The Amathusiidae can be easily separated from the genuine Morphidae by the strongly curved lower discocellular and the absence of the basal median spur on the forewing, in which, with the exception of *Hyantis*, only one subcostal branch is given off before the apex of the cell. The shape of the lower discocellular in the forewing recalls especially that of *Elymnias*. The mode of life of the Amathusiidae is also satyroid and, like the neuration, shows a much greater contrast to the neotropical Morphidae than to the Satyridae. The true Morpho are children of the sun, the Amathusiidae love the dusk, and even the few day-flying genera *Faunis, Xanthoteania* and *Taenaris* prefer the shade of the wood, which they never leave.

The clasping organs of the Amathusiidae are entirely analogous to those of the Satyridae, and in a few cases (*Taenaris*) as little to be distinguished from them, as, for instance, a part of the Brassolidae (*Opsiphanes*).

The larvae of the asiatic genera feed on Monocotyledonae, those of the south american *Morpho* on various Dicotoledons, yet they all have in common a close long fur-like or tufted pubescence, which places them in contrast with the naked Satyrid larvae, and this is the only important character in consequence of which we here refrain from uniting the Amathusiidae with the Satyridae. The recently attempted separation of the *Hyantidae* and the *Discophoridae* as special families must therefore be rejected as unnatural, and equally unnecessary and unjustifyable.

The genera of the Amathusiidae are more strictly localized than those of the Satyridae, thus the *Amathusinae* occur exclusively in the Indian, the *Taenarinae* and *Hyantinae*, with the exception of a few outposts, only in the australian Region. A few genera, like *Stichophthalma, Aemona* are continental, the *Taenarinae* insular. In contrast to the *Morpho*, almost all have secondary sexual distinctions, which in *Zeuxidia* surpass even those of the Satyridae (*Culapa*) in luxurious development, and appear to be correlated to an aromatic scent, which, in the case of dried specimens of *Amathusia plateni* and some *Discophora*, is sometimes still perceptible in a cabinet filled with naphthaline vapour after a space of ten years.

The Amathusiidae avoid direct sunlight, fly only in the shade and love the evening twilight hours, or even the early night. During the day they usually move only when disturbed, and then only go a short distance; they prefer to rest with closed wings in the densest bamboo thickets along the watercourses of the primeval forest. Only these genera which are more closely allied to the Satyridae (*Faunis, Xanthotaenia* and *Thaumantis*) like the ground, resting upon it and on dead leaves. The position of rest with folded wings certainly protects the creatures most effectually from pursuit, since in all the species the underside harmonizes well with the surroundings, whereas the upper surface having for the most part splendid blue colouring, would speedily betray them.

Like the *Hestias* and the stately species of *Euploea*, the Amathusiidae prefer lower country; with their mostly enormous size, and the weak body which has to bear almost disproportionate wings, they only feel safe in the woods, and therefore avoid the alpine regions also, they being exposed to violent winds.

According to Doherty's statements the eggs are similar to those of the Satyridae, but rather flat, hard, translucent (*Discophora, Thaumantis*) or dark facetted (*Faunis*). Dr. Martin has recently bred up two species from the egg, and finds this to be, in *Thaumantis lucipor*, spherical, comparatively large, of a dull white colour and covered with peculiar lines.

Larvae usually gregarious, at first whitish grey, later with red-grey pubescence. Head with two protuberances and closely set with long setae; body cylindrical centrally thickened and with moderately long anal fork. They sometimes occur in enormous quantities and may then make great havoc, especially with the leaves of the coco-palm, which they strip to the midrib.

Pupa hanging, as far as is known green, elongate, slender, partly boat-shaped, head drawn out into two long points, which enclose the palpi. Duration of pupal stage 10—12 days.

The specimens from which the figures of 100—106 species were taken are from the Fruhstorfer collection — (Geneva-Florissant) in which also the type of the newly described species are preserved, with a few exceptions, where the Berlin and the British Museums are especially mentioned.

Subfamily **Amathusiinae** *Moore.*

Male genitalia without uncus anticus, forewing with distinct second discocellular. Two main groups: a) Uncus with lateral clasps; b) Uncus without such clasps.

1. Group: Uncus without lateral clasps.

1. Genus: **Faunis** *Hbn.*

This genus, better known under the more modern name of *Clerome Westw.*, includes the most inconspicuous species of the family, which are most closely allied to the Satyridae. They are never above medium size, and the 11 species which belong here have a brownish, more rarely whitish ground colour on the upper surface. The under surface of the hindwing may be spotted, streaked or beautifully ocellate, the forewings have sometimes an oblique white or violet band, which alters in breadth and colour with the locality. — Palpi relatively short, with close recumbent scales. Forewing with 2 free subcostal nervules before the apex of the cell, structure in general similar to that of *Taenaris*, but easily distinguished from it in the hindwing by the extremely short anterior discocellular. — Egg dark facetted (Doherty). — The ♂♂ have on the upper surface of the hindwings a tuft of hair, which rises somewhat basally from the origin of the median vein, and spreads out across that vein and over a scent patch placed at the base of the subcostal vein. The butterflies inhabit high woods only, fly low and often readily rest on the naked earth or on dry leaves; their flight is jerky, light and swift, but rather unsteady, unaccountable. Distribution from Bhutan to Further India and South China, the Philippine Archipelago, Macromalayana and Celebes.

arcesilaus. **F. arcesilaus** *F.* described by its author as far back as 1770, from Siam, where I again found the species, has the upper surface dark yellow-brown with slight darkening of the apex in the ♀♀. Underside of the hindwings with only one curved series of white or yellowish spots, which stand between a median band, indistinct in the ♂♂, more broadly drawn in the ♀♀, and a submarginal band. Sometimes the forewings also bear 3—5 yellowish spots. *arcesilaus* flies in Siam in January, in Tonkin in June. It is known from Burma and Assam, is said to be still common in Bhutan, but of the greatest rarity in Sikkim. Specimens from Singapore and Sumatra are scarcely to be separated from the continental *arcesilaus*, while both sexes from Borneo and the Natuna Islands are easily recognized by a striking light ochre-yellow ground colour on the upper surface, and a pale grey-brown median area on the underside of the hindwings, hence the name **borneensis** *Fruhst.* may be given to them. — Another pale form is **pallidior** *Hag.* from the Mentawej Islands, which differ from the sumatran *arcesilaus* in their smaller size, and have more distinctly zigzag and more clearly defined bands on the underside. Only two ♂♂ are known. — **samadhi** *Fruhst.* is a satellite-island race with the upper surface almost reddish yellow, and differs from the neighbouring Nias form in its paler yellowish ground colour in the ♂♂ and a distinct, proximal deeply emarginate, brown-black median longitudinal band on the hindwings, as in *pallidior Hag.* — **naisana** *Fruhst.* (300 b). Upper surface of all wings not reddish yellow as in *arcesilaus* from the continent and Java, but dull dark brown-red. Underside; basal area of all wings darker, outer half lighter than in *arcesilaus*, the black median band as broad again. The yellow spotting is not surrounded by a brown shadow, as in the other *arcesilaus*, and is thus more distinctly defined against the brown background. Not rare on Nias and easily recognized by the dull dark brown upper surface of the ♀♀. — **canens** *Hbn.* (= *leonteus Zink.*) is by far the best marked local form and the ♀♀ from the west of Java are the largest of the collective species. Both sexes differ from the continental race in a distinct, beautiful yellow colouring of the median area on the upper surface of all wings, which are remarkably broadly brown-black bordered in the ♀♀. The underside, on the contrary, is almost unmarked, the black bands are diffused and the yellow dots very indistinct. Throughout Java, from the coast up to 600 m. — Specimens from East Java are smaller and rather darker than those from the Preanger Principalies in the West of the Island. I suspect, that this, or a similar form occurs on Bali also, where Doherty discovered a race of *arcesilaus*.

borneensis. pallidior. samadhi. naisana. canens.

kirata. **F. kirata** *Nicév.* (100 b). Originally described from Perak and South-east Borneo, but subsequently found on Sumatra also; differs from *arcesilaus* in the more quadrate, instead of round outline of the forewings, the more even and darker red-brown ground colour. The under surface of the ♂♂ is chiefly black, in place of rufescent; the ♀♀ are grey with darker wavy longitudinal bands, of which the central one is unusually broad. According to Doherty the clasping organs are also widely differentiated.

gracilis. **F. gracilis** *Btlr.* (100 b) has the same distribution as *kirata*, that is to say, Macromalaya excepting Java. As a rule rather smaller than *kirata* and the upper surface more uniform and lighter red-brown than in *arcesilaus*; it can be recognized on the underside by a black longitudinal band crossing the forewing, while the hindwings bear a small apical, and a larger anal eye-spot, with yellow centre and yellow ringed. Between these ocelli there are three yellowish dots and the forewings show a series of four dots above the very small ocellus between the submedian and the lower median, which is sometimes wanting.

stomphax. **F. stomphax** *Westw.* (100 b) like *arcesilaus* but with the upper surface a rather deeper red-brown; the ocelli on the underside are sometimes rather larger than those figured, whereas the white-violet band on the forewings is frequently considerable contracted (sometimes there are only thread-like rudiments of it, and not uncommonly it disappears altogether). **besa** *Hew.* is founded on specimens of the last form. This appears to be restricted to North Borneo, whereas *stomphax* occurs not only in the Kina-Balu district, but also in South-

besa.

east Borneo and even almost unaltered from West Sumatra, and Snellen received it from Billiton. — **plateni** *Stgr.* is an island race with pale underside, and in which the anterior ocellus on the underside of the hindwings is wanting and the longitudinal bands have begun to fade away. Palawan, scarce. *plateni.*

F. phaon first received from Manila, is distributed over all the northern and central Philippines, is subject to local variation and apparently very susceptible to climatic influences, since both Semper and Staudinger mention specimens with normal, as well as with greatly reduced ocelli on the underside of the hindwings, which latter belong to the dry season and are known as **microps** *Stgr.* As a rule *phaon* surpasses *arcesilaus* in size and varies in the colouring of the upper surface according to its island home. **phaon** *Er.*, the name-type from Luzon, has the upperside dark leather-brown and the eye-spots on the underside of the hindwings ringed with dark grey. — In **ikonion** *Fruhst.* a geographical race form an uncertain locality, the colouring alters to a light red-brown, similar to *arcesilaus*, and in the ♂♂ from the Guimaras we have a repetition of a phenomenon to which attention has already been drawn under *Culapa*; namely the domination of an extremely bright light ochre-yellow colour, so that in large series of *phaon* such specimens are at once noticed, and have been separated under the name of **carfinia** *subsp. nov.* Type in the Coll. Semper in the Senckenberg Museum at Frankfurt a. M. — **lurida** *Fldr.* is another extreme of colouring of a whitish grey tone, further characterized by the lighter ground colour, smaller ocelli and more angulated dark central line on the underside. Semper mentions, that in *lurida* and *phaon* also the forewings sometimes bear small ocelli. *microps.* *phaon.* *ikonion.* *carfinia.* *lurida.*

F. leucis *Fldr.* (100 a) replaces *phaon* in the southern Philippines. It is remarkable from the satin-like gloss on the whitish basal area of the hindwing. But since the underside shows no other difference from *phaon* than that of rather smaller ocelli, the discovery of further insular intermediate stages will probably cause it to united to *phaon* as a subspecies. Semper states, that the secondary ocelli on the under surface of the forewing appear more frequently than in *phaon*, also that the ♀ has sometimes a whitish bordering to the dark median line. Throughout Mindanao from April to June, on Bazilan in February-March according to the ♂♂ in my collection, collected by Doherty. *leucis.*

On Sangir and in the celebean subregion we find *phaon* replaced by **F. menado** which is already divided into four local forms on the main island of Celebes. — **menado** *Hew.* the name type, originating, as the name indicates, from the neighbourhood of Menado in Minahassa (North Celebes). Ground colour, as in all other forms on the main island, light ochre-yellow with slightly darker apex to the forewings in the ♀♀. Underside in the ♂♂ more or less dark grey-black, the black eye-spots yellow ringed. ♀ basally dark, outwardly yellowish grey. Forewing of ♂♂ with a rudimentary whitish violet band, which is more distinct in the ♀♀ and has sometimes a yellowish prolongation in the middle of the wing. Minahassa and Toli-Toli, where I found the species on banana refuse commonly in November and December. — In Central Celebes at Donggala in Palos-Bay, Doherty found a decidedly dry season form in August, which I introduce as **zenica** *form. nov.* in which both sexes are lighter on the underside and have smaller ocelli, on the other hand, the whitish oblique band on the forewings is considerably broader and the brown submarginal band on the hindwings is usually more dentate. — **pleonasma** *Röb.* is an interesting and well marked race of the eastern Celebes, from Tombugo and Kendari in my collection. Both sexes are decidedly paler on the underside than even *zenica*, the oblique bar on the forewing is yellowish throughout in the ♀♀, the ocelli on the hindwings are larger than in *menado* and the brown longitudinal bands stand out much more sharply against the pale background. The apical eye-spot on the underside of the forewing, which is always wanting in *zenica* and seldom present in *menado*, is always distinct, forming a transition to **chitone** *Hew.*, which is founded upon specimens collected by Wallace near Macassar in South Celebes. The upper surface is paler than in the before mentioned races, hence the dark apical marking of the ♀♀ is in greater contrast. Under surface of forewings with a very distinct, although sometimes interrupted violet-white subapical band. — **fruhstorferi** *Röb.* (100 a) denotes a mountain form from the eastern South Celebes, which inhabits the Peak of Bonthain at heights of 3—5000 feet. The oblique bar in the ♂♂ much broadened, never interrupted; all ocelli, especially the apical eye-spot on the forewing, very distinct, the brown submarginal lines on all wings more marked than in Hewitson's local races. — **intermedia** *Röb.* is a form from the Bangkai Island, which is rather smaller than *pleonasma*, of which it represents an extreme form, with the underside still more bleached, and with smaller ocelli. — **syllus** *subsp. nov.* comes from Sangir, and according to the type in Staudinger's collection in the Berlin Museum stands nearest to *menado Hew.*, but the upper surface is more intensely and evenly coloured, also more redyellow. The dark apical tint of the ♀♀ is less distinct and the anterior ocelli on the underside of the hindwing always smaller than in *menado*. — **suluana** *Fruhst.* must be described as the darkest extreme of the collective species. The upper surface is a deep red-brown, as in *phaon ikonion Fruhst.* (100 a) from the Philippines; the underside but little lighter, with a slight admixture of yellowish. The median lines closer, the eye-spots very large, dark yellow ringed. The oblique bar on the forewings is dark violet, not whitish blue as in *menado*, and before the apex there is a large, black, white centred eye-spot, analogous to *pleonasma Röb.* The brown-black median band on the hindwings is more strongly angulated than in *chitone*. ♂ expanse 39 mm. Sala-Mangoli, October-November, taken by Doherty. *menado.* *zenica.* *pleonasma.* *chitone.* *fruhstorferi.* *intermedia.* *syllus.* *suluana.*

sappho. **F. sappho** *Semp.* is a species rare in collections and wanting in mine, of which I can only judge from the figure and the specimens in Semper's collection. Ground colour of the upper surface grey-brown as in *phaon Er.* from the North Philippines, and the indication of a broad white band on the forewing which is the chief characteristic of the species, and which is bounded towards the base by an indistinct dark brown line, very constant according to Semper. At the apex of the wing there are on the under surface two or three white spots of which the central one may at times develop into an eye-spot. The two usual ocelli on the hindwing are always of equal size and vary according to the insular race. The brown central line partly touches the apical *kleis.* eye-spot, partly passes behind it. Type from Bohol; flies apparently throughout the year. — **kleis** *Semp.* indicates a melanotic form with a reduced subapical band as in *menado pleonasma Röb.* which appears overlayed with grey. Rare, only 5 specimens known from Camotes, Samar, Panaon and Siargao Islands. Flies *ameinokleia.* February to November. — **ameinokleia** *subsp. nov.* from Camiguin de Mindanao, in the Semper collection at Frankfurt, differs form the type from Bohol in its paler browner ground colour, narrower white subapical bar on the forewing and light yellow-grey in place of brown underside of the hindwing, which bears strikingly large ocelli.

eumeus. **F. eumeus** *Drury* is met with by the pedestrian as one of the commonest butterflies in the Botanic Garden in Hongkong. The insects skip along close to the ground, just above the herbage, or rest on stone heaps, and are easily taken. Upper surface red-brown with rich yellow costal border, from which a broad, and in the ♀ especially bright, ochre-yellow oblique bar runs across the apex of the cell into the middle of the wing. I took quite freshly emerged specimens at the end of October, and Walker reports that worn specimens are still to be seen in December, and that it sometimes even wanders among the street trafic in the City of Hongkong. A fresh brood appears as early as March. The larva probably lives on grass and the dwarf bamboo; it was discovered and described by Walker, being entirely smooth, of pale green colour and furnished with two horns on the head only. The butterfly is on the wing on cold days also, and readily conceals itself among fallen leaves or rests on wet places on the path. Moore names Hainan and South China also as localities for this *incerta.* species. — In the local form **incerta** *Stgr.* (100 a) from Tonkin, Burma and Annam, the ochre-coloured bar is wanting in the ♂♂, only the splendid yellow marking on the costal border remains, in the ♀♀ it is certainly very distinct, but greatly narrowed and rather overlaid by the red-brown median tint. Flies in June and July at about 300 m. A dry season form appears in August, in which the red tint is wanting, so that a dull cacao-brown shade predominates. In the Annam mountains I noted an extremely characteristic aberration *moiarum.* at a height of about 1200 m, **moiarum** *Fruhst.*, the ♂♂ very large, with a broad light ochre-yellow subapical bar on the forewing, which exceeds in extent even that of *eumeus* from Hongkong, and is retained also on the underside as a terminal band.

assama. **F. assama** *Westw.* comes very close to *eumeus* on the underside, but the submarginal spots are yellow, instead of white, and the red-brown longitudinal bands are straighter. ♂ upper surface dull pale brown with perceptibly lighter area at apex of the cell; ♀ with light ochre-yellow transcellular band. Hitherto only known from Assam, where it is not uncommon.

aerope. **F. aerope** from China and Tonkin falls into two geographical races, of which the smaller northern form *aerope Leech.* has been already dealt with in Vol. I, p. 156 and figured there on Pl. 49 c. In Central China *excelsa.* and on the Omeishan in West China, not uncommon in Jujy. — **excelsa** *Fruhst.* (100 c) is readily distinguished by its larger size and in the ♂ by the lighter grey ground colour. The ♀ bears a somewhat broad black apical border, beneath which is a broad whitish yellow median band. On the under surface the white spots are much larger and the longitudinal bands black, in place of red-brown. Very local in Tonkin and taken by me only in June and July at Than-moi in the north of the country. The imago flies there in company with *Stishtophthalma tonkiniana Fruhst.* (103 a), *fruhstorferi Röb.* (103 a) *Thaumantis lathyi Fruhst.* (102 b) on steep chalk hills with light woods, and always where little watercourses trickle through narrow gorges.

F. faunula also has two local forms, restricted to the Malay Peninsula and the neighbouring Further *faunula.* India. **faunala** *Westw.* (100 a) is characterized by a second tuft of hair near the anal angle of the hindwing, recalling *Taenaris*, and a splendid yellow gloss which extends to the posterior median. Underside with prominent dark zigzag streaks, so that *faunula* does not give the impression of being a member of the genus *Faunis*, which caused Westwood to erect a genus „*Melanocyma*" for this species. Perak, Chentabun in Siam, *faunuloides.* Cambodia. — **faunuloides** *Nicév.* is rather larger and has rather straighter streaks on the underside. Rare and local, as yet only 5 ♀♀ mentioned, which were taken in Upper Burma, North Chin Hills in June at an elevation of about 1000 m.

2. Genus: **Aemona** *Hew.*

The neuration differs from the preceding genus in the shorter, more vertical lower discocellular and the

rather long precostal of the hindwings. Veins otherwise as in the genera *Discophora* and *Enispe*, yet the veins themselves are more delicate. In contradistinction to *Faunis*, the sexual hair tufts on the hindwings are wanting, and the forewings are apically produced into a decided point. Only two species are known, which must be included among the greatest rarities of the south-chinese-indian region. According to my observations they are twilight fliers, which first appear shortly before sunset, and inhabit damp valleys.

A. amathusia. Two geographical races of this have been discovered, namely **amathusia** *Hew.* from North India, probably first obtained from Bhutan, and more recently found in Assam. Hewitson's figure refers to the dry season form; ♂ upper surface yellow with a red-brown longitudinal line beyond the cell, which crosses both wings, and with a dentate submarginal band on the hindwings. Under side with a small white ocellus in the anal angle of the forewing, and six tiny ocelli in the submarginal area of the hindwing. ♀ with blackish apex and lighter ochre-yellow median area on the forewings, also broader red-brown longitudinal bands on the underside. — **peali** *Wood-Mas.* considered by Doherty to be the wet season form, and he is probably right in this, for the rounder wings and more prominent eye-spots, which also show through above and are distinctly black centred, form the only differentiating characters. *peali* has hitherto been observed only in Upper Assam. Flies in September to December, whereas *amathusia* is known also from the Khasia-, Garo- and Naga Hills. — **oberthuri** *Stich.* (described in Vol. I, p. 156 and there figured on Pl. 49 c) is the rare west-chinese local form and considerably darker than the Himalaya race. *amathusia.* *peali.* *oberthuri.*

A. lena *Atk.* (102 b) was discovered by Dr. Anderson in 1868 during the english Yunnan Expedition in the south of that province, since which time only 6—7 ♂♂ have been taken, all in Burma. The ♀ figured by us was unknown before my travels in Tenasserim, where I took it at Tandong in the Karen Hills at an elevation of about 1200 m. The ♂ is paler with more delicate black lattice markings and the underside is uniform light yellowish without the brown median area which the ♀ possesses. *lena.*

3. Genus: **Xanthotaenia** *Westw.*

It Doherty's statement, that the larva of the only species is entirely naked should be confirmed, then *Xanthotaenia* comes closest to the Satyridae, with which it further agrees in the closed cell, found elsewhere among the Amathusiidae only in *Hyantis*. Only one subcostal nervule is given off before the apex of the cell in the forewing. Precostal in hindwing straight and stout, as in *Faunis*. Hindwing with a tuft of dark hair on the submedian similar to *Faunis faunula*, but without the grey androconia-cavity of the latter. — Only one species known, which has become distributed from Tenasserim over Macromalaya with the exception of Java.

X. busiris is easily recognized by the fiery yellow transverse band on the forewings, which stands out from a red-brown or dark brown ground according to the locality. **busiris** *Westw.* originally described from the Malay Peninsula, occurs in a very similar form also in Tenasserim and North Sumatra. Specimens from Tenasserim show a tendency towards extension of the yellow subapical bar. Martin states, that *busiris* flies throughout the whole year in high woods of the plains and foot-hills; the flight is higher and stronger than that of *Faunis* but just as erratic so that capture is more difficult. Martin always found the insect in channels recently cut through the primeval forest, drinking the water, and flying along them in a manner wich rendered pursuit impossible. The ♀♀ are larger and have the yellow transverse band on the forewings lighter. *busaris* has only the second ocellus of the series on the under surface of the forewing complete in every respect, whereas 3 larger ocelli on the underside of the hindwing are incomplete and rudimentary, as there is nothing left of the black iris excepting a slight trace outside the pupil. In Tenasserim *busiris* goes up to a height of 2000 m. ♀♀ are rather uncommon. In West Sumatra a local form has been already developed, **sadija** *subsp. nov.* known by the narrowed rich dark yellow oblique band on the forewing, which appears proximally more sharply defined than in *busiris* and *burra*. The general colouring is darker red-brown than in *busiris* from North Sumatra, the band on the ♂♂ is just as splendidly yellow beneath as above, but white in the ♀ instead of pale yellow as in specimens from Borneo and North Sumatra. — **burra** *Stich.* may be known by the band on the forewing being unusually narrow in the ♀ also; described from South-east Borneo, but in my collection also from North Borneo and Naluna Island. — **polychroma** *Hag.* inhabits the Mentawej Islands, has almost entirely black-brown wings, but very pale underside; whereas **obscura** *Btlr.* (100 b) is characterized by the dull general colouring of the upper surface and the especially extensive violet or brown-red diffused bands on the underside. The ocelli on the hindwing are also more distinctly centred than in *sadija* from Sumatra. Nias Island, not uncommon. *busiris.* *sadija.* *burra.* *polychroma.* *obscura.*

4. Genus: **Hyantis** *Hew.*

Comes very close to the preceding and following genera in the closed cell, and two subcostal nervules given off before the apex of the cell as in *Morphopsis*. The apical boundary of the cell is almost straight, its posterior angle only slightly produced. Anterior discocellular very short as in *Aemona*, the central decidedly longer

than the upper, the lower rather longer than the central, subvertical. Hindwing with short, broad closed cell, forewing with a prolongation of the nervure within the cell, which is characteristic of many Satyridae, and, combined with the closing of the cell in the hindwing, emphasizes the relationship with the Satyridae. Palpi slender, slightly curved, spot on palpi almost analogous to that of the genus *Taenaris*, pale brown chitonized, very small. Hindwing in ♂ with satin glossed scent streaks, which follow the veins but neither emit nor enclose any hair tufts, but are accompanied by dull accumulations of androconia. Stichel considered it necessary, a few years ago, to found a special family upon the only known species of this genus and the entirely heteromorphous *Morphopsis albertisi*, which, as may be seen from the diagnosis, is not only entirely superfluous, but has also contributed to diminish and almost to extinguish the nearly indescribable small difference between the Amathusiidae and the Satyridae. The anatomy of the clasping organs clearly shows the closest connection with the *Taenaris*, the uncus cannot be distinguished from that of *Taenaris*, and even the valve has the same basal broadening as in *Taenaris chionides*, *Godm.*, only that the apex is rather shorter, stouter, rounded and not dentate. Saccus as in *Taenaris*, penis broader and considerably shorter. — The only species described breaks up into a series of geographical races and a few unimportant colour variations, which recur in the individual races, but which have hitherto been observed in their full extent only in Kaiser Wilhelm-Land.

hodeva. **H. hodeva** *Hew.*, the name type from Waigiu is somewhat similar to *Microphthalma* figured on Pl. 104 c, but has always a larger and more extensively yellow ringed anal ocellus, and a broader costal border on the forewings. The under surface is rather lighter black-brown than in the specimens from East New Guinea, and ♂♂ occur with slight yellowish basal tinge on the underside of the hindwings (tendency towards many Taenaridae). Analogues of the race will probably occur on Jobi and Mysore Islands. Extremely melanotic *infumata.* aberrations are known and first defined as **infumata** *Stgr.* — *fuliginosa.* **fuliginosa** *Sm.* is the race from Dutch New Guinea, which approaches *infumata* in the dark colour but the darkened part on the inner margin is of less extent, restricted to a moderately broad, elongate ovate, pointed spot behind the cell and the posterior median branch. Costa and apex rather more broadly black. Hindwings still more nigrescent than in *infumata*, the white being entirely overlaid, the basal area also brownish. Anal eye-spot smaller, but disc pure yellow. Originally described from Kapaur in the south of the Dutch territory, I have specimens almost unaltered from Sorong, the north west cape of the island, and other authors report it also from Dorey and Andai. — Hereto belongs the *oxyophthalma.* subform **oxyophthalma** *Stich.* Forewings with the inner area broadly darkened, the dark costal and apical bordering much narrowed, the apical eye-spot stands entirely on the white ground, deep black with slightly translucent rings; hindwings; distal margin broadly bordered with smoke brown, anal ocellus much reduced and touching the border, the larger peripheral rings showing through on the under surface. Entirely white beneath, *melanomata.* excepting a small basal smoke brown streak and the distal margin narrowly blackish. — **melanomata** *Stgr.* *hageni.* (104 c) is the oldest name for the race in the German territory, of which the main form was called **hageni** *Röb.* and has the following characters; Forewing: Costa to about the middle of the cell narrowly, the apex more broadly black. Apical ocellus usually as a deep black spot in the dark apex, or partly free, but anteriorly confluent with the apical area, without translucent peripheral rings; there is sometimes a white dot in front of it. Distal border narrowly black to about the middle of the margin. Hindwings: Costa and distal margins moderately broadly black; the black border is gradually narrowed downwards, reaching at most to the central median nervule and its lower part turning away from the edge. Anal eye-spot black, with a white central spot and rich yellow disc, which may be brown bordered or surrounded by a ring which shows *microphthalma.* through from the under surface. — **microphthalma** *Heller* (104 c) is an extreme form, pale and with small ocelli. Apex more or less broadly black, apical ocellus partly free. Hindwings; distal border *helvola.* much reduced, anal ocellus very small, the dark outer ring plainly showing from beneath. — **helvola** *Stich.* is another subform. Forewings with normal bordering. Apical eye-spot not intense black, but outside the black the posterior half distinctly showing through as concentric rings. Hindwings with the basal and terminal areas tinged with rich *annulata.* golden yellow. Hindwing with the apex strikingly angulated. Locality not accurately known. — **annulata** *Stich.* An aberration in which the forewing is normal, with broad black apex, eyespot with translucent peripheral ring. Hindwing: distal border enlarged, continued to the anal angle. Anal ocellus small above, with narrow, dull yellow ring and black-brown border of the same breadth, much larger beneath, the concentric yellow and *xanthophtalma.* black-brown rings showing through above. — **xanthophtalma** *Röb.* Forewings: costa narrowly, apex but little more broadly black. Apical ocellus free behind, with distinctly visible peripheral ring, before which a strong whitish streak gives an indication of complete isolation of the ocellus. Appears to have developed into a constant local form in British New Guinea.

5. Genus: **Morphopsis** *Oberth.*

Agrees with *Hyanthis* in the venation, only the middle discocellular in the forewing is broader, the lower shorter

and more vertical. Hindwing with much broader cell, rather longer upper and noticeably shorter lower discocellular. The chief characteristic, however, is a secundary nervule emitted from the internal nervure in the hindwings, which was first noted by STICHEL and named the "end" vein. The colouring of the best known species recalls *Xanthotaenia*. Distribution; Dutch and German New Guinea and Waigiu Island.

Two species have been recently discovered in British New Guinea, having white bands on the forewings and a band on the forewings recalling certain *Opsiphanes*.

M. albertisi *albertisi.* *Oberth.* described from Andai near Dorey in Geelvink Bay, also occurring in Humboldt Bay, Dutch New Guinea, differs from the figured *astrolabiensis* (104 a) in the rather narrower oblique yellowish bar on the forewing and the smaller ocelli on the underside. — **aigion** *aigion.* *subsp. nov.* inhabits the island of Waigiu, and has a further reduction of the yellow band on the forewing, whereas the ochre-yellow submarginal zone of the hindwings is more distinct. The ocelli on the underside very small, the brown longitudinal bands more elegant and the basal area paler than in *albertisi* and the Kaiser Wilhelm-Land race. Type in the STAUDINGER collection, discovered by Dr. PLATEN. — **astrolabiensis** *astrolabiensis.* *Stich.* (104 c) is a rare insect from Astrolabe Bay and Friedrich Wilhelmhafen. The hitherto undescribed ♀ from the last named locality in my collection has the contour of the wings rounder than in the ♂♂ and larger white subapical spots on the forewing. The submarginal band on the hindwings is more reddish than yellowish; all spots and bands on the underside darker and more extended.

M. meeki *meeki.* *R.* and *J.* has a general resemblance in shape to *Opsiphanes fruhstorferi Röb.* (Vol. 5, Pl. 63 a) black on the upper surface also, but rather larger and with more distinctly graduated bar on the forewing, which becomes very broad in the ♀ and occupies the whole space between the cell and the distal margin, which is thus reduced to a narrow border. Hindwing with a large black ocellus which encloses a delicate violet crescent, and two blue-violet intramedian, slightly reddish ringed small eye-spots, which are bounded outwardly by a greyish yellow submarginal band. Before the apex of the forewing in the ♂ are a few white dots, which are wanting in the ♀, because the white band extent close up to the apex. Discovered by collector MEEK in the Owen-Stanley Range near the source of the St. Joseph River; subsequently rediscovered on the upper Mambare River.

M. ula *ula.* *R. and J.* is another species from the same district and taken with *meeki* in both localities. This conspicuous species appears to replace *albertisi* in British New Guinea, but the ground colour on both sides is transformed into black, with only slight traces of the former red-brown colouring. The rather narrower oblique bar on the forewings is white. Above the apical zone of the forewings are two white marks, ringed with violet; the anal ocellus on the hindwing very large with violet crescent. The band on the underside of the ♂♂ incomplete, only the costal and intraradial spots present. Forewing also with an ocellus in the anal angle; the ocellus in the hindwing double. Rather above and distally from the anal zone are two kidney-shaped, grey, slightly violet glossed spots, similar to those in some species of *Lethe*. The median and submarginal band on the hindwing formed like the same band on *albertisi*, but more distinct and dark cacao-brown. *ula* lives in company with *Troides chimaera R.* and *J.*, but naturally does not fly about the tall trees like the latter, being, as its colouring indicates, a twilight butterfly, and probably inhabiting the moistest parts of the primeval woods at the edge of watercourses.

6. Genus: **Taenaris** *Hbn.*

This genus, containing more species than any other in the family, cannot possibly be mistaken. The forms of the genus *Hyantis* alone resemble them, but in the Taenaridae the eye-spots on the upper surface of the forewing are wanting, the secondary sexual characters are different, and, like some of the mimicing *Elymnias* ♀♀, they have a closed cell in the hindwing. The two large eyes on the underside, which sometimes also show on the upper surface, combined with the diffusely scaled rather large, usually grey coloured wings, lend a somewhat phantastic appearance. — Difficult as it is to separate especially the ♀♀ of the individual species, because the same form of marking is constantly repeated within the genus, it is easy to divide them into groups according to the form of the wings and the shape of the larvae. The presence or absence of scent-apparatus in the anal angle of the hindwing is especially convenient as a means of distinguishing the individual subdivisions. As in *Hyanthis*, only one subcostal nervule is given off before the apex of the cell in the forewing, otherwise the neuration is almost as that of the genus *Faunis*, the far produced angle of the cell in the forewing and the curved lower discocellular being identical. The palpi are always yellow, longer than in *Faunis*, and in the ♂♂, the submedian is boldly basally curved in correspondence with the convex shape of the wing. Middle discocellular straight, in contrast to *Hyantis*; precostal in hindwing shorter and stouter than in *Hyantis*. Antennae without distinct club, gradually thickened towards the apex. Hindwing with an anteriorly directed hair-pencil on the median and sometimes also on the subcostal near the base of the wing, and in the anal area sometimes an androconia patch covered with long hairs (*horsfieldi*, *dioptrica* and *catops*-group) but this may be wanting (*artemis*-group). In *urania* there is, in addition, a yellowish beard between the

lower median and the submedian. The organization of the clasping organs is extremely simple; a slender pointed uncus with two delicate, thin, also pointed lateral processes. Valve distally chitonous, either straight or obliquely truncate, but always with fine dentation, usually only very slightly but always long setose. A dorsal swelling of the valve in various species more or less impressed.

The larvae of *Taenaris* make an approach to those of *Discophora*, with which they have in common the shape of body, the pubescence and the position of the legs, but from which they differ in the two distinct horns on the head, which recall certain Satyrid larvae. The larvae of *Taenaris* have no resemblance to those of the south american Morphidae. The head of the *Taenaris* larva is narrow, but high and smooth, shining, and appears polished or lacquered. It is anteriorly somewhat flattened and strongly punctate, having a deep incision, above which to the right and left arise two slightly divergent horns. These horns are hard, the lower part shining like the head, yellowish, and become brown-red or black above. At the top they have a crown of four pointed projections. The head is further furnished with long, fine white hairs, which stand out stiffly on all sides. The body is cylindrical, slightly flattened dorsally, and of a reddish brown, yellowish or blackish ground colour. Some species show yellowish and black dorsal and lateral stripes, others only black dorsal lines, and the larvae of the *catops*-group are uniform yellowish. *phorcas*, on the contrary, has a black larva, streaked with red and white. The individual segments of the body are furnished with tufts of slender whitish or greyish hairs, which stand out on all sides. The pro-legs are also setose. The closest and longest hairs are found in the species of the *dioptrica*- and *artemis*-group, the shortest in the *catops*-group. As to their life history, Ribbe (Iris, 1895, p. 113) states; „We found these larvae on Mania (Shortland Island) in societies on a species of dwarf palm. About 40 of the creatures were scattered over the leaves and on the stem in groups of 5 or 6 together. The pupa is not fastened at the anal end and the pupal state lasts about 14 days. The larvae are sluggish creatures, and only leave the food-plant in order to pupate. They are covered all over with fine white hairs".

The Papuan region is the home of *Taenaris*; there we find about 20 species, which decrease eastward and westward, so that on the northern Moluccas there are only 2—3 species, and only one is represented on the Solomon Islands to the east and the Sunda Islands to the west. There is a yawning gap in the distribution westward, namely its absence from the celebean region and the Sula Islands; a phenomenon already noticed by Wallace. No *Taenaris* is known from the smaller Sunda Islands, hence their appearance on Java and Borneo is all the more remarkable. Palawan is the most northerly, the Lousiad Archipelago the most southerly outpost. In Queensland and in the smaller Sunda Islands the dry, australian climate may have hindered their distribution. Their absence from Celebes is still unexplained, for the extreme moisture of this well-wooded island offers conditions of life exactly analogous to those of the principal head-quarters, the Papuan Region, the same may be said of Key Island, where also no *Taenaris* has yet been discovered. On New Guinea itself we can define four centres of geographical races; the Dutch territory, to and including Geelvink Bay; the southern Dutch region, the Onin Peninsula as far as Etna Bay; German New Guinea to and including the dutch Humboldt Bay; the British territory. Two more zones await inclusion, namely the Charles Louis Hills and the enormous forest area to the east and north of Frederik Henrik Land. We may expect further interesting forms, not only from the yet unexplored parts of New Guinea, but also from Gebe, Gagi and Poppa Islands.

The forms from the British territory and its satellite Islands are as a rule the darkest (*T. onolaus saturatior* and *catops appina*) but side by side with them are found the palest extremes, (such as *T. catops mylaecha*, *artemis barbata*, and *Morphotenaris nivescens*.

A. ♂♂ with very slightly developed scent apparatus, scent cavity on the costal margin and sexual spot on the hindwings without black scent-scales.

α. Forewing roundish. (Section Hyades Bsd.).

T. horsfieldi has the most westerly range; in Java and Borneo it is very local, but abundant where it does occur, and have been reported from Singapore and Sumatra, whereas the species does not go further north than Palawan Is. Thus *horsfieldi* belongs to the macromalayan species, and its absence from the little Sunda Islands may be explained by the long dry season in the micromalayan region, which the shade and moisture loving *Taenaridae* cannot survive. The name-type **horsfieldi** *Swains.* has been known since 1820, and Swainson mentions the rather long scent hairs in the anal fold of the hindwings. Forewing translucent in both sexes, having only very diffuse brown-grey scaling. Hindwing grey-white with distinct grey border. The always conspicuous anal area bordered with light ochre-yellow. Head with a dorsal red-yellow crest of hair. Abdomen yellow-red. Under surface very similar to that of *platenti* (100 c) but the periphery of the ocelli still more broadly yellow. Ocellar aberrations are rare, I have only the form **opulenta** with double anal ocellus in the hindwing. A form with more extended black scaling on the underside is named **morosa** *Stich. horsfieldi* is not uncommon in eastern Java and prefers heights of 1000—2000 m above sea level. It floats slowly through the undergrowth, by preference on the banks of rivulets or streams and rests with closed wings on leaves or on the ground in the woods. They are therefore easily caught, unless startled, when they dash off with a jerky

horsfieldi. *opulenta.* *morosa.*

flight and hastily seek concealment in the bushes. In West Java *horsfieldi* is found in the Jampangs south of Sukabumi, up to about 600 m, and in the Bay of Palabuan. — **birchi** *Dist.* is a very interesting, strongly modified race, without the black border to the distal part of the underside of hindwing, so that the eye spots stand quite free on a white ground. On the upper surface the light anal area is more extended. Only one specimen is known, taken in the streets of Singapore, having most likely come over in one of the ships, probably from Borneo, since **occulta** *Sm.* described from North Borneo, does not differ from *birchi* in any essential character, as far as I can tell from Distant's figure. *occulta* is not uncommon in North Borneo; the ♂♂ have a rather paler hair-tuft on the hindwings than in the javanese *horsfiedli*, the black ocelli are smaller, the ochre-yellow area decidedly more extended. — In **plateni** *Stgr.* (100 c) the pattern of the *horsfieldi* markings is repeated, only that the hind wings are more extensively white and on the underside of the forewings the median area also begins to become paler. The ocelli are of equal size, rather smaller than in the javanese specimens, and especially in the ♀ the yellow rings are almost imperceptible. Palawan, Flies in January, not very uncommon.

birchi. *occulta. /Sm.* *plateni.*

T. urania, the first representative of the genus received in Europe, is one of the commonest species in the South Moluccas. Linnaeus, Fabricius and Cramer all incorrectly placed its habitat in East India, and it was not until 1823 that Godart rightly restricted it to the Island of Amboina, whence Linnaeus received very many butterflies. But to transpose the locality of the Linnean name-type to Ceram, as was done by Stichel in 1906, is simply absurd. — *urania* falls into three sharply defined insular races, of which **urania** *L.* inhabits Amboina and the Uliassa. Cramer was already acquainted with an ocellar variation, namely that with broadly diffused anal ocellus, and at the same time the lightest ♀ colouring, specimens, that is, with distinct transcellular oblique band on the forewings, which he named and figured as **jaira** *Cr.* He subsequently figured under the same name also darker, normal ♂♂ and ♀♀, without the whitish lightening on the dark slate-coloured forewings, and with white median area on the underside of the hindwings. — Another rare melanotic variety of colouring is named **nox** *Ky.* in which the white disc on the hindwings has disappeared and is overlaid with black scales. — **hollandi** *Fruhst.* is a usually very large race from Buru Island, where the species is somewhat scarce. It is characterized by dark and broadly ochre-yellow ringed ocelli on the upperside of the hindwings, and the more yellowish basal colouring. The whitish median area of the hindwing is more restricted than in *urania*, all the ocelli, but especially the apical eye-spot larger, *hollandi* has also a greater tendency to the formation of secondary ocelli than is *urania* from Amboina, and both my ♂♂ show indications of small ocelli on the under surface of the forewing. — **pandemos** *subsp. nov.* appears to be smaller than *urania*; the anterior eyes on the hindwings almost always show through, thus forming a transition to the form **duplex** *Stich.* in which the costal ocellus show through most distinctly and has on the upper surface also a blue centre and a yellow lunule. The anal eye-spots are smaller than in *urania*, the underside of the hindwings darker and more uniform brown with a violet gloss. The whitish brightening clearer than in form *jaira Cr.* Ceram, not uncommon.

urania. *jaira.* *nox.* *hollandi.* *pandemos.* *duplex.*

T. diana is separated into three island races peculiar to the northern Moluccas, and is easily distinguished from the preceeding species by the bipupillate ocellus on the hindwing and may be said to replace the last named on the North Moluccas. — **diana** *Btlr.* mentioned from Batjan and Ternate, has chiefly smoke-grey wings, with only slight yellowish white lightening in the median area of the forewing in the ♀♀. The hindwings have comparatively small, distinctly blue centred ocellus, which is surrounded by an extended, and in the ♀ especially sharply defined ring. On the underside the anal ocellus is always posteriorly diffused, and has a much smaller, sometimes oblong accessory ocellus. The latter is sometimes incomplete, or in rare case entirely wanting (**aberrans** *Stgr.*). — On the Island Halmaheira there is another race **leto** *Fruhst.* with somewhat lighter disc on the upperside of the forewings in the ♀♀ and strikingly pale median area on the underside; the hindwings are also purer white beneath. — Specimens with median accessory ocelli (**gemmata** *Stich.*) are not uncommon. — **diadema** *Fruhst.* (100 c) is the most albinotic extreme of the collective species; in it the forewings of both ♂♂ and ♀♀ are chiefly yellowish and the light smoke-grey discal border on the costal and apical areas much reduced. A tendency to reduction of the anal ocellus is to be noted, and the form *aberrans* is before me in its purest development. Obi Island, apparently not uncommon.

diana. *aberrans.* *leto.* *gemmata.* *diadema.*

With **T. dimona** commences a series of four species, which are distinguished by the blue, not yellow ringed eyes on the upper surface of the hindwings, and find convergence appearances in the mimetic ♀ forms of the genus *Elymnias*, so that the name *Elymnotaenaris* would be very appropriate to the little group, had not Boisduval already founded the "genus *Hyades*" on one of its species (*bioculatus*). All the *dimona* races have in common wings with the upper surface basally white, and distally dark grey bordered, the hindwings having each two blue, slightly white centred and black ringed eye-spots ,which are mostly black on the under surface, distinctly white centred and with dull yellow framing. In some races the anal eyes are always bipupillate, in others they are only double

in the ♀, and sometimes simple in both sexes. The larva of one form is known, with black processes on the
desdemona. head and three black dorsal lines. — **desdemona** *Stgr.* from Ceram, is the most westerly race. The basal area on the upper side of the hind wing is almost imperceptibly yellowish glossed; there is a very large light blue ocellus, and rather above it another, usually only punctiform, both distinctly black framed. The under surface of the hindwing is characterized by a stately anal eye-spot which is first black ringed, then yellow and then
demona. again black. — In **demona** *Hew.* the secondary ocellus on the upperside of the hind wing is but little smaller and
dimonata. also present on the under surface, with a broad black crescent on the outer side. — **dimonata** *Stich.* comes from Salawati. Forewing as in *dimona*, but the apex of the hindwing rather less black scaled, anal ocellus in ♂ underside simple, in ♀ bipupillate. The chief characteristic of the hitherto undescribed ♀ is a striking dark
sorronga. ochre-yellow basal tinge on both surfaces of the hindwings. — In **sorronga** *Fruhst.* the hindwings are at their darkest and uniformly black-grey bordered as far as the costal margin. The anal ocelli are very distinct and there are only two, close together, the upper being smaller than the lower. Outwardly the ocelli are shaded with black. Underside: The under surface of the hindwing is characterized in the ♂ by the ocelli being so broadly black ringed, that their periphery runs together into a black band. The anal ocelli are ringed with dark ochre-yellow. The ♀ is remarkable for the unusually pale wings, the white ground colour extends almost to the terminal margin, and the wing is basally broadly yellowish. The ocelli in the hindwing are of a splendid light blue. Compared with the type of *dimona* from Aru it is distinguished as follows; *sorronga* has a broader, deeper black border than *dimona*, in which it is grey-brown. The ocelli on the hindwing are at least as large again and darker blue-violet. The blue pupil of the ocelli in the hindwing are more broadly black ringed, and the ocelli are united, i. e. the more extended black bordering is confluent, whereas in *dimona* they are separated
kapaura. by the white ground colour of the median area, which extends to the distal margin. — **kapaura** *Fruhst.* This race is rather large, with a darker distal border on all wings than in *dinora*. The ocelli on the upper surface of the hindwings are more imposing and light blue, the same colour as in *desdemona Stgr.* from Ceram. Under surface; Hindwings very broadly black bordered, especially basally. The anal ocellus is very large, diffused, light ochre-yellow, but only narrowly black ringed. ♀ with only one anal ocellus on the underside. From Kapaur,
offaka. in the south-western Dutch New Guinea. — **offaka** *Fruhst.* Under surface; more broadly black marked than in *sorronga Fruhst.*, especially in the basal area of the hindwing, whereby the white median zone is greatly contracted. The anal ocellus is bipupillate, unusually broadly black ringed, with large black, light blue bordered pupils. The inner, yellow anal ocellar boundary is lighter and more broadly ochre-yellow than in any of the allied races.
dinora. Waigiu Island, rare. — **dinora** *Sm.* was founded on a very dark ♀, with almost entirely greyish white overlaid
trita. upper surface and only two main and three secondary ocelli on the hindwing. — **trita** *Stich.* is the normal
areia. ocellar form with only two anal and one apical ocellus, and **areia** *Fruhst.* (104 d) refers to specimens with nearly pure white upperside of the hindwings, narrower black ocellar periphery and very narrow black distal border to the hindwings. The ocelli on the underside of the hindwings are unusually small, very broadly light ochre-yellow, but quite narrowly black ringed. They are separated by the white ground colour. The ♀♀ are palest of all the *dimona* ♀♀, and especially on the underside extremely narrowly black bordered. The ocelli stand quite free on the white ground. German New Guinea and Humboldt Bay, not very common, flies from November to February. Even Hagen had already noted, that the Stefansort specimens (*areia Fruhst.*) are paler than *dinora* from other localities. I have never received a specimen analogous to figure 104 d from Friedrich Wilhelms-Hafen.

dina. **T. dina** *Stgr.* is a splendid species, of which the ♀♀ appear to be commoner than the ♂♂, for I have not the latter, whereas I have three ♀♀ from Friedrich Wilhelms Hafen alone. The ♂ was first figured by Smith, and differs from *dimona* in two equal sized light blue anal ocelli, standing in an extensive black area. The base of the hindwing appears more broadly grey-white scaled, whereas the distal border is narrower, though more distinctly defined. The ♀ has pure white forewings with deep black, blue glossed apical area. Abdomen dorsally lighter yellow than in *dimona areia* from Finsch Hafen. Notwithstanding the considerable size of the butterfly, the apical ocellus on the underside is much smaller than in *areia Fruhst.* The under surface of all wings is very narrowly deep black bordered; the ground colour is again pure white, without the ashy grey powdering of the *dimona* forms. The type comes from Constantine Hafen and was discovered by Kubary.

gorgo. **T. gorgo** *Kirsch*, originally described from Mum (Dutch North West New Guinea) lies before me in specimens from Sorong which are probably the same as the name type. These specimens are rather larger and of a purer white ground colour than the figure of *gorgophone* (104 d) from Kaiser Wilhelms Land. The grey border of the wings is narrower than in *gorgophone*. The underside of the hindwing has also a more contracted distal bordering, and is less grey powdered between the ocelli, the median part of the wing thus appearing more extensively white. Further, all the Sorong specimens have a simple anal ocellus. The ♀ is still paler than the ♂, and distinguished by a yellowish tinge below the cell on the upper surface of the hindwing. —
mera. **mera** *Fruhst.* from Kajumera Bay south of Geelvink Bay, lying at the narrowest part of South-west New Guinea. In it the blackish bordering of the hindwings has almost disappeared, and in its place there is in the submarginal region a yellowish dusting, through which the anal ocellus is distinctly visible. Hindwing underside;

the ocelli are decidedly more broadly yellowish ringed and have narrower black pupils than in *gorgo gorgophone*. — **danalis** *Fruhst.* The island of Waigiu, lying opposite to Sorong, produces a further form of *gorgo*, which, curiously enough, comes closer to the dark race from German New Guinea. Yet the upper surface bears rather lighter leaden-grey scales, while the underside is almost as dark as the specimens from German New Guinea, only that *danalis* has usually simple ocelli and the scaling between the ocelli is rather paler. — **gorgophone** *Fruhst.* (104 d) must stand as the darkest subspecies, the grey bordering of the wings is much extended, as compared with typical *gorgo Kirsch* from Dutch New Guinea. Also, almost all the specimens from German New Guinea have a double anal ocellus, as in the figure, whereas typical specimens from Sorong appear always to have that ocellus simple. On the upperside there is no variation worth mentioning, but on the underside the black scaling varies, so as either to cover the median area of the hindwing or to leave it free. The ochre-coloured tint of the basal part of the hindwing also varies in intensity. The anal secondary ocellus ranges from the size of a pea to a mere dot. The forewings very rarely show the **sidus** *Stich.* form, i. e. an intramedian eye-spot. Hindwings with only one anal ocellus may be denoted as **simplex** *form. nov.* — Larva reddish with two pale lateral streaks and rather long hair. On the head are two stout, short, obtuse horns, which end in a circle of 5—6 spines. Collector Wahnes once found a nest of nearly 50 larvae on the underside of a Pisang leaf. The species is somewhat uncommon in Kaiser Wilhelm-Land; flies from November to March. Specimens from Finsch-Hafen are most richly black powdered on the underside. Doherty found *gorgophone* also at Humboldt Bay.

danalis. *gorgophone.* *sidus.* *simplex.*

T. microps *Sm.* described from a ♂ discovered by Doherty in Humboldt Bay; will probably prove to be a variety of *gorgo*, unless it stands in the same relation to *gorgo* as does *dina Stgr.* to *dimona Hew.* The ♂ is about the size of a *gorgophone* ♀, the apical ocellus shows through distinctly and the anal bordering of the hindwing is slighter and apparently a paler grey. There are two small ocelli of equal size on the underside of the hindwing, the anterior placed in the first median interspace.

microps.

T. bioculatus, the most splendid species of the *Hyades* group, is interesting from its greatly darkened easterly geographical races, which are sharply separated within short distances, and by the resemblance of the ♀♀ to the *Elymnias agondas* ♀♀. ♂ with the basal area of the forewing yellowish or white, the inner area of the hindwing white or dusted with black. The anal ocelli mostly distinctly white centred, almost equal in size, slightly bordered with cloudy grey or deep black. Wings with very fine, long pubescence in the middle, so that the anterior periphery of the ocelli appears to be edged by a fur collar. Hindwing first grey, then black bordered. Forewings beneath first white, then outwardly deep black in all races. Hindwing with larger eye-spots and more extended ocellar border than above. Costal border much broadened, leaving a yellowish or white sickle-shaped area free in front of the ocellar border. Forewing in ♀ white, more or less yellowish edged towards the dark apex. Hindwing yellow, in the eastern races white, and broadly or narrowly black bordered according to the local form. Underside of hindwing as in the ♂, the anterior ocellus extremely small. The ocellus-aberration *gemmata* not uncommon in both sexes, but duplication of the anterior ocellus appears not to occur, neither does the *sidus*-formation. Distribution from Waigiu and Salawati to the eastern point of the main island of New Guinea. — **bioculatus** *Guér.* from Waigiu Island, is distinguished in the ♂ by a rich cream-coloured tinge on the upperside of the hindwings. Hindwing in the ♀ with distinct black bordering, and a deep ochre-yellow median portion of the wing. — **pallida** *Fruhst.* (104 d) differs from the typical *bioculatus* from Waigiu in the lighter, in the hindwings also narrower, black border in the ♀. The blue eye-spots on the upper surface of the hindwing are also paler and less broadly black ringed. The ♂♂ have a brown, instead of black apical margin on the forewing. Sorong and Kajumera from western Dutch New Guinea, also from Salawati with quite unimportant variations. — **charonides** *Stgr.* a prominent local form, extending from Humboldt Bay to Astrolabe Bay. Hindwings of the ♂♂ whitish, distally with fine grey or delicate brown scales. Basal area of the hindwings pure white, suddenly and sharply narrowed inwardly. Black distal border very broad. Median curved mark on the underside of the hindwing only slightly cream-coloured. — **charon** *Stgr.* commences in Finsch-hafen (German New Guinea) and extends to Port Moresby, where the author's type was taken. A distinct race, forewings conspicuous from the pure chalk-white base; hindwings extremely narrowly black bordered, but the light area behind the ocellus extended to the base. ♀ upper surface black-grey, with deep black ocellar ring. Median curved mark in both wings white beneath. — **charondas** *subsp. nov.* from the Aroa River; ♀ forewings somewhat as in *pallida Fruhst.* ♀♀; hindwing dark yellow with brown scaling. Anal ocelli small with narrow black periphery. Hindwing under surface with relatively large apical ocellus and dark yellow median mark. It is not improbable, that *charondas* may yet be discovered on the eastern coast of Dutch New Guinea, somewhat to the north of Prins Hendrik Island, since it is intermediate between *charon* with its white under surface and the western *pallida*, which is light ochre-yellow beneath.

bioculatus. *pallida.* *charonides.* *charon.* *charondas.*

b. Forewing with produced apex.

T. artemis may be considered as the commonest species in the Papuan Region, inhaiting the whole of the main island together with its eastern and western satellite islands. The numerous races may be divided into three main types, namely; those with very dark general colouring (in western New Guinea and the attendant islands; those with broad and sharply defined white band on the forewings (British New Guinea and the islands

on the east coast), and finally the entirely pale forms from Kaiser Wilhelm Land, which are already found in the neighbouring Humboldt Bay. It is understood, that there are intermediate forms on the borders of each district. The chief characteristics of the species, in addition to the sexual characters already mentioned, are the comparatively far produced forewing in the ♂♂, the anal ocellus on the hindwing almost always showing through on the upper surface, and a broad brown or grey anal margin on the forewing. The colour of the bordering of the wings varies from a slate- or mouse-grey to reddish and red-brown and the under surface often appears as if sprinkled with sand or ashes. The ocelli are somewhat regular, almost round, but their size varies from that of a pea to the imposing disc as shown in the figure of *T. celsa* on plate 101 d. As in almost all *Taenaridae*, the number of the ocelli is sometimes increased, and all hitherto observed combinations will be mentioned. Forewing with a black, white pupilled eye-spot without yellow periphery (*sidus Stich.*); hindwing
monops. without apical ocellus (**monops** *Fruhst.*); with duplicated apical eye-spot, the accessory ocellus being directed
lacrimans. backwards and appearing like a shed tear (**lacrimans** *Fruhst.*); anal ocellus duplicated, the secondary eye being proximal, and inserted between the posterior median and the submedian nervures, whereas in *wahnesi* the normal
opulenta. condition is just the opposite, namely that the secondary ocellus is placed outwardly (**opulenta** *Stich.*). The hind-
gemmata. wings may also bear 6 ocelli, which certainly occurs more frequently in *wahnesi* than in *artemis* (**gemmata** *Stich.*) and it is probable that an increase to eight ocelli, forming a continuous band will yet be discovered, like that
rotschildi. of *wahnesi* now before me, that is the aberration **rothschildi** *Sm.* The first described local race was **artemis**
artemis. *Voll.* the type probably came from Sorong or some other place in dutch north-west New Guinea. ♂ and ♀ chiefly dark grey, with an ill defined white band on the forewings, which slightly enters the cell, and a light yellowish tinge on the upper side of the hindwings. Underside of ♀♀ with a slight reddish tinge, the anal
eleusina. angle rarely without a grey or reddish border. — fa. **eleusina** *Fruhst.* is based on an aberrant form which nevertheless occurs frequently in Sorong, and is even possibly the chief form there. The specimens are bordered with pale slate-grey, the subapical area of the forewing is diffused, partly grey scaled, the anal ocelli on the upperside of the hindwing are very small, never distinctly visible on the upper surface. The washed-out colour of the under surface recalls *gisela* from Waigiu, but the border of the wings is narrower and a paler grey. All the ocelli have a very broad black-grey periphery, and the light ochre-yellow rings are broader than in *gisela*, narrower than in *zenada* and *celsa*. The anal angle of the hindwing is either not or but slightly grey tinged, and the yellow shading of the upper surface of the hindwings is entirely absent. Among the 23 specimens in my
zenada. collection the only ocellar aberrations to be mentioned are *sidus* and *lacrimans*. — **zenada** *Fruhst.* inhabits Kapaur and the vicinity of Kajumera Bay in the south of the Dutch territory. My specimens are larger than Vollenhoven's type, the forewings nearly black-grey and the hindwings broadly covered with grey scales beyond the yellow basal colouring. The underside of the wings is essentially darker, the forewings are black-grey instead of brown, with a narrow white subapical region, the hindwings darker grey bordered, especially in the anal angle, the ocelli larger and with richer blue centres, the anal fold is also black instead red-brown. The ♀ with its unusually large ocelli recalls *celsa Fruhst.*, from which it differs chiefly in the more clearly defined and deeper black terminal margin on all the wings. On Waigiu it has developed into a good island race, which was named **gisela** *Fruhst.* The specimens have very dark wings. The ground colour is a full slate-grey. On the forewings of the ♂ only a very narrow whitish subapical region remains; a few ♀♀ have dark hindwings, in which only the extreme base is yellowish, all the rest being smoke-grey. Examples in which the ocelli show through above predominate. Specimens also occur with black bordered anal margin and black ringed and shaded
timesides. ocelli. Such specimens recall *timesias Kirsch* and may be called **timesides** *Fruhst.* — On the Aru Islands we
myopina. meet with **myopina** *Fruhst.* which is characterized by the smoky brown hindwings. The white subapical area of the forewings stands out more distinctly against the dark ground colour than in *artemis*, and the hindwings are smoke-brown all over, an appearance not repeated on the mainland of New Guinea, but finding a parallel
ziada. in a few ♀♀ from Waigiu, and still more in *myops Fldr.*, one of the *dioptrica* group. — **ziada** *Fruhst.* (101 d). A charming local race on the Island of Misole. Differs from *myopina* in the colour of the wings being violet instead of smoke-brown. The basal area of the hindwing is more richly yellow tinted than in *myopina*. Under surface; anal border of the forewings yet lighter violet-brown. Ocelli of hindwing smaller than in *myopina*,
celsa. ringed broadly with yellow and beyond it only narrowly with cacao-colour. — **celsa** *Fruhst.* (101 d), differs from *artemis Voll.* in the much more broadly, almost black-grey bordered hindwings. But *celsa* is characterized above all by the unusually large ocelli on the hindwings, which have an extensive dark ochre-yellow iris, ringed with black. The ocelli stand out sharply and distinctly on the pure white ground colour of the hindwings, of
humboldti. which the costal margin is broadly, the distal margin only narrowly black edged. Salawati Island. — **humboldti** *Fruhst.* Specimens from Humboldt Bay with predominant white ground colour and narrow grey-black terminal border on all the wings, form an interesting transition towards *staudingeri Honr.* from German New Guinea. Costal and apical margins narrowly grey-black, anal fold of hindwing somewhat broadly bordered on the upper surface with dark slate-grey, the remainder of the wing, excepting the whitish submedian area and the yellowish basal portion tinged with pale grey, the ocelli very small and showing through from the underside.

Under surface: the general white colour is here still less circumscribed by the greyish border of the wings than on the upper surface. The ocelli always small, ringed with light ochre-yellow, the periphery only narrowly grey. ♀: the whole basal portion of the underside of hindwing extensively yellow tinted, the anal ocelli on the upper surface of the hindwing broadly shaded with dark grey, which gives them a very peculiar appearance. Doherty discovered a still paler form on Jobi Island, **blandina** *Fruhst.* In this the grey tint on the anal margin of the forewing has entirely disappeared and the grey shading of the ocelli is reduced to a minimum. Under surface; anal margin of forewing entirely white, distal border of hindwings very narrow, ocelli tiny, still smaller than in the figure of *microps Sm.* Anal angle on underside of hindwing quite white, scent tuft below the submedian in the anal fold on the upper surface of hindwing much more scanty than in *humboldti*, in which again it is much less developed than in *zenada* and *eleusina*, Jobi Island. *blandina.*

staudingeri *Honr.* is the most varying form of *Taenaris*; there are specimens of it in which the upper surface of the wings is almost entirely white, and in which only the costal and apical margins are grey bordered and the base of the wing slightly tinged with yellow or reddish (= fa. **albicans** *Hag.*). Such specimens approach *barbata Ky.* from Rossel Island. Other examples are broadly tinged with grey-brown or dark brown (= **nigricans** *Hag.*). Another wonderful aberration has received the distinctive title of **eos** *Heller.* These specimens have the hindwing extensively tinged with smoke-brown or reddish both above and beneath. In **eos** the blackish or brown anal margin of the forewing is sometimes so sharply defined, that one could almost fancy they were *artemis sticheli Fruhst.* or *artemis electra Fruhst.* Again, specimens occur, in which the hindwings have a narrow, but sharply defined border on both upper and under surface (**limbata** *Fruhst.*). Such specimens are very common, especially in Finschhafen, and recall the figure of *Taenaris affinis Ky.* from Rossel Island. The size of the ocelli in the hindwing also fluctuates greatly and varies from small dots to imposing and distinctly prominent eye-spots. Sometimes the ocelli stand in a free area, but are also sometimes surrounded by a grey or red-brown patch. The yellow tinge on the basal area of the hindwing is also very variable, sometimes scarcely visible, sometimes almost covering the basal half of the wing, and all shades from light yellow to orange-yellow may be found. In some specimens even the shape of the wings is altered, being in some cases roundish, and in others the forewings are narrow, with much produced apex. Such specimens, with the greatly extended grey scaling of the forewings, which often leaves only a narrow subapical area, approach *artemis Voll.* (= fa. **artemides** *Fruhst.*). Further, there are specimens in which there is a black patch of scent scales in the anal area below the submedian in the hindwings, whereas most specimens have no androconia, but only yellowish or reddish scent tufts. In many specimens the scent pencils between the posterior median and the submedian are well developed, in others they are either entirely wanting or only very scanty. — **simonetta** *Fruhst.* an extreme albinotic form, and a remarkable intermediate state between *honrathi Stgr.* and *wahnesi Heller. simonetta* has the same roundish shape of the wings as *wahnesi* only the apex and a narrower distal border are grey-black, the remainder of the wing is white, with a moderate, yellowish tint at the base. The ocelli on the hindwing are large, black, white centred, the yellow ring on the underside showing through distinctly above. The scent tufts are reddish, the scent hairs in the anal area yellow, those above the submedian white, but the anal patch, so characteristic for the *dioptrica-wahnesi* group is wanting. Abdomen lighter yellow than in the typical *staudingeri.* Under surface: Forewing with narrow grey costal border, hindwing with an almost imperceptible blackish border all round. The ocelli yellow ringed, the outer periphery narrowly black. The anal area of the forewing slightly greyish. Basal portion of hindwing yellowish tinged. But by far the most wonderful aberration is **druentia** *form. nov.* (101 d). It has milk-white forewings, with the grey apical border narrower than in *simonetta*, but the hindwing entirely smoke-brown, only leaving the basal area still whitish, while the splendid black-grey tinted underside recalls **eos** *Heller.* This aberration thus combines on the forewings the most albinotic and on the hindwings the most melanistic extremes known to us in *staudingeri.* It is only to be expected, that the number of the ocelli should vary. There are specimens with a secondary ocellus near the apical eye-spot (*lacrimans Fruhst.*), and others in which the anal ocellus inclines to duplication (*opulenta Stich.*). One example has an incomplete black, white centred ocellus on the underside of the forewing (*sidus Stich.*); again there are specimens which approach *rothschildi Sm.* and show four ocelli. Asymetrical formations are also not uncommon, so that the right wing has three, the left only two ocelli etc. A very striking aberration has been described as **monops** *Fruhst.* in which there is no trace of the anal ocelli. Hagen states, that *staudingeri* flies from October to April. The larva is known, the horns on the head are red-brown and there are no dorsal black lines, hence it is easily distinguished from the equally common *wahnesi* larva, which has two black dorsal lines. — **jamesi** *Btlr.* is said to come from Yule Island, a very doubtful locality; the type (in the British Museum) differs only from Honrath's figure of *staudingeri* in the basal part of the forewing being yellowish, instead of red-brown. Towards the distal margin *jamesi* is grey-brown, and the costal border on the underside is yellowish instead of redbrown. — **sticheli** *Fruhst.* is the form from British New Guinea, as it occurs most especially in Milne Bay. The local race appears to be less variable than *staudingeri*, and I have only specimens with grey-black anal border to the forewings, which is sharply defined by an absolutely horizontal band on *staudingeri.* *albicans.* *nigricans.* *eos.* *limbata.* *artemides.* *simonetta.* *druentia.* *monops.* *jamesi.* *sticheli.*

the wing. Hindwing chiefly white, with dull grey indistinct distal border and distinctly ochre-yellow tinted basal area. Ocelli rarely showing through beneath, with very broad yellow ring and very distinct outer black
electra. ring. Ocellar variations appear to be scarce, and I have only the form *lacrimans*. — **electra** *Fruhst.* differs from *sticheli* in the generally darker colouring, especially noticeable in the hindwings, which are blackish-brown bordered. The basal portion of the hindwing is of a richer yellow colour; the ocelli on the hindwings show through distinctly. Their pupil is very large and black, with rich blue scales. *sticheli* and *electra* have a great resemblance to *kirschi Stgr.*, only that the latter has a black, grey haired scent patch in the anal angle of the hindwing, whereas *sticheli* and *electra* have reddish scent scales, which are furnished with long reddish or yell-
affinis. owish hairs. Habitat, the Fergusson Islands. — **affinis** *Ky.* is another eastern insular race, but in contrast to the preceeding, it is extremely variable and comes close to *staudingeri* and *jamesi*. *affinis* itself bears a broad black, outwardly ill-defined anal border on the forewings, and very large, bright blue centred ocelli
barbata. on the hindwing, which has only a very slight basal yellowish tinge. — **barbata** *Ky.* is the albinotic extreme, analogous to *simonetta*, with pure white forewings, the hindwings only just perceptibly black bordered, with smal-
melanops. ler and paler blue centred ocellus. — Rossel Island in the Louisiad Archipelago. — **melanops** *Sm.* on the other hand, shows some progress in the direction of melanism. Forewings again darker, somewhat like *electra* but with reduced black border. Hindwing with an unusually large violet centred ocellus, showing through above, and surrounded by an extra large black area. SMITH names South-east Island as the habitat. — Only three speci-
tineutus. mens of **tineutus** *Fruhst.* are yet known. ♂: Forewing with the costal margin almost white, only basally and apically greyish. Oblique band below the submedian narrower. Hindwing with the anal border pure white, not with black scales as in *affinis*, but with much larger and more broadly yellow ringed ocelli. The pupils only slightly bluish dusted. Underside: The terminal margin of all wings grey instead of black. All ocelli considerably larger, more richly yellow bordered. The ♀ has a brown oblique bar in place of the grey; the apex of the forewing and the distal margin of the hindwings are also brown, and the basal yellow tint more extended. Woodlark Island, type in CROWLEY's collection, British Museum.

hyperbolus. **T. hyperbolus** *Kirsch* is the second species of the *artemis* group, but appears to be very rare, since I have only received one specimen. Forewing of ♂ very similar to the figured *amitaba* (101 b), grey with yellowish costal border. Hindwings whitish with broad, but proximally indistinct distal margin, which gradually passes into the yellowish-white basal area. Eye-spots on the underside distinctly showing through, but speci-
automolus. mens without these will certainly occur. Jobi Island. — **automolus** *Kirsch.* (101 d) is a very slightly differentiated local race from northern Dutch New Guinea taken at Rubi and Mum by Dr. A. B. NEYER, formerly Director of the Dresden Museum. KIRSCH separated it in consequence of the anal ocellus scarcely showing through. The under surface is very like that of *ritsemae* of the *onolaus* (*honrathi*) group, but the anterior ocellus on the hindwing is more prominently ochre-yellow ringed. The figured specimen is said to come from Salawati, and was presented to me by H. KÜHN.

B. Anal sexual mark on the hindwings with an accumulation of black androconia.

a) The scent cavity on the costal area of the hindwings bears scales, which vary from grey and brown to black according to the colour of the costal border.

All wings roundish as in the *Hyades* group.

α. Abdomen yellow.

T. selene is the most stately *Taenaris*, after *urania L.*, and the ♀♀ possibly as a rule surpass the *urania* ♀♀ in the extent of their wings. Their habitat was long in doubt, because WESTWOOD erroneously placed it in New Guinea. A comparisn of types has now enabled us to ascertain the South Moluccas as their habitat, and STICHEL thought himself justified in proclaming Boru Island as their actual home. Two specialized local
selene. forms must be mentioned. — **selene** *Westw.* (= buruensis, *Forbes*) (101 a). ♂ Forewings grey above, hindwings basally white, outer margin light grey-brown. Anal ocellus very large with broad yellow pupil and external grey-brown ring. Iris black with white centre. ♀ also white on the forewing with strongly contracted brown-grey apical border. Ocelli of hindwing apparently smaller than in ♂. The differences of the ♀ are shown in the figure, the ♂ differs in a more extended and darker brown distal bordering and the ocellar periphery being
gigas. widened, especially towards the anal angle. Buru Island, not common. — **gigas** *Stgr.* has a considerably broadened bordering on the upper and under surfaces of the hindwings, especially prominent on the underside, where there is only a small white disc remaining. Pupil of ocellus darker ochre-yellow than in *selene*. Ceram Island. — A ♀
tetrica. form with prominent grey-brown powdering on the basal part of the hindwing has been named **tetrica** *Stich.*

T. macrops replaces *selene* in the northern Moluccas, and one might be tempted to look upon it as the natural

continuation of this species in another district. But an apparently unimportant character, the anal ocellus on the hindwing being placed nearer to the distal margin, stands in connection with more important anatomical differences, whereby the specific character of *macrops* is substantiated, a consequence, presumably, of the far distant separation of the North from the South Moluccas. Three insular races are known, showing a considerable correspondence to those of *selene*, only that they are usually smaller than *selene*, and in one race the veins on the forewing are more extensively brown marked; **macropina** *Fruhst.* (101 a) is not uncommon on Obi, and, like *T. diana diadema Fruhst.*, represents the albinotic extreme of the entire species. The smoke-grey forewing distinctly paler in the median area, the basal spot on the hindwing is larger and nasutely produced outwardly, but in the ♀ the forewing is purer white than in **macrops** *Fldr.* from Halmaheira, Batjan and Morotai. *macrops* appears also to incline more to the formation of aberrations than *macropina*, since two out of three ♂♂ show an incomplete secondary anal ocellus, which is placed behind the other. Forewing in contradistinction to *macropina*, without whitish brightning on the underside. The hind wing in both sexes perceptibly more broadly brown-grey bordered. — **ternatana** *Fruhst.* is again more like *macropina* on the upper surface, but differs from it and from *macrops* in the smaller ocelli on the hindwings, which have also a narrower terminal border than the *macropina* ♀♀. Yet the pure chalky, almost dazzling white ground colour of the upper surface must be mentioned as the most important differentiating character; it is possessed in common by *ternatana* and *macrops macropina Fruhst.* whereas there is always a yellowish tinge in *macrops*. Further, neither *ternatana* nor *macropina* have the grey scaling on the median area of the forewings, which is constant in *macrops*. *ternatana* differs from *macrops* and *macropina* on the underside in the much smaller ocelli and the more extended pure white median area on the hind wings. Hereby naturally the distal border, which is deep black, is restricted and pressed further outwards on the underside also. Ternate Island; only 2 ♀♀ in my collection.

macropina. *macrops.* *ternatana.*

T. catops is one of most varied and widest distributed species of the genus. It comes so close to *macrops* and *selene*; that it was formerly generally placed under *selene*. The species is very susceptible to local influences; ocellar variations are also very common, and specimens in which the ocelli show through distinctly occur together with those having no distinct indication of an upper anal ocellus on the hindwing; a fact which appeared of such importance to the earlier authors, that even Staudinger founded specific differences upon it. The yellow basal suffusion of the upper surface on the hindwings is also variable. It is sometimes scarcely recognizable, and again occurs in all intermediate stages, up to a distinct ochre-yellow region, extending to the anal ocellus. — In the local form **appina** *Fruhst.* from British New Guinea, this yellow basal suffusion is almost always present and sometimes spread over the entire basal half of the wing; it also occasionally appears on the underside of the wing. This richer amount of yellow almost always goes hand in hand with more extensive black bordering on all wings, and is therefore an indication of melanotic tendency. Ground colour always white; forewing with more or less broad costal border, in all shades from black to grey. Border of hindwings usually rather narrow, and almost disappears in the albinotic extremes. Under surface as a rule darker, the distal border often extended nearly to the cell and also carried on into the anal angle. The butterfly is common, flies from October to June (Hagen). Larva short, processes on head short, red-brown, no dorsal black lines. — **catops** *Westw.* the name type, comes from Aru Island and is scarce in collections. It is an extremely pale form, pure white with fine smoke-grey costal border to the forewing, and in the ♂ enclosing a whitish costal streak; hindwings with a basal suffusion of delicate ochre-yellow, which slightly enters the cell, but does not go beyond the anal ocellus. Eye-spots showing through, rather orange-yellow with a blue centre to the iris. The black ring round the ocellus also showing through above. — **fulvida** *Btlr.* from Misole Island, is distinguished by the extended basal yellow on the hindwings, which passes beyond the cell and the anal ocellus, so that *fulvida* must be considered as by far the most luxuriantly coloured subspecies. Forewings in the ♂ bordered with dark grey, in the ♀ the apical marking is more than twice as broad and deep black. Hindwings in ♂♂ have besides this a pale mouse-grey submarginal zone. Under surface of ♂♂ with a broad, in ♀♀ with a rather narrower black distal border to all wings. On the hindwings the basal suffusion is repeated, but is here very considerably darker toned. — **selenides** *Stgr.* is another melanotic island race; forewing with whitish median area, broad apical and costal suffusion; hindwings chiefly whitish, with an extremely delicate yellowish tinge. Underside in both sexes more broadly black bordered than in *fulvida*, but with only slight subbasal ochre-yellow suffusion. Eye-spots relatively small, very distinctly black ringed. One ♀ has an asymetrical tendency to duplication of the anterior ocellus. Staudinger received from Dr. Platen about 30 specimens which all bore a prominent moon on the upper surface. I have one such ♀ only, sent to me by Waterstradt (= **delunata** *form. nov.*). Three out of 8 ♂♂ in my collection have a yellowish instead of whitish area on the inner half of the wings (= **attina** *form. nov.* 101 a). — With **laretta** *Fruhst.* from Sorong (Dutch North-west New Guinea) we begin a series of races from the main island having a great resemblance to each other, which can be indeed easily separated by the eye, but whose subtile differences only become evident when examining large series. It is also far easier to recognize these differences by sight, than to describe them. *laretta* comes very close to *fulvida*, and has a more or less extended, almost orange yellow suffusion from the anal ocellus, which is almost always large and dark ochre-yellow, to the base of the hindwing. All wings are broadly bordered with grey-black on the upper surface.

appina. *catops.* *fulvida.* *selenides.* *delunata.* *attina.* *laretta.*

The underside differs little from *selenides*, yet the ocelli are perceptibly larger. On the underside of the wing the costal and marginal border is almost as broad as in *fulvida*; the ocelli are more distinctly black ringed, yet
catanea in most specimens the yellow basal area is scarcely one third as broad as in *fulvida*. — **catanea** *Fruhst.* from Kapaur, the southern part of dutch New Guinea, joins on closely to the Sorong race *laretta*. But in it the basal darkening of the costal border has begin to decrease, the yellowish basal suffusion of the hindwings is still
kajuna. present, but also diminishing. Ocelli on the underside, especially in the ♀ very small. — **kajuna** *Fruhst.* from Kajumera Bay has still in both sexes an indistinct trace of the yellowish suffusion; forewings white beyond the cell also; ♀ with the costal border still narrower than in the ♂. Ocelli on the underside of the hindwing smaller than in ♂ and standing on a free field, because, strangely enough, the distal border is nar-
pamphagus. rower beneath than above. — **pamphagus** *Kirsch.* describes a stately local race, pure white above, with very large, strongly black ringed anal ocelli on the hindwing. The very pale underside has an almost deep
jobina. black bordering to the hindwings and strikingly broadly black ringed ocelli. — **jobina** *Fruhst.* leads us from *pamphagus* towards the forms of eastern New Guinea. The costal streak on the forewing is as pure white as in *pamphagus*. Hindwings only imperceptibly black bordered; anal ocellus small, almost always with the disc green-grey. ♀ very pale, only very lightly black bordered, hindwing with somewhat extensive light orange-
westwoodi. yellow suffusion. Jobi Island. — **westwoodi** *Stgr.* separated by its author from the name-type *catops* in consequence of the absence of the yellow suffusion on the hindwings and the anal ocellus not showing through. The latter character must, in our opinion, be entirely dropped, since among 30 specimens at least 10 always show very large complete, greenish or ochre-yellow discs on the upper side also. Yet *westwoodi* denotes a local race, which can be readily distinguished from its western sisters by the dazzling white upper surface of the ♀♀, contrasting strongly with the, usually very broad, black apical spot on both wings. The absence of the yellow suffusion also remains characteristic, since it is only occasionally present as a case of reversion. The new sub-
luna. specific title of **luna** *Stich.* has even been introduced for such a form, which has naturally only the value of an aberration, all the more because, in the more easterly Friedrich-Wilhelmshafen similar specimens occur as scarce varieties, while in British New Guinea they are the rule. In Finschhafen, on the other hand, *westwoodi* varies strongly in an albinotic direction; there the distal border is also contracted, and in one ♀ the costal and distal border is reduced to a band scarcely 2 mm. broad. This strikingly pale form appears to have developed into an insular race on this volcanic island, and the name of *mylaechoides Fruhst.* has been given to it. Ocellar aberrations appear to be not uncommon in *westwoodi*. In my collection there are ♂♂ with duplicated anal ocellus, and others with a secondary ocellus in front of the apical eye-spot, whereas ♂♂ with an
unipupillata. accessory ocellus placed inwardly are less common. **unipupillata** *Fruhst.* in which the anal ocellus is wanting on the hindwings must be considered as a case of retarded development. Such specimens give one the impression of being a different species, chiefly because the anal area is entirely white, the black ocellar periphery having
appina. disappeared with the ocellus itself. — **appina** *Fruhst.* (101 a) from British New Guinea (type from Milne Bay) is the most melanotic extreme of the eastern races. The black bordering above and beneath is in both sexes as a rule broader than in *westwoodi* and there is always a basal suffusion to be observed on the upper surface of the hindwings, which may vary from a delicate, light yellow tinge to a dark orange-coloured mark recalling *fulvida Btlr.* In contrast to *fulvida Btlr.* and *laretta Fruhst.*, the suffusion is rarely visible on the underside; the eye-spots appear to be of a deeper ochre-yellow and even more prominently black ringed than in *westwoodi*.
adriana. Apparently flies chiefly in November. — **adriana** *Fruhst.* inhabits Fergusson Island, and is an extremely pale variety; the distal border on all wings lighter, narrower; the basal suffusion on the hindwings either wanting
fimbriata. or very slight; ocelli remarkably small. — **fimbriata** *Ky.* originally described from Normanby Island and from an almost identical ♂ in my collection, also from Woodlark, differs from *adriana* chiefly in the larger, paler
mylaecha. yellow ocelli on the underside of the hindwings. — **mylaecha** *Westw.* first received from the Louisiads, and apparently only known from one or two specimens in the British Museum; it is the albinotic extreme of the species. Upper and under surfaces dazzling white with thread-like black costal border to the forewings. —
mylaechoi- **mylaechoides** *Fruhst.* differs from the type of *malaecha* in the British Museum, with which I have compared
des. it, in the broader brown-grey costal border on the forewings and the presence of a black or brown costal and distal border on the hindwings, which extends to the median nervure and is especially distinct on the underside. The ocelli are larger and more broadly black ringed. Islands in Collingwood Bay, British New Guinea. —
nicasius. **nicasius** *Fruhst.* in the Dresden Museum, with the probably incorrect label of "Ceram", is still darker than *laretta Fruhst.*, has a broad smoke-brown distal border on the forewings, and a light grey brown distal border on the hindwings, large pale yellow ocelli, with very small black pupils. The basal area has a yellowish suffusion, as in specimens from Sorong. Under surface; forewings, costal and apical areas very broadly black-grey. Only the upper apex of the cell remains whitish; base and distal border of hindwings more broadly black than in the Sorong specimens. The ocelli with broad black rings which touch each other. The yellow rings extensively pale yellow. The pupils unusually large, deep black with small white centres. Anal ocellus inwardly with a slight bluish tinge. The apical ocellus not round but oval, and, like the anal ocellus, with a small accessory ocellus, which may, however, be exceptional. Habitat unknown.

T. phorcas is the natural continuation of the preceeding species on the Solomon Islands and the Bismarck Archipelago. It is easily distinguished from *catops* in the ground colour of all the wings being black instead of white, and abdomen grey or brown in place of yellow. Ocellar aberrations appear to be rare or absent; the ocelli vary little in size, both among themselves and in the geographical races. The latter are not sharply defined and the collective species unites in its own forms all their characters in every possible combination. Yet, as with the subspecies of the western *catops*, several local forms can be separated by their general appearance. The larva is known, very handsome black, white and red streaked, and lives in communities on a low species of palm. Usually 5 or 6 are found together on the leaf or stem. They are sluggish, are covered with fine white hairs, and only leave the food-plant for pupation. The pupal rest lasts 14 days. **phorcas** *Westw.* (= *anableps Voll.*) (100 d, lettered *umbonia*), probably first received from Neu-Mecklenburg, since specimens from thence agree best with the author's figure. Anal ocellus on the hindwings more or less enclosed in the black distal colouring. The anal eye-spot on the under surface stands clear on a white ground, and the exterior border is not continued as far as the anal angle. — **uranus** *Stgr.* is considerably darker; in it the anal ocellus is enclosed in the almost deep black terminal border both on the upper and under surfaces. The white median area on the hindwings smaller, that of the forewing pushed further towards the anal angle by the outward advance of the dark basal scaling. Neu-Pommern. The ♀♀ from Neu-Lauenbourg are not quite identical with those from Neu-Pommern, but have the anal angle of the hindwing again more extensively pure white. — **umbonia** *Fruhst.* is a very dark local race, with almost deep black forewings, in which the whitish anal spot is scarcely visible. The white spot on the hindwings reduced still more than in *phorcas Westw.* and represented only by a small crescent above the anal ocellus. The anal ocelli on the hindwings above are dark ochre-yellow. Expedition Bay, Neu-Hannover, Type in British Museum. — **farona** *subsp. nov.* inhabits Faro, Alu, and differs from the other species of *atesta* in the British Museum from Ugi, Aloa, Maleia and Ulava, in the almost complete disappearance of the white spots from the forewings, which are covered with brown-grey in *farona*. The anal border of the forewing is also broadly grey-brown, whereas in *phorcas* it is still pure white in the anal angle, i. e. the white spot fills the entire angle. The white on the hindwing is also reduced, so that the brown-black terminal border approaches the yellow ocellus, which does not stand free as in *phorcas*. The white median spot on the underside of the hindwing is so restricted, that it only occupies the space between the anterior and the anal ocellus. Type in British Museum. — **atesta** *Rbl.* is the most melanotic extreme of the species; it is characterized by the entirely nigrescent forewings, and in the ♀ by a much narrowed postdiscal white zone on the hindwings. Judging from my specimens from Shortland Island, it has also the smallest ocelli. Ribbe says it is found especially in the southern Solomon Islands.

phorcas. *uranus.* *umbonia.* *farona.* *atesta.*

T. scylla *Stgr.* (= doherty *Sm.*). A distinctive species, uniting the character of *phorcas* with that of *onolaus*. It has the rather uniform grey wings and the yellow abdomen in common with *onolaus*, and the same colouring of the under surface of the wings as in *phorcas*. But in *scylla* the white median area is not restricted to the disc, but extends in a broad band from the costal margin to the anal angle. Beyond the anal ocellus an ochre-yellow distal band is very distinct, especially on the upper side of the hindwings, and does not exist in this position in any other *Taenaris*. *scylla* was described from Kordo by Staudinger, and from Korrido by Grosse-Smith. But Kordo and Korrido are only different names for the same chief town and harbour of Misore Island („Schouteneiland" of the Dutch); this island is a true El Dorado for peculiar highly developed Lepidoptera of the Papuan Region. There fly the marvellous *Troides priamus kirschi Oberth.* the unique *Ideopsis inuncta hewitsoni Kirsch* and other rare species.

scylla.

T. onolaus is here re-introduced, as the oldest name for the species known in collections under the more recent title of *honrathi*, one of the most variable of the Taenaridae. The ground colour of the wings varies from whitish to slate-grey; the hindwings may have a pure white, a slightly yellowish or a mouse-grey basal portion. The anal ocellus on the hindwing is always complete on the upper surface; the yellow ocellar ring is sometimes spread out into a broad patch, yet, in the same local form, it may be only proximally indicated or may be suffused with blackish. The size of the eye-spots varies from little more than punctiform to an imposing disc, as does also the centre, which is always whitish violet or blue. The two ocelli on the underside of the hindwing are sometimes alike, and may be as small as in *tainia* (101 b); more frequently the anal ocellus is larger and often proximally diffused (**auriflua** *Fruhst.*). Accessory ocelli are almost always present; four out of 30 specimens of both sexes have even anal ocelli on the underside of the forewing (= **sidus** *Stich.*). But I have also a ♀ which has two more apical eye-spots on the forewing, besides that in the anal angle, and on

auriflua. *sidus.*

onolaus. the hindwing both the anterior and posterior ocelli are duplicated. — **onolaus** *Kirsch*, from one of the islands in Geelvink Bay, is very similar to *saturatior* (100 d) but essentially paler, has a whitish anal border on the upper surface of the forewings and a less extended and paler ochre- or orange-coloured area on the underside of the hindwing. — **macrophthalmus** *Fruhst.* is a charming local race found on Jobi Island. In the colouring of the upper surface it recalls *rebeli*, from which it is at once separated by a broad, white anal border along the submedian on the upper surface of the forewings. The hindwings are rather darker than in *ritsemae*, the under surface of the forewings has an obsolete whitish area beyond the cell. The bordering of the hindwings is unusually broad, hence the discal area of the wing is only about one third as broad as in *ritesemae*, but just as pure white. The ocelli are twice as large as in the remaining *onolaus* races, with a very large black pupil, dark ochre-yellow rings and broad, deep black periphery. In spite of their size, the ocelli only show through quite faintly on the upper surface. Jobi Island, discovered by W. Doherty. — **honrathi** *Stgr.* comes from Waigiu, where it is rather common. It is a beautiful, well defined, but variable island race; ♂ brown-grey with whitish basal portion of hindwings and distinct ochre-yellow rings to the ocelli. There are also specimens with entirely dark mouse-grey upper surface on all wings and ocelli on the hindwings in which the ochre-yellow periphery is reduced or almost entirely wanting (= **abdon** *form. nov.*). The anal ocellus on the underside is always broadly diffused, one ♀ shows duplicated apical eye-spots and even gemmata formation. — **sekarensis** *Stgr.* inhabits dutch west New Guinea and I have it from Sorong. ♀♀ larger than the *honrathi* ♀♀; ground colour lighter brown-grey, hindwing upper surface basally more extensively and purer white. — **ritsemae** *Fruhst.* forms a transition to the races of the german territory, is unusually pale, having even a white median and inner marginal area on the forewings. The hindwings are almost pure white, with the exception of a very narrow light brown terminal border, and bear a very large black ocellus, which is broadly yellow ringed. Under surface; the white median spot on the hindwings larger than in the Waigiu specimens and also purer white than in *sekarensis*. Humboldt Bay, Sept.-Oct. 1891, taken by W. Doherty. — **rebeli** *Fruhst.* is, after *catops*, the commonest *Taenaris* in Kaiser Wilhelms Land, not spreading beyond Astrolabe Bay on the east, and is very variable in its external apprance. As with *honrathi*, we meet with specimens having the ground colour light grey or yellowish, together with others which must be described as deep smoke-brown. The anal ocellus is always very distinct in the ♂♂ but, like the analogous form *abdon* of *honrathi*, it loses the yellow periphery in the darkest ♀♀. The distal border of the underside of hindwings appears sometimes yellowish, sometimes almost black and is of varied extent. The apical ocellus is often very small, the anal ocellus inclines to the *auriflua* form, which is found in 12 ♂♂ and some ♀♀ among 30 specimens. In Finschhafen *rebeli* disappears and is there replaced

macrophthalmus. *honrathi.* *abdon.* *sekarensis.* *ritsemae.* *rebeli.*

ida. by the distinctive substitute **ida** *Honr.* which scarcely differs on the upper surface, since all the ♂♂ have a dark slate-grey general tone on the forewings with light yellowish suffusion on the submedian, inclining to *onolaus Kirsch.* Hindwings chalk-white, anal zone much smaller than in *rebeli.* ♀ with almost black forewings, which are not paler even on the inner margin. Underside of forewings with slight whitish insertion on the anal angle. Hindwings with unusually broadly orange-yellow rimmed, deep black ocellus. The inner margin with much less reddish yellow suffusion than in **saturatior** *Fruhst.* (100 d) from British New Guinea. Type from the Aroa district. The ♂ can be easily distinguished from *ida* by the still smaller ocelli, of which the anal is yellowish ringed on the upper surface also resp. stands in a distinct, almost orange area. In Collingwood Bay, on the other hand, we find again a reversion towards the *ida* type, which is described as **enomia** *Fruhst.* ♂♂ smaller than the *ida* ♂♂; forewings light grey; their underside as above, but without the whitish tinge which distinguishes *ida.* Hindwings with strikingly broad yellow ringed eye-spots, which are internally diffused and surrounded by a further orange-coloured zone. — **montana** *Stich.* includes another local race, from Mount Epa in southern New Guinea, which is the smallest of all known forms, and has pale grey-brown forewings. In the absence of the yellow anal colouring it closely approaches *enomia.*

saturatior. *enomia.* *montana.*

T. domitilla is probably the most easily recognized species of the genus in consequence of the double ocellus on the hindwings being always distinct even on the upper surface. Ground colour light brown-yellow with whitish or grey-yellow basal portion of the hindwings. The apical ocellus on the latter almost always complete on the upper surface also. Eye-spots deep black with whitish blue prominent centre. The area round the ocelli broadly light or dark ochre-yellow. The anterior ocellus on the hind wing relatively small above, but on the underside almost as large as that of *diadema Fruhst.* (100 c). This species is restricted to the northern Moluccas. — **domitilla** *Hew.* originally described from Batjan, differs from the figured *agrippina* (100 d) in the whitish yellow, instead of brown-grey basal portion of the hindwings. The ocelli on the underside are enclosed within a black distal region. — **diops** *Voll.* is a rather light grey race, with a silky gloss on the upper surface, and especially recognizable on the underside by the more ashy- than brown-grey ground colour. — **agrippa** *Fruhst.* (100 d) (misprinted "agrippina") inhabits Obi Island, where it is not uncommon. It can be readily separated from all known species of *Taenaris* by the basal area of the hindwings being coloured like that of the forewings. The orange-coloured area round the ocelli is narrower than in *domitilla* and has smaller but lighter blue ocelli. ♂ all the wings brown instead of grey on the underside. The median area of the hindwings never white, but as a rule, like the distal bordering, brown or blackish, rather paler, but even then only rarely suffused with smoky-brown. ♀ much paler than the ♂, the ocellar periphery never black as in *domitilla*, but grey; forewings sometimes a washed out whitish brown. Ocellar variations rather frequent; 3 out of 33 specimens have three

domitilla. *diops.* *agrippa.*

in place of two anal ocelli, and in two ♀♀ there are also median ocelli, arranged in a chain together (= **prodiga** *fa. nov.*). *prodiga.*

T. butleri *Oberth.* appears to replace *domitilla* in the Papuan district. This and *scylla Stgr.* are the only species of the Taenaridae wanting in my collection, and known to me only from specimens in the British Museum and Staudinger's figure. ♂ considerably smaller than *agrippa*, but of the same uniform brown-yellow ground colour. Ocelli as in *agrippa*, the ochre- or orange-coloured area round them more extended inwardly. *butleri* has on the under surface of the forewings two intramedian complete ocelli. Appears to be very rare, restricted to southern New Guinea; hitherto known from the Aroa district, Port Moresby and Yule Island. *butleri.*

T. rothschildi is the oldest name for a collective species which reaches its highest development in German New Guinea, is very common there and figures under the name of *wahnesi* in all catalogues and periodicals. The collective species has in common a grey ground colour, discally paler, but this may spread over the whole surface of the wings. The anal ocellus on the hindwing only rarely shows through above. With *rothschildi* also begins a group of species having the most luxuriant development of the secondary sexual characters. The scent cavity on the costal margin of the hindwings is filled with black scales and under the hair-tuft near the anal angle in the inner marginal zone, is a blot-like patch, from which the hair-tufts always stand out distinctly against the deep black androconia. The white space on the forewings stands parallel to the terminal margin, where it is visible on the upperside. — **rothschildi** *Sm.* described in April 1894 has priority over *wahnesi Hell.* of November or December in the same year. The name refers to an aberrant specimen with the same exuberant ocellar formation as in *prodiga Fruhst.*, in which the normal and the accessory ocelli are united into a chain on the underside of the hindwings. The form *rothschildi* has been noted several times; besides the type there is also another ♂ from German New Guinea in english collections, and two ♂♂ with the same series of ocelli are in the coll. Fruhstorfer (Geneva). The ordinary form of *rothschildi* has been described as **pelagia** *Fruhst.* (101 b). It is readily known by the delicate grey of the upper surface and a light yellowish suffusion on the hindwings. Transition forms probably occur, similar to a series known from Kaiser Wilhelms Land. Habitat of *rothschildi* and *pelagia* in Humboldt Bay, where both were taken by Doherty in September-October. In the western districts of dutch New Guinea *rothschildi* is replaced by some other *rothschildi.* *pelagia.*

named races, which pass one into another. The most striking of these is **merana** Fruhst. (101 b). The upper surface is like that of *pelagia*, but the subapical area of the forewing appears purer white, the basal portion of the hindwing is also chalk-white with prominent red-yellow hair tufts above the submedian, anal ocellus larger than in *pelagia*, especially on the underside, where also the black distal powdering is more extended than in *pelagia*. Kajumera Bay and Kapaur, south-west Dutch NewGuinea. — **ansuna** *Fruhst.* an insular race from Jobi Island in Geelvink Bay, is larger the *pelagia* but smaller than *merana*, and in general colouring is also intermediate between the two. The grey scaling of the hindwings darker, and the white basal area tinged with smoke-grey. — **rafaela** *Fruhst.* is founded upon a colour variety, rather paler than *ansuna*. Outer half of hindwings brown-grey. Submedian region with longer, closer and paler yellow hairs than in *ansuna*. Anal ocelli larger, distinctly showing through. Forewings with broader black bordering than in *ansuna*, that on the hindwings narrower, so that the much larger anal ocellus stands free on a white ground. Iris dark orange-yellow. Anal fold much suffused with dark yellow. — **senaria** *Stich.* the type of which is in my collection, comes from Salawati Island, and may be considered as the darkest extreme of the species. Upper surface of the forewings with the costal margin and apex narrowly, the terminal margin as far as the second median nervule broadly smoke-grey, otherwise white. Hindwings chiefly smoke-brown, only an ill-defined streak in the cell and near the submedian somewhat whitish. The pubescence along the submedian is pale grey-yellow. Anal ocellus as in *merana* but with a duller yellow iris. Ocelli on underside as in *merana* but without the black surroundings. — **wahnesi** *Heller* is one of the commonest , and at the same time most variable of the Taenaridae, and even exceeds *artemis staudingeri Honr.* from the same district, that is, the whole of German New Guinea, in its colour- and ocellar-variations. The ♂♂ are sharply distinguished by the distinctly visible sexual patch on the hindwings, but it is extremely difficult to separate the ♀♀ of *wahnesi* from those of *staudingeri*, especially in the extreme forms which frequently copy each other, resp. have analogous markings and shape. Such doubtful specimens are found labelled as "hybrids" in those Museums and collections supplied by a Dresden firm. Those specimens with a relatively broad grey distal and terminal border to all the wings and without yellow basal suffusion on the hindwings, may be considered the typical forms. — The albinotic colouring is described as **candida** *Fruhst.*; having the grey costal border of the forewings reduced to a minimum and that of the hindwings also almost imperceptible, especially beneath, so that the posterior ocelli stand free on a pure white ground. In consequence of this white background the black anal spots on the hindwings stand out with unusual distinctness. The ocellus on the hindwings shows through clearly above, the anal fold of the underside of the hindwings has yellow pubescence; there is a slight yellowish tinge on the basal area of the upper surface of the hindwings. ♀ of *candida* have sometimes a wax-yellow suffusion on the upper surface and a *merana.* *ansuna.* *rafaela.* *senaria.* *wahnesi.* *candida.*

tainides. reddish border on the terminal margin of the hindwings and recall pale *staudingeri* ♀♀. — **tainides** *Fruhst.* is a ♀ form with unusually broad black bordered upper surface of the hindwings. Anal ocellus with very broad black periphery, which is confluent with the anal border. Hindwings with white, in place of black inner marginal border, as Heller mentions in *wahnesi*. Anal ocellus standing free, extremely small. Wings with a *hadina.* peculiar waxy gloss. — **hadina** *Fruhst.* is a darker form. Forewings on both surfaces almost entirely black-grey, only the white apical area remaining, recalling *fergussonia Fruhst.* Hindwings broadly black-grey all round. Ocelli very large, inwardly bounded with black, the black periphery confluent with the marginal border. The shape of the ocelli is also very variable; specimens are known in which the ocelli are hardly larger than in *tainia* (101 b), with others whose disc equals that of *merana* (101 b). The black ring round the anal ocellus may be as extensive as in *tainia* and *merana*, or may be almost obsolete. Duplications of the anal ocellus are common, but accessory ocelli appear to almost always placed outwardly, in contrast to *staudingeri.* *gemmata.* **gemmata** *Stich.* with supplementary median ocellus is based on the frequent aberration of *wahnesi*, and *prodiga.* **prodiga** *Fruhst.* with the complete series of ocelli, as mentioned above; but *lacrimans.* **lacrimans** *Fruhst.* with duplication of the anterior eye-spots appears to be rare. In my collection there is only one ♂ with the *lacrimans* formation *sidus.* among 80 specimens of *wahnesi*. — **sidus** *Stich.* with indistinct ocellus in the last median interspace on the underside of the forewing is also very scarce. Larva strikingly elongate, with two black dorsal lines framed in bright yellow and with red-brown processes on the head.

T. dioptrica is a species from the western part of New Guinea and the neighbouring Islands not often found in collections, and was for a long time held to be a subspecies of *artemis*, until, after examining the type in the Leyden Museum, I was able to reestablish its specific position. *dioptrica* comes near to the preceding species, but the shape of the wings differs somewhat, because the apex of the wings is rather more prominent. The character of the colouring is more uniform than in *rothschildi*, and ocellar aberrations are fewer. Forewings light grey, only occasionally lighter on the median area. Under surface of ♂♂ always more broadly and deep *amitaba.* black bordered. The two pairs of ocelli nearly equal. — **amitaba** *Fruhst.* (101 b) has only unimportant variations, ♀♀ occur with darker grey underside of the hindwings, and some in which the basal region remains more or less white. The ♀ differs from the ♂ on the upper surface in a transcellular whitish zone, suffused with *dioptrica.* grey on the edges, which is also present beneath. Waigiu Island. — **dioptrica** *Voll.* Its home is not known with certainty, but may well be from Sorong, whence I have a whole series of specimens, which agree exactly with the figure of the type. Vollenhoven described the rather rarer form with whitish median portion of the fore-*licinia.* wing, whereas the far more common normal form is named **licinia** *Fruhst.* which, like *amitaba*, has entirely uniform grey forewings. The white region of the forewing in the ♀♀ is larger and more sharply defined than in the Waigiu-race. *gemmata* formation on the underside of the hindwings occurs in 3 out of 8 ♀♀ in my collection. *onesimides.* — **onesimides** *Fruhst.* has always a white border on the inner margin of the forewings, sometimes a similar distal margin, and in 2 ♂♂ the forewings are almost entirely whitish, with indistinct greyish suffusion. ♀ with a pure white median area on the hindwings, placed more outwardly than in *dioptrica* and *amitaba* ♀♀. Kapaur and *timesias.* from Etna Bay in south-west Dutch New Guinea. — **timesias** *Kirsch.* joins on close to *dioptrica*, and has on the forewings a distinct white streak, which is also more conspicuous beneath. ♀ with a relatively narrow grey-*aesculapus.* black distal portion. **aesculapus** *Stgr.* belongs to *timesias* as an albino with almost white wings and the anal *onesimus.* ocellus of the hindwings does not show through. Jobi Island. — **onesimus** *Btlr.* is a doubtful form, which has not been conclusively proved to belong to *dioptrica*. The description of locality "New Guinea" is insuffi-*wattina.* cient to decide as to its connection from its origin. — **wattina** *Fruhst.* comes from Salawati Island and, analogous to *aesculapus*, is among the albinotic forms. *wattina* differs from Vollenhoven's type in the paler wings, which have on both surfaces of the forewings a more extended white subapical region. The predominant white materially reduces the black bordering of the wings.

tainia **T. tainia** *Fruhst.* (101 b) described from a ♂ in the Berlin Museum, is much larger than *dioptrica* and *amitaba*. The general colouring of the wings is darker and duller than in *amitaba*. The basal part of the hindwing is nevertheless of a purer white, while the terminal margin is deeper black and very much broader. The anal ocelli are extremely small, smaller than in any other species, and with distinct blue discs inside. The ochre-yellow bordering of the ocelli is very narrow, the black centre larger than in *amitaba* and *timesias Kirsch.* *annella.* Habitat; Kaiser Wilhelms Land. — **annella** *Stich.* from the north coast of New Guinea between Humboldt and Geelvink Bays, discovered by Doherty. The type is in the Oberthür collection. *anella* is smaller than *tainia*, the forewing pale smoke-brown, their terminal margin whitish as far as the submedian. Hindwing with dark brown border, wider than in *tainia* and with more profuse ochre-yellow pubescence in the submedian area. Ocelli as in *tainia*, strikingly small, the black background with a bright blue crescent before the white centre.

myops. **T. myops** has more curved wings than *dioptrica* and the white zone on them always stands obliquely to the costal and distal margin. Ocelli rarely complete on the upper surface, relatively small beneath, but with very broad and deep ochre-yellow iris. The black periphery but little developed, sometimes proximally wan-

ting. **myops** *Fldr.* the name-type from the Aru Islands, has the upper surface similar to *artemis myopina Fruhst.* which flies in company with it, and our figure 101 d of **ziada**. Ground colour mouse-grey with slight violet gloss. The transcellular white part of the forewings somewhat as in *fergussonia* (101 c). Hindwings pure white beneath, with very restricted brown distal border, which extends little beyond the middle of the wing. — **praxedes** *Fruhst.* from Salawati, stands very close to *myops*; the white area of the forewings is still more extended, as is also the terminal border of the hindwings on the underside, which is carried on to the anal angle. Ocelli more distinctly black ringed. — **kirschi** *Stgr.* is an interesting local form on the mainland of New Guinea, described form Port Moresby in the British territory. ♂ with dominant white colouring, especially on the hindwings, on which only the distal border is more sharply defined grey. The subapical white on the forewings and the basal yellowish tinge on the underside of the hindwings much more extended than in *myops* and *praxedes*. **fergussonia** *Fruhst.* (101 c). Specimens from the Fergusson Islands differ from *kirschi Stgr.* in having a dark grey suffusion on the hindwings, similar to *myops*. The hindwings are basally much paler. The whitish, oblique subapical bar on the forewings somewhat broader. The black bordering of the hindwings extends further into the anal region. The ocelli are larger, darker ochre-yellow and more broadly black ringed. Hindwings basally with darker, yet brighter yellow suffusion. — **miscus** *Fruhst.* Anal fold with unusually broad grey-black scaling. Forewings light grey, with broad, sharply defined, white subapical spot, which commences at the costal margin, passes across the cell to the terminal margin, and is both broader and purer white than in *fergussonia Fruhst.* Hindwings broadly suffused with grey into the anal angle, anal area and the upper part of the cell whitish, as in *fergussonia*; hairs in the anal fold whitish, not yellow as in *fergussonia*. Costal and anal ocelli showing through, the latter larger than in *fergussonia*, with broader, blacker pupil. Underside; forewings as in *fergussonia*, but more narrowly white; hindwings the same, only much less suffused with yellow, the anal angle with narrower black border, ocelli much larger, and prominently yellow ringed. Normanby Island (Louisiads); type in the British Museum, only one ♂ known. — **mailua** *Sm.* a fine local race near the boundary of the species, striking from the rounded form of the wings and the pleasing contrast of the cream-coloured parts of the wings with the dull dark slate-grey of the ♂♂ and the almost black bordering of the ♀♀. On the underside the anal ocelli without black internal border, and in some ♂♂ the ocellar periphery is entirely wanting. — **verbeeki** *Fruhst.* occurs together with *mailua*, so that in spite of all the differences it can only be called a subform. ♂; wings not rounded like *mailua*, but with elongately produced apex, the costal border more narrowly black-grey, the white subapical zone commences at the edge of the cell and is continued very broadly to the distal margin. The hair-tufts on the hindwings are red-brown instead of yellowish. The terminal border is darker and broader, so as to cover the ocelli, which scarcely show through from beneath. The anal area yellowish tinged. Under surface; the subapical spot is almost twice as broad as in *mailua* and purer white. The outer border of the hindwings is more narrowly black, specially on the anal margin. The apical ocelli are larger, the anal ocelli usually smaller than in *mailua*, and are broadly black ringed as in *fergussonia*. In the anal region of the hindwing in the ♀ there is no trace of a black margin, so that the ocelli, which are light yellow instead of ochre-yellow, stand quite free on a white ground. Herr Bang-Haas sent me a cotype of *kirschi Stgr.* from Port Moresby, from which *verbeeki* from Milne Bay differs in the entirely black, in place of light grey, costal border, more sharply defined and purer white on the forewing, darker, slate-grey anal region of the forewing and broader black-grey border to the hindwings, which have an extensive light ochre-yellow suffusion. The white on the underside of the forewings is more intense, extends further, the ocelli on the hindwings are much larger and much more broadly, dark ochre-yellow ringed, with distinct black periphery; Milne Bay. — **rosseli** *Fruhst.* ♂ smaller than *mailua Sm.* from Milne Bay, ground colour lighter, more grey than black. Subapical spot in the forewings much more broadly white, especially on the underside. Anal ocelli on the hindwings not showing through above. Under surface; Anal fold of hindwings white, not black bordered so that the ocelli stand free on a white field. 2 ♂♂, 2 ♀♀ Meek leg. ex. coll. Crowley. Rossel Island, type in the British Museum.

Like *dina Stgr.*, **T. cyclops** has hitherto been found only in Kaiser Wilhelms Land, and local races from other parts of New Guinea are still to be expected. Staudinger knew only one ♂, but conjectured, that the species would vary considerably, which has been confirmed by the amount of material since received in Europe. In my collection there are 16 specimens, which vary in two directions; the commonest form has the forewings light grey and, with the exception of the costal margin, which remains unchanged grey, may become almost entirely white. If to this is added a bright silky gloss, then we have the fa. **ferdinandi** *Fruhst.* of which the type is preserved in the Berlin Museum. The rarer form **agapetha** *Fruhst.* (101 c) somewhat recalls *dioptrica amitaba Fruhst.* (101 b) and is distinguished by the basal portion of the hindwings being brown-grey instead of whitish; the yellow suffusion in the submedian part of the upper surface of the hindwings, peculiar to the normal *cyclops*, is also absent; the ♂♂ have shaggy hair-tufts, but in the ♀♀ the scales themselves are pubescent. The name type **cyclops** *Stgr.* has only one apical ocellus on the underside of the hindwings, it is scarcer than **agasta** *Stich.* a form with only one anal ocellus in the hindwings, for I have only three ♂♂ and two ♀♀ of *cyclops*, and of *agasta* six ♂♂ and four ♀♀. In *cyclops* the posterior ocellus is, as a rule, smaller than the anterior, only the fa. *agapetha* is an exception, with larger and more extensively ochre-yellow ringed anal ocellus. In all *cyclops* the median white colour on the forewing extends almost to the middle of the cell,

ziada. *praxedes.* *kirschi.* *fergussonia.* *miscus.* *mailua.* *verbeeki.* *rosseli.* *ferdinandi.* *agapetha.* *cyclops.* *agasta.*

only in *agapetha*, which is otherwise also more broadly brown framed, it stops at the apex of the cell. A long tuft of hair between the median nervure and the submedian on the forewing is peculiar to some ♂♂, and fresh specimens have a delicate rosy flush on the upper surface of the wings as in some forms of *dioptrica*, e. g. *timesias Kirsch* from Jobi Island. *cyclops* is closely related to the next species, *chionides*, as shown especially in the produced apex of the forewings, but even more in the shape of the valve of the clasping organ. In this a long, very slender distal part is distinctly demarcated from the much broader basal part. The basal half of the valve has a doubly impressed prominence, which is smooth in *chionides*, and entirely wanting in *dioptrica*. Scent tufts reddish, anal scent patch black, costal scent spots covered with rich shining black scales. Abdomen light yellow, antennae black.

chionides. **T. chionides** *Godm.* inhabits British and German New Guinea and may be expected from the more extensive Dutch part of the Island-continent. It is rare and varies much as *cyclops*. *chionides* is readily distinguished from *cyclops* by the dazzling white ground colour and the more extended, deep orange, instead of pale *kubaryi.* yellow, basal suffusion of the hindwings. — **kubaryi** *Stgr.* is very close to the mane type from British New Guinea; it has the same ocellar and colour varieties as *chionides*, but appears to be separated by the slighter, rather paler yellow basal colour on the underside of the hindwings. In both the above-named parts of New *eugenia.* Guinea specimens occur with entirely white upper surface of all wings (= **eugenia** *Fruhst.* (101 c) together *aroana.* with others showing a broad black border on the terminal margin of the hindwings (= **aroana** *Fruhst.*). Normal specimens, as are most of the ♀♀, are basally only lightly greyish powdered. Specimens with the entire surface *cyclopides.* of the forewings covered with grey and with distinct grey-brown marginal area on the hindwings (= **cyclopides** *Fruhst.*) are extremely rare. As in *cyclops*, specimens occur rarely having only the anterior ocellus in the hind- *ambigua.* wings, four in my collection, as against 8 which have also the anal ocellus (= **ambigua** *Stich.*). Apex of valve rather shorter than in *cyclops*, dorsally straighter, ventrally less expanded.

7. Genus: **Morphotenaris** *Fruhst.*

The only known species of this genus exceeds all Taenaris in size and in the greatly produced apex of the forewing. The posterior margin of the forewings is also more produced than in the Taenaridae, the basal hair-tufts longer, reddish beneath, yellowish or white above. The lower discocellular in the forewings is shorter than in Taenaris, but the 5th subcostal nervule is considerably longer and therefore reaches the distal margin much nearer to the upper radial than in the other Taenaridae. The palpi are white in place of yellow, black bordered with black apex. Abdomen white, not yellow or black as in Taenaris. Distribution, British and German New Guinea, probably yet to be discovered in the Dutch territory.

schönbergi. **M. schönbergi** *Fruhst.* (104 d) has the upper surface even purer white than in *Taenaris chionides*, with a slightly oblique cacao- or coffee-brown transverse band on the forewings, which fills the cell more or less completely, but always leaves a white border on the terminal margin. Hindwings only slightly black bordered, with always small, almost equal sized ocelli showing through above. Hindwings with dense, long, sometimes delicately yellow tinted hairs. Underside of hindwings sometimes suffused with yellow as in the figure, or also pure white. German New Guinea from Friedrich-Wilhelms-Hafen and Constantinhafen, in coll. Fruhstor- *nivescens.* fer. — **nivescens** *Rothsch.* is a well-marked local race to which its author concedes specific rank. Upper surface translucent silver-white, only the first third of the costal margin on the forewings is red-brown, hindwings almost imperceptibly brown bordered and with only three ocelli on the underside, having a white iris and a black pupil, standing in a yellowish zone. From Eafa District, British New Guinea, at 5000 feet, taken in October. Apparently only one ♀ yet known, which is in the Tring Museum.

8. Genus: **Stichophthalma** *Fldr.*

The few species of this genus are among the largest butterflies of the Indian Region, recalling in their form, and especially in the always distinctly developed ocelli of the underside, the Morphidae of the *achilles* group. *Stichophthalma* has in common with the Taenaridae the similar formation of the clasping organs, especially in the lateral clasps of the uncus. The uncus itself with its appendages is more robust than in *Taenaris*, but the valve itself is weak, narrow and elongate, reminding of that of the genera *Lethe* and *Melanitis*. Forewing with four subcostal nervules, which run free into the costal margin. Lower discocellular strongly concave inwardly. The ♂♂ have a tuft of hair close behind the median which follows the ground colour of the wing in its colouring. All *Stichophthalma* are forest insects, preferring hilly lands, and, at least in part, have only one generation, which is on the wing only in the spring of the year, from March to May. Area of distribution, the eastern Himalaya, with offshoots into Central China, Formosa and Camboja.

nourmahal. **St. nourmahal** separates into two but little divergent local races; **nourmahal** *Westw.* of which *nurinissa.* scarcely half a dozen specimens are known from the Native Sikkim, and **nurinissa** *Nicév.* which is found in quantities at Buxa in Bhutan and is sold by english firms as *nourmahal.* Both have in common a deep ochre-yellow ground colour, with red-brown basal area on all wings. Forewings somewhat

broadly black bordered, hindwings in *nourmahal* with almost imperceptible, in *nurinissa* with more distinct crescentic subterminal markings. Underside reddish ochre-yellow with two slightly geniculate black longitudinal lines, which are accompanied by a whitish lighter area. Forewings with two, hindwings with 3 ocelli, between which there are sometimes accessory incomplete ocelli.

S. neumogeni *Leech* (Vol. I, p. 156, Pl. 49 b) is an allied species from western China, which is collected in some numbers by Missionaries in Siao-Lou and Tien-Tsuen. In it we find first the ornamental arrowhead marking on all wings, which is the characteristic of all the following species. *neumogeni.*

S. howqua inhabits subtropical China, with offshoots to Formosa and Tonkin. **howqua** *Westw.* (Vol. I, Pl. 49 a), the type of the name, occurs in the vicinity of Ningpo in the Snowy Valley and in some parts of Central China, whereas the darker **suffusa** *Leech* (Vol. I. Pl. 49 a) is one of the commonest members of the butterfly world in western China at Itchang and on the Omei-shan, and is sent in large numbers to Europe. — **formosana** *Fruhst.* (103 a) differs from *howqua* in the shorter and thicker arrows on the surface of all wings, and by the larger black apical spot, especially in the ♀. Some ♀♀ have a whitish yellow suffusion beyond the cell in the forewing. The underside is brighter red than in the continental specimens, the ocelli more equal in size, more complete, and in the ♀ more distinctly black ringed. Habitat Kanshirei, Chip-Chip and the vicinity of the Lehiku Lake, June and July. Uncus stout, very long, the lateral clasps larger than in *S. camadeva Westw.* Valve without basal emargination, almost straight, saccus and penis very broad. — **tonkiniana** *Fruhst.* (103 a). Most closely allied to *howqua Westw.* and *howqua suffusa Leech* and distinguished from the latter by its much greater size. The colour of the upper surface in *suffusa* is light yellow-brown, in *tonkiniana* always dark red-brown In *tonkiniana* all the wings appear to be much more broadly bordered with a deeper black, and the base of the wings is not yellowish brown, but dark brown, like the upper part of the body. Herein *tonkiniana* differs also from *howqua sparta Nicév.* from Manipur. On the underside my Tonkin specimens differ, especially in the ♀♀, by the moss-or grey-green suffusion on all wings, which is wanting in chinese specimens and in *sparta.* The cellular and discal bands are twice as broad as in *suffusa.* Some ♀♀ have only a grey fringe on the marginal border of the hindwings, others are broadly grey bordered. One splendid ♀ aberration (103 a) has on the underside of all the wings elongate, instead of round ocelli, which are more than twice as large as in normal specimens, with elongate in place of circular white centres, and which touch the elegant black arrowheads thrown out from the submarginal band.. ♂ expanse 74, ♀♀ 85 mm. Than-Moi, North Tonkin, at about 1000 m, in June and July. — **sparta** *Nicév.* stands very close to *tonkiniana Fruhst.* but the general colouring is rather ochre than red-brown and the arrowheads in the hindwings are more prominent, because they stand free and have rounded points. Only one ♂ yet known, from Manipur. *howqua. suffusa. formosana. tonkiniana. sparta.*

S. louisa has three geographical races distributed through Further India. The name-type **louisa** *Wood-Mas.* comes from Tenasserim, where I met with it at a height of about 600—800 m, in dense bamboo jungles. It represents the palest extreme of the species, having an extensive pure white distal area on all wings, from which the long pointed black arrowheads stand out sharply. The whole basal region is yellowish in the ♂♂, more reddish brown in the ♀♀, forewings with whitish discal and subapical zones on the underside, hindwings with a white distal median band, usually sharply defined, and ending on the lower median nervule before the anal ocellus. Ground colour of the ♂♂ otherwise yellowish, that of the ♀♀ pale washed out greenish yellow. Forewings with a series of five, sometimes only punctiform, eye-spots; hindwings with two rather more distinct ocelli. — **fruhstorferi** *Röb.* (103 a) from northern Tonkin has a white field on the forewings only, while on the hindwings the arrowheads are at least occasionally surrounded by indications of a whitish or yellowish suffusion. But there are specimens, especially ♀♀, in which the original white on the hindwings is replaced by a violet glossed blue-grey. The upperside is basally yellow in the ♂♂, deep red-brown in the ♀♀. The arrowheads narrower, the anteterminal spots more than twice as broad as in *louisa.* Under surface greenish in the ♂♂ also, the white colouring on the median band restricted. Flies in June and July at about 600 m. — **mathilda** *Janet* from the Laos district and southern Tonkin forms an interesting intermediate stage between the preceeding race and *louisa*, having the arrowheads, which stand in yellowish area, shaped as in *louisa.* Under surface of a peculiar yellowish, and at the same time moss-green colour, the white central band very narrow, duller and glossed with greenish. *louisa. fruhstorferi. mathilda.*

S. cambodia *Wèstw.* known to me only from the figure, published by Hewitson in 1862, is perhaps also only a still more bleached and discoloured form of *louisa*, and should this prove to be correct, it must take its place as the name-type. In it the white on the forewings is replaced by a proximally blue and distally grey-violet suffusion. The arrowheads on the hindwings are extremely elegant and have no connection with the wavy anteterminal markings. Habitat Cambodia; only the type in Hewitson's collection yet arrived in Europe. In the delicate violet on the upper surface *cambodia* forms a transition to *cambodia.*

S. camadeva, of which two, only slightly differing local races have been described. In appearance and colour it recalls the south-american Morphidae, only that in it the wings are not blue, but milk-white

with a delicate rosey gloss, which deepens into a splendid red-brown at the base of the wings. *camadeva* is readily separated from *howqua* and *louisa* by the absence of the arrowheads from the hindwings, and the presence of the median eye-spot on the upper surface of the forewings, large in the ♀, only punctiform in the ♂♂. **camadeva** *Westw.* from Sikkim, uncommon in collections, but according to Nicéville's statements not rare at somewhat low elevations, flies from May to September, has probably only one brood, and dwelling amidst the densest vegetation, always close to the ground. Sikkim. — **camadevoides** *Nicév.* (103 b), first described by its author from the Chin Hills, Upper Burma, is never wanting in consignments to Europe from the Khasia Hills; is has also been already mentioned from Manipur and Cachar, where it was observed flying slowly in clearings in the woods from April onwards, when the rains begin. The basal hair tuft on the hindwings is said to emit an agreable scent, but which is overpowered and driven off by the much stronger scent, common to both sexes, recalling fresh sable skins. The Assam form, which has already been described in german as **nicevillei** *Röb.* differs from the Sikkim race in the wings being no longer simply milk-white, but suffused with violet, which is especially obvious on the submarginal band of the hindwings. The darker marginal markings on all wings are also considerably broader, and the underside appears more yellowish brown. Uncus shorter, more slender, valve longer, basally more curvate than in *howqua*. The lateral points of the uncus weaker than in *howqua formosana Fruhst.*

camadeva.

camadevoides.

nicevillei.

B. Uncus without lateral clasps.

9. Genus: **Amathusia** *F.*

The large, dull brown butterflies of this genus are so uniform in appearance, that only two of the existing seven species were recognized as such. Since the indistinct, rarely sharply defined bands on the underside afford but a very slight ground for determination, there remains only the development and colour of the secondary sexual characters in the ♂♂, some being furnished with a deep androconial cavity on the hindwings (*Pseudamathusia*). *Amathusia* is characterized structurally by the five free subcostal nervules, of which the first is very long and emitted before the apex of the cell, while the three following are short, and given off near the apex of the wing. In contrast to the more satyroid genera hitherto dealt with, the hindwings terminate in a short tail. At the angle of the upper median nervule in the forewing there is a narrow transverse swelling of the membrane, indicating the position of a spur of the vein, otherwise peculiar to the genus *Zeuxidia*. The forewing has on the underside a small smooth area near the base, the hindwing is furnished with a pocket-like fold, within which, distally from the submedian, reposes a more or less strongly developed tuft of hair, which can be extended fanlike, its colour varying in the different species. There is sometimes a second tuft of hair on the proximal side of the submedian (*phidippus*). Especially remarkable are the four lateral tufts of hair on the preapical segments of the abdomen, directed towards the wings, and agreeing in colour with the abdomen (*phidippus*). The larva was discovered by Horsfield in Java and first figured in 1857, it is similar to that of the *Discophora*, rather large, red-grey in colour, somewhat thickened centrally, the whole body covered with tufts of short hair, the second and third segments only, like the head, with long setae. The head has two short, apically palmated processes. The abdomen terminates in two long setose points. Pupa smooth, oval, green, much narrowed at both ends and with two horns on head. Larva chiefly on the coco palm. Clasping organs much specialized, and differing from those of all the other genera of the Amathusiidae. Uncus bifid, as in the Nymphalid genera *Mynes* and *Kallima*. Valve extremely broad, yet the distal end produced into an elongate obtuse point, having a general resemblance to those of the Pierid genera *Prioneris* and *Pareronia*. Valve unusually long, very diffusely setose. The imagines live partly in the dense primeval forest, partly in the neighbourhood of inhabited localities, in consequence of the presence of their food-plant. The centre of distribution is in Macromalayana, with offshoots towards the small Sunda Islands, the celebean subregion and the Philippines; on the Continent from the malayan and Further Indian Peninsula to Burma.

Specific group **Amathusia.**

♂♂ without androconial cavity on the upperside of the hindwings.

A. phidippus named in 1763 but first figured by Seba in 1765, is one of the commonest butterflies of the East, and lives throughout the year wherever the food-plant, the coco-palm, is cultivated; yet the most specimens are found from October to March, but especially in December and January, while from April to September only isolated, mostly worn, specimens are met with. The ♀♀ chose large, tall, full grown trees rather than the young, newly planted ones for the deposition of their eggs. Dr. Martin has found the larva on the african Oil-palm and the Palmyra palm as well as on the coco-palm. Both the species of palm named had been

artificially planted in his garden and suffered from the ravages of the *Amathusia* caterpillars, just as they are also often destructive to the coco-palms, and transform the splendid green fans into broom-like rags. In this work they have a powerful competitor in the larva of a large Hesperid (*Hidari irava Moore*) which also feeds in great numbers on the coco-palm, and usually comes off victorious in the struggle for existence with the *Amathusia* larva, for it lives concealed at the base of the leaf, two of which are spun together, and frequently gnaws through the midrib, thus actually cutting off the *Amathusia* larvae. The young larvae are white-green with longish, white pubescence and a fine black dorsal marking, consisting of two rings; they live in communities; they only feed at night, and by day they retreat into the axil of the leaves, where they rest, pressed close together, side by side, and can only be discovered by close examination of a practised eye. Not until after the last change of skin do the larvae separate and live more solitarily; they are now grey-green with longer, red-grey hairs, have two setose horns on the reddish head and two fine anal points. The light green pupa hangs downwards from the horizontal branches of the palm. The imago emerges in about 12 days, is extremely fond of shade, rests by day with folded wings in sheds or houses, and only flies when disturbed. With the setting of the sun they leave their hiding places, and play around the slender coco-palms, which nod mysteriously in the evening breeze. They are then sometimes attracted by lighted lamps in the houses and obscure the light with their broad wings (Martin). — ♂ above chiefly brown, the yellowish submarginal band is narrower or broader according to the locality, and is in the ♂♂ rarely, in the ♀♀ always apically proximally extended. Under surface in the wet season form with the longitudinal bands sharply defined, in the dry form indistinct, always whitish brown; ♂ with a long brown hair tuft about the middle of the inner part of the hindwing, behind which is inserted a second, smaller and shorter, proximal and more analy directed. — **adustatus** *Fruhst.* must be considered the most northerly local race; the type belongs to the extreme dry form. The specimens are therefore also very small, the upper surface in ♂ brown without distinct submarginal band, but with slightly paler, rather yellowish distal area on the forewings. The ♀ is smaller than most specimens from the Sunda Islands, still lighter brown than the ♂, with broad, yellow-brown marginal border to all the wings, and a feebly indicated, yellowish subapical bar. The underside is strikingly pale and washed out. Here also the whitish median band is extremely broad, but the brown band very narrow. The ocelli are only slightly black ringed, with small white spots, and lighter yellow than in the ♀♀ from the Sunda Islands. Flies in January; in the Temple gardens of Bangkok in Siam. — Just as *adustatus* represents the extreme of one form of the dry period, so **friderici** *Fruhst.* described from Tenasserim, shows the furthest progressive maximum in the development of the wet season form. The under surface has unusually broad, almost pure white, silvery longitudinal bands, which give a certain resemblance to *A. perakana Honr.* and *perakana taenia*; there is also a further inclination towards the ♀ colouring, found in no other *phidippus* race, in the shape of a broadly diffused, slightly reddish ochre-yellow subcostal spot on the upper surface of the forewing, whereby the marking receives a character reminding of another species occuring together with *phidippus friderici*, viz. *binghami Fruhst.*, which is figured on Pl. 105 a, but erroneously lettered *schönbergi*. — On the Malay Peninsula *phidippus* is continued in a geographical race which connects *friderici* from Burma and Tenasserim with *eutropius* from Sumatra. This is **chersias** *subsp. nov.*; the ♂♂ of the wet form differ from *friderici* ♂♂ in the absence of the lighter subapical area on the upper surface of the forewings, and beneath by the still distinct, but less conspicuous white bands. Yet all the Perak specimens of *phidippus* bear such conspicuous white bands, that Moore confused them with *perakana Honr.* In correspondence with the almost uniformly damp climate, the dry season form is not developed to the same degree as in the subspecies from Siam, and the pale longitudinal bands, which in *adustatus* are almost of finger-breadth, do not exceed ordinary dimensions. I should include under *chersias* also a series of examples from Perak and Singapore in my collection, which differ from the sumatran specimens in the uniform colour of the upper surface and the noticeable narrower brown bands on the underside of all wings. — **andamanensis** *Fruhst.* is founded on specimens with unusually pale upper surface, showing, especially beneath a pale, chiefly yellowish distal region, and are traversed by very broad longitudinal bands. This strongly divergent race is only sparingly represented in continental collections, although Moore states, that it was taken in large numbers at Port Blair in Roepstorff's time and sent to England. Moore knew of a ♀ which, like many *Taenaris*, had supplementary eye-spots on the hindwings, among them a complete ocellus between the lower median nervules and a blind eye between the lower radial and the first median. — **eutropius** *subsp. nov.* inhabits Sumatra, probably also Billiton and Bangka, spreading over the alluvial part of the large island as far as the foot-hills. The specimens are large, the colouring of the upper surface is very constant, corresponding with the unceasing rains of that climate, and thus brought into contrast with their javanese sisters who are subjected to seasonal variations. ♀ with relatively broad, full ochre-yellow subapical spot on the forewing and sharply defined submarginal crescents. The brown longitudinal bands on the underside are bounded by whitish violet streaks. In North-east Sumatra, together with the large, broad-banded specimens we find also, but rarely, smaller examples with greatly narrowed median brown longitudinal bands, which recall

adustatus.

friderici.

chersias.

andamanensis.

eutropius.

retracta. *chersias Fruhst.* and have a distant resemblance to *celebensis* (105 a) (= **retracta** *form. nov.*). — On Nias Island
niasana. there has developed a very constant, considerable differentiated race, **niasana** *Fruhst.*, which is distinguished from the typical javan specimens by the darker upper surface of the wings and the washed-out appearance of the underside of all the wings. The under surface of *niasana* resembles that of the wet form of the javanese *phidippus L.*, but is nearest to the *phidippus* race from Borneo, yet has still less clearly defined bands than the javan and is more deeply violet glossed. *niasana* is further especially distinguished by the brown discal band exactly in the middle of the underside, which is sharply dentate on its inner margin. Herein it recalls *A. schönbergi Honr.* in which this band is certainly more deeply incised. There is probably an allied race on the Mentawej Islands, but only a single utterly ragged specimen has as yet reached Europe from thence.
phidippus. — **phidippus** *L.* the name-type, appears to have been described by Nordgreen from specimens collected in Java during the rainy season; in contrast with the forms heretofore treated of , it is much exposed to climatic influences. The ♂♂ of the wet season have the upper surface very like that of the sumatran specimens, only that, in accordance with the general direction of the development in the javanese Lepidoptera, the colour is always lighter than in the representative races, and accordingly the ♀ shows progressive light ochre-yellow subapical marking. The submarginal circular spots are less broad and less sharply emarginate than in *eutropius* ♀♀ from Sumatra, but the distal border on the hindwings is nearly light yellow and more prominent. The streaks on the underside are decidedly purer white, the general colouring brighter and the ocelli on the apex of the hindwing smaller than in *eutropius*. The anal eye-spot is sometimes enormous, especially in the ♀♀. — The
retrograda. dry season form **retrograda** *form. nov.* has no yellow anteterminal band on the upper surface of the ♂ and the ochre-coloured areae are suffused with dull brown, subobsolete. The underside has entirely indistinct pale grey-violet longitudinal bands bounding the dull coffee-coloured, sometimes even grey-yellow median areae. The ornaments on the tails which were mentioned even by Linnaeus (caudaeque ocellis geminis) are smaller, with more white and less black than in the wet season generation. — *phidippus* is one of the commonest butterflies in Java, where it occurs up to about 800 m and is captured and sent in by the natives in large quantities.
baweanica. — **baweanica** *Fruhst.* Specimens of *phidippus* from Bawean are always smaller than those from Java, they incline less to individual variation and are much more constant than the allied forms from Sumatra, Borneo and Perak. The ♂♂ differ from the javanese *phidippus* chiefly in the lighter costal margin of the forewings, and the always uniformly prominent yellow-brown submarginal band, which is either entirely obsolete in the javanese specimens, or more striking and more intense red-brown. The under surface of the ♂♂ in characterized by the very narrow, but always distinctly defined and lighter white submarginal bands than are observed in the Java specimens. The ♀ averages smaller than the *phidippus* ♀♀, and is distinguished by the subapical oblique bar on the forewings being very much lighter yellow, always narrower and more distinctly defined, than in the Java ♀♀. The submarginal bands on the fore- and hind-wings seem narrower, decidedly lighter and apically more prominent, bounded both distally and proximally by darker and more strongly waved lines. The very broad and almost pure white median bands on the underside somewhat recall *perakana taenia Fruhst.* from
lombokiana. Java. — **lombokiana** *Fruhst.*, the Lombok form of *Phidippus*, is very similar to *baweanica Fruhst.* The faded colouring of the underside in the ♂ reminds one of *dilutus Fruhst.* from South-east Borneo. The ♀♀ depart from the javanese and Bawean ♀ type in the darkened and reduced submarginal bands as well as in the smaller and darker subapical spot on the upper surface of the forewings. The ground colour of the ♀♀ is darker than
coreotincta. that of the *dilutus* ♀♀ from Borneo. Lombok, up to 2000 feet. — **coreotincta** *Stich.* has on the under surface a brownish, leather-coloured tone, and the upper surface is also a shade lighter than the Borneo race. The form was founded upon a somewhat abnormally coloured specimen from Natuna Island. It is, however, very
dilutus. doubtful whether it can hold its own side by side with the very variable **dilutus** *Fruhst.* from North and South-east Borneo. *dilutus* has the same faded underside, traversed by broad violet bands as in *niasana Fruhst.* In contrast to those from Java and Sumatra, the ♂♂ are very constant in the uniform dark brown colouring of the upper surface. The submarginal bands only show through slightly from the underside, whereas in the specimens from Java and Sumatra they always show distinctly, sometimes even appearing as prominent light brown bands. The brown bands on the underside of the wings are throughout paler than in those from Java. In place of the whitish grey longitudinal bands, which distinguish the Java and Sumatra specimens, we find only violet bands, which also predominate in *masina Fruhst.* The ♀♀ are also less marked and never have such broad and prominent subapical spots as the Java specimens, it appears, in fact, to be not uncommon in South Borneo for the yellowish subapical brightening to be entirely wanting, so that these ♀♀ have the eo-
arrenopia. loration of the upper surface similar to the ♂♂ (♀ fa. **arrenopia** *form. nov.*). Side by side with them are other ♀♀ which, in contrast to the ♀♀ of the neighbouring districts, have a longitudinal median band of several millimeters broad on all the wings, which is always accompanied by a broad but ill-defined pale whitish yellow
epidesma. submarginal band (= **epidesma** *form. nov.*). — Seasonal forms of *dilutus* can also be recognized, and it appears, that specimens with yellow-grey instead of white longitudinal streaks on the underside, bounding pale brown median bands, belong to the dry season; those with more violet, slightly irideseent parallel bands belong to the
palawana. period of the monsoon. — **palawana** *Fruhst.* is a rather rare form, the type of which is in the British Museum,

and which differs from *dilutus* chiefly in the lighter and more distinct white longitudinal streaks on the underside. The brown discal band in externally more deeply indented than in *dilutus* and the Philippine races of *phidippus*. Palawan Island, discovered by Dr. Platen, but not again found by Doherty. — **pollicaris** *Btlr.* is the oldest name for a series of geographical branches in the Philippines, which cannot by separated with any degree of certainty, in consequence of the scanty material available. Butler's type came from Luzon; according to Semper there are small variations in the distinctness of the paler markings on the upper surface as well as in the position of the lighter and darker stripes on the underside, as in all other localities. Yet it is probable, that the races of the central Philippines (Mindoro) and of the southern (Mindanao) will show some peculiar colouring. — Under the name of **patalena** *Westw.* is described a doubtful form, said to come from the Islands of Torres Straits; an absolutely false locality, since neither *phidippus* nor any other species of *Amathusia* occur to the east beyond the celebean subregion. Westwood gives the following diagnosis; Upper surface pure yellowish-brown, with a slightly dentate, very indistinct, slightly paler submarginal band on all wings. Underside flesh-coloured-brown with numerous pale straight lines and a broad dark median band. This description would fit any insular form of *phidippus*. — **celebensis** *Fruhst.* (105 a) as might be expected from its geographical position, is the local form which diverges most from the name-type and the general direction of development of the macromalayan subspecies. The under surface is chiefly whitish grey, with delicate violet suffusion, the brown bands much narrowed, so that the white streaks have more room for expansion. *celebensis* is smaller than *phidippus* and with a darker, blackish brown ground colour. The bands on the under surface are much narrower, and the scent tufts on the abdomen are paler grey. ♀; the yellowish, obsolete, costal spot on the forewing is widely separated from the yellowish submarginal band, not confluent with it as in *phidippus* from Java, Borneo, Nias and Lombok. I took *celebensis* both in the north and in the south of the island. A ♀ bred by me in Toli-Toli had 12 days pupal rest. — **kühni** *Röb.* a well marked island race, discovered by the collector whose name it bears on Bangkai, and differing from *celebensis* in its smaller size, the still deeper brown of its ground colour, as well as in the more dominant grey-white of the underside, and, above all, by the brighter brown, distally more distinctly dentate brown streaks on the hindwings, which stand out more clearly against the paler background.

pollicaris. *palalena.* *celebensis.* *kühni.*

A. binghami *Fruhst.* (105 a), wrongly lettered *schönbergi* on the plate, and originally described by me from a few specimens in the British Museum as a subform of *phidippus*, has proved to be a sharply defined species with reddish, in place of yellow-brown hair tufts on the hindwings. A further important character is that *binghami* has a very scanty distal and a large proximal hair tuft on the hindwings, whereas *phidippus* has the anterior external tuft largest and thickest. The splendid red-brown colouring of the large subapical spot on the forewings and their submarginal band are not so prominent in our illustration as in the originals from Sumatra. The under surface differs from all other forms of *phidippus* in the uniform light red-brown colour, the broader brown longitudinal bands, and the larger, more distinctly black centred ocelli. Type from Penang, collected by Colonel Bingham in Sept. 1891, one ♂ from Perak in the British Museum, some three or four ♀♀ in coll. Staudinger in the Berlin Museum and finally 5 ♂♂ from near Padang in West Sumatra in coll. Fruhstorfer.

binghami.

A. schönbergi has only one black-grey hair tuft in a fold on the submedian of the hindwing, thereby differing from *phidippus L.* and *binghami Fruhst.* The colouring of the upper surface somewhat recalls *binghami*, but the subapical spot is more like a bar, posteriorly and inwardly not finely and gradually dispersed, but sharply defined, the spot and the more ochre-yellow submarginal band continuous. Hindwings with a short, almost quadrate costal spot, which is continued into the anal angle as an indistinct band. The underside is easily known by the very broad, splendid velvet brown median band on all wings, which is extremely irregular on the forewings and distally deeply indented. Its distal bordering is not white, but pale yellow-grey. Ocelli very large, the anterior scarcely smaller than the anal, broadly black ringed. Two local races; **schönbergi** *Honr.* from Perak and Sumatra, with extended yellow suffusion on the upper surface of the forewings. According to Martin, it differs from *phidippus* chiefly in the underside of both wings, the longitudinal bands being much darker and broader, with irregular broken contours. The broad discal band touches the anal ocellus nearer its middle and surrounds its inner side with a pointed projection. The ground colour of the underside is leather-yellow, without the violet gloss of *phidippus*. The ♂ of *schönbergi* has also the upper surface of both wings more uniform red-brown with only a trace of the marginal band, which is distinct in *phidippus*; the lateral hair tufts on the last 4 abdominal segments are also shorter. The ♀ of *schönbergi* has a darker ground colour than that of *phidippus* and bears a very prominent, broad yellow oblique band near the apex of the forewing. In North-East Sumatra Martin found an ocellar aberration, which had on the underside, in addition to the two ocelli of the hindwing, a large ocellus in the anal angle of the forewing, and a third small ocellus on the hindwing. *schönbergi* is rare, inhabits the primeval forests of the foothills, going up to about 700 m. The larva probably feeds on Areca nibung Mart., a palm which grows in little groups in the woods on the hills; at least Dr. Martin found the butterflies only in the vicinity of such trees and also saw a ♀ deposit eggs there. —

schönbergi.

borneensis. **borneensis** *Fruhst.* remains rather behind *schönbergi* in size and shows more faded ochre-yellow markings on the upper surface of the forewings, which are sometimes almost obsolete. The median band on the underside of the forewings is still more deeply indented than in *schönbergi*. From Bandermassin in coll. Fruhstorfer.

A. ochraceofusca is held by Stichel to be only a seasonal form of the preceeding. The shorter hindwings, the smaller size and the light brown, instead of black tufts on the hindwings appear to justify specific separation. The paler brown upper surface, the absence of all yellowish suffusion on the forewings and the more regular brown longitudinal bands on the underside all point in the same direction. There certainly do not *ochraceofusca.* appear to be any other important differences. Two local races; **ochraceofusca** *Honr.* from Perak and Sumatra, where the species appears to be even rarer than the preceeding, since Martin mentions no properly identi*gabriela.* fied specimen from the Sultanate Deli, and I have only 1 ♂ from West Sumatra; — and **gabriela** *Fruhst.* (105 c). ♂ from South Borneo; considerably smaller and darker than specimens from Sumatra, which are probably similar to Honrath's type from Perak. The ground colour on the upper surface of the wings is rather lighter coffee-brown than in *perakana staudingeri Röb.* The submarginal bands on both wings show through above. This band is narrow, sharply defined. There is no trace on the wings of the yellowish subapical oblique bar, which is still slightly indicated in *ochraceofusca* ♂ from Sumatra. The scent tufts are basally (that is beneath) yellowish and light brown above, while in 2 *schönbergi borneensis Fruhst.* from south-east Borneo, they are almost to be called black. The light colour of the antennae recalls *staudingeri Röb.*, whereas in *schönbergi borneensis Fruhst.* they are darker red-brown. South-east Borneo, 1 ♂ in coll. Fruhstorfer.

A. perakana is another well defined species, although its specific status has been questioned. It is most easily separated by the hair tufts on the submedian on the upper side of the hindwings, which differ slightly in the individual geographical races. The name-type is strikingly large, the wings more pointed and narrower than in *phidippus*; upper surface darker and more uniform brown, in the ♂ with scarcely a trace of a yellowish anteterminal band. The anterior ocellus on the underside is much smaller than that in the posterior angle; there is also a tendency to the formation of accessory ocelli. The longitudinal streaks, which accompany the uniformly broad brown discal band on all the wings, are strikingly broad, white or brown-violet. *perakana* has a wider distribution than has hitherto been supposed, and I am able to add Java, Bawean and Lombok *perakana.* as additional localities. — **perakana** *Honr.* (105 b), only known with certainty from the Malay Peninsula, but probably also occurring in North-east Sumatra, although I have as yet no authentic specimens from thence. The white striation of the underside is in reality more intense than in the figure, which was taken *staudingeri.* from a ♂ in which the anal lobes were wanting. — **staudingeri** *Röb.* is a well defined subspecies, with light leather-brown colour on the upper surface, reduced size and at once recognized on the underside by the narrow yellowish, instead of white longitudinal streaks. Altogether the ground colour is more washed out, as is the character of the Borneo Amathusiae, the brown areae are paler and the eye-spots scarcely one third as large *natuna.* as in *perakana* from the Malay Peninsula. Only known to me from South-east Borneo. — **natuna** *Fruhst.* is about intermediate between *perakana* and *staudingeri*; its size is little less than that of the name-type, and, in contrast to *staudingeri*, the underside is close to that of *perakana*, having distinct, almost pure white stripes, *taenia.* which are only distally slightly weaker. Natuna Island, rare, only 1 ♂ in coll. Fruhstorfer. — **taenia** *Fruhst.* (105 a) has departed furthest from the type, almost to the borders of specific rank, first described by me as a species, but later unfortunately brought into connection with *phidippus*, from which the absence of the second inner scent tuft suffices to separate it. ♂ hairtufts on the hindwings analogous to the ground colour, paler grey than in *phidippus L.* from Java. Both outer bands on the wings paler. In the ♀ the ultracellular yellowish spot (always reddish in *phidippus*) is visibly continued as far as the lower median, and the median bands of the hind wings show through above. Under surface; the cell of the forewing is traversed by three very broad coffee-brown longitudinal stripes, whereas in *phidippus* there are four of a reddish colour. The coffee-brown median band is broader than in *phidippus* and bounded on both sides by almost white stripes. The external part of the forewing is very pale, the submarginal brown longitudinal line scarcely one third as broad as in *phidippus*. On the hindwings there are only two brown streaks in the cell, and the much broader median band is straighter and with a more rectilinear outline than in *phidippus*. The two ocelli are more distinctly centred, the anterior being strikingly small. The brown band in the cell is not confluent with the basal band below *incisa.* the cell as in *phidippus*. — **incisa** *Fruhst.*, which I doubtfully placed to *phidippus* in 1905, shows the differential characters of *taenia* even more clearly. The underside is still paler, the brown median area deeply incised distally, almost as in *ochraceofusca*, on the hindwings dentate on the inner side also; the anterior apical ocelli on the hindwings tiny. The upper surface of *incisa* differs from *taenia* in the lighter and more extended grey-brown yellowish subapical mark and a feeble discal band, recalling *dilutus* ♀-fa. *epidesma*. Bawean Island, certainly very rare, only one ♀ having reached me among hundreds of *A. phidippus baweanica* *orasis.* *Fruhst.* — **orasis** *Fruhst.* must be considered as a reversion towards the Perak type. The general colouring of the upper surface is darker red-brown than in *perakana Honr.* The under surface is somewhat similar to

that of *binghami Fruhst.*, dark grey-brown, with uniform broad brown areae, which are conspicuously white bordered. The apical ocellus again very small, whereby they are most readily distinguished at sight from *Amathusia phidippus*, which flies with them. Lombok Island, at elevations of about 600 m. Very rare, so that I was only able to obtain one ♂. Flies in April.

Specific group **Pseudamathusia** *Honr.*

Hindwings with a cup-like depression in the basal angle between the costal and subcostal. Forewings beneath with a shining smooth spot, which in one species is surrounded distally also by black scales.

A. masina recalls *ochraceofusca Honr.*, *staudingeri Röb.* and *perakana Honr.*, in the far produced apex of the wings and the narrow hindwings. The ground colour is a light rust-brown, on which the white bands of the underside show through. As in *phidippus*, there are at the apex of the tails two black, outwardly white bordered eye-spots. The underside is very similar to *taenia Fruhst.* from Java, only that the ground colour is not brown-grey, but light red-brown with sharply defined coffee-brown longitudinal bands, which are prominently edged with silvery white. The white bands are narrower than in *Amathusia parakana Honr.* and *Pseudamathusia virgata Btlr.* The anal margin of the forewings is less strongly curved than in *virgata* and their shape is about that of *staudingeri Röb.* On the upper surface of the hindwings the black shadow between the subcostal and the upper radial, which distinguishes *virgata*, is wanting. From the fold between the third median and the submedian project two dark brown hair tufts, while in *virgata* there is only one tuft with whitish-yellow hairs. Below the hairs there is also a broad swelling with longer dark brown hairs, as also occurs in *Amathusia perakana Honr.* Underside; the black scales are absent from the outer side of the corneous shining patch which is also shorter than in *virgata*. The submedian is scarcely half as strongly curved. Two sister races must be mentioned; **masina** *Fruhst.* (105 b) by an unfortunate mistake the upper surface, which tells one nothing, *masina.* has been figured; the underside is like *perakana*, only that the white stripes are all very delicate; the ground colour still richer red-brown and the submarginal bands sharper and narrower. South-east Borneo, rare, only 3 ♂♂ in my collection. — **chthonia** *subsp. nov.* with duller but paler yellow-brown upper surface, and a long, *chthonia.* but scanty pale yellow-grey tuft on the hindwings. Forewings with very narrow, sharply defined longitudinal band, which does not extend to the costal or anal margins. Under surface somewhat similar to *perakana*, but the colouring more like that of *binghami*. Bangka Island, type in the Staudinger collection.

A. virgata has the most developed scent apparatus in the genus, and is at the same time the only species with a extensive shining black smooth area on the upper surface of the hindwings, corresponding to a similar speculum on the under surface of the forewing, basally of the colour of the membrane, but distally black bordered. Hindwings with a roundish oval scent cavity, filled with brown androconia, and patch of yellowish hair on the submedian. Ground on the upperside of the ♂♂ a fine fawn-brown, that of the ♀♀ lighter, an indefinite brown-yellow, someting like *A. phidippus*. Underside analogue of *phidippus celebensis Fruhst.* with almost equally broad white and brown streaks which become chiefly yellow in one local race from the northern Celebes. Eye-spots on the hindwings about equal in size, the anterior ones especially distinctly black ringed. — **virgata** *Btlr.* (= *ribbei Honr.*) inhabits the south of Celebes, where I took it feeding on the sap *virgata.* exuding from the Sugar palm at the back of the malayan Cemetery in Macassar, frequently in company with *Elymnias mimalon Hew.* and *hicetas Wall.* Flies from January to March. — **thoanthea** *subsp. nov.* differs *thoanthea.* in the yellowish longitudinal bands on the underside, which are scarcely to be distinguished from the ground colour, whereas the typical *virgata* from the south recalls *parakana Honr.* and *taenia Fruhst.*, by its silvery white bands. Collected by me at Toli-Toli in North Celebes in November-December, and attracted in numbers by banana skins hung out.

10. Genus: **Amathuxidia** *Stgr.*

The two splendid species of this genus are conspicuously sexually dimorphic, the ♂♂ velvet black with blue or violet bands on the forewings, the ♀♀ brown with ochre-yellow bands; the under surface with fine dark brown longitudinal streaks. Structurally the *Amathuxidia* can only be separated from the *Amathusia* by the costal of the forewing being anastomosed with the subcostal. On the hindwings there is, as in *Amathusia*, a median spur, which reaches its fullest development in the genus *Zeuxidia*. This genus forms a transition to the *Zeuxidia* in the prominent tertiary sexual characters and the luxuriant colouring. Forewings beneath with a smooth speculum near the median nervure, and an accumulation of dull shining blue-black scales below the submedian. Hindwings with a yellowish hair tuft in a deep pocket-like fold in the curve of the submedian, close to which is a swelling covered with dense red-brown or yellow-grey hairs; in and behind the cell is a broad patch of plush-like scent scales, which in one species (*plateni*) are mingled with long

hairs. Like the Zeuxidia and other indina Amathusiidae the *Amathuxidia* belong to the denizens of the primeval forests, and prefer the vicinity of the little watercourses which flow from the hills. Like the Zeuxidiae they spend the day in the position of rest on twigs or beneath thick foliage. They fly unwillingly and never far, even if disturbed; yet they have a rapid and absolutely incalculable zig-zag flight, and know how to conceal themselves rapidly and effectually among the tangle of leaves and branches. Only on warm still days are they tempted to float during the midday hours at about 2—3 m above the ground, and, from their size and the magnificent blue gloss of their wings they are then among the most charming and imposing sights of the forest. The two species are among the most perfumed butterflies; their strong scent recalls violets, and is still recognizable after two or three years in cases with naphthaline. This pleasing scent emanates from the shaggy velvet brown scales which cover the large scent patches in the cell of the hindwing, and may be due to the food of the *Amathuxidia*, which consists of the fallen aromatic fermenting fruits, lying in quantities on the decaying leaf mould on the ground in the damp forests. The centre of distribution of the *Amathuxidia* is the macromalayan region, from whence they have extended to Celebes and the Philippines. Crossing the Malay Peninsula, they have reached Burma and Assam, but are already very rare there. Every larger island has an especially highly specialized from, sometimes almost of specific rank.

Specific group **Amathuxidia** *Stgr.* Hindwings without hair tufts in the cell.

A. amythaon with its many offshoots inhabits the western area of the zone of distribution of the species.

amythaon. **amythaon** *Dbl.* is the name-type and very scarce in collections. Both the ♂ and ♀ differs but slightly from the figured *ottomana* (102 a) in the somewhat more extended blue, resp. ochre coloured oblique band on the forewings. The under surface of the ♂♂ is lighter grey, that of the ♀♀ brighter ochre-yellow. The type comes from Sylhet, a few specimens have also come from Assam, Crowley had several ♂♂ from the Naga Hills, Doherty found them at the foot of the Karen Hills and Colonel Bingham a few pairs in autumn and winter in Upper Tenasserim in the Thoungyen Forest, famed for its butterflies. Major Adamson took two ♂♂ which flew into his tent shortly before sunset on Christmas Eve, while camping near the sources of the Thoungyen River in evergreen woods. *amythaon* has also been observed in Tavoy (Tenasserim) where they flew in the early morning as well as at sunset. In the Calcutta Museum is a specimen with the label "Sikkim", but the locality

dilucida. has not again been verified in the last 30 years. — **dilucida** *Honr.* is a very fine southern form, which has an apparently constant light violet-blue band of glory on the wings, which is also considerably broader than in *amythaon* from Tenasserim and Lower Burma. Honrath has figured the very rare ♀; it is wanting in my

lucida. collection. — **lucida** *Fruhst.* is another very scarce race, of which Dr. Martin was only able to capture 5 specimens in 13 years in North-east Sumatra. In West Sumatra it appears to be somewhat more frequent near Padang Pandjang, from whence I have 11 ♂♂ and 3 ♀♀. ♂ smaller than *dilucida*. The band on the forewings light blue in place of violet, much narrower, especially towards the anal angle, where in *dilucida* it only ends on the submedian, whereas in *lucida* the blue begins to narrow sooner. By the reduction of the blue band on the forewings the black ground colour gains in extent, whereby the wing appears to be more broadly black bordered. Underside; all wings darker, all longitudinal bands more distinct and darker brown, anal

insularis. ocellus larger, all ocelli more broadly black ringed. — **insularis** *Doh.* inhabits Engano Island. ♂ and ♀ strangely enough nearer to *ottomana Btlr.* from Borneo, than *lucida Fruhst.* from Sumatra and *porthaon Fldr.* from Java. The *insularis* ♂ differs from *lucida* in the narrower and darker blue band on the forewings, the much smaller size and the shorter, broader tails on the hindwings. The longitudinal bands on the underside of the hindwings are more pronounced black-brown and broader. The scent tufts on the upper side of the hindwings are light yellow, instead of red-brown as in *lucida* or almost black-brown as in *ottomana*. Compared with *ottomana*, *insularis* is but little smaller, the tails are just as long but rather broader. Towards the anal angle, where it touches the submedian, the blue band on the forewings of *insularis* is much broader than that of *ottomana*. ♀ upper surface; the yellow band on the forewing is narrower and rather lighter, the hindwings are broadly yellow bordered to the anal angle, whereas *ottomana* is only apically yellow-brown bordered. Underside: the discal part and submarginal region of the forewings are lighter than in *ottomana*. The basal half of the hindwing is paler, the outer half, especially the anal angle, darker. All the brown longitudinal lines are

pylaon. more waved, very much broader and darker brown, the ocelli much larger than in *ottomana*. — **pylaon** *Fldr.* (= porthaon *Fldr.*), a remarkable form, having almost specific value, and differing from all varieties in having an unusually elongate yellowish, instead of red-brown pubescent swelling on the upperside of the hindwings, and a viola-canina blue band on the forewings. The upper surface of the hindwings is more light grey, with violet suffusion, and the apex of the forewings is much more produced than in *lucida Fruhst.* from Sumatra. I had the pleasure of finding the hitherto undescribed ♀ first in East Java, later in the Bay of Palabuan in West Java. Like the ♂ it exceeds all other known subspecies in size, and has by far the lightest ochre-yellow oblique band on the forewings, which is divided into unequal parts by a fine wavy red-brown submarginal line. In the course of 3 years I took about 30 pairs of *pylaon* in Java. It nowhere ascends beyond a vertical height of 600 m

ottomana. and can only be obtained in any quantity by hanging out banana baits. — **ottomana** *Btlr.*

(102 a) inhabits northern Borneo; Waterstradt found it in the woods of the coast in the Sultanate of Brunei in North Borneo, whence the figured specimens were received. In South-east Borneo a distinct local race has already been developed; **octacilia** *subsp. nov.* smaller than the northern *ottomana* from which it *octacilia.* is distinguished by a very narrow ochre-yellow scarf in the ♀♀, and an also reduced, posteriorly abbreviated dark violet-blue band on the ♂♂. — **philippina** *Fruhst.* stands very close to *pylaon Fldr.* from Java; only *philippina.* one ♀ is known, from Panaon, Central Philippines, figured by Semper. The pale yellow band on the forewings is only 7 mm broad and only extends beyond the lower median as a spot not larger than a pea. Flies in May (Semper). — **perinthas** *subsp. nov.* among the types in Staudinger's collection, comes from Mindanao, where *perinthas.* it was taken by Dr. Platen. ♂ approaches the javanese branch, but the band on the forewing still broader, lighter blue and anteriorly whitish. ♀ scarcely to be distinguished from *pylaon* ♀, but the yellow-brown zone is rather narrower, more regular, and the apical area of the hindwings still paler. The underside is more like that of *A. plateni Stgr.* from Celebes.

Specific group **Zeuxamathusia** *Stgr.* ♂ with hair tufts in the cell of the hindwings.

A. plateni is separated in the celebean subregion into two described, strongly differentiated insular *plateni.* forms. *plateni Stgr.* reaches Europe almost entirely from the northern part of Celebes, where Dr. Platen found a few specimens at Minahassa. Later I had the good fortune to lure and capture about 50 pairs by the use of baits (in the coastal woods at Toli-Toli); a proceeding which was put an end to by the monkeys and birds which stole the fruit I exposed. *plateni* is one of those denizens of the woods which are a broad even in the heaviest rains. On sunny days the butterflies appear for a few minutes about midday, emerging suddenly like ghosts from the depths of the woods, flaunt the blue glories of their forewings for a moment, and then settle on a branch with folded wings. If disturbed, they only fly a few yards and usually creep through the bushes down to the ground, where the monotone colouring of their under surface harmonizes with their surroundings so as to make discovery extremely difficult. If one follows them into the thicket, one only captures badly torn specimens. *plateni* ♂ approaches *pylaon* in the cut of the wings, but falls behind it in size; the blue zone does not penetrate so far into the cell of the forewing as in the Java form, and comes to an end in the middle of the wing before the lower median. In the ♀ the deep ochre-yellow band commences breaking up into isolated spots, of which two are placed beyond the cell, two near the distal margin. On the underside the ♀ has a richer violet suffusion than *pylaon* from Java, and the red-brown longitudinal bands are more prominent. The pubescent swelling on the ♂♂ has a black colour, and the cell in the hindwing is also clothed with a dense covering of scales and setae, herein differing from *pylaon* and *ottomana.* Doherty found a race allied to *plateni* in southern Celebes, near the celebrated waterfall of Maros, and on the Sula Islands he discovered a highly specialized insular form **suprema** *Fruhst.* (102 b), of which there are two ♀♀ *suprema.* in coll. Fruhstorfer and one ♂ in the Staudinger collection. The wings of *suprema* are rounder than those of *plateni*, the blue spots on the forewing are scarcely half as broad and also shorter. The underside is considerably darker, the ocelli more distinctly white centred, the whole surface with a deeper and richer violet suffusion than in *plateni* ♀. The yellow oblique bar on the forewings much broader, more sharply defined. Between the median veins are two much larger, external yellowish spots, but the proximal brown-yellow spots below the cell, always present in *plateni*, are entirely wanting. Costal and terminal margins of the hindwings in *suprema* much broader light yellow bordered, and the two ocelli on the under surface of the hindwings larger, more distinctly white centred and with a blackish external streak, which is absent in *plateni.* Flies in October and November. Sula-Mangoli.

11. Genus: **Zeuxidia** *Hbn.*

The Zeuxidiae belong to most splendid sights of the indian tropics and are structurally closely allied to the genus *Amathusia*, but possess a conspicuous differential character in the peculiar spur on the anterior median nervule of both wings; in the forewing it is somewhat removed from the apex of the cell, but in the hindwings might easily be mistaken for a nervure closing the cell. *Zeuxidia* differs further from *Amathusia* in having the first and second subcostal nervures anastomosed with the costal, in the more extended sexual dimorphism, and in the highly developed secondary, or more correctly tertiary, sexual characters of the ♂♂. Two groups of species can be erected, based upon the presence or absence of hairtufts in the cell of the hindwings. All ♂♂ have in addition an extensive smooth speculum on the underside of the forewings, an androconia-cavity between the costal and subcostal, and a deep pouch-like fold on the submedian of the hindwings, in which rests a pencil of yellow or black hairs, which is capable of being erected. One species (*aurelia*) has a second hairtuft between the submedian and the cell of the hindwings and a fur-like bordering to the latter consisting of mouse-grey modified scales. Nothing is known of the early life history of *Zeuxidia**); but the imagos, in contrast to *Amathusia* and *Thauria*, are, like *Taenaris* true day fliers. It is true they never leave the shade of the forest, but they only fly on sunny days, and according to my observations in Java only in the

*) Compare Appendix p. 449.

morning hours. Their flight is heavy, uncertain, and they never fly far at one time, as may be understood from the weak body, which can hardly bear the disproportionately large wings. Their appearance is restricted to the wet season; they avoid dry parts of the woods, and are found in moderate numbers only where the small watercourses increase the natural dampness of the tropical forest. The species are generally rare, in south-eastern Burma alone all the conditions necessary for greater increase appear to be present, since it is only fron thence that great numbers (of two species) have been sent to Europe. The ♂♂ emit a pleasing aromatic scent, which differs in all the species. I suceeeded in decoying one species of *Zeuxidia* (*luxeri*) in Java, by hanging up over-ripe bananas along the watercourses in the forest; the ♀♀ came to them first, and were slowly followed by the ♂♂. Most of the *Zeuxidiae* inhabit the damp Lowlands, I know of only one species (*dohrni*) which goes up to 4000 feet. Macromalayana is their centre of distribution, from whence two species have advaneed as far as Tenasserim, and two species have passed over to the Philippines. Only one species (*luxeri*) has gone from Java to Bali. The clasping organs of one species only (*amethystus*) are known to me, and, in contradistinction to *Amathusia*, they are highly developed. The valve is similar to that of *Thaumantis*, strongly chitonized, more finely dentate on the inner side, and furnished with an apical spine. Uncus with a splendid cocks-comb-like, sharply dentate process, like that in some species of *Argynnis*. The uncus itself basally very broad and stout, only gradually attenuate outwardly. Penis long, pointed and narrow.

Specific group **Zeuxidia.**

♂ with uniform smooth speculum on underside of forewing and with hairtufts in the cell of hindwing which have no distal fur-like scaling.

a) Only one hairtuft in the cell of hindwings.

dohrni. **Z. dohrni** *Fruhst.* (102 c ♀). ♂; Forewings above deep ultramarine blue with very broad, light blue, violet iridescent band. This band is strongly waved, begins on the costal nervure and ends, slightly narrowed, at the anal angle. Base of the wing tinged with brown, the apex light ultramarine blue with two indistinct violet spots before the apex. Hindwings dark brown, with a broad, curved, violet submarginal band, which extends from the costa onto the anal tail, where it is somewhat narrowed, leaving only the apex black. From this submarginal band to the submedian the wings are suffused with dark blue, the anal tails elongate. Wings brownish beneath, with a common, chestnut brown band, which covers the external angle of both cells, and a narrow, yellow-brown border on the terminal margin. The violet apical spots on the forewing show through, the cell is traversed by 4 unequal brown bands. Hindwing suffused with violet at the base and on the anal tails on both sides of the discoidal band. A large round eye-spot on the subcostal, another between the submedian and the first median nervule. The cell crossed by 3 irregular brown bands, of which the middle is the darkest and most distinct. Head and thorax brown above, the pubescence wooly. Abdomen dark blue, short haired, palpi grey-brown, as is also the remainder of the body beneath. Antennae red-brown. ♀; larger size and paler in colour. Forewings basally light cacao-colour, with an irregular, whitish blue silky band, extending from the costa to the first median. Apex of wing blaekish with two pale spots before the point; both sides of the band tinged with ultramarine blue, the anal angle ochre bordered. Hindwings lighter than the forewings, with long hairs at the base; the rather broad, ochraceous marginal band extends to the anal tail, before which it is slightly narrowed, and is broadly indented on the inner side by the almost parallel subapical blaek bar. Under surface of wings paler than in the ♂. Distal margin red-brown bordered. The blue searf on the forewings and the blaek subapical band on the hindwings show through, the common discoidal band extremely sinuous. Anal tail black, with 2 marginal violet streaks. Body dark brown above with dark brown hair, palpi yellow-brown, thorax and abdomen white haired, antennae red-brown. Expanse of ♂ 77 mm, of ♀ 87 mm. — *dohrni* is distinguished from all other *Zeuxidiae* whieh I have in natura (*luxeri*, *amethystus*, *horsfieldi*, *doubledayi*) by an oval scent patch, which covers the middle of the submedian of the forewings, and is wanting in all the other species. On the other hand, the seent apparatus on the hindwings is far less conspicuous than, for instance, that of the most closely allied *Zeuxidia horsfieldi*. Between the costal and subcostal there is a roundish, deeply impressed fovea, whieh appears on the underside as a swelling, it has shining margins and is filled with red-brown scales, which are covered by a tuft of blackish hairs. Below this scent pocket there is, in the cell, another dull shining elongate spot, furnished with rather longer, whitish yellow pointed black hairs. The second tuft of hair in the cell present in *horsfieldi*, *amethystus*, *luxeri* and *doubledayi*, is wanting, and the hair-peneil in a fold of the membrane between the 1st median nervule and the submedian, so distinct in *horsfieldi* and *amethystus*, appears in *dohrni* only like delicate down. *Zeuxidia dohrni* is thus characterized by a series of tertiary sexual differences. This fine species, which probably replaces *doubledayi* in Java, was first found by me on the Gede Volcano at a height of about 4000 feet.

semperi. **Z. semperi** is still extremely rare in collections; two insular races are known; **semperi** *Fldr.*, from the

northern Philippines (type from Luzon) with very light whitish blue submarginal band on the forewings, commencing broadly near the costa and only gradually narrowing downwards, is inwardly broadly suffused with dark blue. Hindwings with a splendid bright blue terminal band, of very constant extent. The ♀ is extremely striking, and may be taken as a pattern of sexual dimorphism. It is considerably larger than the ♂, with a broad bright ochre-yellow border to the hindwings, which is even more extended and yet brighter coloured in **therionarca** *subsp. nov.* from Mindoro, than in the name-type from Luzon. The ♂ from Mindoro is to some *therionarca.* extent allied to *Z. amethystus* and distinguished by the unusually large ocelli on the underside of the hindwings. On the upper surface of the hindwings in the ♀♀ there is a further submarginal series of four white spots, of which the last, nearest the anal angle, is slightly yellowish. The two specimens of *semperi*, received by Semper from Luzon were taken in May; *therionarca*, of which Dr. Platen took a large number, flies in December.

Z. sibulana *Honr.* was taken first on Sibulan Mountain in South-east Mindanao, later again at Taganito *sibulana.* in east Mindanao. Semper gives the months of January, February to May as the time of flight, and, according to Honrath, this type came from the Apo Volcano at about 1000 m. The hair-tuft in the cell of *sibulana* is much larger than in *semperi* and *dohrni*, almost entirely covering the cell. In the shape of the wings and in the markings *sibulana* comes nearest to *semperi*, with which it closely corresponds on the underside. The distal band of the ♂ appears somewhat broader and is not sharply bounded inwardly, but fades gradually into the dark blue, partly densely pubescent basal half of the wing. Semper also states that the reddish tone, which characterizes the *semperi* ♂♂ is wanting. *sibulana* is also very scarce and is not in my collection.

b) Two hairtufts in the cell, either side by side or one behind the other.

Z. amethystus is the most widely distributed species of the genus and is met with in Macromalayana, with the exception of Java, and northwards as far as Tenasserim, also in the southern Philippines. **masoni** *Moore* *masoni.* inhabits Tenasserim where it has been observed in March to May at heights of from 3—5000 feet. It comes near *wallacei* (102 c), from which the ♂♂ differ in the costally broader, but posteriorly more pointed, and rather lighter blue band on the forewings. On the hindwings the blue distal spot is rather less in evidence. The ♀ has a rather regular yellowish white oblique bar on the forewings, and the light blue hindwings have a light ochre-yellow distal region. The ocelli on the underside are smaller than in the other races of *amethystus.* The clasping organs were described under the generic diagnosis. — **amethystus** *Btlr.* from the Malay Peninsula, *amethystus.* Bangka and throughout Sumatra, is very close to *wallacei*, from which the ♂♂ differ only in the rather lighter blue band of glory, while the ♀♀ contrast strongly in consequence of the more purely white and more imposing oblique bars on the forewings. Martin states, that in north-east Sumatra *amethystus* flies throughout the year in the woods of the foothills and mountains, at greater heights than the other species, not below 2000 feet. The ♂, in which only the anal half on the upperside of the hindwings is blue, has the following secondary sexual characters; 1) between the costal and subcostal veins is a roundish oval, smooth yellowishbrown bordered scent patch with polished black ground, above which lies a dark brown hairtuft, 2) in the cell a second smaller, more elongate patch, showing fine cross striation on its lower margin; outwardly from this patch, at the open apex of the cell, is a third dark brown tuft of hair, 3) above the submedian, at the end of the inner third, is a glandular pouch, from which a brush of hair radiates in all directions when the wings are brought into a horizontal position. On the underside of the hind wing the position of both scent patches is shown in relief and covered with felted scales. The ♀ has the markings on the upper surface of both wings yellow. The ♂♂ often bear on the underside supplementary, but partly incomplete ocelli (= **prodigiosa** *form.* *prodigiosa.* *nov.*). I have a long series of ♂♂ and ♀♀ from West Sumatra, which are rather larger than the specimens from Perak, with broader bands on the wings, but the ocelli on the upper surface of the hindwings show less yellow. — **wallacei** *Fldr.*, probably described from specimens taken by Wallace in Sarawak, is one of the *wallacei.* commonest butterflies in south-east Borneo. The ♀ already shows a transition form to *victrix* (103 c) but has rather more conspicuous yellowish spots on the forewings. — **victrix** *Stgr.* (103 c), a somewhat rare subspecies *victrix.* from Palawan, the ♂♂ of which are easily separated from other varieties by the blue distal band on the hindwings running from the anal angle to the apical region. The ♀ appears also on the underside more like the ♂, with less markings and no prevailing ochre-yellow tinge. — **amethystina** *Stich.* differs from *victrix* in *amethystina.* the very pointed apex of the forewings, which bear a broader blue band, laterally white bordered on the hindwings. Mindanao, type in coll. Staudinger; Caminguin de Mindanao according to Semper, who gives the time of flight as July to October.

Z. doubledayi falls into a series of not very sharply defined island and local forms, and appears to have yellow or black scent tufts on the hindwings according to its vertical distribution. With the exception of the Borneo and Sumatra races, so little material has reached Europe, that it is not possible to arrive at any definite conclusions as to some of the forms. Stichel was inclined to treat the sumatran subspecies as a species; on the ground of the relationship of the very slightly modified ♀♀ it has been here reunited with the name-type. We mention first **doubledaii** *Westw.* (103 c) as being best represented in collections; it was originally *doubledaii.*

described from Borneo, but is even there separated into two local races, of which the name-type probably comes
horsfieldi. from the east and north, while the name of **horsfieldi** *Fldr.* is transferred to the form from south-east Borneo. We figure the first named, from which the southern race diverges in the reduced violet-blue oblique bars on the
pryeri. forewings of ♀♀. — **pryeri** *Btlr.* is an abnormal form from North Borneo, in which, probably during the pupal state, the blue scales of the upper surface have been converted into grey and are partly wanting. The insect thus has such a peculiar appearance, that Butler was mislead into founding upon this single ♂ a new genus
sumatrana. „*Zeuxaltis*" (Ann. Mag. Nat. Hist. 1897 XIX, p. 470). — **sumatrana** *Fruhst.* type in coll. Dohrn (Stettin), appears to inhabit exclusively the Lowlands, and differs from *doubledaii* from Borneo, — with which it has in common the shape of the yellow rayed hairs — as follows; ♂ ground colour deeper black. The blue band on the forewings broader, that on the hindwings narrower, especially towards the costa. Both bands darker and pure metallic blue, without a trace of the violet gloss, which is always noticeable in *doubledaii* from Borneo, especially on the hindwings. The hindwings distally black-blue bordered. Underside; markings more
nicévillei. conspicuous, and distal white suffusion beyond the red-brown, sharply defined median band. — **nicévillei** *Fruhst.* (102 c) with the type, from the Battak Hills, in my collection. The ♂♂ easily distinguished from the *doubledaii* ♂♂ by the black instead of yellow hair tufts on the upperside of the hindwings. Further, *doubledaii* has the longitudinal bands of about equal breadth costally and anally, whereas *nicévillei* shows bands costally strongly broadened, anally strikingly narrowed, sometimes pointed. But the submarginal bands on the hindwings in *doubledaii* are broadened towards the anal angle, while in *nicévillei* they are gradually, but unmistakeably narrowed downwards. The ♀♀ have not hitherto been known with any degree of certainty, although I had already described one from the Battak Hills in 1895. I have now no less than 25 specimens, and on the ground of this material I confirm my previous identification. The *nicévillei* ♀ diverges much less from the *doubledaii* habitus than does the ♂; yet it differs constantly from the Borneo *doubledaii* in the following characters; the subapical oblique bar on the forewings always much broader, purer white, as are also the median spots on the forewing, which are always separate, whereas in *doubledaii* they are usually confluent. Hindwings costally with richer and darker blue-violet suffusion, the wedge-shaped marginal and submarginal markings more prominent. In general *nicévillei* ♀ recalls what Distant (Rhop. Malay. pl. 38, fig. 6) figured as *doubledaii* ♀; none of my 25 Sumatra ♀♀ show anything like the light violet tints, still less the confluent median band of spots on the forewings, nor the distinct, violet submarginal band on the hindwings, as seen in Distant's figure. Since also the ♂ as figured by Distant (text figure on p. 424) differs both from the Borneo *doubledaii* and the sumatran *nicévillei*, it is evident, that the Perak form cannot be the same as the sumatran, as Nicéville
remarked (Butt. Sum. p. 392). I therefore considered myself justified in giving to this doubtful Perak form
chersonesia. the name of *doubledaii* **chersonesia** (vide Iris 1906). There remains only one question. Does Distant's ♂, p. 424 belong to the ♀ on pl. 38, or do they represent unconnected sexes of two species ? Now, in the primeval forests of the Lowlands on Sumatra specimens occur with yellow, instead of black hairtufts on the hindwings, so closely allied to *doubledaii*, that I have described there (Iris 1906) as *doubledaii sumatrana*. It is further very probable, that forms of *doubledaii* exist on the Malay Peninsula with yellow and black scent tufts on the hindwings, and the future must decide, whether we may place these forms as *doubledaii doubledaii Westw.* North Borneo, *doubledaii horsfieldi Fldr.* South Borneo, *doubledaii sumatrana Fruhst.* Sumatra, *doubledaii chersonesia Fruhst.* Perak, *nicévillei nicévillei Fruhst.* mountains of Sumatra, *nicévillei subsp.* Perak, or adopt the following order; *doubledaii Westw.* North Borneo, *doubledaii horsfieldi Fldr.* South Borneo, *doubledaii nicévillei Fruhst.* Sumatra, *doubledaii nicévillei forma sumatrana Fruhst.* lowlands of Sumatra, *doubledaii chersonesia Fruhst.* Perak, of which there may eventually prove to be two forms. One of these I described from a ♂ in the Berlin Museum thus; ♂ band on forewings narrower anally than in the sumatran *nicévillei*. Band on hindwings much broader, especially towards the costa; it is indeed somewhat narrowed downwards, but much less than in *nicévillei*, while in *doubledaii* it becomes broader. The hairs of the costal scent tuft longer and darker than in *nicévillei*. The cellular scent tuft arises from a smaller and duller speculum, and appears to have fewer hairs, although the specimen was quite fresh. The violet band on the hindwings is placed further inwards than in *doubledaii*, whereby the terminal border has space for further expansion as is shown in Distant's figure. This violet longitudinal band runs proximally straighter, is not so much indented by the black ground colour as in *doubledaii*. The second, inferior scent tuft, in the cell of the hindwing, so marked in *doubledaii*, is represented in the new form only by scanty hairs, feathering the edge of the cell. To judge by Distant's illustration, the ♀ is as large as most imposing *doubledaii* ♀♀ from North Borneo and larger than the ♂. The submarginal bands on the forewing are intermediate in colour between *doubledaii* and *nicévillei*. The whitish violet spots between the lower radial and the submedian are more prominent, especially the outer admarginal spots. The white apical spot is more prominent than in my lightest *doubledaii* ♀. The rich violet marking on the hindwings surpasses that of my *nicévillei* ♀ from Sumatra. Habitat, Perak; 1 ♂ Berlin Museum; ♀

described from Distant's figure. Recently *doubledaii chersonesia* has been found in Tenasserim from whence Nicéville first announced it in 1899 from the Ataran Valley (March). — Finally, under the name of **anaxilla** I described another race, the type of which is also in the Berlin Museum in coll. Staudinger, and was taken by Dr. Hagen on Bangka Island. ♂ with much narrower, shorter lighter blue longitudinal bands, which in contrast with *nicévillei*, are also considerably narrowed on the hindwings, and are more noticeable there from their light violet colouring. *anaxilla.*

Z. luxeri *Hbn.* was the first described species of the genus, rediscovered by me after a long interval in the year 1891, first in eastern Java, later also in the vicinity of Sukabumi and Wynkoops Bay in West Java in large numbers. The butterflies extend from the woods near the coast up to about 600 m, their time of flight being during the monsoons, from January to the end of March. They linger mostly on the borders of the watercourses, and were attracted in moderate numbers by banana baits. The sexual dimorphism is more pronounced than in *doubledaii*, since in *luxeri* even the ♀♀ show no trace of violet or blue colouring, but have a dark brown ground colour, on which is a nearly chalk-white band of finger's breadth, transcellular and extending to the middle of the fora wing, behind it are a few whitish or yellowish spots, distributed as in *doubledaii*. The distal area of the hindwings has a slight, but bright yellowish tone. The underside is similar to that of *nicévillei*, chiefly grey-brown, with a little rather darker shading and very small ocelli. The ♂♂ diverge from all known Zeuxidiae in the very short, light blue band on the hindwings which barely passes the middle of the wing, but is very broad on the costa. The band on the forewings is slightly whitish towards the costa and in the middle, the periphery is bordered with darker violet, then gradually passes into a full blue-violet then into the dark cacao brown ground colour. Both sexes are, as a rule, very constant, and the appearance of accessory ocelli, which is not uncommon in *nicévillei* (**prodigiosa** *Fruhst.*), occurs only in two among some hundreds of specimens. Doherty discovered this species also on Bali, to which it has undoubtedly spread from Java. — **succulenta** *Stich.*, the type of which is now in my collection, is a distinct subspecies, of deep velvet black ground-colour. The band on the forewing is light azure blue instead of violet, as also the apical spot on the hindwing. In continuation of the blue marking, the discal area of both wings has a deep azure blue iridescence when viewed sideways. Underside somewhat darker than in *luxeri* from Java, with more conspicuous anal ocellus on the hindwing. North-east Sumatra, certainly very rare, as only one specimen is known. *luxeri.* *prodigiosa.* *succulenta.*

Specific group *Amaxidia Stgr.* (= *Moera Hbn.* preoccupied).

♂ with white accumulation of scales in the large speculum on the underside of the forewing. Hindwing with broad framing of androconia, two hairtufts on each side of the submedian cell, but without scent apparatus.

Z. aurelius is probably that species in which the tertiary characters have the most conspicuous development, and on the hindwings there is scarcely any large space unoccupied by them, and even on the upper surface of the forewings when normally extended in the ♂♂, there is visible a white, obliquely placed androconial patch, which decorates the bare membrane of the wing like a jewel. Three local forms are to be noted; **aureliana** *Honr.* (103 b) first known from south-east Borneo. It is the smallest form, and already in North Borneo we find a larger subspecies, **euthycrite** *subsp. nov.* with darker blue subapical bands on the forewings of ♂♂ and more richly white marked ♀♀, with a considerable greater expanse. — **aurelius** *Cr.* is among the giants of the asiatic tropical butterflies, having an expanse of sometimes 145 mm in the ♀ and 110 in the ♂. The ♂ is decorated with a brighter blue apical spot, approaching nearer to the base of the cell than in *aureliana*. The ♀ has an almost thumb-broad, white oblique bar on the forewings, in which also the submarginal spots are confluent. On the hindwings the white marking before the anal lobes is wanting. 17 ♂♂ and 11 ♀♀ in my collection from West Sumatra, near Padang Pandjang vary but little. One ♀ from the Malay Peninsula has a somewhat reduced white marking on the forewings Martin states, that *aurelius* goes up the hills to about 4000 feet, but in north-east Sumatra it is the rarest *Zeuxidia*. *aureliana.* *euthycrite.* *aurelius.*

12. Genus: **Thaumantis** *Hbn.*

To this genus belong some of the most beautiful indian butterflies, which are not far behind the south-american Morphidae in their splendour, but whereas *Morpho*, true children of the sun, fly only at the hottest time of the day, the *Thaumantis* never leave the twilight of the primeval forest (*odana*) or only fly at and after sunset, and rest with folded wings (*lucipor, noureddin*). Like *Melanitis* and *Mycalesis*, they eagerly seek fallen, over-ripe fruits, e. g. rotten figs and the small green fruit of the sugar-palm (Arenga saccharifera Lab.) and in search of such tit-bits they enter the villages of the Natives, which are surrounded by the woods, and seek nourishment on their refuse heaps. The ♂♂ have on the underside of the forewings a large smooth

speculum and an androconial patch lying on the submedian. Hindwings with a more or less distinctly developed scent cavity, as well as one or two basal hair tufts, which may be surrounded by a shining zone or stand in a dull area. Two of the five subcostal nervures are anastomosed with the costal. The central discocellular on the forewings distinctly developed but curving lightly outward into the lower radial. The metamorphosis of only two species known, having been recently observed in Borneo by Dr. Martin. Larva somewhat similar to that of *Taenaris*, with two processes on the head and short divergent anal spines; pupa elongate, slender, very like that of *Amathusia*. Clasping organs greatly divergent from the Satyrus type, approaching that of *Zeuxidia*, of nymphaloid character, with strongly chitonized valve, without lateral points on the uncus, the valve may be distally finely dentate as in *Taenaris* or spinose. Distribution; Macromalayana, with one indo-chinese species, which has penetrated as far west as Sikkim.

T. diores has the simplest secondary, but the most complicated primary sexual organs. Hairtufts on hindwings unimportant, without shining area or scent cavity, speculum on underside of forewings small. Uncus basally much thickened, with a simple, straight sharp point; valve broad, with three dorsal and
diores. one ventral spine. — Of **diores** *Dbl.* two not very sharply distinct forms are known (we illustrate that of the
ramdeo. dry season 104 a) it has been described as **ramdeo** *Moore*, and differs from *diores* only in the somewhat lighter blue iridescence, which penetrates further into the cell, and the rather paler underside of the hindwings with smaller ocelli. In the specimens collected by me in the small islands in the Bay of Along, Tonkin, and in Tenasserim, the anterior ocellus on the hindwing is punctiform and without any black centre. The underside of all the forms is extremely delicately powdered with whitish grey in the distal region, which is separated from the full red-brown basal part by a fine white line. The ♀♀ of the Sikkim and Assam wet season forms bear also an oblique, blue-white bordered subapical bar on the forewings, which is outwardly yellowish in one ♀ from Tenasserim. *diores* lives in the shady ravines of Sikkim and Assam, ascending to heights of from 2—4000 feet.
hainana. — **hainana** *Crowley* is a nigrescent island race from Hainan; it is not represented in my collection, and is stated by its author to be smaller than continental specimens and to show a reduced blue iridescence on all the wings.

T. lucipor is characterized by a long tuft of black hair, standing on a smooth surface on the hindwings and a larger speculum on the under surface of the forewings than in *diores*. Along the submedian of the forewing there is a very small strip of modified whitish scales. Two geographical races are deserving of mention;
lucipor. **lucipor** *Westw.* (104 b) described from Borneo; the ♀ has a distinct series of whitish transcellular spots on the forewing, and a submarginal band, composed of yellowish pointed spots, hind wing with a conspicuous black anteterminal streak. Hindwings with only moderate basal blue gloss. The egg is spherical, rather larger than that of *Papilio memnon*, dull white, somewhat transparent, and covered with deep red hieroglyphics, like Hindustani characters. The larva emerges in four or five days and does not eat the egg-shell; it is rufescent, with two red anal processes and a shining transparent head, which has two black spots resembling eyes and thus recalling the head of a Culex larva. After feeding a double silvery dorsal line is developed, it is bordered with claret-red; the underside is whitish and the anal spines become black. After the first casting of the skin the silvery dorsal lines have disappeared, two short processes on the head become visible and the anal spines remain black. After the second change the larva becomes hairy, brown-yellow with a double black dorsal line; the head is shining brown-red, with two frontal, reddish, obtuse, truncated processes, which are setose and stand close together; the short anal spines are coloured like the body and strongly divergent; the stigmata appear as black dots. The caterpillar, which is now growing fast, has a velvety, strongly pubescent appearance, it is fusiform, thickest above the central segments, becoming thinner towards head and tail; on the 8th and 9th segments, to the right and left of the double dorsal line are paler yellowish, kidney shaped spots, with the concavity towards the dorsal line. After the third change the brown, very hairy larva has a blackish head, with two short coral-red, fleshy clavate horns, standing close together and having fine toothing something like that on a lizard's claw; the anal spines are short, stout and plump, with grey-white apices; the longer hairs, which stand out above the general pubescence have rosy points. The larva are incredibly sluggish by day, as long as the sun is up they crouch on the bottom of the receiver, in the darkest corner, under thick cover, and only begin to feed as darkness falls. The casting of the skin takes a long time, two or three days, and take place at night. The creatures are very fanciful over their food, numerous leaves are gnawed, none ever completely eaten, and fragments cut out but not eaten, fall to the ground in large quantities. The full-grown, rather cylindrical larva is 5—6 centimeters in length after the fourth change, very hairy, dull greenish brown, with an indistinct dark dorsal line, the head is strongly setose, with two lateral spots, black, like eyes or blinkers, between which is a frontal, yellow-brown triangle, which extends downwards to the peculiarly formed, extremely prominent mandibles. The processes on the head are very close together, rufescent, short and stout, cla-

vate, with a crown-like ring of points and strongly setose. In about 26 days, after remaining quiescent, without feeding, for two days, the larvae hang up and pupate during the night, one on a stalk of grass, another free in an angle of the cage. — The slender, elongate pupa has the shape of a leaf with a short stalk (cremaster) and very long double point (palpi); at first it is light reddish and becomes olive-green in a few hours, six white spots on each side of the ventral segments indicate the tracheae, there is a similar spot right and left on the thorax, dorsum and abdomen are dotted with black, the wing-sheaths are finely striated with brown like the underside of an *Elymnias* wing; the double point on the head (palpi) is blackish; near the cremaster a short yellow line continuous the series of six whitish yellow spots. After 12 days, the pupa having become discoloured blackish, the imago emerges at about 6 o'clock in the morning. — **candika** *Fruhst.* (101 b as *candica*) differs from the Borneo specimens in the reduction or entire disappearance of the whitish median and the ochre-yellow submarginal markings on the forewing, and in the more extended basal suffusion on the hindwing. In the ♂♂ the ocelli on the underside of the hindwing are also much smaller than in the name-type from Borneo. The colour on the upper surface in both wings of the ♂♂ is such an intense dark metallis blue, that the pineers which open the wing are always blue, in consequence of the powerful reflection; their secondary sexual organs consist of a scent patch at the base of the subcostal nervure, covered by a large, dark brown-grey tuft of hair. The much larger and paler ♀♀ have a less brilliant blue colouring, restricted to the basal half of the wings, having also indications of a yellowish transverse band and a similarly coloured marginal band, composed of crescents, both on the forewing; the two ocelli on the underside of the hindwing are also nearly twice as large as in the ♂♂. According to Dr. Martin *candika* is somewhat frequent on North-east Sumatra, where it lives in the woods and does not ascend to more than 1500 m. On the Malayan Peninsula *lucipor* appears to be very scarce, if we may judge by the scanty material as yet received in our collections. *candika.*

T. noureddin shows the most luxuriant development of the male appendages, besides the usual brown basal hair tuft the hindwings have a second, shorter, emerging from an androconial cavity closely filled with brown scales, and both are surrounded by a shining bare space, which is repeated as a speculum on the underside of the forewings, where there is still a collection of white scales to be noted on the sub-median. Four local races are known; **noureddin** *Westw.* from the Malay Peninsula, most resembling the figured *chatra* (104 a), showing only a slight yellowish tint on the submarginal region of the forewings and a scarcely noticeable blue gloss on the basal portion of all wings. The underside is unicolorous, without whitish edging to the red-brown oblique band on the forewings. — **sigirya** *subsp. nov.* (104 a ♂ and 104 b ♀) a rare and local form from north-east Sumatra and probably also occuring on Bangka Island. The ♂♂ are easily distinguished from *chatra* and *noureddin* by the distinct blue reflection at the base of all the wings. — **chatra** *Fruhst.* (104 a) has an indistinct gloss on the upper surface of the ♂♂, only recognizable when viewed sideways, but is characterized, especially in the ♀, by a very fully coloured and well developed ochre-yellow transcellular band on the forewings. Both sexes have in addition a distal, distinctly white bordered submarginal striation on the underside, and the yellowish oblique band on the forewings, so prominent in *sigirya*, is scarcely perceptible in *chatra*. Habitat; the alluvial plains of the Sultanate Brunei in North Borneo. — **sultanus** *Stich.* is a local form from south-east and south Borneo, which does not differ essentially from *chatra*; the specimens in my collection are all rather smaller than the splendid examples from northern Borneo and have somewhat paler ochraceous markings on the upper surface of the forewing. Dr. Martin had the good fortune of being able to observe the metamorphosis of *sultana* in Sintang on the Kapusa River, and describes it as follows; the spherical, greenish yellow egg, about the same size as that of *lucipor* and somewhat transparent, has two red-brown meridians of latitude. The larva on first emergence is dull green with a shining black head. After feeding the dorsum becomes white striped; a blackish median line is followed by two narrow, pure white stripes, which are confluent towards the head and anus, then a blackish green stripe, of the ground colour, then another broader, pure white stripe which runs out onto the head and anal processes; laterally and ventrally blackish, the anal processes white, and two tiny white horns on the head. The whole caterpillar is covered with long, thin, white hairs, longer in the anterior, shorter in the posterior half of the body. As it grows, the central segments become yellow-green. After the first casting of skin there is little change, except that the black parts become green, the white stripes remain as before, the head is shining black. After the second change the larva presents a totally different appearance, being now densely brown-red haired, with two yellow dorsal streaks, which run onto the yellow anal processes and the horns; venter and legs blackish; the head red-brown with small reddish horns; the upward pointing anal tails give the creature a very neat, chic appearance. They do not go so deeply into darkness as the *lucipor* larvae; they feed both in the early morning and towards evening, and remain seated on the stalks; yet the most important feeding takes place at night. After the third casting the larva is 4 cm. long, fusiform, thickest in the middle, slightly smaller towards head and tail; venter and legs bright red-brown, stigmata black with tiny white centres, the sides brown, the division between sides and black marked by a broad, light yellow *noureddin.* *sigirya.* *chatra.* *sultanus.*

stripe, which bounds the yellow-green back on both sides. In the middle of the back are six small longitudinal lines, or an indistinct blackish median dorsal line; the red-brown head bears two short horns, slightly knobbed, strongly setose and of red colour; the anal tails in the prolongation of the two light yellow stripes, are short and also yellow. The whole larva is very hairy, the short hairs stand in tufts on small wart-like protuberances, the longer, especially on the anterior half, are a beautiful red-brown, very fine and delicately waved. The creatures like to rest with a peculiar sharp bending of the body rather above the middle; the head and anal sections of the body then form the sides of a very obtuse angle, and the right side of the larva shows a striking concavity, looking as if the creature was hanging on a nail run through the body. I first considered this remarkable pose of the larva as pathological, but it occurs at all ages and must be due to normal habit. After the fourth change of skin the larva is 5 cm long, still more densely pubescent and redder in colour. The hairs sting and smart if touched by the hand, so strongly, that no one cares to touch the larva a second time. The densely setose head has two small, black ocellar spots, the processes are orange-red, rather longer than before, dentate and setose above. Along the back runs a black median line, where usually there were previously only six separate stripes, then follows the brown-yellow ground colour, which gradually merges into the two light yellow streaks. Sides, venter and legs bright red-brown, stigmata blackish, white centred, anal spines short and light yellow in continuance of the stripes. The pubescence consists of long and short hairs, the latter in tufts on warts, the former having rosy tips, especially towards the head. The pupa, first flesh coloured, becoming light green after 6—7 hours, is more pointed and more slender than that of *lucipor*, and is covered with whitish down; on both sides of the ventral segments are four white dots (tracheae), across the back run dark longitudinal streaks like the veins of a leaf; as in *lucipor*, the wingsheaths are marked with fine blackish striations. The very elongate point on the head is distinctly double (palpi). The pupal rest continues for 12—14 days, the pupa becomes blackish on the day before emergence, which takes place between 8 and 10 o'clock in the morning.

Th. odana is a true denizen of the macromalayan region which it nowhere oversteps. The hindwings have only one, though certainly very broad, hairtuft, which rests in a slight depression, and a large androconial spot filling almost the whole of the cell. The wing-membrane on the underside of the forewing shows as a polished, white centred patch. Uncus basally narrower than in *diores*, apically more obtuse; valve unusually broadly seated, with a short distal end, finely dentate as in the Taenaridae. Penis strikingly broad, but rather shorter than in *diores*. All forms have in common a subapical blue oblique bar, of various extent or white bordered according to the locality, and a white apical spot, small in the ♂♂, always more distinct in the ♀♀. Hindwings more or less broadly yellow bordered, always with a black, outwardly white centred spot between the lower median and the submedian. Underside with grey-white and brown bands in the cell. Eye-spots somewhat as

pishuna. in *nourddin*, submarginal markings similar to *diores*. — **pishuna** *Fruhst.* (105b) the finest coloured local form, ♂♂ characterized by a nearly finger broad white band on the forewings, glossed with very metallic light blue. ♀ chiefly recognizable on the underside by an extensive yellow oblique band on the forewings and a similar yellowish grey suffusion in the anal region of the hindwings. Malay Archipelago, seems to be rather searce.

paramita. — **paramita** *Fruhst.* has only imperceptible white centring of the band on the forewing, which is also less blue bordered than in *odana* from Java. The oblique band on the ♀♀ scarcely half as broad as in *pishuna*, their underside with very slight yellowish anal suffusion. *paramita* flies throughout the whole year, almost as common as *lucipor*, but only in the mountains and foothills up to and above 3000 feet, appearing where *lucipor* ends. On the upper surface of the hindwings, near the base, between the costal and subcostal veins, the ♂♂ have a black lacquered looking scent patch, covered by a tuft of dark brown hair. The larger and paler ♀♀ have the oblique blue bar on the forewings broader and with a whitish gloss, which is strongest on the middle of the

yantiva. bar; these differences are more apparent on the underside. North-east and West Sumatra. — **yantiva** *subsp. nov.* described from one ♂ in the British Museum, differs from *paramita* and *odana* in the shorter blue spot on the forewings, on the underside the anal ocellus is always smaller, the anal angle appears more broadly and richly suffused with yellow, forming a transition towards the *pishuna* race of Perak, also extensively decorated with

odana. yellow beneath, and *cyclops* from Borneo. Habitat, Nias Island, very rare. — **odana** *Godt.* is a typical Java butterfly, nowhere scarce in the woods on the south coast up to 700 m above sea level; flies by day, but never leaves the shade of the wood and always keeping close to the ground, where it feels most comfortable among decaying foliage in very wet places. They are very diffieult to obtain in good condition, because leaves and rubbish always get into the net with them and they slide about among it from side to side. Although they are very fond of fallen fruit, they never visited the exposed banana baits, with which *Zeuxidia*, *Discophora*, *Kallima paralecta*, *Prothoe francki* and *Euthalia eion* were so easily enticed. Herr Dr. Piepers observed the larva of *Thaumantis odana* in Java and described it as follows; similar to the larva of *Discophora celinde Stoll.* and just as densely pubescent. The hairs on the thoracie part red, that on the rest of the body mostly blaekish. Head black with

predominantly white, but narrower than in *pishuna* and *paramita*. — **cyclops** *Röb.* is not uncommon in Bor- *cyclops.*
neo, being found in the woods of the plains both in the north and south. The ♀ can be easily distinguished from the javanese name-type by the greater extent of the yellow colouring on the inner angle of the hindwings, and the much reduced ocelli. — A form has been described as **depupillata** *Fruhst.* in which the apical *depupillata.*
ocelli on the hindwing are entirely wanting.

13. Genus: **Thauria** *Moore* (= Morphindra *Röb.*)

The sole species of this remarkable genus was formerly united with *Thaumantis*, until Moore separated it in 1895. The subcostal with five branches as in *Thaumantis*, but all free to the apex. Abdomen characterized by its compressed form, and the lateral hair tufts an the apical segments, reminding of *Amathusia*; ♂ with large, coarse, androconial patch before and in the cell, which it almost fills, and two brush-like tufts, one before the subcostal, the larger in the apical part of the cell. The hairs of both tufts are curved backwards so as almost to cover the scent scales. There is another smaller tuft on the bare membrane on the internal nervure upon the anal lobe of the wing which enfolds the abdomen. Among the forms of the only known species, one race includes the largest butterflies of the indian region. Habitat; all Further India, and the northern half of the macromalayan region.

T.

Q. aliris of which four local races are known, has always a white band on the forewings, varying in breadth, and large golden-yellow distal spots on the black-brown ground of the hindwing. Underside of the hindwing with two handsome variegated eye-spots, somewhat resembling the ocelli of the larger Brassolidae. Antennae still lighter red-brown than in Thaumantis. — **lathyi** *Fruhst.* (102 b ♂ instead of ♀) the most *lathyi.*
eastern representative of the species, had not been reported from Tonkin previous to my travels in East Asia. It is smaller and darker in colour than its nearest connection, *intermedia* from Burma, the apical spots on the forewing are bluish instead of white, and the transverse band of the forewings is narrower. On the hindwings the ochre-yellow suffusion on the apical and anal portions is reduced, while the black-brown basal region is further extended. The brown median band on the underside of the hindwings is deeply indented, whereas in *intermedia* it is almost straight. All ocelli are larger, and the anterior eye-spot is bounded internally by a more yellowish band. ♀ decidedly larger than the ♂, the blue bands and spots on all wings more extended. *lathyi* stands close to the boundary of specific rank, for the long hairtufts in the cell on the upper surface of the hindwing are wanting, although peculiar to the other subspecies of *aliris*. I first had the pleasure of taking *lathyi* in the ravines among the limestone hills of the Than-Moi range in North Tonkin in June, and later, in September at the military post of Cao-Kien near Chiem-Hoa, in Central Tonkin, on gneiss, at about 300 m, but always in the densest woods and only shortly before sunset, when the creatures appeared ghostlike out of the low thickets, and fluttered around for a moment, timid and awkward, rather after the fashion of *Melanitis*. In company with them were the Satyrids *Erites pseudofalcata* (p. 303) *Ragadia crisilda* (p. 360, Pl. 90 e), *Pharia thalia Leech* (Vol. I, p. 295, Pl. 29 a), *Coelites sylvarum* (p. 329, Pl. 94 b). If one pursues *Thauria lathyi*, it hides in the thicket with folded wings, and, in consequence of the indeterminate colouring of the underside, it is very difficult to find. **intermedia** *Crow.* first discovered in Lower Burma by Colonel Bingham; the species was *intermedia.*
on the wing in October and again in April in the Donat ranges, later it was found by Doherty in the Karen Hills in March and April, so that it is almost certain this species is double brooded; it is rare in Lower Tenasserim. As compared with *lathyi* one notices especially the fiery red-brown of the more extended anal suffusion on the upper side of the ♀, the lighter grey basal portion of the underside of the hindwings, and the more sharply defined, milky white instead of yellow-white oblique band on the underside of the forewings. — In **pseudaliris** *pseudaliris.*
Btlr. the darkening has gone further, and, according to Distant's figure, the yellowish white band on the forewings is reduced to a narrow point in the anal angle. The ♀ is yet undescribed, and the ♂ is rare. It occurs from Malacca and Perak on the Malay Peninsula, and the siamese island of Salanga, north of the Straits of Malacca. — **aliris** *Westw.* the most splendid form, apparently not uncommon on south-east Borneo. Waterstradt *aliris.*
also discovered it later in the alluvial lands of Brunei in North Borneo, whence I have 2 ♂♂ and a gigantic ♀, all remarkable for a transverse band on the forewing, of thumb-breadth, edged with light bluish white, distally and proximally deeply indented. The brown-black median part of the hindwing is more uniform in breadth than in the continental representatives, and on the underside of the hindwing the anterior ocellus is more fully developed than the posterior. The median area on the underside of the hindwings is dark brown, in place of yellow-brown.

Subfamily **Discophorinæ.**

Uncus with dorsal pointed duplication. Forewings without middle discocellular.

14. Genus: **Discophora** *Bsd.*

The character of this genus is indicated by the name, and consists in a sharply defined spot in the disc on the upperside of the hindwings in the ♂♂. It is a rather large, silky, ovate raised spot, situated at the lower apex of the cell, from the anterior median branch to the fork of the posterior. The scales on it are three times as large as the rest, elongate, with a slender stalk, finely striate, curved like a tile and apically slightly emarginate. They stand upright and adhere so loosely to the membrane, that they are easily removed. It is probable that they emit the aromatic scent, which, in the living butterfly, exceeds in intensity all scents of other lepidoptera, even of the other Amathusiidae, and is observable in dead and dried specimens after a lapse of ten years. The neuration approaches that of the Zeuxidiae, with which they have in common the anastomosis of the first costal branches; but the median spur is wanting, and the central discocellular is so short, that the two radial nervures spring from the same point. To some extent this genus leads from the Amathusiidae to the Nymphalidae, having the more robust and shorter wings in common with the latter, also the extent of the wings being more in proportion to the size of the body. The clasping organs being furnished with an appendage to the uncus betrays leanings towards certain genera of the Nymphalidae (*Kallima*, *Mynes*) and it is naturally separated from the remaining Amathusiidae by the appendage to the tegumen, discovered by Doherty, and named "uncus anticus" by Stichel. Hence the separation of an independent family, as formerly attempted by Stichel, has a better justification than the entirely unsuccessful cutting off of the *Hyantidae*, yet the larval form connects *Discophora* so closely with *Amathusia*, tha the separation cannot be more than nominal. According to Dr. Piepers, the larva is extremely curious, not to be distinguished at first glance from that of the Heterocerous genus *Gastropacha*. In the not very successful illustration the body is cylindrical, with two short anal processes; the colour is dull, striped and spotted, densely covered with fine hairs and a few dorsal and lateral tufts; the incisures of the anterior segments blackish. Head large, black or dark brown, without the horn like formation as in the other Amathusiidae, but covered with small excrescences above and laterally. Pupa boat-shaped, centrally thickened, ventral surface flat and straight, the dorsal strongly curvate, the head prolonged into two points; fastened at the anal end, colour yellowish, reddish or greenish. Pupal rest three weeks. The larva lives on palms, especially on young shoots of the coco palm, on sugar cane, bamboos, and according to Martin, also on Lalang grass. The body of the imago has a most peculiar character, possessed by no other genus of the Amathusiidae, being basally ventrally strongly compressed as in some families of the Hymenoptera and with two lateral patches of scent scales. According to Reuter, the spot on the palpi is also unusual; it is flat, reniform, inflated and elongate, instead of short, broad and very convex.

The *Discophora* fly also by day, and recall the Nymphalidae in their habits, eagerly seeking faeces on the roads, on which they feed with closed wings; if disturbed, they fly aside among the bushes where they settle on the underside of leaves or under sheltering twigs, and shortly after the danger has passed, they return to the same spot. The much scarcer ♀♀ do not fly till evening at the setting of the sun, and usually very high, over the roofs of the houses, so that one sees them only as stilhouettes against the evening sky; they are captured when they come down to rest or to deposit their eggs, when, like the ♂♂, they seek the most sheltered places. The flight of *Discophora* is rather rapid and strong, in a series of short curves (Martin).

The area of distribution of the 9 or 10 species extends on the continent from India to southern China, and on the islands from the Andamans to the Philippines and across Macromalayana eastwards to Lombok. Two groups of species, with simple or complicated formation of the uncus anticus.

a) Uncus anticus with only one point. Scent patch on the hindwings longer than broad.

D. tullia described by Cramer as far back as 1779, must be considered as the longest known species of the genus. Its distribution is chiefly continental, with branches in the macromalayan region. The sexes

are somewhat considerably dimorphic, but the geographical variation only slight, in consequence of the constancy of the character of the markings on the surface. All the more astonishing is the great variation to which the organs of copulation are subject, and which has been dealt with in detail by Stichel. There is a slight tendency to individual aberration, and in the continental races seasonal forms occur. The larvae of two subspecies are known, they live on bamboos, where they rest by day in a nest constructed by spinning together three or four leaves. They attain a length of about two inches, have a blackish ground colour, sprinkled with grey, and a broad yellowish dorsal line. On each segment is a yellowish line and a red spot. Body covered with white hairs. Head and last segment are black, the former with a few straight yellow lines. The pupa is white at first, but becomes brown a few hours before emergence. Pupal rest three weeks. Copulation organs of the ♂ similar to those of the *celinde* group, uncus more slender, uncus anticus of nearly the same shape, but considerably smaller. Harpe proximally broad shovel-shaped, suddenly constricted, and running out into a more or less curved style of uncertain length, with a strongly spinose, pointed, laterally directed apical knob. Scaphium short. Penis stout, slightly curved. As a rule the species inhabits lowland tracts covered with light undergrowth, but it has been noted that it goes up to about 2000 m in Tenasserim. Our figures show the continental (106 c) and the insular (106 a & b) extremes. In almost all the local races specimens occur, in which the blue spots on the upper surface of the forewing are wanting, or only slightly indicated (**despoliata** *Stich.*). The type of the name comes from southern China, and is probably identical with those from Hongkong, from whence I received the figured specimens through Herr Prof. Seitz. — **tullia** *Cr.* (106 c) differs from the southern form in the rounder shape of the wings, the rather bright delicate blue on the ♂♂ and the deep coloured but rather small spot on the upperside of the ♀♀. Walker states, that *tullia* is not very common in Hongkong; it is usually seen there on shady paths. ♀♀ almost commoner than ♂♂. Flies from end of December till the beginning of May. — **hainanensis** *subsp. nov.* may be here introduced as a well defined insular race; ♂ with somewhat reduced blue suffusion on forewing. Under surface of both sexes much darkened. ♀ readily known by the entirely blue spots on the forewing, and the almost entirely obsolete ochre-yellow series of dots in the hindwing; Hainan, from 2 ♂♂ and 3 ♀♀ in coll. Fruhstorfer. — A series of imperfectly defined forms is here included under the name of **tulliana** *Stich.* the name of which is transferred to Tonkin specimens, since the attempt of the author to withdraw the name *tullia* must be declined as inadmissible. *tulliana* denotes a race which diverges from the figured name-type in the almost obsolete spots on the forewings of the ♂♂ and the darker blue and yellow markings on the ♀♀. Examples from Burma and Tenaserim probably belong to *tulliana*. — **zal** *Westw.* is the oldest name for the continental indian form preserved in Museums under the names of *tullia* and *indica*, and is founded on dry season specimens, whereas **indica** *Stgr.* denotes the wet season form. All the wings in *zal* are more richly sprinkled with yellow on the upper surface than in *indica*, which again can only be separated from *tullia* by the slightly greater size. — Another, very interesting case of absence of colour is named **spiloptera** *Nicév.* and may be recognized at once by the absence of all blue and whitish markings and the dominance of the yellow ochre area. *spiloptera* is still very scarce; only few specimens are known, all taken in spring both in Sikkim and in Burma. — **muscina** *Stich.* is described from a ♂ form Karwar on the west coast of India; ♂ frons, palpi and antennae whitish brown, latter distally darker, thorax and abdomen grey-brown above, whitish beneath. Ground colour grey-black with slight brownish tinge, base and costa of forewings paler, ciliae whitish. Costa of forewing much arched, apex pointedly produced, distal margin shorter, inner margin very slightly concave. Beyond the cell, a little beyond the middle of the costa, an oblique bluish white twin-spot, filling the interspaces between the radials, beyond it three rows of spots. The proximal is formed of three small dull white indistinct spots placed obliquely towards the inner margin, the central row has three larger, illdefined bluish white spots, standing straight under one another, and the third, distal row had three obsolete whitish punctiform spots. Hindwing slightly wavy bordered, without any noticeable angle at the median, but with very acute anal angle, costa and border slightly lighter, with the velvety scent spot peculiar to the group on the disc. This almost touches the lower radial, but is not so elongate as usually in *tullia*. Anteriorly on the inner margin is a bare spot, on which, in a small fold along the internal nervure, stands the well known, felted, pale yellow second scent spot. Underside yellowish, with a slight greenish tinge; the proximal half, separated by a dark line followed by a paler, undefined band, is darker than the basal half, which appears almost whitish flesh-coloured on the costa of the forewing. Forewings with three dark spots at the base of the cell, darker shading at its apex and an indistinct wavy darker band across the middle. Hindwings with a dark spot basally behind the radials, and two ocelli in the distal part, of which the upper is fairly distinct, the lower incompletely black ringed, both white centred. The entire underside with very fine irregular striation. Forewings 40 mm. — Larva rather different in colour from the above described larva of *zal fa. indica Stgr.*, light brown-grey, with chocolate brown spots and rose coloured legs. The hairs on the body mouse-grey. In shape the larva resembles that of *D. lepida Moore*. It lives on bamboos. Pupa almost analogous to that of *lepida*, bone-white or greenish, according as it is formed among dead or green leaves. If it is green, there are yellow lines on the wingsheaths, but if yellow, it is dotted

despoliata. *tullia.* *hainanensis.* *tulliana.* *zal.* *indica.* *spiloptera.* *muscina.*

sondaica. with black. — **sondaica** *Bsd.* (106 a ♂, 106 b ♀) inhabits Java and Bali, but is nowhere frequent. The copulative organs differ from those of the continental *zal* (*indica*) in the more slender, more strongly curvate valve. The ♀♀ bear the usual three rows of spots and may, as a rule, be distinguished form *tullia indica* ♀♀ by the blue-white subapical bar on the forewings being further developed and remaining entire as far as the anterior median. The contiguous row of spots consists of large compact lunules; the lowest spots on all three rows are usually brownish. Like the other two javan *Discophora* (*necho Fldr.* and *celinde Stoll.*) *sondaica* can be attracted by banana baits. East javan specimens do not appear to vary from those of the western *symphronia.* parts of the island. — The remaining macromalayan *tullia* races are here united under the name of **symphronia** *subsp. nov.*, type from south-east Borneo; they differ from the javan sister race in the reduced blue spots on the *despoliata.* upper surface of the forewing, and the much darker underside of all wings. The extreme form is **despoliata** *Stich.* without any blue marking on the upper surface of the ♂♂. The ♀ of *symphronia* comes to me from Perak; it is paler on the underside than *sondiaca* ♂♂, but considerably larger, thus forming a natural transi- *semperi.* tion to the northern indian *zal* (*indica*). — We have yet to mention **semperi** *Stich.* (= semperi *Moore nom. nud.*). Type from Mindanao; very rare; a very beautiful local race, wrongly identified by Semper as *D. zal Westw.* (aberr.), in which the three rows of spots on the forewings are most strongly developed and deepest coloured. Semper mentions 2 ♂♂; Dr. Staudinger sent to me for comparison 1 ♂ and 1 ♀, erroneously labelled *zal*. The ♂ agrees with Semper's figure, the forewing of the ♀ has no characteristic differences from *tullia indica*; the proximal row of spots is almost whitish, the other two bluish violet. Hindwing almost unicolorous, with almost obsolete yellowish spots in three rows.

D. deo forms a kind of connecting link between the forms of the *celinde* and *tullia* groups. The androconial spot on the upper side of the hindwings inclines to the anteriorly broadened shape of the former, but the *deo.* uncus has all the characters of the *tullia* group. Two very rare local forms: **deo** *Nicév.* ♂ forewing with a broad ochre-yellow band on the forewings ending at the lower median and somewhat recalling *D. necho dis*-♀. Ground colour a velvety brown, with slight deep-violet gloss. Forewings with a discal area, longer than broad, covered with modified scales. Underside extremely dark brown with patches of red-violet and whitish scales. Ocelli small, the posterior with bright, pure white centre. ♀ not known with certainty, probably very like the ♂ and near *continentalis Stgr.* ♀. Only a few ♂♂ known from the northern Shan States, Upper Burma. Flies in *fruhstorferi.* March and April in the driest season. — **fruhstorferi** *Stich.* from Tonkin, where I found the species at Chiem-Hoa in August and September. ♂ distinguished from *deo deo* by the red-brown band on the forewing being broken up below the middle median into loosely connected double wedge-shaped spots, as occurs in forms of the *necho* group. In one of the four specimens in my possession the band is still almost continuous, the anterior double spot only marked by a dark spot at the point of separation, but the two following wedge-spots distinctly separated. Costa and border of the forewing not yellowish, as in the type form, but dark olive brown, the bordering of the hindwing is also entirely uniform in tone, without a trace of markings. Apex of forewing not so pointed as in the figure of *deo*. The costal ocellus on the hindwing is well developed beneath and distinctly white centred. Anal ocellus imperfectly developed, but with very large white centre. *fruhstorfer* has a general resemblance to the illustration of *lepida* (105 c), only that the spots on theforewings are deep ochre-yellow with rufescent edges, instead of whitish violet. Uncus stoutly built, valve longer, of more even breadth but more slender, with two small dorsal processes and apically roundish obtuse pointed. Very rare, I only took 4 ♂♂.

D. simplex a strictly localized race of North Borneo, from whence it appears to have spread to Palawan, and one of those interesting species which inhabit the Philippines as well as North Borneo, yet have not yet arrived in the southern parts of the Island of Borneo. Copulative organs in the ♂ much as in the preceeding species, uncus and uncus anticus rather shorter, harpe very differently shaped, distally incurved, rounded *simplex.* and pointed, not unlike the head of a bird or a horse's leg; Stichel compared it to a bill-hook. — **simplex** *Stgr.* (106 c) bears an almost continuous violet-blue band on the forewings, in which are sometimes a few proximal darker markings, indistinctly marking off wedge shaped portions of the band. The ♀ is like that of the *tullia* group. It has a bluish white ultracellular band, next to which are 3 more, almost confluent, large submarginal spots, and in the discal part a row of three smaller spots starting from the band. Hindwing with 2 rows of obsolete brownish spots. Only one ♀ is known, the band is broader, more curved in the upper part *amethys-* and with richer white tone. Palawan Island. — **amethystina** *Stich.* from the Kina-Balu district in North Borneo. *tina.* Only one ♂, the type of this is known and is in coll. Fruhstorfer (Geneva). *amethystina* is a remarkable local form, bordering on specific rank. The copulation organs stand in about the same relationship to *simplex*, as

do those of *tullia sondaica Bsd.* to those of *tullia zal Westw.*, the apical part of the harpe more slender, the form not unlike a boat-hook. Band on the forewings azure-blue, broader, distally strongly concave, absolutely continuous throughout. Underside like *simplex*, the tone of the ground colour bluish, with copper-red gloss. Expanse 43—46 mm.

b) Uncus anticus with double point.

D. lepida, originally described from southern India, sends out a branch into Ceylon, the differences of which have hitherto been overlooked. We have first **lepida** *Moore* (105 c) known from Canara, Travancore and Mysore, also in my collection from Karwar. Both sexes somewhat resemble the *continentalis Stgr.*, but the dark velvet brown upper surface shows no blue iridescence. Forewing with three light blue transcellular spots, placed in a slightly oblique line, and a few indistinct anteterminal markings. ♀ with larger light blue spots, arranged somewhat as in *continentalis* ♀ and distinct on the upper surface of the hindwing also. There are two seasonal forms, that of the wet season being named **significans** *Stich.* Dry season specimens are more like **ceylonica** *subsp. nov.* (106 d as lepida) figured from a specimen taken by Herrn Prof. Seitz in Ceylon. The south indian *lepida* of the dry season, has those markings on the forewing which are present, just as indistinct as in the figure of *ceylonica*; it is somewhat rare, and especially the ♀♀ scarcely ever reach our collections. The larva lives on bamboo, Dendrocalamus and other Gramineae, and was only discovered in 1896. It is cylindrical with a large head of greenish yellow colour; eyes black. Body brown, with a pure white broad dorsal band, which is accompanied by largish black spots. The whole creature is covered with long reddish or brown hairs, and has yellowish lateral marks on the posterior segments. Anal segment with long, but only slightly divergent appendages. Pupa with two elongate conical points, thorax convex and dorsally slightly indented, wingsheaths rather flat, abdomen strongly arched. The colour is translucent, yellow with a dorsal line and the veins of the wings delicate flesh colour. — *ceylonica Fruhst.* (♂) is one of the rarest butterflies of Ceylon, where it seems to occur only in the jungle on the alluvial flats near Galle. In the ♀ the bluish white subapical bar on the forewings is broken up into spots even before the anterior median, whereas in *lepida* it remains complete as far as the posterior median. The copulative organs show a slightly curvate scaphium and a constricted valve with distinctly defined inflated apex. *lepida.* *significans.* *ceylonica.*

D. continentalis spreads from Sikkim and Assam to Tonkin, and from the Malay Peninsula to Annam, with an offshoot on the Andamans. The species has been much confused with the very similar *celinde Stoll*, from which it may be distinguished externally by a small yellowish scent patch in a bare space on the internal nervure of the hind wing, and morphologically by the distally much broadened valve, which is spatulate instead of apically pointed. ♂ very like *celinde* (106 b) but with more obsolete subapical and submarginal markings on the forewings. ♀ easily known by the more compact ochre-yellow area and more prominent submarginal spots. Several local races, of which **continentalis** *Stgr.* is not uncommon in the lower valleys of Sikkim, and flies during the warm season; the freshly killed ♂♂ are remarkable for their splendid indigo-blue iridescence, which soon fades after death. The ♂♂ emit a strong and unpleasant scent. — **seminecho** *Stich.* ♂; differs from the typical *continentalis* in a curved series of dull yellow, slightly connected crescentic or wedge shaped spots which runs from the costal spot beyond the cell, thus forming a submarginal or ultracellular band, having exactly the same form as in *necho Fldr.* from Java, only that here it is bluish. The specimens taken by me in Tonkin, Than-Moi June, July and in Annam, November, December, in the rainy season are smaller than the north indian; the ♀♀ have a much narrower bright yellow band on the forewings and narrower ochre coloured distal margin. The underside of the ♂♂ must be described as more variegated, that of the ♀♀ as darker, more red-brown instead of yellow or ochre. These *continentalis*, which probably occur in the like form in Upper Burma and Tenasserim, appear to lead on to **perakensis** *Stich.* of which only one ♂ from the Malay Peninsula is definitely known, having whitish in place of ochre-yellow submarginal markings. The ♂♂ are said to be very common in Bhamo during the Rains on damp spots in the roads, whereas the ♀♀ never leave the dense undergrowth of the woods, but are easily taken there. Moore mentions specimens of *continentalis* from the Mergui Archipelago. — **andamensis** *Stgr.* is still very scarce in continental collections and there appear to be only three ♂♂ in the Tring Museum. As might be expected, *andamensis* is a darkened insular variety of the continental form; the ♂♂ still bear traces of a former yellow marking, and the underside is very dull, with only slightly prominent striation. ♀♀ not yet described. Andamans, possibly also Nicobars. *continentalis.* *seminecho.* *perakensis.* *andamensis.*

D. celinde is a common Java butterfly, which has extended eastwards to Lombok, and is reported also from Kangean Island by Snellen. Two races have been described; **celinde** *Stoll.* (106 b) the larva of which *celinde.*

has been discovered by Horsfield on coco-palms. The intensity of the yellow marking varies from the luxuriant maximum of our illustration, to specimens without the second submarginal series of spots on the forewings. In one ♂ both the transcellular and submarginal spots have entirely disappeared, so that the upper surface is
varda. unicolourous blue-black with a slight steely glitter (= **varda** *form. nov.*). The influence of the seasons appears to produce in both sexes of *celinde* an uniform grey-yellow colouring in the dry period, and in the rains a much
undata. richer, brown-violet glossed appearance. East and West Java, up to about 700 m; Bali, Kangean. — **undata** *Stich.* is a form discovered by me on the Island of Lombok, where it is on the wing from April to June and goes up to about 600 m; I found it always near the native villages. The ♂ is larger than the typical *celinde*, spots on the forewings very small, ocelli on the underside of hindwing unusually large and sometimes a small, white centred accessory ocellus near the anal. The border of fore- and hind-wings, especially the latter, strongly sinuous, whereby the subspecies differs strikingly and unmistakeably from the type form. ♀: the proximal series of spots starting from the ultracellular band on the forewings indistinct, except between the upper and middle median nervules. The central row of spots consists of two crescentic spots, the anterior large, the posterior smaller. The distal (submarginal) series contains three large spots, beginning behind the upper median. Hindwings with only one distinct submarginal series of spots with a few obsolete spots and dashes in the exterior part of the discal area. No characteristic markings on the underside. ♂ 43—45, ♀ 48 mm expanse.

D. necho, one of the commonest species of the genus, inhabits the whole of Macromalayana, and extends northwards to Palawan and the central Philippines. It is morphologically very close to *continentalis Stgr.* All parts of the copulative organs agree in general with those of the preceeding species, but the ventral edge of the harpe is distally produced and pointedly elongate. This projecting corner is more or less conspicuous, mostly, on an average, in the specimens from Borneo, Sumatra and Nias, less in the forma typica from Java, and least in the subspecies from the Philippines. In this it is so greatly reduced as to offer but little difference from *continentalis Stgr.* excepting that in the latter there is usually a small callosity on the inner side before the apical formation. The shape of the apical point differs in individuals from the same locality, and all transitions from the truncated distal surface to the pointed form may be placed together, irrespective of locality, so that at either extreme we may have specimens from Mindanao, side by side with some from Borneo or Sumatra. In the character of the markings, the macromalayan races are grouped around the figured **dis** (107 d),
odorata. those of the Philippines round **odorata** (106 a). **necho** *Fldr.* must be considered as the name-type; the ♀ was
necho. already known to Godart in 1823, but united by him with the philippine species *ogina Hbn.* The typical ♂ of the species is characterized by the small ocelli on the underside of the hindwing. The anal ocellus is often only indicated by a white dot, with or without black border. The band of spots on the forewing of the ♂♂ is rich, pure white, especially in the east-javan specimens. *necho* can be taken in any quantity in Java, by laying out
dis. over-ripe bananas as bait in the woods. — **dis** *Nicév.* (106 d) differs from *necho* in the darker violet band on the forewings of the ♂♂ and a broader, deeper ochre coloured oblique band on the ♀♀. *dis* flies throughout the year in the plains and foothills of north-east Sumatra, is not uncommon in the west of the island, and, next to *Amathusia phidippus*, it is the commonest of the Amathusiidae in Sumatra, yet absolutely perfect specimens of the ♀ are scarce. Dr. Martin has often bred this species from larvae, which are always found in pairs both on the sugar cane and on the well-known Lalang grass. The extremely hairy, yellow-brown caterpillars lie close together, head downwards, high up on a leaf, of which they eat the under side, excepting of course the midrib. The green, pointed pupa recalls that of *Amathusia phidippus.* The large, plush-like scent-patch on the ♂ is rounder, more pale ringed and lies almost on and around the point of divergence of the median nervules; the second scent patch, on the internal nervure, is roundish oval and white-yellow. The ocelli on the underside of the hindwing, 2—3 in number, are complete. There are sometimes submarginal spots on the upper surface of the hindwing. The ♀ of this subspecies has the broadest band on the forewings, and reaches a considerable size, especially in Sumatra; up to 53 mm. The colour of the bands and spots is much lighter ochre-yellow than in the typical *necho*, ground-colour darker, shape of the bands in general as in the last, but there is always more inclination towards breaking up into spots, and the submarginal spots on the forewings are usually entirely isolated. Hindwing unicolorous brown-black with paler border, or with obsolete submarginal spots, or a few indistinct spots and streaks in the onter part of the disc. Here also off-
propinqua. shoots occur, in which there are 2—3 distinct series of spots on the hindwing as in *celinde Stoll.* — **propinqua** *Stich.* averages rather smaller than the preceeding. Hindwing without scent scales on the internal nervure, or with only a few scattered hairs at that place, an infallible character for the form and the first specific indication of the consolidation into a species which is in progress. The ♀ very dull, hindwings almost uni-
engamon. colorous, forewing with obtuse apex and remarkably convex exterior margin. Nias Island, very rare. — **engamon** *subsp. nov.* comes nearest to *dis Nicév.* and forms a transition from it to *cheops* from Borneo. ♂ differs

from the *dis* ♂ in the narrower, and also darker, blue violet bands on the forewings, and the ♀, figured by Distant (Rhop. Mal. pl. 5, fig. 11) as *celinde* ♀, has a more sharply defined, anteriorly narrowed, ochre-yellow scarf on the forewings. ♂♂ darker beneath than the *dis* ♂♂, the ♀ with larger ocelli and brighter striation.; Perak, apparently uncommon. — **cheops** *Fldr.* is here applied to specimens from northern Borneo, which stand *cheops.* close to *dis*; but a practiced eye will at once detect, that the inner spots on the forewing are cuneiform, proximally more pointed, and also more evenly shaped among themselves. The ♀ can be readily separated by the always distinct three-fold series of submarginal spots on the upper side of the hindwing, which extend to the upper median. — **orbicularia** *Stish.* is an ocellar aberration, with 2—3 small more or less complete ocelli in the *orbicularia.* median zone of the hindwings. — **helvidius** *subsp. nov.* replaces *cheops* in south-east Borneo and on Natuna Is- *helvidius.* land. ♂ with larger, more quadrate submarginal markings, and the blue median spots on the forewing almost twice as broad and lighter. ♀ with decidedly narrower ochre oblique band on the forewings and less distinct median spots on the hindwings. — With **odora** *Fruhst.* (106 a, misprinted odorata) commences a small group *odora.* of geographical races, remarkably approaching *celinde Stoll.* in the narrowed band on the forewings of the ♀♀, which is more broken up into separate spots. ♀ known by the much reduced blue spotting of the forewing; ♀ in addition to the isolated ochre markings, also smaller and the wings more rounded. The subapical bar on the forewings, which in some cases touches the exterior corner of the cell, divides into two rows of spots below the upper median, the proximal row consisting of three smaller roundish spots, the discal of three larger wedges. Close to the terminal margin there are the usual 4—5 submarginal spots. The border of the hindwing is lighter, with a eomplete submarginal and two incomplete discal series of spots. Costa of the hindwing quite pale from the middle to the apex. Palawan Island, rather scarce, flies in January. — **erasimus** *subsp.* *erasimus.* *nov.*, the type of which is in the Staudinger collection in Berlin, is a distinct island form. ♂ nearest to *cheops* from North Borneo, but smaller and with rather paler subapical bar. ♀ with a lighter yellow-brown band on the forewings darker on the edges, very narrow and distally bounded by small brown-yellow lunules. Jolo Island. — **mindorana** *subsp. nov.* received from Herr Bang-Haas with this "in litteris" name, has the narrowest subapical *mindorana.* bar in the whole series of forms; ♀ very similar to *odora* ♀, but with lighter and rather more reddish tinged markings on the forewing. Mindoro Island.

D. philippina *Fruhst.* (= menetho *Semp.*, philippina *Moore nom. nud.*) can be at once separated from *philippina.* the forms of the *necho* series by the double row of blue spots on the forewing, placed vertically as in *tullia* (106 c), of which the outer are very small, the inner wedge shaped and nearly twice as large. Transcellular spots are wanting. Valve decidedly more simple, more slender and more delicate than in *necho* and the other species hitherto mentioned. This species, whose specific rank is confirmed by the formation of the ♂ genitalia, varies but little, and the speeimens collected by Doherty on Bazilan (coll. Fruhstorfer) cannot be separated from the Mindanao insects. Sometimes there are small ultracellular streaks on the hindwings, the anal ocelli on the underside are occasionally wanting, and replaced by a white dot, but in some cases there is a small accessory ocellus near the anal eye-spot.

D. ogina *Godt.* is a well-defined species, showing a certain similarity to *Adolias dirtea F.* in the distribu- *ogina.* tion of the colours, and, analogous to it, is characterized by a dark violet-blue band on the upper surface of the hindwings in the ♂♂, which (judging from Semper's figure) disappears in the ♀. Yet the ♀ can also be distinguished from all its allies by a row of three almost white submarginal marks, a narrow white-violet scarf passing aeross the whole wing, and another series of three median dots, which may be white or yellowish. The underside in both sexes bears an apical and an anal ocellus, as well as two others between the lower radial and the and the middle median on the hindwing. — Staudinger separated a ♀ form in his collection from *ogina*, and it is named **melinda** *Fldr.*; it is possibly a dry season form, but having no further material with which to compare *melinda.* it, I am unable to decide about it. Very rare; Semper only knew of 8 specimens from Luzon and Polillo. The copulative organs are easily distinguished from those of *philippina Fruhst.* by the knife-edged dorsal emargination of the apex of the valve.

D. bambusae inhabits the celebean subregion, where it is separated into 3 not very sharply demarcated local forms. The speeies can be easily recognized by a series of inconspicuous blue dots of equal size on the forewing of the ♂♂, and a ehain of five ocelli on the underside of the hindwing. Copulative organs of ♂ distinguished by the S-shaped uncus anticus, and a long scaphium, distally roundly curved upwards like a hook. The harpe is proximally broadly spatulate, narrowing gradually and terminating in a flat button. — **bambusae** *Fldr.* *bambusae.* (106 b) described from specimens collected by Lorquin, with the erroneous locality of "Halmaheira", lives in northern Celebes. I took the butterfly at banana baits near the Bay of Toli-Toli in November-December. — **celebensis** *Holl.* determined from material in my collection, is to be separated from the North-Celebes *celebensis.*

race by the white and yellow submarginal spots on the upper surface of both fore and hindwings in the ♀♀ being almost twice as large, and by their paler under surface. Flies in January. Doherty noticed, that about sunrise and sunset *celebensis* flies up and down along a certain space, without deviating from this pendulum-like movement by a hair's breadth; unless disturbed by other individuals of the same species. In such a case there follows a wild flight of such violence, that the fugitives literally tear themselves to pieces against any obstacle such as trees or shrubs. It was in this species that Doherty first observed the appendage to the uncus, subsequently named uncus anticus by Stichel, and described it as "bifid". — **bangkaiensis** *Fruhst.*, type in the British Museum, differs from *celebensis* in the still paler and more distinctly white, resp. yellowish markings on the upper surface of all the wings. Bangkai Island, collected by H. Kühn.

bangkaiensis.

15. Genus: **Enispe** *Westw.*

Structurally separated from *Discophora* by slight characters only, such as 4 instead of 5 subcostal branches, and the lower discoidal of the forewing being more incurved. The first subcostal anastomosed with the costal, the second much shorter. The middle discocellular is almost obsolete, as in *Discophora*. The androconial patch on the upper surface of the hindwing, so characteristic of the *Discophora*, is absent. The ♂♂ have in its place a tuft of long hairs, which cover the cell of the hindwing. Forewing with small smooth speculum beneath. Distribution; the mountainous West China to India, the indo-chinese peninsula, Borneo and Sumatra. The discovery of the species on the Malay Peninsula is only a matter of time.

E. cycnus is similar in colour to the *Discophora*, and differs little in the shape of the wings from *D. lepida*. Upper surface dark purple-brown, darkest on the distal portion of the forewing, which has a blue iridescence. The species is found in the mountains up to about 1000 feet. — **cycnus** *Westw.* originally described from Sylhet, is not very uncommon in Assam, and was also taken by Doherty on low elevations in the Naga Hills and at Bernardmyo in Upper Burma. — A western local race, of which I have a long series from Bhutan,

cycnus.

verbanus. is introduced as **verbanus** *subsp. nov.* The specimen figured as *cycnus* ♀, Pl. 105 c belongs to this race. Both sexes differ from the Assam *cycnus* in the greatly narrowed white-blue band on the forewings, which in *verbanus* apears to end already at the upper median, and has a continuation in three somewhat wedge shaped median spots. In *cycnus* from Assam this band continues unbroken as far as the submedian, and is lighter in colour. In *verbanus*, as shown in the figure, the disc of the forewings and the submarginal region of the hindwings are decorated with deep ochre spots. Under surface of *verbanus* chiefly brown-violet, that of *cycnus* light reddish-yellow with narrow brown-violet longitudinal bands.

D. euthymius with its bright brick-red ground colour, so rare in indian lepidoptera, forms a striking contrast to the usually dull coloured species of *Discophora* and *Enispe*. Both the colour and the extent of the black zigzag lines or bands on the upper surface vary with the locality of the specimen. None of the three subspecies as yet discovered is at all numerous, and the ♀♀ must bereckoned among the rarest known butterflies. The absence of a branch race from the Malay Peninsular, where it is certainly to be expected, is remarkable.

euthymius. The insect flies in Sikkim from April to October, and loves feeding on rotting matter. **euthymius** *Dbl.* (= sylhetensis *Stgr.*) originally described from Sylhet, appears to be founded on specimens of the dry form. Ground colour above bright brick-red, beneath dull citron or orange-yellow. Upper surface of forewings with inconspicuous,

tesselata. washed out looking blackish median markings. — **tesselata** *Moore* (the ♂ type from Darjeeling, the ♀ type from Nepal) belongs to the wet season; is striking from its deep brick-red colour, is more broadly black framed and the median markings are also more prominent. The underside has violet-brown bands and distinct centred ocelli. Distributed from the Sikkim to the Naga and Karen Hills. According to Elwes only the dark form *tesselata Moore* occurs in Pegu and Tenasserim, whereas Nicéville states, that light and dark forms occur irre-

duranius. spective of locality. In Tonkin I saw only the dark form in August and September at about 300 m. — **duranius** *subsp. nov.* (105 c) is a hitherto unnoticed variant from Sumatra, approaching *tesselatus* in the character of the colouring but with richer black bands and zigzag lines. On the other hand, the underside is distinctly paler and more uniform, and basally more evenly dull brick-red. Martin states, that specimens from Sumatra are in general darker than those from Sikkim, and more like the specimens from Assam and Burma. The ♀♀ have the black markings on both surfaces more prominent, and the discal band especially stands out more distinctly. The two or three ocelli on the underside of the hindwings are incomplete and stunted, mere black dots, yet the lower has sometimes a white centre. My collector noticed *duranius* also in the vicinity of Padang Pandjang,

milvus. from whence I have two ♂♂. — **milvus** *Stgr.* is the extreme melanotic form of the species; ground colour of the upper surface brown with light ochre-yellow markings. ♀ rather larger, paler, with white costal spots. Under surface according to the author ochre-brown. Kina Balu, North Borneo, very rare.

E. lunatus Leech and its extreme dry form *enervata Stich.* were dealt with in Vol. I, p. 157, the former figured on Pl. 49 b, the latter on Pl. 49 c; Habitat West China, Omeishan and the Mission stations in Szetchuan.

Appendix.

Page 404. *Faunis arcesilaus*; **cyme** *subsp. nov.* Considerably smaller, ♂ paler above, ♀ evenly coloured, without any darker distal portion. Underside with narrower median band on the hindwings; ♀ much lighter brown than *canens Hbn.* ♀; East Java, a true product of the dry season. Very common in the Zuider Hills in the open woods. Always skimming over the surface of the ground and not going above about 800 m. *cyme.*

Page 421. Two forms of *wahnesi Heller* have been described (Mitteilungen aus dem Zoolog. Museum in Berlin, Vol. V, part 3, 1911, p. 470) **subquadriocellata** *Strand*, on the underside of the hindwings there is an accessory ocellus in front of the anal ocellus, and between the median nervules there is also an eye-spot of scarcely 3 mm diameter. **quadriocellata** *Strand*, between the two large eye-spots on the hindwings is in each internervular space an ocellus with a tiny white pupil, of which the anterior is confluent with the apical ocellus. *subquadriocellata.* *quadriocellata.*

Page 433. Herr Piepers has discovered the larva of **Zeuxidia luxeri** in Java, and kindly sends me the following description; Form large, thinly covered with black and white hairs. Ground colour dark green. The head reddish, with two short processes, the abdomen with two anal processes. Pupa like that of *Amathusia phidippus*, the head with long point.

In the eminently readable work "Kaiser Wilhelmsland" published by Herder in Freiburg 1911, Dr. Eugen Werner writes on p. 170: „The Taenaridae are like delicate, silent woodland spirits in the mould y smelling dusk of the primeval woods, rarely are they seen in the open country, they avoid the brightness; but they appear in friendly company where murmuring brooks twine through the gravelly soil beneath gigantic tree ferns, where the bright sunshine only plays shyly, trembling upon the thousand leaves and buds. On brown bark of the stems, on rotting wood, on over-ripe fruits of the palm, which decay unused, there they assemble their swarms. They sip food by the way, and drink drops of dew from the leafy shrubs. Disturbed by the form of the approaching wanderer, they fly up ghostlike, only speedily to sit down again at their richly decked table. They are wonderful fellows, these Taenaridae. Delicate as tissue-paper, often gleaming like mother of pearl, their wings glide softly and silently through the steaming warmth of the woods. But they are chiefly remarkable for the goggle-eyes, which they bear on the underside of their finely rounded hindwings. From one to five of these strange, brown, yellow and blue rings decorate the white field, and we shall hardly go wrong, if we see in them means of causing fright, which serve to intimidate lizards and other pursuers, so that they hesitate for a moment at least, and so enable the butterfly to escape.

The most prominent of the Taenarid community is *Morphotenaris schönbergi Fruhst.*, remarkable alike for its size, the beauty of the form of its wings and of its scales, which appears to be distributed along the whole Finisterre mountains as far as the Sattelberg; it is nowhere abundant, and in consequence of its strong flight is not easy to obtain."

Page 440. *Thaumantis odada.* In the generic diagnosis there is omitted the large black brand on the anterior half of the cell in the hindwings, which varies in size in the various races. The larva, discovered by Dr. Piepers in Java, is very similar to that of *Discophora celinde Stoll*, being like it, very large and densely covered with hair. The hairs on the thorax are red, on the other segments black. Head black with two short, stout horns. Abdomen terminating in two short tails. Pupa shaped as that of *D. celinde*, with a long point. I have in my collection a ♀ of *Th. odana* from West Java, form. **albocostalis** *form. nov.*, which has along the costal margin a narrow white streak, connecting the apex of the cell with the white subapical spot on the forewing, so characteristic of the species. — **wedana** *subsp. nov.* denotes the habitually smaller eastern Javan branch of the collective species, and differs from *odana Godt.* from the west of the island as follows; The white apical spot is decidedly enlarged, notwithstanding the small size of the specimens. The blue central band has, especially in the ♀, an almost pure white, very broad longitudinal striation. The blue iridescence is as a rule less extended proximally. Underside: the transverse band on the forewings is present as a distinct quadrate spot before the third median, and also broader throughout. The streaks in the cell of forewings, as well as in the subbasal area and beyond the cell in the hindwings more prominent and more grey-white — **panwila** *subsp. nov.* from northern Borneo (Sultanate Brunei), differs from *cyclops Röb.* from south-east Borneo in larger size, darker under surface, especially of the hindwings of the ♀♀, which have a violet instead of white-grey submarginal zone and a more reddish ochre-yellow subanal suffusion. *albocostalis.* *wedana.* *panwila.*

Page 448. For *tesselata Moore* read *tesselatus Moore.*

Alphabetical List

to the original descriptions of the mentioned in the Indo-Australian *Amathusiidae*.

* indicates, that the form is figured at the place cited.

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6. Family: **Nymphalidæ.**

The Nymphalidae form the largest family among the diurnal Lepidoptera, since according to Dr. Schatz more than one fourth of the hitherto known genera belong to it. The chief character which differentiates them from all other families is found in the imperfectly developed fore-legs in both sexes; the remaining characters utilized for distinction are not universal, and there are, in fact, connecting links between the Nymphalidae and the families hitherto dealt with, so that, strictly speaking, Dr. E. Haase's principle, mentioned in Vol. I, p. 159, must still be considered fundamental. Those genera with cystose main nervures (*Ergolis*, *Labranga*) show relationship with the Satyridae, and some genera (*Amnosia*) have a mode of life analogous to the Amathusiidae. The open cell in the hindwing is an essential character of the family, only found elsewhere in the neotropical Morphidae. Yet the conception of an open cell is altogether relative, since an absolutely open cell with entirely obsolete lower discocellulars exists only in a minority of the Nymphalidae; elsewhere these discocellular nervures are more or less atrophied, or even fully developed (*Penthema*, *Isodema*). In the latter genus the distinctly closed cell is accompanied by a further analogy with the Satyridae, namely an entirely satyroid clasping organ.

The clasping organs exhibit a most heterogeneous formation, corresponding to the polymorphous character of the Nymphalidae. They appear to be most primitive in the Acraeidae, uncus and valve extremely simple, without any appendage or scaphium formation. The scaphium may be wanting, or accompanied by progressive valvular formation (*Pseudergolis*). The valve is often strongly chitonized and furnished with sharp dentation (*Parthenos*), sometimes with an antler-like excrescence (*Argynnis*). The formation of the uncus is still more variable; it may be atrophied (*Parthenos*), very feeble (*Cupha*, *Cirrochroa*) strongly curved (*Dichorragia*), may bear helmet-like appendages (*Euthalia*) may be furnished with fleshy formations (*Yoma*), be short and strongly chitonized (*Cethosia*), bifid (*Kallima*) or even furnished with an uncus anticus (*Mynes*). In two genera (*Penthema* and *Isodema*) they have in addition lateral appendages identical with those of the Satyridae. Thus an entirely new grouping of the genera might be carried out on the ground of the formation of the secondary sexual organs, yet it is already acknowledged, that these do not go hand in hand with the structural organizations hitherto exclusively valued for classification.

The egg is, as a rule, broad, short, soft, not as high as broad, with a distinct network of raised, semitransparent chitonous lines, which cover the surface unsymetrically, enclose pentagonal and hexagonal spaces, and sometimes have long, bifid points (Doherty). The larva is extremely variable in shape and protection, but usually cylindrical and spinose. For purposes of grouping one may especially note the nearly naked caterpillars, having spines on the head only (*Apatura*, *Charaxes*) but with anal processes recalling the *Satyridae* and *Amathusiidae*. The exact opposite of these is seen in larvae with well developed, branched spines (*Vanessa*, *Ergolis*) and between these extremes the almost grotesque forms of the *Euthadiidae* with their elongate lateral growths, half as long as the entire body, with fine hairs or points on the sides. The pupa corresponds with the size of the imago, but is relatively short and broad, dorsally more or less arched, head and thorax with angular processes; hanging by the tail, not girdled. Imago of medium or large size, head pubescent, antennae close together, either entirely or partly covered with scales, never naked as in the Danaidae; chitonous, very varied, short to very long, club varying from very slight to large spoon-shaped. Thorax robust, not alutaceous as in the Danaidae, sometimes very broad (*Charaxes*, *Euthalia*), wings usually broad in proportion to their length. Narrow wings as in *Neptis* or extremely delicate as in *Cyrestis* are rare among the indo-australians. Both in the form and colouring of the wings the Nymphalidae display greater variety than in any other families, and there is no general type of marking or colour as in the *Danaidae*. Also, in contrast to the Danaidae, the underside differs greatly from the upper surface, and is often, as in the Pieridae, more characteristic and more richly coloured. The absence of ocelli on the underside is remarkable (exceptions only in the genera *Amnosia* and *Rhinopalpa*), but, according to Spuler, there should be specially noted the great conformity of the markings, in so far that the row of eye-spots in the submarginal area, always developed in the Satyridae, is almost always present, though frequently only in a rudimentary state, and is considered by Rebel to be a very ancient element of the markings. In splendour of colouring the indo-australian Nymphalidae fall behind the south american, but surpass them in two directions; in sexual dimorphism and in amplitude of variability, both of the ♂♂ (*Euthaliinae*) and ♀♀ (*Hypolimnas*). Such heteromorphic formations as shown representatives of the genus *Euripus* will be sought in vain in the aethiopic faunal region, and the poly-

chrome variation of *Hypolimnas* is actually surpassed only by the protistic development of the ♀♀ of the *Papilio memnon* group. The ground colour is most commonly a bright brown or brown-yellow, pure white species are very scarce (*Helcyra*), yellowish tints as in the Pieridae and the neotropical Papilionidae are entirely absent, nor do we find any dominating green, as in, for instance, *Charaxes eupale* among the africans and *Metamorpha dido* from South America.

In their habits the Nymphalidae are sunlovers, with few exceptions (*Amnosia, Mynes, Prothoë*); they rarely take refuge in the shade of trees or woods (*Euthalidae, Kallima, Cethosia, Terinos*) as is the rule with the Satyridae and Amathusiidae. Also, almost without exception, they sit on the upper side of the leaves with wide-spread wings, and sometimes even forget the protective colouring of the under surface (*Kallima*). On the other hand, a few genera, as all sand and moisture imbibers (*Cynthia*) never open their wings, so also the *Dolleschallia* with leaf-like underside. Their flight is usually rapid and skilful, sometimes quick and jerky (*Charaxes*). Yet there are exceptions, as in the heavy, clumsy *Kallima*, or the sluggish *Hypolimnas* ♀♀, remarkable for their resemblance to Danaidae. A number of genera are exclusively melitophilous and therefore flower haunters (*Parthenos, Cethosia, Athyma, Neptis, Euripus*); a few only prefer the soil (*Prothoë, Cynthia, Symbrenthia, Stibochiona*). A few may be attracted by hanging up fruit bait (*Kallima, Euthalia, Prothoë*), others visit woodland taverns (*Vanessa*), or they seek animal droppings (*Charaxes*), unless they collect around fallen fruits (*Euthalia, Charaxes*) or in dry localities seek the urine of cattle, monkeys and human beings (*Charaxes*). The Nymphalidae are without exception diurnal fliers, but, although they do congregate on damp banks and wet spots on paths, yet colonies covering several square meters as with the Pieridae and Papilionidae in the Indian region, have not yet been observed. A few genera are of cosmopolitan character (*Junonia, Argynnis*); a few only bi-continental (*Ergolis, Cyrestis*); some are spread over the whole region under consideration and are individually numerous (*Neptis, Junonia, Argynnis*), others local and in small numbers (*Amnosia, Dilipa*). The migration of swarms, as found in the Pieridae and Danaidae, are not known, excepting of *Pyrameis cardui*, yet isolated species are incomparably rarer than in the Pieridae, Satyridae and even Danaidae. On the other hand, the tendency to the formation of insular and local races, or even species, is present in the Nymphalidae to a high degree, and constant, invariable species are extremely rare. Even the unvarying citizen of the world (*Pyrameis cardui*) surrenders his powers of resistance in the tangle of the malayan islands, and breaks up into distinctly recognizable local forms. The capacity for the formation of species or subspecies increases to the East, thus the species of *Cynthia, Cupha, Cethosia* and *Mynes* of the papuan region and the Solomons are much more sharply differentiated within short distances than their western representatives.

In the malayan region Celebes and Ceram possess the giants among all the forms here dealt with, and Java has always the palest extremes (*Athyma, Neptis*). The indian continent, with a few endemic genera (*Dilipa*) has the greatest wealth; by its side stands Macromalayana, having also 40 genera, as many as are known from the whole african region, one (*Amnosia*) being endemic. Northward the number diminishes rapidly; the Philippines have still 30. Formosa about 25 and Liu-Kiu Islands only 12 genera. New Guinea is the home of 22, the Bismarck Island 20 and the Solomons have 15 genera.

In vertical distribution the Nymphalidae are less capable of expansion and resistance than are the Pieridae and Satyridae. They mostly prefer the low lands and the hills up to about 1500 or 2000 m; mountain species are rare. A few only, *Vanessa* and *Neptis*, go up to 4000 m, and but two reach elevations of about 5000 m, *Argynnis* and *Melitaea*, whose native country, as also that of one or other of the *Vanessa*, must be sought in the palaearctic region.

As already mentioned, the Nymphalidae are strongly subject to local influences, mostly in the eastern region, and especially to insular isolation, and the result is seen in an endless chain of races and forms, the links of which are yet far from being known. In contrast to this, the Nymphalidae are less susceptible to purely climatic influences than are the Pieridae and Satyridae, we may therefore seek among them in vain for such forms, altered almost beyond recognition, as are found in *Appias, Huphina* and *Mycalesis*. The exceptions are usually noted in the dry-season colouring of the underside of the wings (*Junonia, Yoma, Cupha, Cynthia*).

In *Kallima* there is a parallel development of the apex of the wing, a phenomenon which finds an analogue in the Pierid genus *Hebomoia*. In *Pantoporia* the dry season colouring consists in an increase of the pale tint on the upper surface, otherwise we find only a decrease in size, accompanied by a bleaching of the underside. The Nymphalidae are generally regarded as a phyletically junior branch of the Lepidoptera, yet the species are mostly sufficiently consolidated, and the specific characters as a rule distinct and easily recognized. Doubts as to the connection between the ♂♂ and their ♀♀, such as we have with Pieridae and Satyridae, rarely occur. The members of two genera only are exceptions; *Neptis* and *Tanaecia* with their endless ana-

logies in colour and markings, their mimicry of allied or distant species, the apparent absence of leading characters and the presence of innumerable individual variations. Yet it appears, that, in contrast to the Danaidae and Amathusiidae, there is a certain amount of divergence in the male clasping organs, which gives a key to the sifting of the material, towards which one has hitherto been so helpless. Albinism and melanism are frequent among the indo-australian Nymphalidae. In one genus (*Euripus*) both these anomalies are found running parallel to each other, and in both sexes.

In the matter of male tertiary sexual organs on the wing membrane, the Nymphalidae are poorly equipped in comparison with the families hitherto mentioned. The anal pouches of the Papilionidae with their strongly scented down, the anal hairtufts of the Danaidae and Pieridae, not to speak of the rich furniture of the Amathusiidae, all are wanting. Even the hair tufts on the hindwings, present in the neotropical *Agrias* and *Prepona*, have vanished, excepting in one genus *Prothoë*. The genus *Terinos* is still most noticeably equipped, and the scanty garniture of modified scales on the nervures of our european *Argynnis* is repeated in the indo-australian relatives of this group and in the peculiar *Ergolis*. It is known of the Euthaliidae, especially the *Adolias*, that they emit a fragrance recalling orange blossom (Haase), and I have myself noted, that next to *Discophora*, the common *Adolias dirtea* of Java and *A. aeëtes* from Celebes exhaled a strong scent of Viola odorata, and some *Cethosia* are perfumed.

The difference in the neuration of the two sexes of the genera *Terinos* and *Cethosia* is remarkable, yet the divergence is inconsiderable in comparison to that in *Hyantis* and some *Culapa* *).

A satisfactory systematic succession of the genera presents great difficulties, and becomes at once illusory if we rely exclusively upon **one** leading character only, even if elsewhere sufficient, as the shape of the larva, or the sexual organs; and all the more so, since neither the early stages nor the clasping organs are perfectly known to us. Nicéville attempted to utilize the branching of the subcostal nervures as a fundimental character, yet this experiment was frustrated by the obstinate variation among four, otherwise closely allied genera. Yet the order followed in the Butterflies of India, Burmah and Ceylon Vol. II (1886) appears to be, at least in part, the most natural, and since it agrees in general with the simpler conditions of the aethiopic fauna, as Aurivillius has explained, it is used in the following work as a guiding line. A further fact of some weight is, that both authors place the apparently most primitive species at the bottom, and take the higher organi zed as the last of the series. Finally there is the relationship with the Satyromorphae, which has led to the separation of the *Penthema* group from the *Limenitidi*, and its inclusion among the lower satyroid genera. The investigators of the future have still a wide field for emendation, as well as for the exercise of their sagacity and logic. On the other hand, with the homologous and universal distribution of the Nymphalidae we appear to know already all the existing genera, and await only the discovery of the innumerable local forms from the island world of the Malay Archipelago, especially of the Philippines, and the trabantes of Sumatra, Celebes and New Guinea.

The material for the illustrations was taken, with few exceptions, from the collection of H. Fruhstorfer (Geneva) in which also the types of the newly described forms are preserved, excepting in so far as specimens required, for comparison are in the collections of the Senckenberg Museum in Frankfurt or in that on the Natural History Museum in Berlin.

Tribe I; **Biblinae** *Bsd.* **). Costa vein basally swollen. Distribution in the aethiopic and neotropical regions.

1. Genus: **Ergolis** *Bsd.*

The indian representatives of the bicontinental genus differ only slightly fron their african relatives in the atrophied nervures closing the cell of the forewing, in the transverse vein of the cell in the hindwings being absent in the ♂♂ and only rudimentary in the ♀♀, and in the straighter, not downwardly curved submedian, at least in *E. ariadne* as compared with the aethiopic *E. enotrea*. Costal vein basally strongly inflated, anterior discocellular very short, almost atrophied, the middle vein strongly curved, and the very long lower discocellular only seen in the ♂ as a very fine line, in the ♀ as a slight depression. Precostal of the hindwing bifid, with elongate distal apex. The larva, discovered by Horsfield in 1829, belongs to the *Vanessa* type and has two dorsal rows of sharp, finely branched spines. Pupa with two points on the head and dorsal excrescences. Larva on Ricinus communis and on an evil smelling creeper of the genus Tragia. The tertiary sexual characters form an essential distinction of the genus; they differ in each species and thus offer good means for determination, The *Ergolis* inhabit the whole oriental region with offshoots to the Moluccas. The wealth of Celebes, with four species, is remarkable. — The *Ergolis* are sun lovers, therefore they avoid the woods, and are

*) Compare also the diagnosis of the genus *Argynnis*.
**) In the neotropical region the Biblinae are represented by the genus *Cystineura*.

found exclusively in gardens, by the wayside and on the borders of plantations. Their flight is low, floating, and they are by no means shy, so that they are found near human dwellings, especially where the Ricinus plant is cultivated, or has run wild. — Uncus delicate, hook shaped, with sharp point. Valve short, narrow, basally straight, with fine apex and densely setose.

a) Speculum on the upperside of the hindwing covered with reddish brown modified scales. The black brand on the underside of the forewing velvety, not entering the cell.

E. ariadne is the commonest species, distributed from India northwards to Formosa and southwards over Macromalayana as far as the Islands of the Flores group and Celebes. The species is somewhat constant, only slightly inclining to the formation of local races, and even the seasonal forms are not greatly differentiated. A tenacious white subapical spot on the forewing in both sexes is characteristic for *ariadne* and the next species

ariadne. **ariadne** *L.* the type of the name, comes from Java, where, up to about 600 m it is one of the commonest species met with on the borders of the coffee plantations. Specimens from East Java are rather smaller than those from the West, and the influence of the dry climate makes itself felt in the bleaching of the reddish colouring and the disappearance of the black longitudinal lines on the upper surface. Larva, according to Horsfield's splendid figure, black with red spots and yellow lateral stripes. Head with two clongate, finely branched processes, dorsum with two rows of yellowish, also branched spines. Pupa reddish grey with angular wing-sheaths. — From Lombok come specimens with unusually sharply defined longitudinal bands and reddish brown

rufolaeniata. colour between them, this is **rufotaeniata** *Fruhst.* — Further east, on the small Sunda Islands and in southern

gedrosia. Celebes the specimens are habitually smaller than the Java form, and darker coloured, **gedrosia** *subsp. nov.* (107 b). Piepers states, that *gedrosia* is very common at Jeneponto on the swampy plains near the sea, and

pallidior. less common at higher elevations. Probably also on Kangean. — **pallidior** *Fruhst.*, originally based on the dry form with obliterated longitudinal black lines on all wings, and of which only the submarginal remain distinct for half their length; it is in general larger than the javan *ariadne*, and known on the underside by the fiery red-yellow median band on the hindwing. Type from Assam, but spread throughout the southern slopes of the Himalayas and east overthe indo-chinese Peninsula. Larva on the ground creepers Tragia cannabina and involucrata, chiefly black with whitish dorsal stripes, very restless, they move the head while crawling. Pupal rest 10 days. Imago common everywhere, especially in Tonkin, where they remain in the neighbourhood of

minorata. the village gardens. — **minorata** *Moore* (107 b) is a smaller race with more prominent and closer black bands on the upper surface, occurs in much the same form throughout South India, but the type from Ceylon. —

indica. **indica** *Moore* from Calcutta, Madras and the Nilgiris, is a little larger than *minorata*. — **alternus** *Moore* refers

alternus. to the insular race from Hainan, near *pallidior*. It is considerably smaller than the specimens from Formosa, has the under surface uniform red-brown with very indistinct black wavy lines, and without the distal grey tint which is so characteristic of the indian and formosan specimens.

b) Speculum on upper surface of hindwing as in a), the velvet patch on under surface of forewing enters the cell.

E. merione has the contours of the wings rounder than in the preceeding species, the white subapical spot on the forewing is not so obstinate as in *ariadne*, remaining constant in the ♀♀ only. The yellowish toned ground colour of *ariadne* gives place to a deeper red-brown, the longitudinal lines on the upper surface in-

merione. crease and are more crowded. **merione** *Cr.*, the name-type, comes from the coast of Coromandel, and is one of the commonest butterflies of the Canara district, and, unlike *ariadne*, takes to the woods. The larva lives

taprobana. on the same creepers as those of *ariadne*, but is always green, instead of black with dark brown stripes. — **taprobana** *Westw.* (107 c) can only be separated from the type with difficulty; but it appears, that the Ceylon specimens are constantly smaller than the south indian *merione*, and darker in colouring. Moore says there are two seasonal forms in Ceylon, that of the dry season being, as usual, paler than the ♂ of the wet season form figured by us. The imago goes from the plains up to 2000 m and is nowhere scarce, being found both in

tapestrina. the open country and in the woods. — **tapestrina** *Moore* (107 a as *merione*) is the oldest name for the north indian local form, described from Dehra-Dun; it goes along the southern slopes of the Himalaya from Simla to Sikkim and Assam. *tapestrina* is founded on relatively small, pale yellow-brown speeimens of the dry form, the ♀♀ (107 a) of which are remarkable for the light grey longitudinal bands on the underside. In Sikkim

pharis. *tapestrina* is more common than *ariadne*. According to Moore it ascends to a height of about 5000 m. — **pharis** *subsp. nov.* is based on the dry season form of the Further India race, and can be at once distinguished from the indian *tapestrina* by the brighter colouring of the upper surface, on which light yellow zones alternate with almost black-brown, producing markings recalling the Melitaeae. The wet season form was noted by Bingham, who described Tenasserim specimens as darker, so that they

has more relationship with the South Indian *merione* and *taprobana* from Ceylon, than to the Sikkim and Assam races. Type from Siam from an elevation of about 300 m at Hinlap, Muoklek on the Bankok-Korcat railway line. Jan. and Feb. ♂ of the wetseason form from South Annam and Tenessarim. According to MOORE also occurs in the Mergui-Archipeligo. — **ginosa** *subsp. nov.* inhabits Sumatra and the Malayan Peninsular. ♂ larger than *pharis* ♂♂, darker redbrown with distincter black wavy lines on the uppersides and on the undersides the sharply bordered median bands are more uniformly redbrown. — **nicevillei** *Fruhst.* (107 b) is considerably smaller than the North Indian and Macromalayan allied races; the ♂♂, especially those from East Java appear on the uppersides of a darker redbrown than the Sumatran *ginosa*. The ♀ however shews distinct Javanese color characteristics in the predominent paler colour and the lighter greyer underside: ♀♀ from the east of the island approach more to *pharis Fruhst.* of Siam (dry season form), those of West Java from the neighbourbood of Sukabumi, form a transition from *tapestrina* from Sikkim and *ginosa* from Sumatra. Fairly rare, but extending up to 800 m elevation. — From Borneo a *merione* race is not yet known with certainty, but SHELFORD presumes that **ahmat** *Pryer* (described in Brit. North Borneo Herald of October 1894 p. 259) may belong here. — On the Philippines *merione* is represented by **crestonia** *subsp. nov.* The ♂ larger than *ginosa* ♂, the black lines of the hindwings distincter; the ♀ brighter owing to alternate streaks of redbrown grey and black on the uppersides. Undersides grey, with redbrown bands which extend on to the forewings. Palawan, W. DOHERTY found them not rare in January. — **luzonia** *Fldr.* (107 c) is an extremely pale form with broadened and partly pale yellowish median bands. The grey underside resembles *crestonia* from Palawan, with its prominent, narrow, intensive redbrown median bands. Time of flight apparently the whole year and according to SEMPER extends from Luzon to Mindanao. The form is fairly rare and I imagine that under the name *luzonia* several geographical races are comprised, which must be cleared up later. — **maculata** *Semp.* is the most northernly known form of *merione* with brightly contrasted uppersides, of which SEMPER especially notices the darker basal and much paler distal portions of the wings. The underside shews the coloration of the dry-season form with disappearing black marks on a pale grey background. Camiguin de Luzon, Babuyanes and Northwest Luzon. — **celebensis** *Holl.* designates an important insular race discovered by DOHERTY in the South of Celebes, which is a typical Celebean butterfly in its large size as compared with its relations. The basal portion of the forewings is much darkened in both sexes, the median region on the other hand paler, poor in black lines and the ♀ covered with irregular black bordered yellow spaces. The underside is distinguished by a broad median band, whereas the submarginal band is only weakly indicated.

ginosa. *nicevillei.* *ahmat.* *crestonia.* *luzonia.* *maculata.* *celebensis.*

c) Speculum of hindwing-upperside much extended, scentgland as in b.

E. merionoides *Holl.* (107 a) is a highly specialized species, which replaces *obscura Feld.* on Celebes, and connects the characters of the Indian *merione* with those of the Moluccan *obscura*. ♂: Upperside pale yellowbrown with sharply waved submarginal lines, which in the ♀ are broadened at the hindmargin and submerged in a blackish brown border area. Both sexes exhibit a chain of black pupilled round or oval eyespots. ♀ above paler brown grey with yellowish median area; underside of ♀, in lively contrast to that of the ♂ figured, greyish white instead of red-brown, with delicate yellowbrown repetition of the markings of the upperside. Discovered by DOHERTY in South Celebes and represented in my collection by 3 pairs from Dongola, Central Celebes, August and September and belonging to a dry season form. Genital organs described in the generic diagnosis. — **buruensis** *Fruhst.* (107 a) of which only two ♀♀ are known to me, repeats the scheme of markings of *merionoides Holl.* of which it is a melanotic variation, but *buruensis* has more of the general type of *Ergolis* in the more uniform redbrown tone of the uppersides. The undersides are principly grey with dull brown spots. Isle of Baru.

merionoides. *buruensis.*

E. obscura *Fldr.* (107 a) is a very rare species, of which only a pair from Halmaheira and a ♂ from Batjan are before me. Shape of wings exceptionally round, the dark ground colour, the absence of the submarginal chain of eyespots and the presence of an intensely red median band seperate *obscura* from *merionoides* It is probable that further intermediate steps than *buruensis* will be discovered (on Obi, Sula Mangoli) in which case *merionoides* will fall as a species and must be regarded as a race of *obscura*. On the underside *obscura* ♂ differs from *merionoides* ♂ in the absence of the grey submarginal flush of the hindwings and the ♀ differs from *buruensis* ♀ in the absence of the submarginal chain of kidney shaped spots, whose place is taken by a grey wavy band on the hindwings.

obscura.

E. taeniata replaces *obscura* on the Philippines is somewhat smaller than the latter and is characterised by the pale or dull yellow bands which according to locality vary in breadth. The black scent gland of the underside is reduced, is only continued into the cell as a fine line and divides outwardly. Undersides of the hindwings covered for the greater part of their surface by smoky grey patches, which are traversed by delicate redbrown bands. **taeniata** *Fldr.* (107 c) is a richly coloured race from the Northern Philippines.

taeniata.

In the ♂ the yellow area extends to the costa of the forewings. According to Semper *taeniata* occurs more in the mountains than in the plains and is only known from Luzon and the Babuyanes. Flies from April to No-
adelpha. vember. — **adelpha** *Fldr.* is the melanotic extreme from the Southern Philippines. The yellow zone of the ♂ much narrower, merging in front into the dark brown ground colour and hardly half as broad on the hindwings. In the ♀ in place of the yellow area of the uppersides, appears an irregular paler region, grey in front, greenish yellow behind. The central band of the hindwings is continued to the costal margin. Hitherto known from Northwest and South Mindanao, figured by Semper from Bohol.

d) Speculum of the hindwing-uppersides as in C., the androconia-spot of the forewing-uppersides reduced, sometimes present only as a narrow streak along the lower wall of the cell.

E. specularia has the same wing shape as *E. merione* the markings of the upperside harmonize more with thsoe of *ariadne*, but on the uppersides the white apical spot is missing. The relationship with the *obscura* group is proved by the smooth large glittering mirror extending to the foremost median vein, from which however *specularia* differs in the abortive velvety spot of the hindwing undersides. Base of wings flushed with brown-red, the outer portion always paler. The analogy of the markings might also lead one to regard *specularia* as an extreme dry-seasonal form of *ariadne*; but specimens of the rainless period are long known from Sikkim and Java, which do not exhibit such tertiary sexual changes, as we find to be the case with
arca. *specularia.* — **arca** *Fruhst.* was observed by me in Siam at an elevation of about 300 m in January. They differ from typical *specularia* from West-Java in the more sharply pointed apical portion of the forewings, the larger size and the somewhat lighter yellow-brown ground-colour. The scent glands of the hindwings are more heavily clothed with reddish grey scales. Discal bands of all wings somewhat heavier. The submarginal zone within the black ziczac bands of the hindwing undersides reddish instead of grey. The discal bands
specularia. are more sharply bordered with black and darker brown. Forewing 38 mm. — **specularia** *Fruhst.* (107 b misprinted as *specularis*) is immediately recognizable by the beautiful pale yellow submarginal zone, especially of the hindwings. The ♀ has more sharply defined and heavier black lines on all wings. In the discal area of the forewings a dark brown, black scaled patch is to be found. The basal area of the forewings is also duller brown than in the male and contrasts strongly with the light yellow-brown marginal zone. The undersides remind one of *ariadne*, the brown bands being paler and bounded on the inside with straight hardly waved black lines and the grey dusting is much lighter. The praediscal, that is to say counting from the base the second redbrown band is much more sharply angled, above much broader redbrown than towards the anal angle, whereas in *ariadne* it is equal throughout. East and West Java up to 700 m elevation, very rare especially the ♀. Three Southeast Borneo specimens in my collection can scarcely be separated from Javanese *specularia*. The species will most probably be found to occur on Sumatra and the Malay Peninsular. From Micromalayana
intermedia. a local race is already known **intermedia** *Fruhst.* which bears a resemblance to the Moluccan *C. obscura* through the dark redbrown colour of the uppersides; *intermedia* is habitually smaller than *specularia* and is characterised on the underside by the reduction of the androconia spot of the forewings to a small spot. Alor; Time of appearance March; West-Sumbawa.

timora. **E. timora** *Wall.* a hitherto unrecognized species which has frequently been held to be a race of *E. ariadne*. The authors description is also somewhat short, but the diagnosis; "Upperside beautiful orange redbrown, the outer border and base darker, traversed by one wavy line, apical portion projecting but without white spot and the darker outer margin bordered by a submarginal wavy line; underside rich brown, the basal half concentrically spotted with dull white bands, which are repeated as streaks along the terminal border, apex with a white spot as in *ariadne*" leaves no doubt, that Wallace had a species nearly related to *dongalae*
phemonoë. *Fruhst.* (107 b) before him. Home Timor. — **phemonoë** *Fruhst.* is a paler island race with beautiful pale yellow uppersides, redbrown basal and terminal portions to all wings, that are more richly dusted with red than *dongalae* (107 b). Island of Wetter. Flies in May, discovered by Doherty in 1892.

dongalae. **E. dongalae** *Fruhst.* (107 b misprinted as *dongalae*) is larger than *phemonoë*; darker above. The speculum of the Hindwing-uppersides lightly scaled with red. Underside with white apical spot nearly obsolete, light brown. Hindwings with grey-brown basal and whitish grey distal half, with narrow redbrown bands. ♀ beneath entirely whitish yellow with redbrown bands and spots. On the upperside the ♀ also bears a fine black median line on the hindwings which is absent in the ♂. Dongola (Central Celebes), August and September, discovered by W. Doherty and in Kendari (East Celebes) by H. Kuhn. *E. dongalae* belong to those Celebean species, whose origin must be sought in the West Malayan Region and who have emigrated by means of the Flores bridge. If intermediate forms are found (Soleyer, Tanah-Dampea) *dongolae* must be united to *timora*.

e) Forewing undersides with velvety nerve scent streaks on all veins. Costal and hindmargin of hindwings also covered with modified scales, as is also the rear portion of the cell of the forewings; a character otherwise unknown among the Nymphalidae.

E. isaeus. Uppersides could be easily mistaken for *E. merione Cr.*, but the transverse bands are straighter and in the median portion of the wings further apart and in both sexes the apical white spot is absent. Undersides uniform greybrown with distinct isolated wavy bands. Hindmargin almost black, according to the local race more or less extended, but broadest in the Javanese race. **isaeus** *Wall.*, described from the Malay *isaeus.* Peninsular and Sumatra differs in colour most probably according to the time of year. 4 ♂♂ appear mostly redbrown, a pair more yellowish brown. I only possess the ♀ from Northeast Sumatra; it differs on the underside from the ♂ in the yellowish grey colour, from which the delicately black bordered reddish grey transverse bands stand out. Larva on a creeping strongly stinging creaper (Tragia sp.); rare, only in woods. Also from the Padang-Bovenland West Sumatra in the Fruhstorfer collection. According to Nicéville once found in Burmah, but this locality is not confirmed by Bingham and is doubtful, as Nicéville was not able to distinguish the four Indian-Macromalayan species. I possess however an undoubted ♂ from Pontianak West Borneo. — **lysias** *Fruhst.* inhabits Java, where it is very rare, although it occurs all over the island. ♂ *lysias.* somewhat paler, more grey than redbrown in comparison with Perak and Sumatra specimens with a more yellowish median zone. ♀ upperside smoky grey, transverse bands grey brown without any mixture of red. Undersides paler, with grey instead of redbrown intranerval streaks on the forewings, hindwings as above indicated with much broader marginal zone of modified scales, ♀ darker, more grey than yellow with more extended transverse bands than Sumatra ♀♀. — **pupillata** *Fruhst.* ist furthest removed from the type form *pupillata.* and is the most distinctly differentiated island-race. Uppersides with distinctly contrasting transverse zones; Basal and distal portion brown, with a yellow median area, hindwings crossed by heavy black bands. Underside remarkable on account of a series of pale brown pearlnecklace-like rows of submarginal spots on the forewings, hindwings reddish grey with almost black submarginal markings and darkbrown bands which are much more prominent than in the Javanese and Sumatran *isaeus* forms. Island Nias very rare.

2. Genus: **Laringa** *Moore.*

In 1901 Moore separated the two Indian species from the African Genus *Eurytela* on account of the naked instead of hairy eyes, the heteromorphism of the sexes and the different design in markings. There are however slight structural differences, for instance in both wings of *Laringa* the reduction of the front discocellular vein, the apparently closed cell of the hindwing present in *Laringa* but absent in *Eurytela.* Differential characters can also be established in comparison with *Ergolis* in the shorter front discocellular vein of the hindwings, which more especially in *E. ariadne* is fairly long. Forewings with angled tips to wings. Costal vein fairly swollen at the base. Subcostal vein with five branches, 2 before the end of cell, nervure 3 nearer to 4 than the latter, nervures 4 and 5 forming a short fork ending below tip of wing. Upper discocellular vein very small, almost abortive; middle short, bent; lower very fine, straight meeting the median vein at the 2nd branch. Hindwings with praecostal vein devided. Cell closed by at fine lower discocellular vein, which meets the median vein at the base of the 2nd nervure. The larva will probably have two long head horns similar to the African races and the pupa sharply angled, hollowed out of green colour and covered with black markings. The two Indian species are widely seperated in their colour scheme and the same is the case with their greographical distribution. They are exceedingly rare, the femalis of several races being entirely unknown. It is said that the ♂♂ are to be found on sandy places of woodland streams. Their flight is exactly the same as that of *Ergolis* and they love to sit quietly for a long time with closed wings on the uppersides of leaves on the borders of woods.

E. horsfieldi the first described species is at the same time the most widely distributed and one meets with it in Burmah, Andamans and Macromalayana. ♂ upperside predominently grey blue with dark leaden grey or blue patches, which are bordered by black median and submarginal bands. Underside grey with blackish lines and scale conglomerations. ♀ according to the locality paler or darker yellow with reddish patches and lines. Underside always paler, more yellowish, with more delicate black markings than the ♂♂. The ♂ resembles somewhat. *Erg. ariadne* or if one will, the small yellow *Neptis* species. On the Andamans the influence of the dry season is distinctly observable. — **glaucescens** *Nicév.* is the darkest of the known *glaucescens.* races; ♂ brown violet with relatively narrow blue grey median area to all wings. ♀ dark yellow dusted with black. Underside of ♂ blue grey with brown, ♀ more yellowish with reddish short streaks. Type from the Karen Hills from about 2500 ft. elevation, otherwise every-where in Upper Burmah and Tenasserim from October to March but always extremely rare. — **andamanensis** *Nicév.* is a brighter coloured island race, *anda-* is less rare, both sexes closely resembling the figured *velitra* (107 d), but somewhat larger than the Macroma- *manensis.* layan varieties; ♂ more richly covered with black than *velitra*, ♀ with redbrown uppersides, which are covered

with pale yellow plumes. Underside of ♂ similar to that of *glaucescens* ♂, that of the ♀ light yellow with reddish lines and tufts of seales. Specimens of the dry-season form are smaller, the black bands of the ♂ are redueed on aecount of a greater extension of the blue grey area; the ♀ ha a narrower yellow median area,
senta. on a dull redbrown ground. Andamans not rare. — **senta** *Fruhst.* is close to *andamanensis*; the ♂ differs in the broader black submarginal band of the hindwings, the ♀ in paler almost whitish yellow median area, which is surrounded by a pale reddish brown area. Underside of both sexes somewhat paler the ♀ with seareely noticeable redbrown powdering. Compared with *horsfieldi* of Java the following differences may be ascertained: In *senta* there is a broader black shading in the basal region of the forewings and the outermargin of the hindwings and the grey bluish markings are more extended and lighter. The underwings of *senta* are paler grey, with very narrow black lines, whieh run straighter than in *horsfieldi*. The larger ♀ is redbrown instead of yellow brown with much paler costal and median bands and weaker black lines on the uppersides. The undersides duller yellow and the median bands of the forewings interrupted at the radii and not continuous as in *horsfieldi* ♀ from Java, Sumatra and the Andamans. Isle of Nias forewing: ♂ 27 mm ♀ 30 mm. —
velitra. **velitra** *subsp. nov.* (107 d) is a transition from *andamanensis* and *senta* to *horsfieldi* of Java; it is smaller than the two forms from the Wedda-Bridge (former land connection Ceylon-Nias) but is somewhat larger than the Javanese race. ♂ hardly to be distinguished from *horsfieldi*, only the blaek bands somewhat more sharply defined, ♀ on the contrary much darker and more uniformly orange yellow, the redbrown portion darker, the underside deeper yellow ochre. Oecurs in the plains, rare. The ♂♂ sit with folded wings and have a pre-
horsfieldi. ferenee for sandbanks in woodland streams. (Martin.). — **horsfieldi** *Bsd.* like all Javanese inseets is of smaller size than its sumatran relatives and in both sexes exhibits a paler color both above and below. ♂ 24 ♀ 24 mm forewing. Very rare apparently commoner in the east of the island than in the west up to about 500 m. *horsfieldi* forms are not known from the Malay Peninsular and Borneo.

E. castelnaui a true Maeromalayan species, which penetrates as far north as Moulmein, does not occur on the Andamans but has reached the Southern Philippines by way of Borneo. —*castelnaui* does not extend fur-
castelnaui. ther eastward than Java. **castelnaui** *Fldr.* the name type eomes from the Malay Peninsular and extends northwards as a great rarity to Upper-Tenasserim (Daunatrange and Attaran valley). The ♂ is the only butterfly of the eastern tropies with pure ultramarine blue upperwings. Wings otherwise only traversed by a fine blaek submarginal line and the apex slightly darkened. ♀ grey brown with dark brown, black bordered transverse bands. Underside similar to *horsfieldi* but darker, more clouded with black and with more perpendieular transverse lines. ♀ grey brown with black bands and whitish submarginal zone. Tenasse-
ochus. rim to Singapore, Northeast and West Sumatra but ♀♀ from this island appear to be somewhat darker than those from Perak. — **ochus** *Fruhst.* inhabits Borneo, the type coming from the south east of the island. The ♂ is much larger and of darker blue ground colour than specimens from Sumatra and Perak. Apex of forewings more elouded with blaek, the undersides shewing more extended and darker blaek bands on all wings. The ♀
ottonis. probably differs eonsiderably but is not yet known to me. — **ottonis** *Fruhst.* The ♂ differs from *castelnaui* in the pale blue colour of the wings, which is common both to *ottonis* and *fruhstorferi* from East Java. The black submarginal band of the forewings is not as well developed in *ottonis*. The ♀ is midway between *castelnaui* ♀ from Sumatra and *fruhstorferi* from Java, it is smaller than Sumatran, larger than Javanese specimens and of more reddish than blaekish grey ground colour. Underside; the ♂ espeeially in the marginal portions of the hindwings is mueh paler than *castelnaui* from Borneo; the ♀ is also more shaded with red beneath and with thinner blaek lines, of which the submarginal of the hindwings is almost obsolete. Palawan, only
fruhstorferi. 1 ♂ and 1 ♀ in the Fruhstorfer collection. — **fruhstorferi** *Nicév.* (107 d) eomes from East Java. In the west of the island I have not noticed this splendid geographieal race. The ♂ differs from the remaining Macromalayan races in the light blue of the uppersides and the broad black submarginal line of the hindwings. ♀ more delicate than *castelnaui* ♀, paler grey brown with more outstanding and much narrower median region. Underside of ♀ much paler than Sumatra ♀♀, with whitish spaee between the black transverse bands and a similar patch in the submarginal area of both wings. Very rare at an altitude of 500-600 m, only found by me
niha. in the Zuidergebergde south of Malang, East Java. — **niha** *Fruhst.* (107 d) comprises the most extremely differentiated island race, the ♂♂ of which can hardly be seperated from those from Sumatra, but the ♀♀ an remarkable by the presenee of white transeellular and median marks on the forewings. General colouring otherwise light grey brown with reddish brown transverse bands. Underside near to *fruhstorferi* of Java with a similar white space between the cross bands and more reddish in place of black bands. Nias very rare.

3. Genus: **Byblia** *Hbn.* (Hypanis *Bsd.*)

A bicontinental genus, whose origin is Africa, where two species occur of which one penetrates to India and Ceylon. Byblia agrees entirely with the former genus in neuration and form of palpi, but is easily separeted on account of the rounded forewings and the strongly scalloped hindmargin. The general colour

scheme is also different and has a more Melitaea-like appearance on account of the arrangement of black spots on an orange brown ground. The antennae in *Byblia* are provided with a long pointed club; the palpi very long only slightly scaled above, and covered in front and on the back with long hairs. Last segment only half as long, as the thin middle segment which is somewhat swodlen at the end, scales short. The 3rd subcostal nervure is nearer to the 4th than to the end of cell. The forewing cell is closed, the hindwing-cell open. Hindwings with forked praecostal vein. Forelegs of ♂ extremely thin, threadlike and covered with a few silky hairs; tarsus short, only half as long as the tibia, the latter of the same length as the femur Larva on Tragia cannabina and can only be distinguished from that of *Ergolis ariadne* by the long pale green or yellow green instead of whitish dorsal stripe. Pupa slender, sometimes green, sometimes brown. Imago is subject to seasonal dimorphism. Lee also Vol 13, plate 51.

B. ilithyia *Drury* (138 a). Upperside reddish orange coloured with black transverse bands. Underside *ilithyia.* extremely delicate, on the, forewings only in the front portion with white spots along side the black streaks; the hindwings crossed by three yellowish white transverse bands which are frequently absent, which are proximally surrounded by black crescents or spots. — In the dry-season form **simplex** *Butl.* these black markings *simplex.* disappear and the underside of the hindwings becomes a sandy dull redgrey, and on the uppersides the black bands are commencing to disappear. Common from Poona and Bombay in the north to Madras and the Nilghiris in the south of India, is fond of the neighbourhood of puddles up to 1000 m altitude. In Ceylon only on the north of the island in July and again in Dezember very common in lower Jungle. Larva according to Moore in the first stage dark brown, in the second black with a yellow dorsal stripe running the whole length; third and last stage green. The thorns black. Pupa slightly forked on forehead, thorax with a point behind, the segments somewhat bent upwards dorsally. Wingcases somewhat extended. Colour either green or dull grey or purple brown with paler back.

Tribe Pseudergolidi.

♀ with completely developed forelegs. Occur only in Indian region.

4. Genus: **Pseudergolis** *Fldr.*

Possesses the fine black wavy lines in common with *Ergolis*, but on the undersides approaches more towards the genus *Precis* on account of the chain of eye spots on the hindwings. Praecostal vein of hindwings as in *Ergolis*. The neuration otherwise also agreeing with that of the latter Genus (except that the costal vein is not swollen). Antennae long, gradually forming a thin club. Larva on an Urticacea, Indian Siar (Debregeasia bicolor), exhibiting the closest relationship with the Byblid larvae through a pair of diverging beautifully curved, black, finely thorned head horns. The body naked except for two suboval thorns. Pupa resembles that of *Rohana camiba* but is more grotesque, ventrally with thumb-shaped protuberance and side spikes. Imagines are not rare, they have a slow hovering flight and sit with extended wings on leaves. They are always found in the neighbourhood of water, reach an altitude of 2000 m and have very slightly differentiated seasonal forms. Distribution very extraordinary, from the southern slopes of the Himalayas to China and then again unconnected on Celebes. Only two species known.

P. wedah comprises two local races **chinensis** *subsp. nov.* one third larger than **wedah** *Koll.* (Vol. 1, *chinensis.* p. 173, Pl. 61 e), but with narrower black bands. ♀ paler than ♀♀ from Sikkim and Assam. Common in West-China, at Omeishan; one specimen also from I chang, Central China recorded by Leech. — **wedah** *Koll.* known *wedah.* from the North West Himalayas to Upper-Burmah, was found by me as a great rarity in Central-Tonkin. Specimens of the dry-season form are somewhat smaller than those of the Monsoon period, paler, more golden brown and with more distinct black submarginal spots. On the underside the brown transverse bands are more prominent. ♀ faded brown with weaker transverse bands on the uppersides. The dryseason form flying in Tonkin in August and September, *wedah* occurs in the Himalayas from May to November. According to Dr. Nicéville the imagines on very quarrelsome and each affects a special spot, which they hold.

P. avesta inhabits the Celebes, where this rare species occurs in two races: **avesta** *Fldr.* (116 e), descri- *avesta.* bed from specimens collected by Lorquin in the northern part of the island, has a redbrown ground colour, with well developed black ringed ocelli on the uppersides. ♀ dark brown without any trace of red. Markings as in the ♂, but the transcellular portion of the forewings somewhat more shaded. ♀ generally resembles *Precis intermedia Fldr.* in the arrangement of the ocelli and *Precis iphita* in colour. Hindwings round and without the anal tails of the ♂. Underside of ♂♂ with brightly shining whitish violet areas along the chain of ocelli and in the cell of the forewings. Both sexes were obtained by me at the borders of woods at Toli-Toli, North Celebes in November and December. — **toalarum** *subsp. nov.* (named ofter the primitive Weddah- *toalarum.* race of the South Celebes), larger, uppersides brighter redbrown with more prominent black spots than *avesta.* The ♀ has more distinct black ringed ocelli on the hindwings and darker brown spots on the undersides of

the forewings than in the North Celebean ♀♀. East Celebes ♂ and ♀ types in the STAUDINGER Collection. South Celebes ♂, Patunuang Asoe (January) in my collection. The ♀ of the southern race was first discovered by DOHERTY and was first described by HOLLAND in 1890.

Tribe Calinagidi.

Forelegs of ♀ as in Pseudergolis, that is complete cells of hindwings closed. Occur only in the Indian Region.

5. Genus: **Calinaga** *Moore.*

This extraordinary genus, which only occurs in the upper regions of the Himalayas exhibits in its outward appearance Parnassius-like characters and illustrates in a most instructive manner in what direction the desire to mimic can be developed, in regions where *Danaidae* are absent, but where *Parnassius* and *Pieridae* enliven the neighbourhood. The chief characters of *Calinaga* are to be found in the extremely long and narrow cells of the forewings, the termination of the 4th subcostal nervure in the tip of the wing and the connection of the rear discocellular of the forewings with the median vein at the head of the 3rd nervure, in which it differs from all other previous families, whereas the following *Penthema* (*Isodema*) has a similar construction. From the latter it is easily and surely distinguished through the absence of the front discocellular of the forewings, but chiefly on account of the short costal vein of the hindwings, which terminates on the costal and not on the outer margin. The praecostal vein is short and bent inwards; the forelegs of the ♂♂ excepternally small and finely haired; tibia and tarsus together only slightly longer than the femur. The three known species are easily distinguished from all other Nymphalidae on account of the extraordinary long red or yellow bristle-like covering to the thorax and one is reminded of the analogous hairy character of the Bombidae amongst the Hymenoptera. One species (*davidis*) resembles certain *Aporia*-species, MOORE compares the North Indian race to *Danaida lemniace*, and a Siamese race resembles *Danaida tytia* and *Papilio agestor*. Uncus *) as in the Byblidae extremely pointed and delicate without basal thickening, valve extremely broadly folded, drawn out in front to a blunt point and covered with fine bristles.

buddha. **C. buddha** is distributed over the Indian region in three races. *buddha Moore*, the name type comes from the North West-Himalayas. It is the lightest form with broad hyaline patches and entirely whitish grey cells to the forewings. Undersides of hindwings pale yellow ochre. Frequently not rare in the Kulu Valley, where it is found on sandbanks in woodland streams up to an altitude of 1500 m. *buddha* is confined to forests and has never been found in bushes or aftergrowth. When disturbed the butterflies have a Papilio like flight; they are always local and one meets with them from March to May, less commonly also in July. —

gautama. **gautama** *Moore* (111d as buddha) inhabits the Eastern Himalayas. It is one of the rarest Sikkim butterflies, which only appears in one generation in the spring in Native Sikkim and has never yet been caught by a European collecter, but has only been captured by natives. The transparent patches of all wings and especially of the forewings are reduced, the undersides of the hindwings brown with a reddish

brahma. flush. ♂ similar to ♀ but somewhat larger than the West Himalayan race. — **brahma** *Btlr.* is the darkest extreme. Uppersides chiefly blackish brown, with the white spots reduced to small streaks and spots. Undersides of the hindwings sepia brown with a distinct purple flush. Up to the present only two ♂♂ and 1 ♀ are known which were probably caught in the spring of 1884 on the way from Manipur to Kohima in the Naga-

sudassana. Hills. — **sudassana** *Melv.* regarded by BINGHAM as a separate species, seems to me to be only a southern form of the collective species *buddha* and differs chiefly through a beautiful yellow ochre flush in the anal portion of the hindwings, which is repeated on the brown bordered underside as a reddish flush. On the forewing uppersides there is a row of white anteterminal spots, which are not present in the Indian *buddha*, but which are already slightly developed in the Formosa race. The type was found about 100 English miles from the north west of Chieng-Mai in the Shan States in a hilly region. Later on a few specimens were found at the Salwin River (Kunlon Ferry near the Yunnan Border) and three ♂♂ in the Karen Hills from 6—800 m

formosana. by Tunghu. — **formosana** *Fruhst.* Is nearest to *buddha gautama Butl.*, but bears broader and darker green preapical strigae and the submarginal spots of the forewings are almost double as large. The black covering to veins in forewings is more extended than in *gautama Butl.*, the submarginal spots of the hindwings much reduced. The underside resembles *gautama Moore* from the East Himalayas, but the apex is darker brown, as also the distal region of the hindwings. *Formosana* is much nearer to the Indian races than *davidis Oberth.* Appa-

davidis. rently very rare. Island of Formosa. — **davidis** *Oberth.* (Vol. I, p. 193, Pl. 59 c) on the contrary is fairly common in West China and from Siao-Lu and Tay-tu-ho in my collection, has more greenish intra-nerval streaks on the forewings and a yellow underside to the hindwings reminding one of *buddha* from the West Himalayas.

saka. — **saka** *Moore*, as figured by LEECH and SEITZ (Vol. 1, p. 193 Pl. 59e) is much paler than *dividis*; and **lactoris**

lactoris. *Fruhst.* from Chang-yang in Central China is the palest extreme. The ♀ is especially remarkable on account of the entirely washed out colour, further on account of the white oval antemarginal spots of the forewings, which are always present and which sometimes coalesce with the submarginal spots to form long arrow shaped streaks. The apex of cell is white, not greyish black as in *davidis Oberth.*, the thoracic hairs yellow instead of redbrown.

*) Genital organs very similar to those of the Genus *Cyrestis* and several *Apaturidi*, so that its position next to *Penthema* is in danger and cannot be upheld.

C. cercyon Nicév. and *C. lhatso Oberth.* inhabit West China (Tat-sien-lu) and East Tibet (Tseku) Vol. 1, p. 193, 4 Pl. 59 e and d.

6. Genus: **Penthema** *Westw.* (*Isodema Fldr.*)

The few species of this Genus are partly astonishingly true mimics of various Papilionidae and Danaidae and they look like large *Hestina* and belong to the most stately Nymphaliden of the Eastern Subtropics. With the exception of their rapid flight, *Penthema* has many Satyroid characters. Firstly as in *Calinaga*, the cells of the hindwings are almost entirely closed and the antennae are long, straight and unclubbed. The genital organs shew similarly constructed lateral clasps to the uncus as in the species of the palaearctic Satyrid genus *Eumenis* (Satyrus pt). Also the long sharply pointed hook-shaped uncus resembles that of *Eumenis*. Valve on the other hand uncommonly long, as in some of the Mycalesidae, but corresponding to the size of the butterflies robust, chitinized distally, and running to a sharp point, dorsally sometimes toothed. The forewings are structurally characterised by the rear discocellular vein ending in the bend instead of at the base of the front median vein, the third subcostal ending in the costal border and the short and un branched praecostal vein of the hindwings. Palpi much extended beyond the head, sharply bent and thickly scaled in front and with a bunch of hairs on the back on the middle segment. The Genus is especially note-worthy on account of a hitherto unnoticed dimorphism in both sexes, which goes so far as to have caused the creation of special species. Further at quite short distances sharply divided local races can be differentiated. Exclusive inhabitants of woods but are occasionally found on animal excrement. Most probably *Penthema* have only one generation. Distribution from the Eastern Himalayas through the whole of further India through Hainan to Formosa.

P. lisarda is the most changeable species with that common danaoid markings of the uppersides which occurs so frequently amongst Papilioniden, Elymniiden and Hestina. Characteristic are three isolated markings in the cell of the forewings, which in the Eastern races are partly covered with black scales and thus disappear. Undersides gradually darkening as they get furthern eastwards, reddish in Sikkim, pale brown in Burmah, darker in Tonkin and finally almost black in Formosa. Valve long and slender, extremely sharply pointed distally, slightly bent and without dorsal median spines, **lisarda** *Dbld.* very like the figured *mihintala*, but larger, *lisarda.*
and the white spots somewhat narrower. Undersides of the hindwings entirely rustred, those of the forewings with a redbrown apical area. ♀ very rare, considerably larger than the ♂, somewhat duller beneath, the abdomen with broad white lateral stripes. Sikkim, Assam. In Sikkim in dense forests from May to June sometimes not at all rare but only in one generation at an altitude from 2—4000 m. In Assam the time of flight is given as July and August. — **mihintala** *subsp. nov.* (113 d) is before me from the Chin-Hills Upper Burmah, *mihintala.*
where the form occurs as a great rarity in February. In the dull instead of redbrown undersides it forms a transition to *michallati* of Tonkin. On the uppersides it differs from *lisarda* in the rounder spots in the cell and the broader intranerval strigae. — **michallati** *Jan.* (= gallorum *Oberth.*) is smaller than *lisarda* and *mihin-* *michallati.*
tala; the shape of the wings is rounder and in both sexes the black ground colour of the uppersides gains in extent, the white spots and streaks diminishing. Even the cells of the hindwings commence to be smoked over. Tonkin June to September. In comparison with *C. darsila annamitica* a slow flyer and amongst a crowd hardly to be distinguished from a Danaid. I caught it at flowers on the borders of lonely forest paths, once also noticed on sandbanks on the Red river. According to Crowly it also occurs on the island Hainan *). — As **pomponia** *Fruhst.* (113 d) a very interesting rare and almost entirely black form is described, which occurs *pomponia.*
in the rainy season along-side of the pale *michallati*: Upperside: Ground colour black. Forewings with a marginal row of four obsolete greyish white spots, which are distributed between the upper radial and the anal angle within the veins. A second inner row of five pure white round spots runs from the costal border to the third median vein. Hindwings with a series of six submarginal helmet spots, of which the upper ones are largest and a discal row of six whitish grey streaks, which in the middle of the wings are connected with two round white spots. Underside; ground colour dark brown with the exception of the black basal portion of the forewings. On the forewing undersides the markings of the uppersides are repeated, but the spots are more bluish white and more distinct and beyond the cell and between the veins there are whitish streaks of unequal length which are narrow above but broaden towards the outer border. Hindwings with the submarginal spots corresponding to those of the upperside but increased in size, but with narrow yellowish white discal bands. Cilia white. ♀ larger than ♂. Antennae long and black. Head thorax and abdomen black. On the head, behind the eyes and the base of the antennae white tufts of hairs, ♂ thorax with white hairs, abdomen beneath on the sides white. Palpi black, white inside. Length of forewings ♂ 56 ♀ 60 mm. Than-Moi North Tonkin. 1000′ in June and July 1900. *pomponia* flies slowly but also during the heaviest rain, during which it will sit for a long time on flowers with closed wings sucking honey or resting on the undersides of leaves and twigs. It is very probably that on the island Hainan a form similar to *pomponia* will be discovered.

*) Pavie found *P. lisarda* by Luang-Prabang on the upper Mekong. See Nouv. Arch. du Musée Paris (3 Ser.) Vol. IV. p. 256.

formosanum. **P. formosanum** *Rothsch.* (114 a as *formosanus*), originally from Taipeh North Formosa was recently rediscovered by SAUTER in all the mountainous portions of middle and south Formosa in large numbers. Time of flight June to August, at an altitude of from 2—4000 ft. The ♀ repeats the markings of the ♂. Undersides of the hindwings almost entirely blackish brown, but always with a complete row of white helmet shaped *umbratilis.* spots and postdiscal series of dots. — **umbratilis** *Fruhst.* is the melanotic aberration parallel to *pomponia*, in which the white markings of the forewings are reduced to rudiments; the cell and the median zone of the hindwings are also almost entirely blackened over. Very variable, not one of the 30 specimens in the FRUHSTORFER collection entirely agree. Genital organs more delicate than those of *lisarda* of Upper Burmah. Valve not thickened basally, the distal point only slightly bent.

P. darlisa. A very rare well differentiated species from further India, which is divided into three local races and like *lisarda* inclines to dimorphism in both sexes. In contradiction to *P. lisarda*, which resembles a *Hestia* or *Danaida*, *darlisa* mimics the *Euploea-mulciber* model and resembles in flight to a fascinating *darlisa.* extent *Pap. telearchus* (See Pl. 49 c), whose range of variation is truely followed. — **darlisa** *Moore.* ♂ and ♀ groundcolour of forewings black with violet blue sheen. Cell of the forewings with three spots, which are hardly more than dots. The whitish green strigae of *lisarda* are flushed with delicate light blue, those of the hindwings becoming dull yellow. All the markings of *lisarda* are repeated, but in *darlisa* they are reduced, narrower, the submarginal double row of spots smaller. Cell of the hindwings with a black streak, and dusted with black basally. Interesting is a somewhat narrower but otherwise unchanged rudiment in conformity with *lisarda* which is characteristic for the Genus, but in the melanotic specimens is almost covered with black. — *binghami.* **binghami** *Wood-Mas.* is analogous to *pomponia Fruhst.* an extreme dark form of *darlisa*, but the uppersides are not black, but on the forewings of a deeper blue and the hindwings a duller blue. The white markings are more reduced than in *darlisa*, the cellular and median strigae of the forewings disappear on the uppersides, but are present on the undersides. On the hindwings all the pale areas are affected by the darkening, so that the whole of the median area appears black, on the other hand the submarginal spots especially of the ♀ are increased in size, and the outer row are round instead of helmet shaped. Genital organs of *darlisa* very similar to those of *lisarda*, the uncus robuster, the valve more bent and more boat-shaped hollowed out, the distal portion narrower and armed dorsally and medially with two short sharp spines; *darlisa* is not very rare and is found in high forests in Burmah. Time of flight March, occasionally on the dung of elephants. Of *binghami* only *mimetica.* a few specimens are known from the Thounyeen forest (time of flight April). — **mimetica** *Lathy* from the neighbourhood of Korat in Central Siam forms a transition to *annamitica* on account of the brilliant blue sheen of the forewing uppersides and differs from *binghami* on account of the absence of the discal and the partial *annamitica.* absence of the submarginal spots of the forewings. Very rare only one ♀ known. — **annamitica** *Fruhst.* like *telcarchides.* *darlissa* occurs in two colour variations. The ♂ figured (**telearchides** *form. nov.*) resembles the ♀ of *Pap. telearchus* (49 b) and has two yellowish submedian stripes on the forewings and seven intranerval strigae on the hindwings, which are repeated on the undersides. A second form copies the markings of the *Pap. telearchus* ♂. The forewings shining brilliant dark blue with the exception of the dark basal portion, and the hindwings shewing a want of all the cellular and median pale patches but with an increase as in *binghami* of the yellow submarginal spots. The ♂♂ do not fly like Nymphalidae, but dash about between the trees of the primeval forest and have just the appearance of a Papilio. I found the form *telearchides* on a stone covered with algae in a tiny swampy stream in February in South Annam.

adelma. **P. adelma** *Fldr.* (Vol. 1, p. 194, Pl. 61 b) was formerly placed in the Genus *Isodema* and differs considerably in markings from the remaining *Penthema*. But the newly discovered forms *P. michallati* and *P. formosanum* form a structural transition from the *Penthema* type *lisarda* to *adelma*. The Genus is best united with *Penthema*, as differences in the neuration are not present as shewn by the preparations made by me. The differential characters mentioned by Dr. SCHATZ are also not present, the *Isodema* cell being drawn too broad. But it seems as if the palpi of *Isodema* are somewhat shorter than *Penthema* and therefore do not protrude so much. Front discocellular short but not rudimentary as in Byblidae. Only two forms are mentioned in the Palaearctic parts p. 194. *P. adelma Fldr.* Uncus with short lateral clasps; valve considerably broader, that is basally strongly swollen, shorter than in *Penthema*, point simple, but sharp, in one specimen abnormally bent downwards at almost a right angle.

Tribe Issorodidi.

The Genera belonging here are bicontinental and differ from the Argynnidi with which they were formerly united on account of the primitive genital organs, which are in strong contrast to the richly ornimented ones of Argynnis.

7. Genus: **Cupha** *Bilb.*

The *Cupha* species are sharply divided from all the other genera of this group by two characters: the thread like almost clubless antennae and the fourth subcostal nervure of the forewings finishing in the costal border. Only *Cirrochroa* possesses a similarly formed antennae, but it can immediately be seperated as only one subcostal nervure branches before the end of the cell and through the position of the fourth nervure. In all the other genera it finishes either in the apex or in the outer border, the situation is quite an exception amongst the Nymphalidae, whereas amongst the Satyridae it is the rule. Possibly this has something to do with the pronounced Satyrid characters of the *Cupha* species, which have rounded wings and the undersides provided with eye-spots; moreover the median spur is missing in all the species, which proves that the relationship to Argynnis is very small. The swollen palpi seem to make it appear rational to leave the Genus here in spite of the above mentioned anomalies. Besides the chief characters already mentioned the form of the palpi is also characteristic for *Cupha* (= *Messaras*), they being very much swollen. The last segment is short and thin, sharply pointed and clothed with short hairs. The forewings possess a short, broad and closed cell. The 1st. subcostal nervure straight before the end of the cell, the 2nd very much inclined towards it, the 3rd nearer to the 2nd than to the 4th., which latter ends in the costal margin, while the 5th. goes into the apex. The rear discocellular meets the median at the base of the 2nd nervure. Hindwings with narrower cells. Praecostal simple, branching off after the subcostal and bent obliquely outwards. The *Cupha species are* coloured uniformly brown or yellow-brown, with very indistinct markings, and are distributed over the greater portion of the Indo-Australasian region. We meet with them in India, northwards to Formosa and extending over the Philippines and the Papuan region to the Solomons. The species are mostly rich in individuals and therefore belong to the commonest butterflies of the East. They are also sun loving insects and visit flowers and are to be found everywhere where the remains of forests are to be found amongst cultivated areas. The various species are very much alike, the differential characters very indistinct, the individuals themselves very variable and very susceptible to geographic and climatic influences. Actually hardly one specimen resembles another. The genital organs of the various species do not exhibit any noteworthy differences. Uncus extremely delicate, finger-shaped. Valve very broad especially towards the base and with light bristles and dorsally with a tooth-like excrescence. — Valve according to the locality more or less triangular and with a blunt distal point. Larva on Flacourtia, brown with a dorsal and a lateral row of dark brown spots. Head with two finely branched spines. The remaining segments with laterally brown half transparent spines. Pupa very interesting, green with eight brightly coloured filaments and four brightly coloured protuberances.

C. erymanthis, the commonest species of the Genus is distributed over an enormous territory and is one of the most variable species of the East, as wherever sharp seasonal changes occur, it forms strongly marked seasonal forms. **erymanthis** *Drury*, the name type, comes from China and is based on the dry-season form (107 g). *erymanthis.* Underside dull yellow, faded, sandcoloured with bluish violet transverse bands on the hindwings, otherwise with only unimportant black dots and streaks. Upperside chiefly dark yellow ochre with somewhat lighter transverse bands on the forewings. Time of flight November to March. The wet-season form (107 f), at present unnamed is always as large and frequently larger than the winter form. The uppersides darker brown, the subapical spots of the forewings smaller, the black intramedian dots on these larger, undersides brighter than the dry-season form, with a broad light yellow subapical band on the forewings and brightly colored and strongly marked hindwings, time of flight from May onwards. The *Vanessa*-like larva according to Walker on Glochidion eriocarpum Champ., a common wayside bush with woolly leaves. Pupa strongly angled with a bright metallic sheen. Distribution South China, Hongkong, Formosa. — **lotis** *Sulz.* is the oldest name for that race *lotis.* which inhabits continental India with the exception of the south and extends eastwards to Tonkin, Annam and Siam. *lotis* is always smaller than the typical race, the specimens of the dry-season form are dull yellow ochre above, with beautiful pale yellow transverse bands on the forewings. From the plains up to an altitude of about 5000′ and to be met with from the foot of the Himilayas from Mussorie to Assam and Burmah, in the South on the Malay Peninsular, Singapore and the Natuna Islands. Specimens from Tenasserim are very dark, which was also the case with specimens collected by me during the wet-season in Further India. — **maja** *Fruhst.* *maja.* is a well differentiated local race from Southern India, which Moore has well figured (Lepid. Indica IV, Pl. 362). Uppersides with dark brown basal region of all wings and a beautiful pale brown distal region on the hindwings. The deep black apical portion of the forewings without yellow spots, the very broad pale yellow-ochre transverse bands are flushed with red at the rear. Undersides remarkable on account of the strongly contrasting reddish yellow distal- and pale yellow basal areas of all wings. Very common in the South of India from Kanara to the Nilghiris, especially wherever woods are present. *maja* flies like *Atella phalanta* without pausing from bush to bush and continues to move its wings if it rests for a moment. Larva like that of *Atella* and on the same plant (Flacourtia) and only distinguished by me on account of the different colour of the head and the spines not being black but partly transparent; according to Hampson dull applegreen, as also the pupa, which has red

placida. and black streaks and three pairs of red and black appendages. — **placida** *Moore* (107 c), a genuine island race with much darker colouring, smaller than *maja*, with rounder wings, uppersides uniformly warm yellow-ochre with the transverse bands very indistinct and hardly paler, hindwings similar to *erymanthis-lotis* with distinct black submarginal wavy lines, which are hardly indicated in *maja*. Undersides reddish yellow-ochre with only one pale patch before the anal angle of the forewings. Commonest in April and May, rare in the hills, but still occurring at Nuwara-Ellyia (about 2000 m). — **andamanica** *Moore* unites the characters of *maja* on the forewings with the prominent markings of the Malayan races on the hindwings. Ground color exeeptionally dark brown with prominent yellowish transverse bands on the forewings. Undersides very bright with broad red-brown median area. Andamans not rare. — **nicobarica** *Fldr.* is an island inhabitant unknown to me in nature, whieh according to Bingham has the space between the submarginal lines of the hindwing uppersides of a paler colour than the remaining surface of the uppersides. Nicobars. — **disjuncta** *Weym.* comprises a fine island form, the ♂ of whieh has not been so modified as the ♀, which is seperated from all other races by the pale cream coloured transverse bands of the forewings. The ♀ is also in other respects very bright. Hindwing uppersides with pale brown basal, reddish yellow discal and whitish submarginal bands. The whitish space between the submarginal lines reminds one of *nicobarica Fldr.* ♂ just like the ♂ of the Javanese form, but the underside is paler and the basal portion of the uppersurface of all wings generally brown. Isle of Nias. A ♂ from Batu Island in my collection inelines more to the Javanese race on account of the reddish ochre basal colouring of the wing uppersides. — **peliopteryx** *Hag.* from Mentawej, stands out from all other forms on account of the basal half of the wings being much paler and with only just a trace of greyish dusting at the roots, so that the wings appear uniformly pale leather yellow, almost of the same colour as the transverse bands of the forewings in *erymanthis*. In consequence in this form there is hardly a trace of the transverse bands to be seen, only the irregular border, which is otherwise black and distinct is here present as a faded brown marking. The apex and the outer border of the forewings are not so dark as in *erymanthis* or *disjuncta*, but only light, are very broad, dusted with black and on the inner border are not sharply defined, but blend gradually in the yellow ground colour. In many specimens three rows of pale yellow spots are found in the black apical portion, as noted by Weymer in the Nias form *disjuncta*, but only very faded and indistinct. The round black spot, which in *erymanthis* and *disjuncta* is present in the cell between the middle and lower median veins and in the middle of the yellow transvers band, is in *peliopteryx* nearer to the dark outer border. On the hindwings whieh are also pale yellow, only the round black spots are surrounded by faded dark yellow patches and the narrow bands which border same towards the base are whitish, like very pale specimens of *disjuncta*. Behind these narrow, white, inwards darkly bordered bands there follows after a space another simple dark line, which in *peliopteryx* is always broader than in *erymanthis* and *disjuncta*. Whereas in the just mentioned species, it is strongly embayed and waved, in *peliopteryx* it runs almost straight and forms only one sharp outward angle at the 1st. discoidal nervure. Only in one single specimen is this line somewhat more hollowed out. The undersides of all wings resembles those of *disjuncta*, perhaps a trifle paler and on the forewings more uniform in color owing to the want of eontrast of the dark basal and paler central areas. The opal sheen of the outer row of crescents of the hindwings is wanting. — **dohertyi** *Fruhst.* (107 e) has just the correet dress of a Satellite-Island form, that is to say its colour is considerably more melanotic than the races from Sumatra and espeeially those from Java. A long series of specimens which are before me, are very striking on account of the much narrower median bands of the forewings, which moreover arc not yellowish, but of a redbrown tone. The inner border of the brownish region, that is to say the strongly bent discal band is much broader black than in Javanese and Sumatran specimens. The yellow subapical spot is more pronouneed as also the blaek subanal pateh. The black median bands of the hindwings run straighter, the inner submarginal band however more irregular. Moreover this is moved more inwards, so that the brown zone between the submarginal bands is broader. The undersides of the wings are also darker but poorer in markings than the Sumatran, the violet central bands of the hindwings more prominent. On the other hand the yellow median band of the forewings appears much narrower. From the Javanese race of *erymanthis*, *dohertyi* is easily seperated through the want of the pale yellow flush on the dark brown hindwings. With *disjuncta Weym.* from Nias, whieh has an almost white median area on the forewings, *dohertyi* has nothing in common. Island of Engano. Common in April. — Under the name **nagara** *subsp. nov.* I. should like to unite the forms of West-Sumatra and Borneo, which are almost identical, melanotic branches of the paler *lotis Sulz.* from Continental India and therefore also in opposition to the paler Java form. Ground colour as in *dohertyi*, the shoulder of the forewings not only paler, but costalwards considerably extended. The yellow subapieal spots, especially in the Borneo specimens obsolete. Undersides brighter colored than the Java specimens. According to Hagen a common butterfly, prefering cultivated areas with not a very fast flight and often settling, visiting the flowers of gardens and uncultivated fields especially the Lantana bushes. It frequents a settled locality prefering the sunny leaves of bushes beside the road, where it sits still for long periods with folded wings. The butterfly remains close to its birthplace and never undertakes long journeys.

andamanica *nicobarica.* *disjuncta.* *peliopteryx.* *dohertyi.* *nagara.*

A single bush and a few blooming shrubs suffice it for the whole of its life, one can be certain of meeting it at its chosen locality. Specimens from North East Sumatra which probably approach *lotis* or the Javanese races are not known to me. — **synnara** *subsp. nov.* very much resembles *lotis*, which is almost the rule with Ja- *synnara.*
vanese butterflies. Ground color of the uppersides paler yellow-ochre, the broad transverse bands of the forewings darker in tone. The dry-season form not so pronounced as in *lotis*, the undersides never so uniform yellow grey, but always with well developed markings. The wet-season form is however not so dark brown as is the case in that of the Assam Tonkin and Singapore *erymanthis*. It can be seperated from the Sumatran *nagara* through the dull yellow ochre basal colouring of the uppersides and the less bright undersides of all wings. Throughout Java, very common in the East of the island, on the borders of coffee plantations and forest roads up to about 600 m *) Bali, Bawean, Sumba. — **kangeana** *Fruhst.* forms one of the most distinct local races of *kangeana.*
the whole Malayan region and is distinguished from Java males by the much darker redbrown ground tone of all wings. In the colour of the uppersides *kangeana* most resembles *erymanthis saturatior Fruhst.* from Lombok. The yellow brown subapical bands of the forewings however bear a great resemblance to *arias celebensis Fruhst.* (107 f) from Central Celebes, but they are much narrower above and much more sharply angled in the middle and confined by the black median bands. The hindwing markings harmonise most with the ♂♂ of the wet-season form of Assam. Underside of the forewings: apex almost entirely black, anal spot three times as large as in Javanese ♂♂. The hindwings are crossed by a distinct redbrown median band, which is bounded on the outer border by a sharply defined pale yellow submarginal band; a character, which is repeated in a much weaker form in *erymanthis palawana Fruhst.* Island of Kangean. — **saturatior** *Fruhst.* is the darkest race, has almost *saturatior.*
the same warm yellow-ochre colour of the wing uppersides in common with *placida* (107 c) and differs chiefly from *placida* through the distinctly angled black apical suffusion of the forewings and the increase in the size of the black bands and spots of all wings. Underside as in *placida*, but brighter reddish yellow-ochre with more extended black apical suffusion and well pronounced, only slightly yellowish transverse bands of the forewings. Island of Lombok from April to June from the see coast up to about 600 m. Uncus slender short, Valve resembles that of *C. crameri*, but is distally somewhat more inclined, with a more regular blunt point. — **palawana** *palawana.*
Fruhst. resembles in colour *erymanthis maja* from South India and is of a warmer brown than my darkest Borneo specimens. The transverse bands of the forewings are on the other hand very pale and on the inside much more sharply bordered with black than in any other of the local races. Both wings on the undersides are crossed by violet discal bands and are otherwise broader and more brighter colored than *lotis* of the Sunda Islands. Palawan, January (W. Doherty); Balabac. A similar form, which flies on Sula Island is in the British Museum. From Celebes an *erymanthis* race is not yet known; it is possible that in the South of the Island a form will still be discovered, possibly *erymanthis* is represented there by *C. moeonides* (107 f), which however is a good species.

O. arias is closely allied to *C. erymanthis* and differs from the latter on the uppersides, through the oblique bands of the forewings, which are always regular and broader, more upright, straighter, not angled at the apex of the cell and proximally either without or with a very slight black border, and a very distinct grey-violet median band on the hindwing uppersides. On the undersides the forewings have an almost vertical submarginal series of black spots, which do not become obsolete towards the costa as is the case in *erymanthis*. The subterminal lines of the hindwings are closer together, the intermediate space paler, in fact almost white, never yellowish or brownish as in *erymanthis*. Finally the median row of spots on the hindwings are proximally more sharply bounded and do not coalesce with the ground colour. *arias* inhabits solely the Philippine-Celebean region, where it is divided into several sharply divided geographical races, of which we may still expect to discover a large number. The Philippine local race resembles *erymanthis* very much so that Staudinger considered it a seasonal form of same; a view, which Semper has already contradicted and which cannot be upheld as on Palawan both *erymanthis* and *arias* occur, both fly in January and *arias* is before me from Palawan in two generations. The Celebean race is so highly divergent, that it almost deserves specific value. — **arias** *Fldr.* described *arias.*
from Luzon, inhabits the Northern Philippines. Ground colour similar to *lotis*, but much duller, the very broad bands of the forewings pale yellow. — Als **dapatana** *Sm.* a dark local race of the Southern Philippines is pro- *dapatana.*
bably described, which is said to come from the island Dapatan. Possibly the place Dapitan or the similar named bay on the northwest of Mindanao is meant. No doubt specimens before me from Bazilan agree, which are dark smoky brown in colour, and compared with *arias* have somewhat darker yellow and narrower transverse bands on the forewings, which are not quite so regular and more angled over the apex of the cell. Underside remarkable for the sharply defined, relatively broad yellowish median bands, which are proximally traversed by the violet streaks of the hindwings. Time of flight February and March. — **cacina** *subsp. nov.* replaces *arias* *cacina.*
on Palawan and some of the Satellite islands of North-Borneo and occurs on Palawan together with *C. erymanthis palawana Fruhst.* In colour *cacina* holds the middle between *arias* and *dapatana Sm.*, paler than the latter and darker than *arias*. The transverse bands of the forewings vary somewhat, but as a rule are broader than in my Bazilan specimens. Hindwings with very distinct, white subterminal wavy line. Hindwing undersides

*) Larva on Flacourtia ruham L. & M. and Fl. inermis Rowb. (See notes of Dr. M. C. Piepers.)

pseudarias. of an undecided brown tone, but with broader and paler median bands than *dapatana.* — **pseudarias** *form. nov.* is a new dry-season form, which is before me not only from Palawan but also from Matanani island (North-Borneo). Uppersurface of all wings paler yellow brown, transverse bands of the forewings distally whitish.
sangirica. Median area of the hindwings crossed by dull yellow brown bands. — **sangirica** *subsp. nov.* appears darker but brighter than Philippine specimens and has much narrower and warmer yellow ochre bands on the forewings
celebensis. than the Mindoro and Mindanao races. Island of Sangir. Type in the Staudinger collection. — **celebensis** *Fruhst.* (107 f) is a very brightly coloured island race. Forewings remarkable for a double row of violet subapical spots. Undersides with whitish violet transcellular streaks. Central Celebes, Dongala, August and September
fedora. discovered by W. Doherty. — **fedora** *Fruhst.* is a poorly coloured local or seasonal race from Eastern Celebes. Transverse bands of the forewings broader, ground colour paler brown, median streaks of the hindwings more
muna. extended and duller than in *celebensis.* Undersides with somewhat faded violet horizontal lines. — **muna** *Fruhst.* reminds one of *arias Fldr.* from Luzon and the Mantanani Island (North-Borneo) in my collection, but is darker an more unicolorous than these. The yellow median bands of the forewings of *muna* are narrower, than in the remaining local races of *erymanthis.* The two black submarginal bands of the hindwings are somewhat closer together and are composed of smaller arches than in *arias.* The forewing undersides appear less brightly colored and much more simply marked than in *arias,* and the median bands of the hindwings run straighter. Forewing 23 mm. Antennae pale redbrown. Island of Muna near Buton, collected by Drs. F. and P. Sarasin on the 26th. Dec. 1894. Type in the Basel Museum.

C. maeonides probably replaces *C. erymanthis* on Celebes and its satellite islands; but it is undoubtedly
maeonides. a good species. **maeonides** *Hew.* (107 f) is distinguished by the beautiful redbrown horizontal streaks on the hindwings, which alternate with similar ones of violet color and of which the median is continued on to the forewings. Undersides reminding one of *C. arias,* but with more intensive and more strongly angled whitish
rovena. violet bands. North Celebes, Toli-Toli, November, December. Minahassa, Kakatu Island. — **rovena** *subsp. nov.* is a smaller and paler form from the Southern Celebes with narrower bands on the forewings and also with some-
maenada. what faded markings on the undersides. Neighbourhood of Maros, caught by me in November. — **maenada** *Sm.* is a fine local race with pale orange-yellow transverse bands on the forewings, which are nearly twice as broad and a yellow terminal border to the hindwings, which reaches to the middle median vein. Instead of the red-brown and violet transverse streaks there is a black double line. Underside similar to *maeonides* but with lighter forewing bands and pale yellow instead of whitish median and submarginal stripes. The submarginal spots on both sides more marked than in *maeonides,* Sula-Mangoli, October, November.

C. crameri forms the natural continuation of *C. arias* on the Moluccas and in the Papuan region. The species differs from *arias* in the progressive darkening of the uppersides, as it gets further eastwards, of the deep black terminal region espeeially of the hindwings. The median bands of the hindwings are more prominent as a rule than in *arias,* the black submarginal dots are as a rule surrounded by a red patch and the underside is brighter with much heavier violet grey transverse bands. Uncus basally somewhat thicker than in *C. ery-*
crameri. *manthis,* valve longer otherwise no noticeable difference. **crameri** *Fldr.* differs from the figured *keyana* (107 e) principly through the somewhat broader black terminal borders of the uppersides of the hindwings and through the paler yellow-ochre general tint of the undersides of all wings. Ceram, Amboina, Saparua; 1 ♂ in my eollee-
palla. tion is said to come from Ternate. — In **palla** *Rob.* the uppersides are pale yellow, the black border is reduced, in the apex of the forewings yellow spots are present and on the undersides the redbrown and blaek markings
keyana. are paler. Island of Goram. — **keyana** *subsp. nov.* (107 e misprinted as kajuna) has a uniform reddish yellow-ochre tone to the undersides, a redbrown instead of black apex to the forewings and deep violet transverse bands on the hindwings, According to Kühn common all over little Key Island, flying in woods near to the
leonida. ground between bushes. — **leonida** *subsp. nov.* eomprises the melanotic extreme of the colleetive species: Base of all wings dark brown, transverse bands of the forewings and median bands of the hindwings reddish yellow-ochre. Underside differs from *keyana* in the prominent bright violet spots of the forewings and the beautiful highly coloured whitish violet markings of the hindwings. From Hattam, Arfak-Territory Dutch New-Guinea in my collection and numerous specimens from the island of Mefoor in the Geelvik-Bay.

C. lampetia inhabits the southern Molukkas and is charaeterised by the large black submarginal spots of the hindwings, an oblique, proximally sharply defined yellow-ochre transverse band on the forewings. Underside with yellowish basal and blackish distal regions. Forewings with three violet subapical spots and the
lampetia. hindwings with a similar median band and whitish submarginal erescents. Two island races: **lampetia** *L.*, differing from the figured mirona (107 f) in the hindwings being hardly lightened in the median area. Amboina, Ceram,
mirona. Saparua; — and **mirona** *Fruhst.* 107 f); which is very like the typical form, but can immediately be seperated by the delicate blaek submarginal spots of the hindwing-uppersides, which are surrounded by lovely shining yellowbrown crescents, which form together a complete band. The yellowish white admarginal spots are also more pronounced. Underside: The outer border of the forewings blacker instead of redbrown, the yellowish

white terminal triangles are smaller but more pointed, the yellow discal band of the hindwings narrower. Uncus basally narrower than in *C. crameri Fldr.*; valve considerably broader ventrally flatter, dorsally somewhat more inclined. Island of Buru: from Miro, time of flight November.

C. myronides replaces *C. lampetia* on the Northern Moluccas. Always smaller, it differs in the vertical basal region of the upperside, which is not extended inwards, the narrow black distal border and the intramedian and distally extended yellowish patch of the forewings. The border of the hindwing undersides narrower, with smaller spots. Uncus even more delicate than that of *C. lampetia mirona Fruhst.*, valve considerably thinner, narrower ventrally contracted with long although blunt point. — **myronides** *Fldr.* is on the uppersides distinguished by distinct, pale yellow, long submarginal crescents.; forewings as a rule with yellow subapical spot; hindwing undersides without the black bordering to the submarginal eyespots. Halmaheira. — **datos** *Fruhst.* is darker yellow brown and on the hindwing uppersides without the distinct greyish yellow markings which are always present in *myronides* from Halmaheira. On the undersides *datos* also proves to be a melanotic race, as the apex of the wings is almost deep brownish black in tone, and moreover the yellowish spots, which distinguish *myronides* have almost entirely disappeared. All the wings are in the basal area and in the anal angle suffused with redbrown, the white admarginal spots of the hindwings and the violet crescents larger. Specimens of *datos* are as a rule somewhat larger than *myronides* and the black border on the forewings is extended in the apical area. Batjan. — **lampetina** *Fruhst.* (107 g) Smaller than *myronides Fldr.* from Halmaheira and *datos* from Batjan. The black borders of the forewings more regular, not so deeply embayed between the 2nd and 3rd median nervures, but ending in the anal angle as in *lampetia* from the Southern-Moluccas. The yellowish discal bands of the hindwings are more distinct than in *myronides* from Halmaheira, the black submarginal spots adjacent to same are smaller, the prominent yellowish white admarginal band of the Halmaheira specimens has not disappeared, but can scarcely be recognized, the yellowbrown discal region of the forewings broader than in the remaining Molucean forms. On the hindwings it is just this band which is reduced and the brownish black basal region gains in extent. The underside is paler and poorer in markings than is the case with *myronides* and *lampetia*, the apex of the wings bears no spots, but remains unicolorous brownish black, on the hindwings all the bands are reduced more especially the yellowish admarginal band. Obi.

myronides.

datos.

lampetina.

C. madestes replaces the former species in the Papuan region, it is very rich in forms, and inclined to variation and it appears as if it is inclined to form seasonal forms. According to the island race, the black basal region extends more towards the middle of the wings and in the extremes of the Ferguson group almost the whole surface of the upperwings is blackened. On the undersides the basal region is frequently inclosed by a redbrown boundary line, but this is occasionally only just indicated and in most of the subspecies is wanting entirely. The distal markings of the undersides of all wings change very much in the intensity of the purple flush, as well as in the size of the black and whitish violet submarginal spots. The uppersides are crossed by a pale or dark yellow ochre band, which is generally sharply defined basally, but is frequently extended outwards and in the median region encloses two isolated black dots and thus bears a resemblance to *C. prosope F.* ♀ always very rare. The ♂ uncus basally with somewhat broader lamellae than in *C. lampetia.* Valve shorter, more pointed outwards, more concavely bent in the centre and compared with *myronides* rounder, and shorter. — **wallacei** *Fldr.* resembles the figured *oderca* (107 f), but the orange colored median area is broader, basally not so decidedly cut off, on the forewings only a wedgeshaped triangular spot deep black. The outer border lightly sprinkled with yellow. Underside reddish yellow and with relatively large square whitish grey submarginal spots on the forewings and intensely shining whitish violet median wavy line on the hindwings. Waigiu. Not rare. — **turneri** *Btlr.* comprises a habitually smaller, darker satellite island race with more sharply bounded median bands on both sides and more uniform redbrown dull basal area. Undersides paler yellow, with reddish flush within the purple submarginal zone. Island of Misole, collected in January by H. Kühn. From a specimen in my collection, an identical form evidently occurs on Aru, where it is replaced by the pale yellowish brown underside **madestes** *Hew.* which is unknown to me in nature. — **cyclotas** *Sm.* has a broad black border to all wings and on the underside a reddish boundary line is present distally from the grey basal area. Mentioned from Biak and Mysore, from Jobi and Roon in my collection. — **charmides** *Sm.* is a paler local race with very narrow median bands and distinctly outstanding black ocelli on the hindwings. On the forewings the median area is extended and bears a black spot. Undersides with reddish bordering to the yellowish grey basal region and a proximal red line running parallel to it within the submarginal white wavy band. Described from Geelvink-Bay, from Mafoor in my collection. Uncus similar to that of *myronides datos* very delicately built. Valve noticeably short, with rounded ventral portion and straight oblique dorsal edge. — As **oderca** *subsp. nov.* (107 f) a local race from German New-Guinea is designated with somewhat broader black borders and therefore with narrower yellow bands, which on the undersides has the most extended purple flush in the distal area especially on the forewings. From British New-Guinea similar specimens are received, but are habitually smaller and with paler median area and

wallacei.

turneri.

madestes.

cyclotas.

charmides.

oderca.

an isolated black spot within it, as well as faded border markings on the undersides; probably a dry-season form. According to Hagen not rare in light woods in November and December, and again from May to August.

alexis. — **alexis** *Sm.* (= miokensis *Ribbe*) in contrast to the former form has very narrow black borders and in consequence also on the underside a much compressed brightly coloured border area. Bismark Archipeligo, New-

decernia. Pommern, New-Mecklenburg, Nussa-Laut and Mioko. — **decernia** *subsp. nov.* (107 e) has a considerably extended black basal area, so that the median area is reduced to a narrow band, which almost disappears on the hindwings. Underside as in *alexis* with reduced brightly colored border area. Garibari a small island of British

fumosa. New-Guinea. — **fumosa** *Sm.* is considerably larger than *decernia* the black color still further increased, the outer border reaches to the cell of the forewings and leaves only the remains of a rudimentary yellow band, which are continued on the hindwings in the form of yellow spots. Undersides beautiful dark orange colour,

eluentia. with violet distal area. Kiriwina. — **eluentia** *Fruhst.* differs from *fumosa Sm.* from Kiriwina, in that the discal bands are no longer rudimentary, but are again completely formed, but they are much narrower than in any other *Cupha* form from New-Guinea. The undersides are more obsolete in markings than *fumosa*, all the black

fergussonia. spots much smaller. Fergusson Islands. — **fergussonia** *Fruhst.* is an uncommonly pale aberration with very broad, medially more extended, light yellow central bands of the forewings, which on the hindwings remind one of *wallacei Fldr.* from Waigiu. In general resembles the figure of *modestes Hew.*, but the yellow subapical spots of the forewings are wanting. Undersides dull yellow with faded purple and black markings. Probably a dry-season form of the former. Fergusson-Islands. Locality is questionable.

prosope. **C. prosope** replaces *modestes* in Australia. **prosope** *F.* has narrower wings and a sharper apex; basal portion of all wings redbrown, the sharply defined border deep black, broadening towards the apex. Forewings with fairly large subapical spot and above it an indistinct but yellow point. Undersides with dark yellow basal region, which has an extensive red border. Next to this is a well marked and sharply angled yellow median band. The distal area without white submarginal spots and redbrown shaded band which particularly on the forewings

humboldti. have only a few black dots. North Australia, at Cape York and Thursday Island. — As **humboldti** *Fruhst.* a form is described with narrower yellow central bands, on the hindwings especially becoming apparantly smaller towards the anal angle. Undersides pale dull yellow, lighter than in *turneri* from Misol. Hindwings with four distinct and three obsolete black marks, which are larger than the corresponding ones in *turneri*. Humboldt-Bay, September, October. Type in the British Museum.

C. melichrysos is the natural continuation of the *madestes* group on the Solomons. The forms belonging here are larger than the species belonging to the Papuan territory and the forewings crossed by an almost white band. The undersides repeat the markings of the *prosope* and *wallacei* races, but the submarginal black spots, even on the forewings are well developed and are enclosed in a pale redbrown area. Undersides of both wings with a beautiful pale yellow transverse band, which stands out from the redbrown surroundings and which narrows considerably on the hindwings. According to Ribbe the specimens vary very much in size and especially the ♀♀ are very large. The color of the bands is sometimes paler sometimes darker, which probably depends

melichrysos. upon the locality. **melichrysos** *Math.* from the island Ugi, has a broad golden yellow band from the end of the

tredecia. cell to the apex of the forewings, on the hindwings a central band which ends at the rear median vein. — **tredecia** *Math.* (107 f) from Treasury Island has a yellow transverse band, which is white distally and which runs up to the costa of the forewings. According to Ribbe from Bourgainville, the Shortland Islands and Rubiana. — As

pallescens. **pallescens** *Godm. and Salv.* a ♂ from Guadalcanar is in my collection with especially broad, pale yellow, but distally not whitish median bands of the forewings, which are narrower on the hindwings than in *tredecia*. The whole tone of the hindwings is generally duskier brown, the submarginal spots dusted over with black and nearing disappearance. Home of type the island of Maleyte.

woodfordi. **C. woodfordi** *Math.* is the most beautiful and largest of the known species. Uppersides brown grey with broad black apical area and white oblique bands on the forewings which do not quite reach to the costa. The hindwings are crossed by a redbrown median band, in which long black intranerval streaks are situated. Violet wavy lines traverse the border area. Undersides with greenish grey basal area and towards the anal angle a somewhat extended white band. Both wings possess a whitish violet anteterminal band. The butterfly prefers shady woods and is a very lazy flyer, which has to be disturbed in order to be seen at all. According to Ribbe not rare on Alu and Bourgainville. According to Ribbe on the island of Ysabel a paler local form occurs.

8. Genus: **Atella** *Dbl.*

This bicontinental Genus constitutes a transitional form between the genera *Cupha* and *Argynnis*. From the first it is seperated by the narrower shape of the forewing cells, the distinctly clubbed antennae and the apparently closed hindwing cells; from *Argynnis* sharply and with certainty on account of the different position

of the subcostal nervure. In *Atella* the 1st. subcostal nervure is situated exactly at the end of the cell, the 2nd after it, the 3rd is nearer to the 4th than to the 2nd, whereas in *Argynnis* two subcostal nervures are always situated before the end of the cell. The palpi are very swollen, provided beneath with long hairs and stiff bristles, on the upperside only weakly haired. End segment very small and pointed. Forewing cells closed, the rear discocellular vein meeting the median vein at the base of the 2nd nervure, the middle one strongly bent. Hindwings with small closed cells, the rear discocellular vein very fine and meeting the median vein before the 2nd nervure. Praecostal vein simple, bent outwards and forking after the subcostal. On the undersides of the hindwings two eyespots are usually developed as also one in the outer angle of the forewings. Further they have a mother-of-pearl sheen. The front legs of both males and females vary from the normal type. The larva of *A. phalanta*, one of the commonest species of the Indian region, is pale green above and whitish beneath and covered with short branched spines. It lives on an Ixora species, a genus of Rubiacae indiginous to India The region of distribution of the Genus which is only composed of a few species extends over the whole of the Indo-Australasian tropical region. One species, the wellknown *A. phalanta* extends even to Africa; another is confined to Madagascar. See further re this Genus in Vol. 1, p. 243, Pl. 71 d and Vol. 13 Pl. 52 f.

A. phalanta inhabits the whole of the Indian empire and extends northwards to Southern Japan. In Micromalayana the species extends eastwards to Letti and Kisser of the Timor group. — **phalanta** *Drury* (Vol. 1, p. 243, Pl. 71 d) was discovered by me as new for Tonkin and Annam; a regular cosmopolitan, which is found everywhere, but nearly always in tatters, it appears in two distinct seasonal forms. The larger (the wetseason form — *phalanta* —) resembles the corresponding form of *Cupha erymanthis* in its brightly colored underside. The specimens of the dry-season form are much smaller and of a uniform dull clay-yellow beneath. In India up to 8000 ft., in fact at 12000 ft. it has been observed on Lantana and Jasmine flowers. Larva known since Horsfield (1829). — **columbina** *Cr.* is the somewhat larger and beneath somewhat darker race of China, which also occurs on Hainan. It sometimes wanders to Japan, where it has been found at Nagasaki. — **luzonica** *Fruhst.* comes from the Philippines and has black markings on the uppersides almost twice as large as *phalanta* of the Indomalayan region. Larva according to Semper quite different from the Javanese and Indian, but from the figure, I believe, that a mistake has been made and that Semper received from Koch a *Cupha arias* larva. *phalantha.* *columbina.* *luzonica.*

A. alcippe has its head quarters in the Malayan territory and is chiefly an inhabitant of the islands in contrast to the continental *phalanta*. It is more inclined to variation than *phalanta* and forms a large number of geographical races and is also subject to seasonal dimorphism. Specimens of the dry-season form are smaller, duller especially on the undersides and with reduced and consequently finer black marlings. Larva on Alsodeia zeylanica, Thwaites (Violacae), cylindrical with six rows of delicate branched spines. Head unarmed as in *phalanta*, body green with longitudinal interrupted brown and claret colored dorsal stripes; head yellowish with two black spots. The larva is just as restless and lively as that of *phalanta*. Pupa a minature edition of *phalanta*. In spite of the wide distribution of the species, it is very localized; Nicéville for example had never seen a living Sikkim specimen. *alcippe* only occurs commonly in the Macromalayan region and even there one must except Java, where in the course of three years I only captured a few ♀♀. — **alcippoides** *Moore* is found as a widely spread Malayan type from Sikkim to Tenasserim and the Malay peninsular as well as in Sumatra and according to Moore also on Borneo. I myself found it in the dry season in Siam in January and in the Karen Hills at the end of May. Uppersides dark yellow ochre in the generation of the Monsoon period, dull yellow in the dry season. The distal margin distinctly bordered with black; median line of the hindwings very delicate. Uppersides covered with delicate black spots and streaks. Sumatran ♂♂ sometimes with a light violet flush. Undersides with a whitish lightening and a purple flush on the hindwings. — **ceylonica** *Mand.* (107 g) is a fine form with considerably extended and unspotted border to the forewings. Very rare, first observed in 1902. — **fraterna** *Moore* comprises a paler race from the Nicobars with reduced black markings on the uppersides and a well marked whitish transverse band on the undersides. — **andamana** *Fruhst.* is near to *fraterna Moore* of the Nicobars and differs from Moore's figure in the darker ground color and the increase in size of the black marks and bands, as also of the distal border. The discal bands of the hindwings more sharply angled, that at the end of the cell of the hindwings at least three times as broad. The most important difference is to be found on the forewings in the form of the black band before the apex of the cell, which is three times as broad, much extended outwards and strongly angled, and which is much straighter in *fraterna*. The black spots between the cell and the submedian are at least three times as large as in the Nicobar race. Characteristic for *andamana* is further the splendid violet sheen which only shews in streaks in daylight along the black median bands and the basal spots, especially on the uppersides of the hindwings. Andamans apparently rare. — **enganica** *Fruhst.* is seperated from all other forms from the Sunda Islands through the remarkably broad and straight black median band of the hindwings. But still more important is the fact, that with the exception of *alcippe-celebensis*, *enganica* is the only race, which has a continuous black median band on the hindwings. This is caused, *alcippe.* *alcippoides.* *ceylonica.* *fraterna.* *andamana.* *enganica.*

by the transverse bands between the median veins touching oneanother. In all other *alcippe* forms these streaks run towards the base, that is to say they approach the wall of the cell and are thus placed obliquely so that they run parallel to one another. *Enganica* is further more richly dotted with black. Engano, April, July 3 ♂♂ Coll. Fruhstorfer. Java is also inhabited by a formerly unrecognized subspecies of *alcippe*, which has been
drepana. named **drepana** *Fruhst.* It almost resembles — though it may appear paradoxical — the specimens from Halmaheira and is distinguished by such broad black bordering of the forewings, that the submarginal bands are almost merged in them. The black mark at the end of the cell is also considerably enlarged and on the hindwings the black is almost twice as broad as in *pallidior Stgr.* from Palawan. Home, Java, captured on the slopes of the Gede-Volcano at about 2000′ at Sukabumi. *Drepana* is very rare in Java; I only noticed two specimens in the course of three years; unlike *phalanta* it prefers the shade, for instance light bushy woods where the sun
floresiana. can perculate. — **floresiana** *subsp. nov.* resembles the Indian *alcippoides Moore*, but all the black lines are more delicate, the yellow submarginal streaks of the forewings continuous and very prominent, the cellular and intramedian streaks finer. Undersides with vivid white and violet streaks. Flores, time of flight November.
pallidior. — **pallidior** *Stgr.* approaches *alcippoides*, but the median and submarginal markings are heavier. ♀ dull yellow-
violetta. ochre with a very broad black spot in the cell apex of the forewings. Palawan, January. — **violetta** *Fruhst.* was based on an extraordinary colored specimen with the whole surface of the wings covered by a warm violet sheen and blackish dusky apical portion of the forewing uppersides, as well as of the terminal border of the
semperi. hindwing undersides. Bazilan. — As **semperi** *Moore* (nom. nud.) specimens from the Northern Philippines can be designated, which in general have a reduction of the black markings of the uppersides of all wings. ♀ according to Semper with a very weak violet sheen and more strongly marked middle line on the undersides. Time
celebensis. of flight May to October, Luzon, Cebu. — **celebensis** *Wall.*, described from specimens from Makasar, is a well marked race, which connects the West Malayan forms with those of the Moluccas. Uppersides distinguished by prominent submarginal and median bands, which in the ♀ are even more extended and sometime coalesce. The subapical markings of the forewings are frequently dusted with black. Undersides with large red bands, which are edged with broad whitish blue. Captured by me at the Maros waterfall in November and at Toli-
omarion. Toli in November—December. — **omarion** *subsp. nov.* inhabits the Sula island and has uppersides of a vivid reddish yellow tone, well developed black markings and darker undersides. Sula Mangoli, type in the Stau-
alcippe. dinger collection. — **alcippe** *Cr.* the first described race of the collective species, resembles the figured *alcippina* on the uppersides (107 c) but is larger and differs from the western races in the rounder cut of the wings. The black markings somewhat heavier than in *alcippina*, but not so extended and continuous as in *celebensis*. Undersides considerably blacker than *celebensis* and with the wavy lines on the forewings coalesced to form a ladder. Both wings traversed by rich white submarginal and median streaks. South Moluccas, not rare on Ceram, where
quinta. specimens with and without violet sheen occur. Saparua in the Fruhstorfer collection. — **quinta** *Fruhst.* from Halmaheira differs from the Saparua specimens in the richer black markings of all wings, which is especially noticeable in the cell of the forewings and the discal portion of the hindwings. The black bands at the end of the cell, and the black subanal markings of the forewings are broader, the black submarginal band of the hindwings more waved. Underside: here also the wings shew more prominent black bands and spots, further there appears a row of grey violet submarginal spots on all wings. The discal whitish violet band much broader,
agoria. and in the discal portion of the undersides of all wings more richly dotted with black. — **agoria** *Fruhst.* from Batjan is larger than *quinta*, with very much broader black submarginal bands and heavier black spots at the
alcippina. end of the cell of the forewings. *Agoria* is possibly only a wetseason form of *quinta*. — **alcippina** *Fruhst.*, differs from the typical *alcippe* from the Southern Moluccas in its smaller size and consequently in the more delicate black markings of the upperwings. The black bands and spots are more sharply defined in *alcippina* and the upper yellow submarginal spot of the forewings darker and more reddish yellow. On the undersides it differs from *alcippe* in the unicolorous yellow forewings, on which the whitish submarginal helmet spots are entirely missing; only the discal band is obsolete whitish violet. On the hindwings the whitish violet bands are also
cervina. more indistinct than in *alcippe* and the brown submarginal line is paler. Island of Obi. — **cervina** *Btlr.* is an interesting pale local race with the median area of the forewings quite free from markings, but with a very vivid blue violet underside. Dutch New-Guinea, from Dorey, Hattam in the Arfak mountains and from Kapaur in
cervinides. my collection. — **cervinides** *Fruhst.*, has a paler ground color than *cervina*, the submarginal bands of both wings, especially towards the apex more decided. The discal portion of the hindwings possesses a black band, which is hardly indicated in *cervina*. The undersides also paler, more richly colored with distinct pale brown submar-
kinitis. ginal and whitish discal bands. Island Waigiu. — **kinitis** *Fruhst.* (107 c) resembles more the typical *alcippe* and the forms described by me. The underside has even a certain likeness to *floresiana* from the Lesser Sunda Islands. I compare the new form here with *cervina*, of which *kinitis* is a smaller edition with rounder forewings. *kinitis* has a broader black border and is more richly streaked with black on all wings but especially in the basal area. On all wings the black, submarginal ziczac line very thick,

moved towards the hindmargin, so that the red-brown submarginal band appears to be considerably reduced. The subapical black spots on the forewings are smaller than in *cervina*, which is also the case with the red brown subapical spots. Two distinct bands cross the discal portion of the hindwings, of which the innermost is very irregular. The underside is more highly colored than *cervina*, especially the forewings, which exhibit a complete series of submarginal black streaks, which are barely indicated in *cervina*. Further the yellowish submarginal band of the uppersides shews distinctly through; both wings are crossed by a pale violet discal band and the black lines of the hind wings are much more pronounced than in *cervina*. German New-Guinea. — **denosa** subsp. nov. is a yellow-brown insect with a narrow black costa and a few dark stripes on the forewings. Hindwings with well developed distal border, a waved submarginal band and a series of black spots and stripes. Underside yellow-brown with a few narrow waved connecting streaks and a square spot in the anal angle. Hagen compares the ♀ with *arruana Fldr.* Occurs in the Bismarck Archipelago New Pommern, New Lauenburg. — **ephyra** *Godm. & Salv.* is very close to *denosa* but the black border is more complete; Solomons, Shortlands Islands and Bougainville. — **arruana** *Fldr.* a well defined Island race. ♂ with extended apex, very thin submarginal and terminal lines on the forewings, which with the exception of a black end to cell are without bore markings. Hindwings also with only slight indications of the submarginal spots. The ♀ however with the exception of the intermedian area of the forewings with rich grey brown bordering and spots on the upperside. Underside of the ♂ entirely violet, only the anal border of the forewings yellow-brown. ♀ with distinct white medial band and broad grey-violet streaks, Aru Islands. — **asinia** *Fruhst.* a very specialized local race which inhabits the island of Wetter, has an extraordinary likeness to *arruana Fldr.* and in common with the latter, has the extraordinary washed out smoky brown border and the broad dark grey shaded apical portion of the forewings. *asinia* is easily distinguished from *arruana* on account of the rounder cut of the wings and the much darker apical portion of the forewings. The dark brown spot at the end of the cell of the forewings is darker than in *arruana* and does not form a smudge, but is composed of three closely connected squares. The discal band of the hindwings is straighter. Underside: the white submarginal band smaller, the discal and basal portions of the wings darker than in *arruana*; moreover the white discal band appears to be much reduced and the inner white discal zone of *arruana* is entirely wanting in *asinia*. Island of Wetter.

denosa. *ephyra.* *arruana.* *asinia.*

9. Genus: **Issoria** *Hbn.*

Outwardly easily distinguished from *Cupha* by the distinct tails of the hindwings, it also exhibits remarkable differences in neuration. As in *Atella* the second subcostal branch arises much nearer the apex of the cell than in *Cupha*, and *Issoria* is differentiated from both the above genera by the less concave form of the middle discocellular vein of the forewings, which in conjunction with the hind one forms almost a straight line. Cell of the hindwings, long, narrow and distinctly closed. *Issoria* forms the connecting link between *Atella* and *Cynthia*, and bears great resemblance to the latter on account of the pointed forewings and its much livelier habits. The sole species is a rock insect, whose home is rocky hills. It loves to sit on bare rocks and on stones lying in the sun. It has a quick, nimble unsteady flight, and returns with delight to its chosen perch. According to Moore during the cold season in Burmah it is met with on the stony beds of dry river courses, where it always sits with extended wings. Dr. Piepers has discovered the younger stages in Java. *Issoria* is confined to the Indo-Australian region, but extends from Mussorie to further India, Hainan, the Philippines and on the islands from Makromalayana to the Solomons, Somoa and the Friendly Islands. It can be divided into two chief types, about which the various races can be grouped: the Indian-West Malayan forms resembling *sinha*, which occurs eastward to the Celebes, and the Moluccan-Papuan form resembling *egista*, between which the recently discovered forms from the Micromalayan territory can be regarded as intermediate.

I. sinha *Koll.* resembles on the upper side *macromalayana* (107 e) it is of dull yellow color with extended, connected black spots in the cell and in the apex of the forewing. The underside is composed of a mixture of white, yellow and redbrown zones, which are dusted over with grey-green in the anal angle. The white median band, which is composed of a series of crescents is not so distinct as in the Moluccan races, with which however it agrees in having a whitish transcellular patch in the forewings, but differs from them in having a pure white spot in the cell, the size of which is constantly decreasing in a westward direction, but can still be observed in the Australian dwarf forms. Occurs up to 1000 m on the southern slopes of the Himalayas from Mussorie onwards, has not been observed further south than Orissa and is wanting in Southern India and Ceylon. It is known from the Mergui Archipeligo, but I personally did not find it in Tonkin *) and Annam, but I have specimens in my collection from Hainan **). — **macromalayana** *subsp. nov.* (107 e) differs from *sinha*

sinha. *macromalayana.*

*) Pavie found *sinha* by Luang-Prabang.

**) Larva on the same plant as the Larva of *Cupha erymanthis synnara* Fruhst. In its younger stages hardly to be distinguished from the latter. Pupa however easily distinguished through its specialization, very stiff and with wire shaped appendages, otherwise in shape and size it resembles the *Cupha* pupa.

in its smaller size and the increase of the black markings and the more reddish-ochre uppersides. Hindwings as a rule dusted with black up to the middle of the cell. On the underside the white coloring is somewhat reduced, as also the green flush on the hindwings, which is entirely wanting in my specimens from Java. According to Hagan it delights in the dung of animals, especially in that of the Musang (Paradoxurus musanga). — On Java it occurs up to 700 m. In the east of the island a dry season form occurs of smaller size, dull yellow uppersides and indistinct but otherwise more richly decorated undersides. Malayan Peninsular, Sumatra, Java (according to Doherty also from Sumbawa and Sumba, but I have not seen speciamens from
brixia. there); Borneo, Palawan, South Philippines. — **brixia** *subsp. nov.* is a round-winged local race from the Northern Philippines, which resembles the Indian *sinha*, but is easily distinguished by more distinct black submarginal spots on all wings. Underside with a bright red-brown band in the median zone of the hind-wings.
nupta. Luzon rare. — **nupta** *Stgr.* represents large specimens of the species with very broad dull brown distal area of all wings and reduced yellow-brown subapical spots on the forewings. Specimens before me only from Minahassa and Sula-Mangoli. Observed by Doherty at a heigth of 4000′ in the Pare-Pare district of the South
eda. of Celebes. — **eda** *Fruhst.* is the intermediate between *egista Cr.* of the Moluccas and *sinha Koll.* of the Indian region. It is however smaller than *sinha* from Sumatra and has a more red-brown color, that is almost the same ground color as *egista*. Uppersides more richly marked with black, especially the forewings, than the Moluccan race, but not so well marked as *sinha*. The black border of the outer margin is narrower, than in other *Issorias* and the black spotting of the hindwings finer than in *sinha*. Underside: The discal bands of the hindwings run straighter, the distal- and more especially the anal zone are of a richer violet. The submarginal spots are not yellow-brown as in *sinha*, but red brown, analogous to the Moluccan races. Island of Wetter.
alrita. — **alrita** *Fruhst.* differs considerably from **eda** from Wetter and possibly belongs to an extreme dry-season form. Of the black wing markings, only the distal border, two smudges above the cell and four black submarginal spots can be distinguished. On the hindwings the distal spots have also disappeared and the brown markings of the upperside of the forewings are also much reduced, and in their place the violet distal band more distinct The violet in the anal angle of the hindwings disappears and is replaced by yellow-brown, so that the wings
egista. have thus a more monotone coloring. Islands of Babber, Tenimber. — **egista** *Cr.* the first described subspecies inhabits the southern Moluccas, Amboina and Saparua. From the Westmalayan races *egista* differs in the reddish ochre color of the uppersides, which is similar to that of *offaka* (107 c) but the distal border is not so extended and the hindwings have prominent yellow submarginal crescents. Ceram specimens are on both
buruana. sides somewhat paler yellow and with more reduced black markings , than the Amboina ♂♂. — **buruana** *Fruhst.* (107 e) differs from *egista* from Ceram and Saparua in its smaller size, the rounder wings and the blunter tails, ground colour darker; all black bands spots and points stronger developed. Along the cell wall, between the front and rear median veins there appears a bent, black band, which is wanting in *egista*. Further there is present a distinct submarginal band, which runs from the costal margin to the first median vein, where it increases to a spot. Base of the hindwings darker; further there are signs of an obsolete discal band. Underside quieter than *egista* the violet discal spots are smaller and are closer together. The submarginal area of the
elvira. hindwings yellowish white, instead of violet. Buru. — **elvira** *Fruhst.* a beautiful local race inhabiting Batjan. The specimens are a darker red brown than the *egista* of the remaining Moluccas, the subapical bands even more strongly developed than in *buruana*. The black submarginal bands of the hindwing uppersides are also extremely broad. The yellow band slightly broader than in *orfeda*. The underside resembles *obiana*, but
editha. the forewings are darker red-brown and the white discal spots larger. Batjan, Ternate (?). — **editha** *Fruhst.* resembles the Batjan form, but is paler and not so richly decorated with black. Underside also lighter. The white spots before the apex of the cell of the forewings are broader and the black submarginal spots of the
obiana. undersides heavier, as also the white helmet mark before the outer margin. Halmaheira. — **obiana** *Fruhst.* resembles *buruana* in size and shape of wings, but all the wings have a much broader black border. The groud color is darker than *egista* but paler than *buruana*. The undersides are characterized by extremely well developed whitish violet spots of the discal band, which are bounded on the inner side by a dark brown region. All wings are poorer in markings in the basal area as in *buruana* and the marginal area of the hindwings is also
offaka. not as bright as in *buruana* and *egista*. Obi not rare. — **offaka** *Fruhst.* The ground color somewhat darker than *egista* and *obiana*, with the broadest black distal border. The black spots of the wings remind one most of *obiana*, but the submarginal spots of all wings are smaller. The end of cell in forewings somewhat broader black than in *egista*. The almost obsolete yellow submarginal band of the hindwings forms a very important distinction. The undersides much darker than in the other local races and redbrown instead of yellow. The white discal spots are extremely reduced and on the hindwings are more seperated, not so close together as in the other races from the Moluccas. Waigiu, not rare; German New-Guinea, Kapaur, Holl. New-Guinea, Aroa,
orfeda. Brit. New-Guinea, rare in Kaiser-Wilhelmland. — **orfeda** *Fruhst.*, the Key race possesses the same ground colour and the broad black borders of *offaka*, but has considerable relationship to *egista* and *obiana* on account of the

broad yellow submarginal bands of the hindwing uppersides. The undersides are darker than *egista*, but much paler than *offaka* and the whitish violet discal spots are much enlarged. Key Islands. **tenonia** *subsp. nov.*, *tenonia.* in my collection from the spice island Banda is allied to *alrita Fruhst.* from Babber and Tenimber on account of the dull yellow-brown color as well as in the reduction of the black border markings of the upper side, which is even more marked than in Ceram specimens. The whole coloring of the underside however is darker redbrown than in *alrita*, with a miniature copy of the white markings of *egista*. — **propinqua** *Misk.*, resembles *propinqua.* in size and in the distribution of the back border of the outer margin *orfeda Fruhst.* from Key; it differs from the nearly allied *offaka* by the increase of the yellow area beyond the cell of the forewings and on the hindwings the submarginal spots are almost entirely wanting. Underside not so dark as the Papuan forms, soft, flesh-colored, the subanal greenish flush more extended. Queensland somewhat rare. — **scyllaria** *subsp. nov.* is *scyllaria.* considerably smaller, cut of wings rounder with increased black markings, which are joined together transcellularly as in *buruana*. The yellow brown submarginal streak of the hindwings has a broad black margin. Underside differs considerably from *propinqua*, pale leather yellow with reddish yellow rings to the black submarginal spots and considerably reduced white markings. Lifu. — **egistina** *Quoy*, comes from the Marianne *egistina.* Island Guam, is pale yellow on the uppersides to the middle of the wings, then dusted with black. Underside with a greenish base to the forewings and a similar boundary to the white submarginal band. Hindwings greenish white with red circumference to the black spots and a double row of subterminal mother-of-pearl coloured crescent shaped spots. — **samoana** *subsp. nov.* (107 e) an extremely pale form, underside en- *samoana.* tirely pale orange-red with a prominent white median wavy band, a whitish rudimentary bordering to the cells of the forewings and a black streak on the subterminal intermedian vein of the hindwings. Otherwise with the exception if a few red spots and the usual very faint streaks in the cells it is almost free from markings Samoa Islands, only a ♂ in my collection, for which I have to thank Prof. Seitz. — **bowdenia** *Btlr.*, according *bowdenia.* to the description has the wing shape of *sinha Koll.*, but the color of *egista*, but is somewhat brighter than the latter. The black distal border of all wings narrower, the submarginal crescents not so distinct as in *egista*. Discal spots very small, obsolete and with red circumference. Friendly Islands. — **gaberti** *Guer.*, agrees with *gaberti.* *samoana* (107 e) but is smaller and more brightly colored on the underside. Island of Tahiti. — **shortlandica** *shortlan-* *subsp. nov.* is also allied to *egista*, but the general tone is not redbrown but dirty yellow, the black spotting of *dica.* the upper side not so distinct and the underside paler than specimens of *egista* from Ceram; Habitat Solomons, Shortland Island very rare.

10. Genus: **Cynthia** *F.*

In many respects one of the most interesting Nymphalid families, principly on account of the extensive sexual dimorphism, its extreme susceptibility to climatic influence, which exhibits itself in highly modified seasonal forms and then the inclination to form geographical races, which increases from West to East and which chiefly effects the otherwise conservative female sex. In the Macromalayan Region one can also distinguish forms with long tails to the hindwings and weak markings on the underside which effect the lowlands as compared with alpine forms with rounded wings and sharply defined undersides.

The genus can be recognized at the first glance on account of the size of its species and differs from all others in the position of the two first subcostal branches, which are here close together and arise from almost the same spot at the end of the cell. The first branch is also partly joined to the costal vein; branches 2 and 4 arise close together almost in the tip of the wing. The cell of the forewing is closed by a week crossvein, which meets the median vein at the base of the 2nd branch, those of the hindwings are open. The ♂♂ however possess a fold of skin between the median and the lower radial veins similar tô the Genus *Terinos*, which in unscaled specimens could be easily mistaken for the rear discocellular vein; but the latter is here completely rudimentary. The precostal, forked at the end, arises behind the base of the subcostal. The rear discocellular vein of the forewings ends in the male further from the forking of the fore- and middle median veins than in the ♀ (resemblance to constant analogous variation in the Genus *Terinos*) and some species of the Genus *Argynnis*. Eyes naked; Antennae with gradually thickening sharply pointed clubs. Palpi only weekly extended, hairy and with a few stiff bristles. The races of the Papuan region are distinguished by a broad border of dark grey dull shining modified scales, which form a considerable contrast to the deep black submarginal streaks. Behind the veins of the forewing uppersides black andriconia are situated, which are enclosed in a fold, which Dr. Haase has noticed.

Cynthia stands quite isolated in its genital organs and differs from all the former Genera in its well developed uncus, the prescnce of a scaphium and the complicated valves adorned with dorsal appendages. As is the case with the Imago, these organs are subject to considerable geographical variation; in the westward forms the uppermost valve horn is directed ventrally downwards, that is to say bent strongly downwards, but in the eastern races it is either fingershaped, almost straight, or first inclined upwards and then bent

downwards with slight concavity. The larvae resembles those of the Genus *Cethosia*, with which they occur together on the wild passion flowers, Modecca palmata which they visit at night for food, during the day they desert the food-plant or seek another. They are yellow or green with black belly, and feet, the head bears two black, bent and finely forked spines, the segments also bearing six rows of fine spines. Pupa extremely grotesque, brown with green and silver spots and two lateral appendages, which look like bats-wings. Pupal stage 15 days. The species of the Genus are rich in individuals, although the ♀♀ of some forms (*celebensis*, *erota*, *battaka*) are rare in collections. The ♂♂ love to collect together on wet spots, especially on the banks of woodland streams and to suck up the moisture; they are then not timid and come back to the same spot if driven away. The ♀♀ have a more sailing flight and are to be found on flowers in light woods. Inhabitants of the lowlands, they mount in the Himalayas up to 2000 m. Although they occur in the dry season, they prefer the Monsoon Period and in the Malayan Islands are the dominating butterflies after heavy rain, when they dash about the evergreen landscape in company with *Hebomoia* and *Parthenos*. Distribution the whole of the Indian Empire from Sikkim southwards and eastwards, Further-India, Hainan, the Philippines and the Archipelago from the Andamans to the Solomons.

C. erota a small western species, forms on the Indian continent and its adjacent islands such a number of considerably modified local races, that the same have been regarded as full valued species. The seasonal forms of *erota* are more highly specialized than is the case with the more eastern species, not only in color, but also in wing shape. The forms of the Monsoon period have long tails to the hindwings and wellmarked black lines and spots on the uppersides. The undersides of the ♂♂ are divided into three color zones, a red basal, a dark lemonyellow in the middle and a purple submarginal area, which are repeated in the ♀♀ in the same order red or light yellow, then straw coloured or white and in the distal area week purple with a further yellow region. The wet-season ♀ bears a sharply definied narrow white median band on all wings, to which is added a submarginal chain of whitish crescents and on the hindwings a greenish or yellowish green anal area. Base of all wings dark green. In the dry-season ♀♀ the basal area appears light blue or blue-green, the whole median area is composed of a continuous white field, which is crossed by only a few fine wavy lines and the margin of the hindwings is flushed with golden-yellow. The dryseason ♂♂ are only divided into two color zones, a basal red and a distal yellow-ochre and the ♀♀ bear a pale flesh colored basal and a straw colored outer region. The wing shape especially of the ♂ is rounder. Hindwings with only a minute median angle instead of a long

erota. tail appendage. — **erota** *F.* (109 a), of which we have figured the wet-season form, occurs from Sikkim to Tonkin with hardly any variation. In Tonkin I only noticed the wet season form, but did not find the species either

pura. in Annam or Siam. Pavie found it in Luang-Prabang. — **pura** *Swinh.* (= circe Fawc.) the dry-season form is much smaller and even the ♀ of lesser size than the *erota* ♂♂. The ♀ with almost unspotted white median region of the forewings and without the black discal waved line of the ♂♂. According to Swinhoe ♀♀ occur

auricoma. with entirely yellow uppersides, that is to say similar to the ♂♂. — (**auricoma** *form. nov.*) and in my collection I have specimens of an intermediate form, all stages from pale blue to dark green bases and pure white to distinctly black waved median area of the forewings. The hindwing ocelli common to both sexes are reduced in some extreme forms of *pura* to simple spots. Wetseasonal ♀♀ on the other hand sometimes in rare cases ex-

triocellata. hibit a further eye between the rear radial and the first median veins of the hindwings: **triocellata** *form. nov.* — Uncus large with hook-shaped, weekly bent chitin-head, valve somewhat thickened towards the base and drawn out in front to a cylindrical blunt point, basally (ventral) somewhat concave. Valve with a bent upper and a mould-shaped middle protuberance. Scaphium angled with short fine point. Larva pale olive green, mueh darker between the segments with six long thorns on each segment. The upper one is much the longest, but all have a yellow base. Head dark brown with two backward bent horns. Pupa varies in various shades of brown. Thorax with distinct ridge and two wingshaped lateral protuberanecs. Green and silver spots on the back. In Sikkim from Terai up to 6000 feet during the greater part of the year. Nicéville has bred *erota* from larvae which were found in numbers together with those of *Cethosia biblis Dru.* and *C. cyane Dru.* on the same passion flower plant. Specimens emerging in the spring from late autumn larvae are smaller and the ♀♀ paler in color than the generations during the summer months, in which the broods follow one another. Only in the hot plains of the lowlands of India, where the rainfall is slight, does an interruption occur, as there the dry weather acts in the same manner as the winter of the northern regions and arrests the developement of the species in one of its stages. As soon however as the rain falls with the approach of the monsoon, the insect life awakes again and fresh broods develope very quickly. Species with only one generation are therefore very rare in India and their existence is only due to the fact, that their larvae possess very weak jaws and ean only devour the tenderest leaves of their foodplant. Therefore speeies with only one generation always appear early

in the year (February, March), when certain trees are covered with new leaves. The butterflies which emerge from hibernated pupae, lay their eggs on the buds of young twigs from which the young larvae quickly emerge, feed easily from the juicy young leaves, and change to pupae during the course of one month, and then lie dormant for 11 months, until the coming spring causes the butterfly to emerge and thus to complete its life-cycle. — **salome** *Nicév.* comprises a well established local form in the southern Indies, which is a transition to *asela* (109 b), but which in the wet-season form has a somewhat narrower white central band on a dark green instead of a blue ground. The ♂ is moreover larger and has more pronounced black lines than *asela* and *erota* ♂, but wants however the median wavy line on the forewings. The dry-season form agrees with *pura*, but the splendid white central area is distally dusted with green and the basal portion of all wings sometimes dark sometimes light green and not blue toned as in *pura*. Larva pale yellow marbled with brown; head black with yellow V shaped mark. Pupa grotesquely formed, with two batswing like appendages on each side and an angled protuberance on the head. Color pale- or dark brown with two rows of subdorsal silver spots on the thorax and three pairs of green spots on the abdominal segments. Fairly common from July onwards through the wet-season in the Kanara-District and is always present where remains of the primeval forest are extant. The ♂♂ prefer hill-tops where they play in the sun, the ♀ in flying resembles through its color *Parthenos virens*, but does not dash about so wildly. — **asela** *Moore* (109 b) is a well distinguished race from the island of Ceylon where it is not rare in certain districts and inhabits not only the plains, but also the moderately high central mountains where it favours inpassible jungle in the neighbourhood of water. ♂ somewhat like the ♂♂ of *C. erota fa. pura*, relatively small with faded but still distinguishable median crescents on the forewings, on the underside not so bright as *salome*. ♀ a beautiful blue with brown submarginal area on the hindwings. Underside similar to *salome*, that is to say with very distinct black streaks and a whitish median area. Larva pale yellow, ventrally reddish brown. Segments striped with brown with black spirals as well as two dorsal and two lateral thorns, which arise from a red base. Pupa pale reddish-brown, head short and thick with two short points, thorax bent upwards. The front abdominal segments prolonged to wing-like appendages, the anal segment with two long extensions. — **pallida** *Stgr.* resembles *asela* very much in the female sex, but the white median area of the forewings extends to the black submarginal band and on the hindwings the white central band extends to the rear median vein, so that a design is formed similar to the *C. erota fa. pura* ♀, whereas on the other hand in *salome* and *asela* there is a mere rudiment of the band, which ends at the rear radial vein and is more or less dusted over with green. The ♂ however is coloured in agreement with the name, as it exhibits a pale yellow ground-color with faded black markings. The underside of the ♂ is otherwise as in *pura* ♂♂. Andamans, apparently not common, as Moore has not figured this otherwise very distinct island race and has not mentioned it. — **hainana** *Holl.* is connected with the forms from the continental area and was described from a ♂ of the dry-season form. The ♀ is still unknown and I have only one ♂ before me, undoubtedly a product of the dry season, which confirms Holland's data in every respect. Outline somewhat more rounded, upperside beautiful dull red-brown with extraordinary white dusting in the apical region of the forewings and the anal distal border of the hindwings. The median black markings are wanting as in the most extreme forms of *erota fa. pura* ♂♂ and the remaining longitudinal lines are all extremely delicate. Underside reddish with very large apical white spots on the forewings and very weak longitudinal streaks. — With **erotella** *Butl.* commences an almost similar series of Maeromalayan races, which again can be divided into forms from the plains and alpine varieties. ♂ smaller than *C. erota* ♂♂ somewhat redder and the apical area extended and dusted with black. Undersides with distinct redbrown longitudinal bands, of which the submarginal wavy line is especially noticeable. ♀ resembles very much the ♀ of the wet-season form of *erota*, but is somewhat smaller, shape of wings rounder, the tails thinner. The ochre colored postdiscal border of the hindwings is distally more sharply defined, and does not coalesce with the greenish border. The white median bands, smaller and compacter and not divided by the veins as in *erota*. Underside paler, without sharply defined lines. — As **cantori** *Dist.* a ♂ has been described, which probably represents an alpine race. Anyhow ♀♀ are before me from Perak, which certainly belong to a mountain form and which differ from Distants Fig. 2 on Pl. 10 of „Rhopalocera Malayana", which represents a normal ♀ of the plains, in having the white discal band of the forewings composed of three parts, the white band of the hindwings twice as broad and a pale yellow instead of brown submarginal area. The brown bands of the wing-undersides are sharply defined and the inner submarginal band is straight, that is to say is not bent. To this ♀ form no doubt the ♂ *cantori* belongs. *Cantori* ♀ differs from the form *montana* from Borneo in the broad white bands of all wings and in the pale yellow submarginal zone of the hind wings. Malayan Peninsular. — **natunensis** *Fruhst.* (108 e) The *erota* race of the Natuna Island, is smaller than *erutella Btlr.* and *dejakorum Fruhst.* The specimens resemble very much fa. *cantori Dist.* but the black discal bands especially of the hindwings are heavier, as also the post discal band, which is composed of five sharply pointed spots and which reach to the second median branch. The inner submarginal band of the hindwings is further from the margin. The ocelli are very much larger than in *cantori* and *erotella*. On the undersides the discal band is also much more sharply defined and the submarginal band extends to the anal angle of the forewings. The ocelli of the hindwings are larger and distinctly pupilled with black and white. Natuna. — **dejakorum** *Fruhst.* The ♀♀ from the tableland of Borneo

salome. *asela.* *pallida.* *hainana.* *erotella.* *cantori.* *natunensis.* *dejakorum.*

differ from the *erotella* ♀ as figured by Distant and from a ♀ in my collection through the smaller size and the reduction of the white discal band. The color of the hindwings is paler and the undersides much paler than Malakka specimens, moreover the underside is not so intensively marked with red brown, but the markings are faded. Compared with the ♀ of *erotoides Nicév.* the white discal band of the forewings appears to be
montana. much narrower and the ocelli smaller. Tableland of North and South Borneo. — **montana** *Fruhst.* is founded upon ♀♀ of the mountain form from Kina-Balu. The white median area of the forewings is divided as in *erota* ♀♀ and diminishes in some examples towards the costal margin, where it is then dusted over with green. Base of wings darker green than *dejakorum* from the plains and *cantori* ♀♀ from Perak; underside brightly colored beautifully striped with redbrown, the white central area is distally somewhat more sharply defined than in the *cantori* ♀♀, but not so sharply as in the *javana* fa. *gedeana Fruhst.* ♂♂ resembles generally *C. erotella Butl.* and fa. *cantori* ♂♂, they are smaller than *dejakorum* ♂♂ and the redbrown lines heavier. Kina-Balu, Mount
erotoides. Mulu. — **erotoides** *Nicév.*, comprises a local race from the plains of Samatra, which differs very little from *erotella*; the ♂ cannot be seperated from that of *erotella* by any constant character and the ♀ has perhaps slightly broader white bands. In retaining the name, I only do so, because in Samatra an alpine form occurs, which is very distinct from *cantori* from Perak and *montana* from Borneo; but the genital organs compared with
battaka. *erota*, with the exception of a hardly noticeable basal thickening, exhibit no differences. It is *battaka Mart.*, which was originally regarded as a good species, and to which conclusion one could be easily misled on account of the extraordinary shortened wingshape of the ♂♂. The ♂♂ have a broader black dusting along the distal border and on the undersides the wings are divided into a red basal and a yellow distal half by a remarkably heavy median line. The ♀ on the undersides has no white central band as in the ♀♀ of *C. erotella* and *erotoides*, but is faded yellow-ochre with a somewhat lighter reddish basal half than the ♂♂. Uppersides with a much broader and very beautiful yellow median area, which on the forewings is extended to the black submarginal lines and on the hindwings gradually coalesces with the yellowbrown distal border. According to Hagen *erotoides* is not at all a common insect, which usually sails about with rapid flight and only rarely visits the flowers of Lantana in the morning hours. In the midday heat however, the ♂♂ sit very regularly at moist spots on roads and ditches and are then easily captured. One ♀ is caught to 10 to 15 ♂♂. *battaka* however inhabits solely the high tablelands and lies before me from the Padang Bovenland. Its ♀♀ however are rarer or more difficult to obtain and Hagen reckons one to 30 males, a far to high percentage, as amongst many hundred ♂♂ I only received one yellow ♀ described above. — The possibilities of modification exhibited by this species are much more interesting in Java than in Samatra, where besides the alpine races, two lowland races can be distinguis-
javana. hed, a western and an eastern form; of which **javana** *Fruhst.* the variation of the rainy western area, is nearly allied to *erotoides*, but exhibits the typical Javanese lightened coloring. The ♂♂ therefore appear paler redbrown with somewhat less developed black markings, on the undersides not so variegated, but of a wonderful and regular red. The ♀ is easily distinguished by the yellowish green base and the pale yellow orange border zone of the hindwings. Coast of Western Java, especially common in the bay of Palabuan and the South Coast of the Island during the rainy month of January, where large colonies are always collected around the puddles
gedeana. and the banks of the woodland streams. — **gedeana** *Fruhst.* a mountain form, which differs from the other dark alpine ♀♀ of the remaining Macromalayan region on account of the consistent yellow ground color, also of the base of the forewings. Owing to the thrice subdivided white band of the forewings it bears greater resemblance to the ♀ form *cantori Dist.* of Malakka than to *battaka Mart.* The *gedeana* ♀ has on the undersides of the forewings the purest white and at the same time the most intensely brown bands. The specimens are always smaller than the alpine ♀♀ from Borneo and Malakka; also in them and in their ♂♂ the inner submarginal band of the forewings runs perfectly straight. The ♂♂ agree most with *battaka Mart.*, on account of the broad hindwings and the blunt anal folds, they are however smaller and the apical portion not so extensively suffused
varna. with darkbrown. — **varna** *subsp. nov.* has almost entirely obsolete black markings on the uppersides and a pale red weakly lined underside as compared with West-Javan specimens. The ♀ reminds one of the *austrosundana* ♀ (108 e), uppersides colored somewhat like the wet-season ♂♂ of *erota*. All wings light yellow-ochre with black shading on the borders. Median band much more extended than in *austrosundana*, and not distinctly relieved from the surrounding yellow ground color. Undoubtedly a product of the dry-season, but already designating a transition to the forms of the Micromalayan Region. East Java up to 600 m. Probably also
orahilia. occuring on Bali, from which *C. erota* has not yet been recorded in literature. — **orahilia** *Kheil* (108 e) ♂ differs from *ertoides* through the absence of the black submarginal lines and the border dusting of the forewings. Underside reminding one of *javana Fruhst.*, on account of the faded color. ♀ especially characteristic on account of the prominent black wavy bands, which break up the white central area of the forewings and, in comparison with the other Macromalayan ♀♀, the very narrow median band of the hindwings, on account of which a rela-
kohana. tionship with *austrasundana* is established. Isle of Nias. — **kohana** *Fruhst.* In this local race we find a darkening of the upperside combined with a remarkable lightening of the undersides. *Kohana* a small island form with extremely long and pointed tails, is nearest allied to *orahilia Kheil.*, from Nias, from which it is easily separated

by the enlarged black median markings of the forewing-uppersides as in *natunensis*. The underside of the hindwings exhibit a sharply defined, whitish violett, dull shining distal zone, which reminds one of *austrosundana* of the little Sunda Isles. Type one ♂ Pulo-Tello of the Batu-Islands. From the Mentawej Islands a *Cynthia* is not known and on the Islands of Engana the Genus is entirely wanting. — **austrosundana** *Fruhst.* (108 e) was originally described from Lombok, but has recently also been discovered on Bawean and Kangean, is found eastwards to Kalao without any noticeable difference on this island. Genital organs differ from the western *C. erota* by the downward bend of the upper valve protuberance and the delicate middle point of the harpes. Valve ventrally is somewhat more bent than in *erota*. ♂ of lesser size than the specimens from the Macromalayan region and varies more or less in the lesser or greater developement of the black markings of the uppersides, of which our figure shews the extreme dark form, whereas ♂♂ from the transition period from the wet to dry season exhibit only a few rudiments of the bands. Underside resembles somewhat the Eastern Javanese *varna*, but is not so intensely red, but on the other hand has almost always a distinctly defined dull shining violett distal area of the hindwings. The ♀ is as a rule larger than the ♂ and in good specimens is hardly smaller than Javanese ♀♀. As in the western variations two chief color types occur, one like the male with yellow central band (108 e) and others which reproduce the color and markings of *C. erota*. — **albotaeniata** *form. nov.* (109 b) with pure white median area. Between these two forms all intermediates occur and one can say, that the ♂♂ are as constant as the ♀♀ are variable and scarcely one specimen resembles another. The general color varies from pale yellow-ochre to moß-green with all intermediates and the transverse bands can remain yellow only on the forewings and white on the hind wings or both wings retain the same color. As a rule the median area is distinctly defined; but ♀♀ exist with quite ♂-like markings and bands of the upperside. — **virilis** *form. nov.* Common on Bawean from July to September and is one of those forms, which demonstrates that the fauna of this island belongs to the Micromalayan region. Kangean, Lombok from the plains up to 2000 ft. is one of the commonest butterflies on flowering shrubs in open spots and borders of the forests. Kalao, Bonerate, Time of appearance December. — **divica** *subsp. nov.* from Sumbawa is larger than the Lombok race and the black submarginal wavy lines of the forewings are somewhat heavier. The underside of the ♂ is brighter, the lines sharper and the hindwings shew an almost pure white central band, which however is only extended to the rear radial vein and a blue violet border zone and probably belongs to a wetseason form. The ♀ appears frequently to have the dull ♂ like form of *virilis* and the white banded ♀ figured 109 b comes from the same island. Specimens from Sumba differ from *divica* in the washed out markings of the uppersides and in the unicolorous brightly coloured undersides, which are not sharply lined. They probably belong to the rainless season. The ♀ is not before me, so that I am not in a position to judge as to whether a subspecific division is justified. According to Doherty rare on Sumba, where he only obtained one ♂. — **alorensis** *Pagenst.* is an interesting form, ♂ larger than *divica* ♂, but redder yellow-ochre; forewings with the markings even more reduced than in Sumba ♂♂. Of the ♀ only one specimen of the *virilis* form is before me, which on the underside can be seperated from *divica* ♀♀ by the dark yellow instead of white transverse band. Isle of Alor. — **meduca** *subsp. nov.* resembles on the uppersides the Sumbawan *divica Fruhst.*, as far as markings are concerned, but has the same dull red-yellow color in common with the Sumba race, but on the undersides it agrees with *divica* in its bright markings. The ♀ is very imposing, with a peculiar yellowish moss-green color with sharply defined white central band, the distal crescents are more extended than in *divica* but not so distinct. Hindwings with bright red flush and the ocelli with pale yellow-red circumference. Flores, from Maumerie and Larentuka in my collection, collected there by Kühn and Jacobsen. — **bagrada** *subsp. nov.* is a small island race with very distinct black spotting and duller redbrown coloring than the other varieties of the Micromalayan Region and approaches the Bawean race. On the underside the violet powdering is not so extensive and it has an indistinct and washed out median band. Isle of Wetter and Timor (Dili) collected by W. Doherty in May 1892. ♂♂ very common, but the ♀♀ apparently rarer than is the case in the islands of the Lombok-Sumbawa group, and I have not obtained it. Kisser, Babber. — **cycnia** *Nicév.* exceeds in size, in the dark color of the male and in the considerably extended black markings of both sexes all Micromalayan relations. ♂ with dark brown-yellow occasionally greenish suffused basal area, broad yellow central band, which is sharply defined on both sides. The undersides of the ♂♂ are much paler than those of *bagrada* and *divica*, and a not so bright. ♀ with especially large white median zone and a beautiful yellow basal area as in *austrosundana*. Key Islands. — **ricussa** *subsp. nov.* is smaller than *cycnia*. ♂ with prominent submarginal crescents on the forewings and darker undersides to all wings, which are distally intensely suffused with violet. ♀ on the upperside lighter yellow than *cycnia* ♀, on the underside not so distinctly lined. Isle of Goram. — **kabiana** *subsp. nov.* resembles generally *austrosundana Fruhst.*, as it occurs on Kalao, but differs from same in its slighter stature and in consequence the somewhat narrower central band of the forewings. Isle of Kabia (Dutch Hagediseiland = Lizard Island). — **salayara** *subsp. nov.* is the last form related to *austrosundana*, which enters in a northward direction the Celebes subregion. It is closely related to *kabiana*, but is always larger, in fact equals *alorensis Pagenst.* but has narrower white bands in the ♀, than the much

austrosundana. *albotaeniata.* *virilis.* *divica.* *alorensis.* *meduca.* *bagrada.* *cycnia.* *ricussa.* *kabiana.* *salayara.*

smaller ♀ of *kabiana*. Island Salayer. Type as of the former Island race in the Staudinger collection of the
celebensis. Berlin Zoologieal Museum. — With **celebensis** *Butl.* a series of forms commences, which approach the Macromalayan type. The original of the Celebes form came from Minahassa and specimens are before me from Toli-Toli, time of flight November-Dezember. The ♂♂ vary in size and many specimens compared with Javanese and Micromalayan specimens are of enormous size. It also appears as if the time of emergence and the locality of the mountains of Minahassa exert an influence on the color; the forms of the plains shew on the uppersides a more even reddish-yellow coloring and no sign of submarginal bands, ♂♂ from higher localities have dark almost brown basal and distal areas to all wings, from which a well-marked pale more yellowish median area stands out, well marked wavy bands and blackish shades between the ribs of the wings are present; specimens from the sea-coast and those from South-Celebes have unicolorous dirty yellow undersides, the mountain form on the other hand possesses an almost white median area and the borders of all wings are beautifully suffused with violet. I only possess ♀♀ from the north of the island from Tondano and Toli-Toli, which I collected myself in November and December. They resemble mostly the ♀ of *meduca Fruhst.* from Flores and *dejakorum Fruhst.*, ♀ from North Borneo and exhibit a dull olive or brown-green on the uppersides with just a slight dash of yellow on the hindwings. Central band white, fairly broad, distally strongly waved. Ocelli of the hindwings very large, filled with beautiful orange-red. Underside grey, with pure white median area, redbrown middle- and
satellica. pale brown submarginal lines. The borders of all wings whitish and just frosted with delicate purple. — **satellica** *Fruhst.* (109 b) described from a single ♀, differs from *celebensis Butl.* by having considerably narrower white bands in the ♀, which is accompanied distally for the whole of its length by a reddish yellow-ochre band-like region. Underside similar to *celebensis* ♀, but although not so pronounced, the yellow distal area is reproduced, and therefore the delicate white flushed with purple so characteristic for *celebensis* disappears. Type in the Collection Fruhstorfer from Peling. A ♀ from the island Bangkai which lies to the eastward but is otherwise parallel with Peling, in the Staudinger collection agrees with *satellica* in the intensive yellow-ochre suffusion of the submarginal area of the forewing-uppersides, but in the Bankai ♀ the white central band and the underside are considerably suffused. ♂♂ from Bangkai in the Rober collection in Dresden are smaller than the Celebes ♂♂, more distinctly black spotted and on the undersides more intensely violet than the ♂♂ of the
dioneia. Sula-Islands. The last were named by Staudinger i. l. **dioneia** *subsp. nov.* a name, which is transferred to this hitherto undescribed subspecies. ♂ smaller than *celebensis* ♂♂, but in spite of this more strongly spotted with black and especially characterized by a complete row of distinct black submarginal spots on the forewings. Undersides darker, with fairly extensive and intensely red bordered median band, which extends in almost equal breadth from the costal margin to the anal angle. Sula-Mangoli, October and November collected by
palawanica. W. Doherty, but only ♂♂ in my collection. — **palawanica** *Fruhst.* is a transition from the Celebes forms to those of the Philippines. ♂ dull yellow-red with obsolete black markings, but has a distinct submarginal wavy band on the forewings; ♀ very specially colored, with brownish green general tone, with pale yellow median band on the forewings, which on the hindwings gradually becomes red towards the rear. Ocelli very large, and placed in a redbrown smoky submarginal zone. The underside of the ♂ has some resemblance to that of *C. erota* fa. *pura Swinh.*, with brigth orange colored basal area. ♀ especially remarkable on account of its light canary yellow color. Time of flight January. Described from two pairs in my collection received from Doherty. —
basanica. **basanica** *subsp. nov.* A melanotic Satellit Island race with very distinct black transverse bands to the forewing ♀ the darkest of all the Philippine forms, forewings greenish-brown with a remarkably narrow white median band, which is accompanied by a second very thin, but complete parallel band. Hindwings with a very short white central area. Type in the Semper collection in the Senkenberg Museum in Frankfurt a. M. from the
ladia. Jolo-Islands. — **ladia** *subsp. nov.* is allied to the former subspecies and in agreement with its geographical position forms a transitional form from the Borneo forms to those of the Philippines. Smaller than *dejakorum Fruhst.*, from North Borneo and without the blackish suffusion of the borders of the uppersides of the wings, it differs especially on the undersides in the more evenly but very much brighter pale color, which represents a true reproduction of the color of *palawanica Fruhst.*; Island of Balabac. On the Philippines themselves two chief
dejone. types can be distinguished; those of the southern and those of the northern. — **dejone** *Er.* from Luzon, has dull males, which in general resemble those of *palawanica*. The black markings of the forewings, especially of Luzon specimens, are diminishing. The undersides resemble those of *palawanica*, but are not so bright, nor of such a beautiful yellow and the outer area is hardly frosted with violet. ♀ on the uppersides bears a resemblance to the ♀ of *C. erota javana Fruhst.*, but the white median band, expecially on the hindwing is narrower, more broken up distally and on the forewings accompanied by only one parallel row of white crescents, whereas the ♀ of *javana* and that of *dejakorum form. montana* have a series of three rows. The submarginal area of the hindwings is lightened to a somewhat brighter reddish yellow-ochre, otherwise it agrees wit those of *C. erota celebensis Butl.* Basal portion of the underside greyish yellow, central band whitish with cream-coloured borders. Distal region yellowish, and shaded with very delicate flesh color. The larva 5 cm long lives on Luzon on Balbus baquero, it is grey with light brown head and brown feet. The head which is provided with two long spines, bears a triangle-shaped yellow mark (similar to *erota saloma Swinh.*), beneath the mandibles are black and

two black spots on the sides. The thorns standing above the stigma are brown with yellow points, those below yellow. On the last segment two spines directed backwards. Pupa with two fanshaped protuberances similar to those which are found to a lesser degree in *Cethosia*. Pupal life in Manila 9 days. Time of flight according to Semper during the whole year especially from December to February and then from May to October. North Philippines. — **kschattryia** *subsp. nov.* here designates the race of the island of Bazilan, because it best bears the special characteristics of the South Philippine *erota* through the redder ground color of the uppersides of the ♂♂ with their marked submarginal spots on the forewings, the bright red basal half and the rich purple shining distal portion of the undersides. The ♂♂ before me from Mindanao are identical except for slightly less pronounced black markings. Semper possesses an interesting ♀ from Camiguin on Mindanao, which has a much narrower white band on the forewings than *dejone Er.* from Vigan and Polillo. Forewings lightly, hindwings entirely suffused with yellow-ochre. The median bands however still appear broader than in those of the above mentioned *C. erota basania* from the Jolo-Islands. *kschattryia.*

C. obiensis *Rothsch.* (109 a ♂♀) differs from all other forms in the ♂ in the apical portion of the forewings being almost without markings and in the prominent oblique and not upright black median band of both wings The ♀ is especially distinguished by the pure white central area of the forewings, which broardens towards the costal margin and whose place is taken on the hindwings by a beautiful orange colored area, which encloses two large black, distally blue pupilled eyespots. Undersides of the ♂♂ basally fircy red, which merges into a dark purple violet towards the margin in some specimens. The median band of the uppersides repeats itself, but is not so striking and has a bluish tone. ♀ with not quite so sharply defined white area on the forewings and the hindwings with broarder red-brown bands on the yellowbrown ground-colour. Uncus somewhat shorter, basally somewhat more thickened than in *erota* and *austrosundana*; the harpes however has a similarity to that of *austrosundana* owing to the upper point being bent slightly downwards. Valve in general somewhat broader than in *arsinoe*. Inhabits the island of Obi; discovered by W. Doherty and a few specimens sent to me by Waterstradt. 7 ♂♂ and 2 ♀♀ in my collection. *obiensis.*

C. arsinoë is removed from all the forms of the *erota* group by the larger ocelli of the hindwings and by the much broken or zaczac shaped median bands of the forewings of the ♂♂; the more variegated ♀, and the extreme potential geographical variability at quite short distances. It appears however as if all the varying races of *erota* are not under the influence of Horodimorphism. Anatomically *arsinoë* can be seperated from *erota* by the exactly horizontal upper valve point, the long distal end of the scaphium, which is drawn out to a long pencil-shaped peg and the basally somewhat thickened valve, which has a more conical than cylindrical shape. Distribution from the Moluccas to the Solomon Islands. — **arsinoë** *Cr.* (109 c) the name type inhabits Amboina and the Uliasser. The ♂♂ belong to the most characteristic Moluccan butterflies and are never wanting in a collection from there, the ♀♀ however are rare, ♂ somewhat smaller than the ♂ of *buruensis* (109 c) somewhat duller, with a complete row of black submarginal spots, straight subterminal and missing submarginal bands. Underside of the ♂ somewhat unicolorous bright reddish-yellow, extending to the distal area, but somewhat clouded with dark violet. Two ♀♀ in the Fruhstorfer collection are pronounced coffee-brown beneath with redbrown transverse bands and whitish submarginal area, on which the markings of the upper side are repeated in a paler form. — **ardea** *subsp. nov.* differs in the male sex only in having somewhat paler yellow uppersides and on the undersides by a somewhat darker purple distal area of the hindwings; ♀ however easily recognized by the cream-components of the treble median band of the forewings and the lighter green submarginal zone of the hindwings. Undersides paler than in *arsinoë*, the border area of the wings yellowish in tone without the white insertions of the Amboina and Saparua specimens. Ceram. — **buruana** *Fruhst.* (109 c misprinted as *buruensis*) is much larger, has more pointed wings and longer tails than the typical *arsinoë* from Ceram and Amboina, and it is also larger than *dorokusana Fruhst.*, which it resembles on the underside. On the uppersides they are easily distinguished from *arsinoë* and from Halmaheira specimens through the discal band of broad black crescents, which extends through the whole of the forewings and which are situated between the angled cellular and the submarginal bands. Described from 3 ♂♂ from Mt. Mada, Buru collected in September 1898, the ♀ is still unknown. — **figalea** *Fruhst.* (109 b as *figalia*) the *arsinoë* form from the island of Obi is widely devergent, as well from *dorokusana* of the Northern Muluccas as also from *arsinoë* of the Southern Moluccas. The wings are rounder, the hindwing-tails shorter and blunter. The submarginal bands of the forewings much reduced, in some specimens almost entirely obsolete, but in their place the black submarginal spots are in some specimens much better developed than in **dorokusana**. The hindwings are characterized by small black ocelli, of which the front one is sometimes ringed with yellow. The submarginal spots of the hindwings are not connected as in *dorokusana*, but form independant crescents, of which the middle and anal spots appear much broarder than in *arsinoë*. The very sharply defined black discal band of the forewings is also remarkable. The cell streaks are also distincter than in the other Moluccan *arsinoë*. The black discal band of the hindwings is not so inclined inwards towards the anus as in *arsinoë Cr.* but runs straighter. The undersides of the wings are characterized by a sharply defined, redbrown basal region, which is paler yellow brown in *dorokusana*. The cellular streaks are narrower but more instensely *arsinoë.* *ardea.* *buruana.* *figalea.*

black bordered. The outer half of the wings is paler yellow, and on the hindwings a redbrown postdiscal zone is present and the ocelli are much smaller, but have larger white pupils than *dorokusana*. The redbrown discal bands of all wings are straighter, than in *arsinoë*. The question as to whether *figalea* is an aberration or a mountain form of *obiensis Rothsch.* or whether it belongs to some other species can only be decided, when ♀♀ are known. *Figalea* possibly stands in the same relationship to *obiensis* as *battaka Mart.* of the mountains of Sumatra does to *erotoides Nicév.* from the Sumatran lowlands or the lowland form of Java to form *gedeana Fruhst.*, from the high volcanos and *dejakorum Fruhst.* from the plains of Borneo to the form *montana Fruhst.* of the Kina-Balu Mountains. Home of *figalea* the island of Obi. Whereas the valves of *C. obiensis Rothsch.* are more nearly allied to *austrosundana*, the harpes of *figalea* are close to those of *arsinoë* and only differ from
dorokusana. same in the somewhat rounder distal portion of the chief lamelle. — **dorokusana** *Fruhst.* is not so large as *buruana* and differs from the latter and *arsinoë* on the undersides in the more instensely black median bands of all wings. Underside of the hindwings in the submedian region more extensively shaded with brown, the violet shading is more confined and especially between the two parallel submarginal lines is composed of a white area. ♀ unknown to me. ♂ type in the British Museum, I also now possess the form in 8 specimens in my own collection. ♂ from Halmaheira is poorer in black markings on the upperside and if the ♀♀ can be distinguished from Batjan ♀♀, which is very probable, then a new name for the Halmaheira race must be founded. The name *dorokusana* was chosen under the impression, that all the islands in the Dorokusana straights, inclu-
adina. ding Ternate would produce the same geographical form. — **adina** *Fruhst.* is distinguished by the very broard and deep black marginal border to the forewings, a genuine melanotic Satellit-Island character, which contrasts strongly with the reduction of the submarginal and median black spots. The underwing underside is more richly suffused with violet and redbrown, and the ocelli much smaller than in the other *arsinoë* races. Island Waigiu. — *meforica Fruhst.* one ♀ from the island of Mefor or Mafor differs from those of the chief island of New-Guinea on account of the rich white of the forewings, which reminds one of the Australian *ada Btlr.*;
meforica. **meforica** has hoever narrower and more sharply bent white crescents in the median band. The white costal spots of the hindwing uppersides are narrower even than in *rebeli*, the hindwing ocelli much larger. The black submarginal band of the hindwings is more than twice as broard as in *rebeli*. The apex of the forewings considerably extended, whereas *ada* and *rebeli* have a rounder wing. Basal region of the underside of all wings
rebeli. greenish brown instead of redbrown as in the forms from the chief island of New-Guinea. — **rebeli** *Fruhst.* (109 d ♂, 109 c ♀) was formely included with *ada* from Australia, but I was able to find the following differences in comparison with *ada*: The general color of *rebeli*, in agreement with the usual characters of an island race, are darker, which is especially the case with the apical and marginal portion of the forewings. The white median bands of *rebeli* forewings are considerably reduced towards the costa, as well as the white intermedian helmet spots, which define the six large round submarginal spots on the inside. The outer large white spots between the median veins present in *ada*, are either entirely wanting or are so reduced, that they can be scarcely seen. The black submarginal helmet spots of the hindwing uppersides more prominent, on the other hand the two white costal spots are reduced, ocelli of *rebeli* larger. German New-Guinea, Friedrich Wilhelmshafen, Dorey, Kapaur, Hattam, Dutch New-Guinea. According to Hagen common in Kaiser-Wilhelmland in both sexes from October to April and then again in June. Specimens in my collection from Finschhafen are intermediates to *polycaste Fruhst.* (109 c). ♂ larger than those from Astrolabe-Bay, with the white median area of the forewings much darkened in front, and the hindwing uppersides dull brown without the bright reddish ochre colored flush which is observable in *ada* from Australia. Most probably the form from Finschhafen and Simbang, which was also noticed by Hagen are identical with the form from British New-Guinea. From that locality I possess only ♂♂ from Milne-Bay. The larva was found by Warnes in Finschhafen and the Astrolabe-Bay but only singly. According to the figure of Ribbe (Iris 1897) it is black, powdered with white spots. The stigma lie in white spots, the insertion behind the head is also white as also a line on the anal-flap. Pupa
ada. very lively, uniform greybrown with several gold spots. — **ada** *Btlr.* ♂ above pale yellow ochre with slightly developed black modified scales on the hind-margin of all wings as in the true Papuan races, beneath pale reddish-yellow and brightly shining pale violet; ♀ with very broad white central band. Hindwings splendid pale yellow-ochre with red anal spots. Underside with pale purple basal region, central bands, white distally fading out, the whole outer portion of the wing suffused, without the dark shades of the Papuan races.
pisidike. Queensland from the Mackenzie River to Cape York. — **pisidike** *Fruhst.* The ♂♂ are somewhat larger and the undersides paler than *rebeli Fruhst.* ♂♂ from New-Guinea ♀ 60—62 mm. The ♀ differs from the *rebeli* ♀ through the obsolete black markings of the uppersides, which are beautiful pale brown in *pisidike*. All the white bands are more extended and better developed. The black ocelli of the hindwings smaller, but with a broarder yellow ring. Head, thorax and abdomen paler, which also applies to the yellow ground color in general. The undersides of all wings much paler, the red spots and bands considerably lighter, and the median

white band has gained considerably in size. Fergusson, d'Entrecasteaux-Islands. — **polykaste** *Fruhst.* ('109 c). *polykaste.*
As I have already several times remarked, the islands of the Trobriand group in the neighbourhood of d Entrecasteaux Island have a very specialized Lepidopterous fauna. *Hypolimnas* and *Cethosia* on both groups of islands have formed very characteristic local races and the same is also the case with *Cynthia*, which in the Papuan region has always a strong inclination to variation. As is quite apparent from the geographical situation, the *Cynthia* from the Trobriand Islands has departed more from the type of the chief island New-Guinea than the more nearly situated Fergusson. **polykaste** has by far the darkest ♀♀ of all the hitherto known races of *arsinoë*. For instance the submarginal band of the forewings has already become yellowish grey and the median band is composed of very narrow helmet spots, which are also dusted with yellow scales. On the hind wings the costal spots are yellowish grey instead of white. All the wings are almost equally greenish brown, whereas in *pisidike* the forewings are grey-brown and the hindwings light reddish yellow; the black submarginal bands of *polykaste* are darker than in *pisidike*. The undersides strange to say, on account of the redbrown white and yellow markings are nearer to *ada* of New-Guinea, but the white bands are narrow and very much thinner than *pisidike*. The ♂♂ differ noticeably from *ada* and *pisidike* ♂♂ in the heavily formed black submarginal spots and the more highly colored undersides. The yellow median spots of all wings are insignificant when compared with the allied forms. ♂ expanse 45 mm ♀ 56 mm. Kiriwina Trobriand-Island. — On Woodlark Island a form related to *polykaste* occurs, which was collected by Montrouzier in 1857, but which is not before me, but which is recorded by Butler from there (Proc. Zoolog. Soc. 1874 p. 284). Of the local races from the Bismarck Archipelago some are closely related to the Papuan types, others again have more resemblance to the forms from the Solomons, which latter even give the impression of being distinct species, the younger stages being different to *rebeli*, but the markings shew a return to the races of the South Moluccas. — **lemina** *Ribbe* (melena *Fruhst.*) *lemina.*
from New-Mecklenburg has in the male sex larger black submarginal crescents on the hindwing uppersides. The ♀ is easily seperated from *rebeli* from Finschhafen and the Astrolabe-Bay on account of the pure white central band of the forewings, which is more extended in front. The hindwings have almost the same dull yellowbrown color as *rebeli* ♂♂ from Finschhafen and only differ from these in the white lining of the submarginal region, which extends to the front median vein, but is wanting in *rebeli*. Underside brighter than *rebeli* ♀ with paler basal region of all wings. — **insularis** *Godm.* and *Salv.* comprises a distinct variation from the Papuan type. ♂ relatively small and on the underside similar to *polykaste*: ♀ base of forewings olivegreen with hardly noticeable reddish flush, that of the hindwings beautifully suffused with rust-red. The white central area of the forewings narrow and accompanied proximally by a sharp black defining line. The hindwings are traversed for their whole length by a white submarginal band, which surrounds the greenish yellow pupilled ocelli and very much resemble those of *sapor* from the Solomons. The underside is divided by a redbrown central line into a flesh-colored basal and an almost pure white distal zone. From New Pommern in my collection; described by the author from New-Lauenburg. — **catenes** *Godm.* and *Salv.* resembles *arsinoë* and is similarly *catenes.*
colored, but is smaller. Beneath the inner submarginal line is much sharper, on the hindwings the transverse line through the cell is bordered with pale yellow-red outwardly and the hindwings are flushed with lilac. Solomons. St. Anna Island. The district of this *Cynthia* is divided from that of *C. arsinoë* by that of *C. sapor*, which inhabits several intermediate islands and through *C. clodia* from Ulawa Island. — *Sapor* is by far the most differentiated form from all other *Cynthias* and it is extraordinary, that it inhabits the islands lying between New-Guinea and the Solomons, whereas the two *Cynthia* forms from the latter are nearly related to the true *arsinoë*. — **clodia** *Godm.* and *Salv.* Also related to *arsinoë*, hindwings with much broader inner submar- *clodia.*
ginal line, the area between the ocelli almost brown; undersides the inner submarginal sharper. Solomons, Ulana Island. — The ♂ exhibits sufficient differences for a separation: is closest allied to *catenes* but is larger and wants on the underside the lilac tone, which the other forms possess. The inner of the two submarginal lines is broarder and sharper, both above and below. Both races are unknown to me personally, wherefore I have recapitulated the original description.

C. sapor *Godm.* and *Salv.* is closely related to the Papuan *arsinoë* races through certain ♀♀ forms of some *sapor.*
of the island races, but the early stages discovered by Ribbe and figured by him (Iris 1895 Pl. 3 fig. 1 and 2 are so different from those of *C. arsinoë rebeli Fruhst.* from New-Guinea, that *sapor* is here regarded as a seperate species. The terminal border, which in the Papuan races of *arsinoë* are broard with shining modified scales has only a very narrow border of androconia and the hindwings differ from all known *Cynthias* in the pure white subanal intermedian area of the uppersides, which is also extended to the area between the two submarginal waved lines. ♀ according to the island on which it occurs on the upper side dark brown or more or less pale olive green in general tone and the forewings traversed by rows of white or greenish yellow crescents. The larvae which live together in communities on bushes remind one on account of their lively movements of the European *Vanessa* larva. It is black, with yellow dorsal stripes and red legs and has six rows of finely branched thorns. Of these four rows are red with black points, whereas the lateral rows are yellow with black

points. Pupa as usual extremely grotesque, either yellow brown or green, also very lively and defending itself at every touch by energetic movements of the abdomen. — **obscura** *Ribbe* is the form from the Shortland Islands and the Northern Solomons. ♂ somewhat larger than the ♀ of *sapor* and on the undersides with more extended red-bordered white median bands to the hindwings. ♀ with olive green ground color, which in the basal portion of the hindwings becomes red-brown. Forewings with four rows of yellowish green median- and submarginal spots. Hindwings with two large black ocelli, which are situated in a grey-green inwardly slightly black bordered area. Underside with pale yellow-grey lightly greenish shining areas, which are traversed by a whitish median and submarginal bands. ♂ smaller than that of *obscura*, underside the middle band less flushed with red. ♀ vandyke brown with only three rows of pure white median crescents on the forewings and sharply defined milk-white median area. Underside with pale redbrown basal zone and white distal area to all wings, the latter being traversed by beautiful redbrown lines and similarly shaded. — **mesima** *subsp. nov.* is also more nearly allied to *obscura*. Only one ♀ is present in my collection, which is easily seperated from *obscura* ♀, by the four almost pure white instead of yellowish green rows of crescents on the forewings. The pale green median area of the hindwings without the dark grey shading and bearing on the innerside another series of four connected spots which form a slate coloured intermedian band. Undersides as in *obscura* but with narrower central bands. Guadalcanar, time of flight April.

obscura.

mesima.

11. Genus: **Cirrochroa** *Dbl.*

Cirrochroa is very nearly allied to *Cynthia*; but one can immediately recognize them through the delicate antennae, which are only slightly thickened at the end, and which bear no distinctly defined club. Further distinguishing characters are to be found in the strongly swollen palpi, the last joint of which is very finely pointed, the naked eyes and the simple precostal vein, which branches from behind the base of the subcostal, and which is slightly bent outwards. The neuration of *Cirrochroa* does not differ essentially from that of *Cynthia* and on this account is sharply divided from *Cupha*, the only other Argynnis-Genus, which possesses clubless antennae. The cell of the forewings is closed by a fine rear discocellular vein, which arises before the base of the 2nd. median nervure and not before the branching of the latter as in *Cynthia*. Cell of the hindwings open, but the ♂♂ possess a fold of skin as in *Cynthia*, which can be mistaken for an end to the cell. The rear discocellular vein of the forewings is straight, not concave proximally, the two first subcostal nervures are more seperated and not so squeezed together towards the base as is the case in *Cynthia*. The ♂♂ of some species exhibit a sharp deep black or blue layer of scales on the outer half of the veins, which is especially well developed in *C. bajadeta*, *C. semiramis Fldr.* and *C. regina Wall.*, whereas in *C. aoris* etc. it is hardly developed at all. Genital organs remarkable for abnormally large, shell shaped flat valves, with an extraordinary hook-shaped protuberance, which differs in the various species and is distally bent at a broad or sharp angle. The *Cirrochroa* are less under the influence of geographical situation and as far as the continent is concerned differ very slightly; but on the other hand are very sensitive to climatic changes and the sexual dimorphism of some species is very noticeable. The ♀♀ are polychrome and as in *Cynthia* they occur with male coloration and also with strongly contrasting color tones; color aberrations are also frequently found as in *Argynnis* and hemophrodites are also known. Larva on Hydnocarpus wightiana, without head-thorns. The single segments similar to the *Atella* larva with two dorsal and two lateral rows of black thorns. Pupa hung by the tail in a horizontal direction, with distinct dorsal tubercles and two somewhat longer thoracic protuberances. Head bifurcate. The species of the genus which are rich in individuals are amongst the commonest butterflies of the Indian region, only the eastern insular species are somewhat rare. Principly inhabitants of the plains, but are found up to 2000 m. They are partly lively and fast flying insects, which prefer sunny woods, they also collect round puddles and are often found in large numbers together with Papilios and Pieridae. They also visit Lantana flowers and sit either with closed wings or with gently moving half closed wings. Chief centre of distribution Macromalayana, on the continent only penetrating as far as Sikkim, northwards not found beyond Hainan, in Micromalayana it is already missing on Bali, but on Celebes, the North Molukkas and New-Guinea it is represented by a fine collective species. The species can be divided into two groups a. *Ducapa* Moore with three radial scent streaks on the forewings and a subcostal on the hindwings an *Cirrochroa Dbld.* without sexual streaks, but the ♂♂ with the veins covered with black scales.

Group **Ducapa** *Moore* (Paduca *Moore*).

Small delicate insects with a short fork to the forth and fifth subcostal nervures of the forewing and therefore the thrid subcostal nervure further removed than in *Cirrochroa*.

C. fasciata has yellow sexual streaks on the uppersides of both pairs of wings, which are traversed by a yellow-ochre median area, a narrow submarginal band and a very thin anteterminal wavy line. Hindwings with the black spots which are typical of *Cirrochroa*. Undersides greyish yellow with black shading, two black parallel anteterminal wavy lines, which enclose a redbrown area and a regular repetition of the markings of the upperside. ♀ larger than the ♂, with more extended and lighter transverse bands. — **fasciata** *Fldr.*

fasciata.

from the Mayal Peninsular and Sumatra extends northwards to Upper-Tenasserim and was found by me in middle Siam. In both the latter localities a remarkably modified dry-season form **flavobrunnea** *Sm.* occurs, *flavobrunnea.* in which the yellow markings are enlarged and in the extreme forms the black median band of the hindwings disappears altogether., so that the row of black spots are situated on a yellow background. The basal region of the upper- and undersides are also paler. The flight of the butterflies is rather week and always close to the ground, especially in freshly felled clearings. They also delight in flowering trees, which are sometimes covered with them, so that 40 to 50 specimens can be captured with one sweep of the net. (Martin). Time of flight in Tenasserim April, I myself caught *flavobrunnea* in the Temple gardens of Bangkok and at the borders of woods at Muoklek in Siam in January. According to Moore in the Mergui Archipelago from January to March. — **bilbilis** *subsp. nov.* is based upon a Javanese race in which the influence of the rainy season can be re- *bilbilis.* marked through the appearance of an extremely narrow-banded form, which is especially characterized on the hindwings, by a hardly more than threadlike yellowish central band, which like all the submarginal yellow markings has a whiter instead of a dark yellow-ochre color, which is also peculiar to the ♀♀. Found by me only in West Java at Palabuan on the South Coast and in the Djampangs up to about 500 m near Sukabumi from January to May. — **palloris** *Fruhst.* varies very much in size and differs from Sumatran and Ja- *palloris.* vanese specimens by the more distinct submarginal chain of crescents and in the ♂♂ in the abortive transcellular yellow transverse band of the hindwings. The whole of the pale markings of the upper sides of the ♀ appear whitish, instead of yellow and the underside has a more greyish instead of greenish yellow tone. Island Palawan, found by Doherty in numbers in January. Most probably a similar race occurs on Borneo, but specimens from there are not known to me. — **ortopia** *subsp. nov.* (121 d) probably a dry-season form, has *orlopia.* narrower sharply defined, dark yellow median bands and in the ♂ more distinct anteterminal crescents than *palloris* from Palawan; ♀ upperside somewhat like the Sumatra ♀♀, but somewhat paler yellow. Undersides with indistinct coloring, especially in comparison with the extensively black shaded Palawan specimens. Island of Bazilan in February and March discovered by Doherty. Semper knew specimens from Mindoro, the Camotes and Bohol. Time of flight November to February.

C. satyrina differs from *C. fasciata* in the dark basal area and the wholly darkened borders to all the wings and occasionally the subterminal and submarginal bands of the uppersides are entirely wanting. Further the forewings have only one sometimes white, sometimes creamcolored median band, which is not continued into the transcellular region as in *fasciata.* On the undersides the style of markings of *fasciata* are repeated, but again the two transcellular spots of the forewings are wanting, on which the central band suffused with brown is extended to near the costal border. Basal area grey with a broard blackish distal bordering: on the other side of the pale distal area a greyish black shaded band, then especially on the hindwings a relatively broard whitish area, finally a distinct subterminal wavy band, which is accompanied distally by a delicate greyish white line. **satyrina** inhabits the Celebean subregion, where it is always extremely rare. Three local *satyrina.* races are known, but we may expect a number of others from the Celebes Satellit Islands: *satyrina Feld.* (= *myrsa Sm.*) (121 d) inhabits the north of the chief island and a single specimen was taken by me at Toli-Toli in November or December. Central band of the forewings very distinct, distal area with whitish traces of the transverse lines of the underside. — **sibylla** *Röb.* Type from Tombagu, East Celebes. A ♂ from Ma- *sibylla.* ros, South Celebes captured in August or September agrees exactly with Röbers figure. (Iris 1887, Pl. 7. f. 7) and here the East of Celebes has the same race in common with the South, as is generally the rule. Undersides of the forewings with dull cream-colored central bands, which are more extended on the hindwings than in *satyrina.* The border area of all wings is entirely black, also the sexual streaks. Undersides with prominent subterminal bands and a more yellowish instead of whitish submarginal zone. — **similiana** *Röb.* inhabits the *similiana.* island Bangkai. It is smaller than *satyrina*, which it otherwise resembles in the distinctly preserved submarginal white line of the uppersides. Underside dirty white with greyish black bands and spots. The discal black spots of the hindwings are proximally bounded with grey. Expanse ♂ 42, ♂ 46 mm, in comparison with 44—47 of *sibylla Röb.* of East Celebes. — **angustata** *subsp. nov.* forms a transition from the Celebean to the *angustata.* Philippine forms and approaches nearer to *fasciata* than *satyrina.* Forewings however without transcellular markings, the yellow median band of all wings not half so broard as *D. fasciata* from Java or Palawan. Sula-Mangoli collected by Dr. Platen. Type in the Staudinger collection in the Berlin Zoolog. Museum.

C. felderi approaches nearer to the *fasciata* type in the ochre colored median area of the uppersides, the greenish grey basal region of the undersides, whereas the black borders of the uppersides remind one more of *sibylla.* On the forewings traces of the yellow transcellular spots are again in evidence. — **felderi** *Kirsch* is only *felderi.* known in a few specimens from the Geelvink-Bay, Dutch New-Guinea and is on the upperside slighty darker than **mimicus** *Rothsch.* from British New-Guinea, in which the subterminal wavy lines of the underside only *mimicus.*

slightly shew through. Central area of both wings shorter than in *sibylla*, broarder than in *fasciata*, richer yellow. Undersides with slate-grey darker outer area from which on the forewings a complete row of black spots stand out. The pale submarginal wavy lines similar to *fasciata*, but they do not broarden as is the case with *sibylla*. Recently *mimicus* was discovered on the mountain Gelu at about 1000 m by Dr. Eugen Werner in the back country of the Astrolabe-Bay. A ♂ is present in the Fruhstorfer collection.

Group **Cirrochroa** *Dbld.*

The species belonging to this group are generally larger, as a rule have not rounded apexes to the forewings as in *Ducapa*, but have a more or less produced apex. Median area very much enlarged, one species with oblique bands to the forewings. The genus *Cirrochroa* is indigineous to the Macromalayan region, and the same species occur not only on the Malay Peninsular but also on Samatra, Java and Borneo. This fact is frequently repeated amoung the butterflies, for example in the genus *Hestia* as also in other insects such a *Orthoptera*. Many of these species do not go further east than Java, and are wanting on the small Sunda Islands, not even on Bali. Their occurance is therefore determined by a geographical law and geographical boundaries. Most unusual is their conduct in the Mayal Peninsular to about the neighbourhood of Tenasserim. This district has many more species in common with Samatra and Borneo, than with the continent of India and all the forms which occur give the impression of being island races. It is therefore not improbable, that the present peninsular was formerly seperated by an arm of the sea in the neighbourhood of Tenasserim, possibly in connection with Samatra or as an individual island. It is however also possible, that on account of the comparitive narrowness of the region, that the conditions of maritime climatic influence are present, which are otherwise only to be found on islands. It is a fact, that the peninsular has far greater relationship to the fauna of the Sunda Islands than with the continent and in establishing this fact, it was more especially the Genus *Cirrochroa*, which gave am impetus to the designation "Macromalayana", which comprises the Malay Peninsular and the three largest Sunda Islands with their attributes in apposition to the Micromalayana region, which compresses the lesser Sunda Islands (and commences with Bawean and not as was formerly imagined with Bali).

tyche. **C. tyche** is the most westernly *Cirrochroa*, which inhabits the whole of the oriental region from Sikkim to Hainan and the Philippines. The species reaches its highest state of developement on the Philippines where the ♀♀ forms differing most from the ♂ are to be found. On the continent and on Java the species is under the influence of seasonal dimorphism and we know ♀ forms which on the one hand have a pale yellow-ochre ♂-like form and a dark redbrown form differing from the ♂. On Palawan the light form assumes a whitish median coloring. All local races, in fact all *Cirrochroas* have a white square median spot on the costal border of the forewings in common. Forewings with two, hindwings with three submarginal black wavy lines, a median band is also always present, which is either wanting in the ♂ or is very weakly indicated. The black row of spots on the hindwings, another constant character in *Cirrochroa*, very rarely varies; they generally appear most highly developed in the Philippine races, and weakest in the dry-season forms of the continent. Undersides have always a proximal white or violet flushed redbrown transverse band, which in the dry-season forms is frequently blue or purple. Distally from it, the markings of the upperside are repeated on the underside, but all the black wavy lines are here colored yellow and the intermedian shading on the forewings is wanting.

mithila. — **mithila** *Moore* resembles on the uppersides except in the more rounded apex to the forewings a small *aoris* (108 a), but the ♀ is more like the ♂ and both sexes darken as they go eastwards and my Tonkin specimens are very similar to the insular *anjira Moore*, Bingham also confirms this of the Tenasserim ♂♂. ♂ underside always reddish yellow, ♀ more sandy grey, sometimes with a blue instead of yellowish median band. Sikkim, Assam, Tenasserim, Bengal but very rare there in the plains. I found *mithila* in the whole of the Indo-Chinese region and commonest in Siam; Pavie found a related form at Luang Prabang. From Tonkin I only possess them in the wet-season form, whereas in Siam I only found the paler and much smaller specimens of the dry-season form. It seems to me not improbable, that the more richly coloured, extremely broad black bordered Tonkin form may belong to a local race. In Tonkin *mithila* produces dimorphic ♀♀. The normal ♀♀ are dark yellow-ochre the rarer form pale clay coloured. From Chiem-Hoa (August-September) a remarkable

latitaenia. melanotic ♀ aberration is before me. — **latitaenia** *form. nov.* In this form the two black submarginal bands have coalesced and the intermediate space is not yellow but black. On the hindwings the inner submarginal band is entirely wanting and in its place the distal is extremely broardened. The discal bands of all wings are obsolete. The undersides also shew great divergence. The yellow submarginal band of all wings and the yellow discal bands are at least three times as broard as in normal specimens, but the inner submarginal band

anjira. is wanting. — **anjira** *Moore*, a melanotic island race is on the uppersides intensive dark reddish yellow all the black

rotundata. bands are more distinct and the undersides more highly colored. Andamans not rare. — **rotundata** is on the

other hand an extreme in the poorness of its black markings, more especially the black median lines on the forewings disappear entirely in the male. Distant figures (Rhopolocera Malayana) a ♂ of the wet-season form; before me I have one of the wet-season form with purple transverse bands and brownish red undersides; — and as **caera** *form. nov.* I should like to designate a very small wetseason form from Siam, with dull yellow *caera.* upperside almost without markings and uniform reddish sandcolored undersides, time of flight January. — **lesseta** *subsp. nov.* is here introduced as a new form from the island of Hainan, from where two ♂♂ are before *lesseta.* me, which naturally are allied to the *mathila* form from Tonkin, uppersides darker yellow than Sikkim specimens with more brilliant undersides than the latter and *methila* from Tonkin. The central area of the forewings considerably increased, on the hindwings almost white, the black intramedian spots proximally bordered with yellow. *lesseta* is probably similar to the specimens mentioned by Walker from Hong-Kong, which are preserved as great rarities in the City-Hall-Museum of this town. — **tanaquil** *subsp. nov.* replaces *methila* on Samatra, *tanaquil.* from where they are only before me from the north east and are there also rare. In the dark color of the uppersides and the distinct black border they resemble *anjira Moore.* The underside has broad reddish violet shining median bands. — **moeris** *subsp. nov.* (108 a) designates the well-defined local race from the island of Java *), *moeris.* where it is by far the commonest species of the genus and occurs everywhere from the seacoast up to 7—900 m. ♂ smaller than *mithila*, underside brighter, traversed by pale whitish violet shining bands. Two distinct seasonal forms can be recognized: the first on the upperside resembles the form *caera* from Siam; is almost without markings and of a very dull yellow color and the ♂-like ♀♀ of pale yellow-ochre color; this is **oreta** *orela.* *form. nov.* from East Java and the plains around Batavia and *moeris Fruhst.* which is the wet-season form and inhabits the low hills. ♂ broardly bordered with two black submarginal lines on the forewings; ♀ colored more like *oaris* ♀ with brown basal region and pale yellow transverse bands on the uppersides. — **thilina** *Fruhst.* *thilina.* ♂ The distal border of all wings is broader black and the general color darker red-brown, the brown discal bands of the forewing-undersides run fairly straight and are connected throughout, not divided up into spots as in Sikkim and Java ♂♂. The ♀ differs from Java ♀♀ in the extremely broad black discal bands and the dark coloured basal portion of all wings. The yellow discal bands of the hindwing undersides are at least twice as broard as in the Java- and Tonkin ♀♀. North Borneo. — **laudabilis** *Fruhst.* (108 a) inhabits the island of Pa- *laudabilis.* lawan und comprises the lightest known *tyche* race. ♂ throughout paler in tone, than our figure. The ♀♀ have a sharp angled black median band on the uppersides, which divides the darker yellow or grey-brown basal region from the paler distal half. The ♂-like ♀♀ have a pale yellow border area and the form ♀ **calcaria** *ealearia.* *form. nov.* a white outer portion, which may be shaded by a greenish yellow or smoky grey transverse band. — **psyche** *Stgr.* is a melanotic aberration analogous to *latitaenia Fruhst.* of *methila*, with coalesced and broade- *psyehe.* ned black submarginal bands on the hindwings, time of flight January, collected in large numbers by Doherty on Palawan. — **domorana** *subsp. nov.* comprises the fine race from the Trabant island Domoran which lies to *domorana.* the eastward of Palawan, which differs from *laudabilis* in the broarder and more richly black dusted borders to all wings. Two forms of the ♀ are also known, one with pale yellow and one with greenish brown uppersides. Type in the Semper-collection of the Senckenberg Museum in Frankfurt am Main. — **zebuna** *subsp. nov.* an *zebuna.* extraordinary large form with uncommonly dark yellow uppersides and the median band of the forewings very weakly developed. Island of Cebu. — **guimarensis** *subsp. nov.* comes from the island of Guimara and like all *guimarensis.* the forms from this island, which is situated between Negros and Panay diverges from its sister-races in the especially pale yellow general tone and the very broard distal and submarginal bands of the uppersides. — **tyche** *Fldr.* the type name was described from Mindoro, I have in my collection a very nearly related form from *tyche.* Bazilan. *tyche* owing to its reddish-ochre color forms a transition to the Celebean species *C. thule.* The black borders prominent, the ♀ pale yellow, only the ♂-like ♀ is known to me. Undersides of the ♂♂ bright, those of the ♀♀ with whitish grey outer portion. According to Semper pale forms occur on Mindoro, Negros, Bohol, the Camotes and Leyte and darker resembling *thule* on Mindanao and Caminguin de Mindanao.

C. thule *Fldr.* replaces *C. tyche* on the Celebes and as is the rule with Celebean races is the largest species *thule.* of the genus. ♂ upperside dark redbrown, with upright black median bands to the hindwings and very broad marginal borders. Markings of the uppersides as in *tyche*, but the markings are more imposing in agreement with the size, the white median area of the hindwing undersides is proximally sharply divided by a red-brown line from the pale orange colored basal zone. Distal zone reddish and traversed by pale violet waves. ♀ whitish grey with brownish yellow shades and bands. Felder has figured a large alpine or wet-season form of *thule.* From North Celebes however I possess a dry-season form of the plains, which only measure 33 mm length of forewing instead of 42 mm length of forewing of the typical *thule.* The specimens are paler redbrown;

*) Larva discovered by Dr. Piepers, smaller but otherwise almost exactly the same as that of *Cethosia penthesilea Cr.* greybrown with red spots, and the segment bearing the second pair of claspers milky white. Pupa similar to that of the Genus *Issoria*, on Petunga Longifolia D. C.

all the black borders and bands paler. The undersides are paler and the submarginal bands of all wings
massalia. have a paler yellow instead of redbrown tone. — **massalia** *Fruhst.* (108 a) from the South of Celebes differs from typical *thule* owing to the fact, that the submarginal bands of the undersides of all wings in spite of the smaller size of the specimens are very much broarder and pale yellow, instead of red brown. The yellow discal bands of the undersides are more sharply waved, on the forewings narrower towards the costa, but on the hindwings with broarder white bordering than in the dry-season form from Tondano. The ♀ although caught in the middle of the rainy season, is much paler than the ♀ from North-Celebes. The submarginal zone and the costal margin are pale grey. The discal band of the hindwings much broader and bordered with grey. The black postdiscal spots of the hindwings are much larger and the submarginal wavy bands not dark yellow, but a peculiar greenish grey. South Celebes, ♂ Samanga, November, ♀ Patunuang, January collected by myself; East Celebes in the British Museum.

C. aoris is one of the commonest butterflies from Sikkim to Assam and flies there from April to Decem-
aoris. ber from the plains to an altitude of 2000 m. **aoris** *Dbl.* (108 a) was based upon the wet-season form figured
jiraria. by us, the extremely divergent dry-season form has been named **jiraria** Swinh. ♂ smaller, paler yellow, all the median lines and spots of the forewing uppersides are either wanting or very weakly indicated. ♀ resembles the ♂, darker yellow, with slightly paler median bands. Underside of the ♂ either uniform dull yellow or sandy grey with the usual black spots on the hindwings, which are smaller above, otherwise with faded and almost unrecognizable transverse markings. ♀ grey with faded but still recognizable blackish purple bands.
abnormis. — As **abnormis** *Moore* an aberration was described with stronger developed central band of the ♂. A complete hemophrodite left ♂, right ♀ of wetseason coloration is in the Fruhstorfer collection. Besides the ♂♂ figured by Moore (Lepidoptera indica pl. 364) and by us, there is a wet-season form of the ♂ with a straw colo-
stramen- red median ziczac band on the forewings (**stramenticia** *form. nov.*) Sikkim, Assam to the Naga-Hills. — **oli-**
ticia. **vacea** *Nicév.* is a darker and habitually smaller race from Burmah the Shan States and Tenasserim and is
olivacea. characterized by broarder black distal borders to the forewings and a more distinct, but straighter median band in the ♀. The yellowish or whitish submarginal area of the forewings, shews as a broard space and the central area of the undersides is more sharply defined. — From the Karen-Hills, time of flight March to October. Probably also occuring in Tonkin, already noticed by Abbé Johannis from Cao Bang 1901, but not found there by me.

C. thais replaces *C. aoris* in the South Indian region, where it is more inclined than the former species to form seasonal forms. Larva on Hydnocarpus wightianus flowers, black with dull oily sheen, with the exception of the head and anus which are light brown. Pupa yellow, with white wing-cases and a large number of small black spots. Back with two rows of bent thorns and long hairy points, which stand out sidewards from the head, thorax and the wing-cases. Time of developement from July to August and September. The larvae sit on the outer delicate ends of the twigs, fall to the ground on the slightest disturbance and are then difficult to obtain, even though the common Hydnocarpus tree is constantly surrounded by egg-laying females. In captivity the larvae are very obstinate, wander round and frequently refuse their food. Butterflies from the plains up to 6000 ft. fluttering in light woods from tree to tree and occasionally sitting with half-opened
thais. and lightly moving wings. — **thais** *F.* (= thea *Godt.*, *swinhoe Butl.*), is based on the wet-season form resembles *cognata* (107 g), but the distal border of the forewings is not so regularly black and broad, but give a distinct reddish submarginal band place for developement. ♀ somewhat larger than the ♂♂, with somewhat paler median zone to the forewings. Underside reddish, with the white bordered central bands perpendicular, al-
relata. most ruled with a ruler, which is enlarger towards the costa and is proximally irregularly toothed. — **relata** *Nicév.* is the paler dry-season form with reduced black borders, which is colored pale yellow on the undersides and sometime has a purple instead of white transverse band. South India, from North-Kanara district to the
lanka. Malabar and Coromandel coasts and the Nilgiris. — **lanka** *Moore* is also divided into two well recognizable seasonal forms, which are so divergent, that Nicéville regarded them as four species even up to 1899. The name *lanka* comprises the analogous form to *relata* of the dry-season whereas the broad black bordered wet-season
cognata. form figured of the Monsoon period is comprised under **cognata** *Moore.* Both forms are common on the island of Ceylon, and go up the mountains up to 1800 m. Larva brown with purple flush, beneath yellowish. Head yellow, with black spots on forehead, body with two dorsal rows of finely branched thorns and two lateral rows of fine spines. Pupa pale bluish red, black spotted with long dorsal tubercles and two thorns on the thorax, head bifurcate.

C. surya comprises the natural continuation of the former species in further India, but the outline of the wings of the ♀ is rounder and without projecting apex as in *thais* and the undersides are brighter, more
surya. resembling those of *C. tyche mithila Moore.* Two local races: **surya** from Upper and Lower Tenasserim and the Mergui.

Archipelago. In both sexes the end of the cell on the upper surface of the forewings is but slightly marked with black and the median line quite indistinct. According to Moore it is found at elevations up to 6000 ft, from December until April. — **siamensis** *Frühst.* (107 g as *surya*) closely approaches *thais lanka Moore* from Ceylon, but differs in the following way: The wings of the ♂♂ are more rounded than in *surya*, with quite heavy black submarginal and discal fasciae on the upper surface. The forewings are adorned with three black streaks beyond the cell which are embedded between costa and the first median and have the appearance of long sharp wedges, which gradually dissolve into a few scattered scales as they approach the cell. On the under surface it differs from *surya* in that the black discal band on the forewing is strongly undulate anteriorly, while in *surya* it follows a straight line. The forewing shows at the anal angle two rather large black spots which in *surya* are yellowish. The basal half of both wings is dull in *siamensis*, wheras in *surya* it shows a violet lustre. The submarginal band on the hindwings of *siamensis* is more distinct and bright yellow. The ♀ differs from the ♂ in that the distal margin of the forewings is more broadly black and the discal bands more strongly undulate; furthermore the base of both wings is darker brown-yellow. Under surface: The median fascia on the forewing is red-brown instead of black and more strongly dentate. The under surface is more richly shaded with violet-white than in the ♂. From Bangkok, where I encountered this pretty species in the gardens on the right border of the Menam River in January. Rather scarce. *siamensis.*

C. nicobarica *Wood.-Mas.* forms the transition from the continental species to the Macromalayan forms. ♂ above resembling *C. calypso* (108 b) from which it differs in having the black spots on the hindwings more distinct. On the under surface it is distinguished from all the other species by the lack of the white longitudinal band on the forewings which are only crossed by an oblique brown line. The hindwings however bear a prominent white vertical band and, parallel to the margin, a broad streak of glossy violet: both enclose a yellow-brown area thickly studded with black dots and resembling in shape a caterpillar. The dry-season form which has been figured by Moore, is smaller in size, of a paler colour with diminished black markings. The chief characteristic of the ♀ is its pale yellow underside, on which the *Cirrochroa*-band is indicated also on the forewings by a faint cream-white colour. From the Nicobar Islands. Rare in collections. *nicobarica.*

C. niassica *Honr.* (recte *„niasica“*) closely approaches the preceding species. Outline of wings more rounded; upper surface in the ♂♂ with a clear yellow submarginal area growing lighter exteriorly. Distal border narrower than in *nicobarica.* The hindwings present a similar design with a more complete series of black dots of about equal size. The black terminal border is traversed by two yellowish bands. The colour of the under surface is pale straw-yellow, somewhat darker in the basal area which is separated from the light outer half by a pale red, transverse band. The hindwings lack the white longitudinal band which distinguishes *nicobarica.* The upper surf. of the ♀ has the basal half smoke-brown, the median zone yellowish-white. Hindwings with paler yellow submarginal stripes and proximally a whitish undulate line. Under surface of a rather lighter cream-colour. From Nias, where it is very rare. *niassica* will probably come to be regarded as a local form of *nicobarica*, if any intermediate forms should ever be discovered in Pulo-Wei and Simalur. Such forms I expect do exist as a result of the former connection by land of the Andaman Islands and Nias, which I was in 1896 able to trace on the strength of the geographical distribution of the *Danaidae.* Only one year afterwards Dr. Walter Horn found in his researches on the distribution of *Cicindelae* further proof for the possibility of the existence of such a connection; he named it "Wedda-Bridge." *niassica.*

C. emalea, is a purely Macromalayan species, better known by the later name of *bajadeta Moore.* Moore was the first who in 1900 (Lep. Indica. Vol. 1, p. 223) showed that while this species had formerly been reckoned among the genus *Argynnis* or *Symphaedra*, it really belongs to the genus *Cirrochroa*; but he failed to recognize its identity with his own *bajadeta.* But the diagnosis by Guérin leaves little doubt that **emalea** *Guér.* is the Malayan branch of the collective species heretofore called *bajadeta* which had for the first time been figured by Distant (Pl. 19 of Rhopalocera Malayana). ♂ similar to *C. calypso* (108 b), but larger, the apical portion of the forewing projecting and enclosing a yellow patch, the hindwing with wavy dentate edge. On the under surface the longitudinal band becomes much broader as it approaches the costa; being yellow on the forewing it turns glossy white on the hindwing and is abruptly constricted between the lower radial and the upper median. Uncus robust, distally curved. Valve uncommonly broad with a hoe-shaped appendage curved so as to form an obtuse angle. — **martini** *Frühst.* from Pahang and Deli, north-eastern Sumatra, may be a form of the dry season. On the upper surface the distal border of the hindwing is, starting from the lower radial, yellow instead of being black. on the under side the ground-colour is lighter. more monotonous yellow. The white discal fascia on the hindwing is broader, not so much constricted between the radials as in *bajadeta.* Possibly *bajadetina* and *martini* will prove to be mere seasonal forms of one and the same species. but from the fact, that there exist in the western part of Sumatra a sharply differentiated *Papilio,* a *Pareba, Euploea, Danaida* and a *Nymphidium*, all of which are closely allied to forms from Java, it seems probable that we have to consider also among the *Cirrochroa* a number of local races. Found in the Malay Peninsula and in north-eastern Sumatra. Bingham has lately received two specimens from Victoria-Point, southern Tenasserim. — **bajadetina** *Frühst.* oddly enough approaches much more closely the Javanese form and *ravana Moore* from Borneo than it does *martini* from Perak and north-eastern Sumatra. *bajadetina* is larger than *bajadeta*, the colouring rather lighter beneath; the white spots before the apex of the forewing below are larger and more *emalea.* *martini.* *bajadetina.*

distinct, on the hindwing the white discal band is considerably narrower and equally much contracted as in *bajadeta*, whilst in *martini* its width hardly changes. The discal border on the upper surface of the hindwing differs from *bajadeta* in its being contracted from the lower radial onwards making room for a yellow-red submarginal band, whereas in the specimens from Java its width is the same as far as the anal angle. In *bajadetina* the submarginal lunular spots are less conspicuous and confluent than in the Javanese forms.

bajadeta. From western Sumatra. — **bajadeta** *Moore*, found in Java, represents a quite distinct insular race. ♂ is of smaller size than in the hitherto enumerated forms, the underside more variegated, with more prominent white fasciae on the hindwing. In the ♀ the upper surface of both wings has the black marginal area much farther extended, whereby the submarginal zone of the forewing becomes considerably narrower. Under surface more brightly coloured than is the case even with the specimens from Borneo, with the yellowish antemarginal lines narrower. ♂ very common, ♀ rather scarce, in eastern and western Java at elevations up to 2200 ft. —

ravana. **ravana** *Moore.* ♀ is distinguished from *emalea* and *bajadetina* by the increased black colouring and in having the under surface more richly shaded with red-brown. My coll. contains specimens from North- and South-

lapaona. East-Borneo, where they apparently are not rare. — **lapaona** *Kheil.* (♀-lunulata *Kheil.*). This local race which deviates more than any other from the typical form, is smaller in size, the forewings are more rounded, the upper surface paler yellow, the under surface of a light orange colour with a constricted white median band. ♀ quite similar to the ♂, can be distinguished only by the undulate anteterminal bands on the forewings which are of a more pronounced yellow colour, and by the fact that on the under surface the distal half of the hindwings is more richly decorated with white. Abundant in the island of Nias.

C. malaya. This species is, together with its local races, regarded by some authors as a dry-season form of *C. emalea*. Both have indeed much in common, as regards the general design, the distribution of the black spots in the median area of the hindwings and the submarginal spots in the apical portion of the forewings beneath. On the other hand malaya differs essentially in the absence of the yellow patch before the apex and more still in the complete want of black scales upon the veins on the upper surface of the forewings. On the under surface of the forewing the discal band increases but slightly as it approaches the costa, while on the hindwing the median band remains unchanged from costa to the anal angle showing no contraction whatsoever. Also the sexual organs are different. Uncus weak, pointed, not curved distally. Valve smaller and shorter, with dorsally incurved appendage. The species occurs throughout the Macromalayan

malaya. Archipelago, with the exception of Java. — **malaya** *Fldr.* is of all the forms the palest in colour: the hind-wings with delicate black marginal lines and median spots. On the forewings there appear, owing to the narrow bordering, upon the fifth subcostal and the upper radial several distinct sexual stripes, composed of short streaks of modified scales of a yellow colour; they disappear in the Borneo-form but are still retained in *natuna Fruhst.* From Perak and north-eastern Sumatra. ♀ not known; the specimen figured by DISTANT

johannes. (Pl. 10 f, 3) as ♀ is the rainy-season form of *malaya,* to which the name **johannes** *Btlr.* may be applied. —

natuna. **natuna** *Fruhst.* This form differs from *malaya* (received from Singapore and other localities) in having the forewings less broadly bordered with black, and in the greater extent of the yellow colour in the subcostal region which causes the black spot before the apex to appear isolated, whereas in *malaya* it touches the black costal border. The discal spots on the hindwing are twice as large as in *malaya* and *calypso Wall.*

calypso. from Borneo. The ground-colour of both wings is a pale yellow. From the Natuna Islands. — **calypso** *Wall.* (108 b) follows the general rule according to which, among the Macromalayan forms, the race from Borneo appears darkest. In *calypso* the black distal border on both wings is nearly twice as broad as in *malaya* and *natuna;* the submarginal fasciae on hindwing are much farther extended; the white discal bands on the under surface become broader, and there appear in the apical area some white spots recalling by their large size the subapical spots found in *bajadeta Moore.* In the ♀♀ the black terminal border is more pronounced than in the ♂♂; besides, they have broad submarginal bands of a glossy straw-yellow separated from the dark brown basal half by a sharply-defined discal band of black-brown. The ♀ of *calypso* resembles ♀ of *ravana Moore*, but the wings are more rounded, the discal bands on the under side are not such a clear white and

baluna. form a straighter line. Occurs in North-Borneo, in the low-lands. — **baluna** *Fruhst.* is the form peculiar to the mountains and the rainy-season. The ♀ differs from that of *calypso* in having a still broader black marginal border on both wings, whereby the yellowish submarginal zone becomes even more reduced. The under surface is reddish instead of gray-white, with the longitudinal band much narrower but of a purer white. From Kina-Balu.

C. satellita is distributed all over the Macromalayan Archipelago, with the exception of Java, reaching Palawan in the north. Under surface a lovely bright yellow growing darker towards the margin. Both wings are traversed by a broad white band which is bordered on either side with red, turning straw-coloured toward the costa in the forewings. The hindwings contain also a row of black spots, as is usual in *Cirro-*

satellita. chroa, but less complete. There are two local forms known: **satellita** *Btlr.* erroneously described as coming from 'Hongkong'; it is confined to the Malay Peninsula and the north-eastern portion of Sumatra, where it apparently occurs only within narrow limits; several large collections I received from western Sumatra did not contain it. Its flight is weak, its chief haunts are the wooded parts of the plains. The yellow belt on

illergeta. the forewing is curving outward near the anal border. — **illergeta** *subsp. nov.* (108 b figured under the name of

satellita), differs from the preceding form in the yellow band on the forewing, which does not broaden towards the anal angle but is rather reduced in width by the broad black distal border. Under surface differs in that the white median band on the hindwing is nearly twice as broad, crosses the wing as far as the anal fold and appears more sharply defined also on the forewing. On the forewings the submarginal area contains a number of spots that resemble mother-of-pearl; on the hindwings a white submarginal line. From North-Borneo, Kina-Balu district, occurring according to STAUDINGER also in Palawan, though it is very rare. ♀ slightly exceeds ♂ in size, is lighter yellow above.

C. orissa has the same range of distribution as *C. satellita*, but is not found in Palawan. Hindwings along the subcostal nervules with yellow sexual strigae, which in the basal half accompany also the submedian and lower median, being quite conspicuous upon the red-brown ground-colour. — **orissa** *Fldr.* (107 g). On *orissa.* the forewing 2 or 3 radial stripes encroach upon the black colour of the apical portion. On the under surface the predominating colour is yellow, the distal half of the hindwings reddish-brown. The forewings are traversed by a broad cream-coloured diagonal band; hindwings similar so those of *satellita*, but with a more sharply defined longitudinal band having an intense lustre of mother-of-pearl. From north-eastern and western Sumatra, where it is only found in the woods and seems more common than *satellita*, especially in June and August. Also found in the Malay Peninsula. — **orissides** *Fruhst.* ♂ distinguished from typical specimens from *orissides.* the Malay Peninsula by the darker yellow discal border on the forewing and the much broader black distal margin of the hindwing. On the under surface the ground-colour is darker brown, nearly black in the apical area of the forewing; the white spots at the apex twice as broad. The discal band on the hindwing is between the radials considerably constricted and on either side bordered with an intense red-brown. The apical area of the forewing is devoid of the yellow radial strigae. In the ♀ which is smaller in size than the ♂, the forewings are crossed by a pale yellow, sometimes cream-coloured transverse band. On the underside the predominant colour of the basal half is smoke-gray, not reddish-ochreous as in the ♂. From Kina-Balu district, North-Borneo.

C. clagia has a very limited range having thus far not been observed outside of Java and Sumatra. Together with *Euploea gamelia Hbn.* and *Eriboea kadeni Fldr.* it is one of the few Rhopaloecra which are found both in Java and Sumatra, and at the same time are limited to these two islands. On the under surface the reddish-yellow basal half is separated from the red-brown outer half by a whitish longitudinal band (similar so that of *C. malaya*), which on the forewings broadens as it approaches the costa. In the ♂♂, the veins on the upper surface are dusted with black, two yellow radial strigae enter the black outer border of the forewings. — **clagia** *Godt.* is nowhere rare throughout Java at elevations of from 1000—2200 ft. ♀ larger *clagia.* than ♂, the under side lighter yellow, the black spots upon the hindwings more prominent. The under side shows a rich violet lustre over the submarginal area. Specimens from eastern Java are smaller than those found in the western part, the basal half of the under side is darker, the median band not so distinct and a pure white.*) — **clagina** *Fruhst.* (108 b) differs from the Javanese type in that the black outer border of the hindwings *clagina.* is less broad: this renders the black discal spots quite distinct, whereas in the specimens from Java they are enclosed in and confluent with the distal border. The underside differs from that of the Javanese forms in that the reddish-white discal band on the forewing is at least twice as broad and much paler, while the white discal band on the hindwing is nearly twice as large. In the ♀, the black outer border is narrower than in specimens from Java; the underside of the hindwings differs in the broader white discal band and the much smaller row of black dots. From western Sumatra. I have no specimens from north-eastern Sumatra, where it occurs in the district of Deli from May until October at elevations of from 1000 ft. upwards; it is the rarest among the species of *Cirrochroa* occurring there. *C. clagia* forms in certain respects a transition to the more brilliant species of the Celebian-Papuan Subregion, e. g. *C. semiramis* and *C. regina*. In thePhilippines these are replaced by an other interesting species:

C. menones *Semp.*, hitherto found only in the eastern portion of Mindanao; it closely approaches *C. imperialis* (108 b), but does not show above the beautiful blue irideseence peculiar so that species. The upper *menones.* surface is light red-brown, the base darker, the distal half broadly dusted with black. In the ♂ the under surface is reddish-brown as far as the darker longitudinal band, more gray-blue in the ♀. The band itself is red-brown, with a border which is in the ♂ reddish, in the ♀ milky-white.

C. semiramis inhabits the Celebian subregion, occurring in two forms. In the ♂ the upper surface is reddish ochre-yellow in the basal half, with a dark blue-violet irideseence spreading over the marginal area. The latter reaches the cell, being intersected by three light gray-blue longitudinal bands of which the middle one is strongly undulate. ♀ paler in colour, with broader gray-blue fasciae; the upper surface quite dusky, being covered throughout with blue-black scales, occasionally with a lighter red-brown tinge in the median area. The under surface differs from that of *regina* in that the forewings do not have a sharply defined longitudinal band, but only a brighter yellow patch which grows wider posteriorly. In addition, the entire distal area is yellowish with some gray-white streaks instead of being red-brown with fine silvery undulate lines. In the ♀ the median portion of the forewings has a whitish lustre and continues to the costal border. — **semiramis** *Fldr.* comes from the northern part of the island; it differs from the southern form in the narrower, *semiramis.*

*) The larva was discovered by Dr. PIEPERS in western Java; it is light-green, the head of the same colour, the two horns somewhat darker; in shape it resembles the larva of a *Cethosia*, the pupa more that of an *Issoria*.

ninos. distally white-gray edges to the row of red-brown spots on the under surfaee of the forewings. — **ninos** *subsp. nov.* (108 e as *semiramis*) was found in the southern part of the island near the Falls of Maros, between November and January. Of the ♀ there exists, beside the form represented by our figure, another larger form, which bears a dark clay-yellow, narrow median band on the upperside of both wings. In the ♀ the under surface is gray in the basal half, silvery white with gray shading in the distal half.

C. regina. Of this species quite a number of local forms are known, all of which inhabit the Papuan Region and the northern Moluccas. Especially in the latter islands the forms vary within comparatively small distances to such an extent that for instance the ♀♀ of the forms from Batjan and Obi might easily be regarded as distinct species. ♂♂ resemble more or less the form *imperialis* (108 b), the width of the blue distal area varying according to the locality. This is also the case on the underside, where the longitudinal band shows in the style of its distal bordering the influenee of the loeality. Aeeording to the similarity or dissimilarity *paulowna.* between the sexes, two general types may be distinguished. — **paulowna** *Fruhst.* is the only monoehrome form known to me; it inhabits Batjan and Halmaheira. ♂ is very similar to the figured ♂ of *imperialis*, the ♀ however closely approaches on the upper surface the ♀ of *semiramis ninos* (108 e). In the ♀ the forewings are dark brown in the basal half, with very broad, either violet or brown bands in the outer half. The distal border is not sharply defined, but shades into the colour of the proximal area. The under surface is adorned with extraordinarily broad, undulate median bands, with the lighter red-brown submarginal band nearly three times as broad as is the case in *ducalis* and *princesa*. The type whieh came from Halmaheira is in the *princesa.* British Museum. 1 ♀ from Batjan in coll. Fruhstorfer. — **princesa** *Fruhst.* (108 b as *imperialis*, und. s.). On the upper surface the ochreous area is lighter and extends much farther, the dark violet terminal border is considerably narrower, the band upon the forewings of a radiant blue, in the ♀ more strongly undulate than in the Papuan races and accompanied by a rudimentary parallel antemarginal band. From the island of Obi. *nasica.* — **nasica** *Fruhst.* The undulate band crossing the distal half of the underside of the forewings is mueh lighter (nearly silver-gray) than the one found in the proximal half, all the bands are more sharply dentate. From *regina.* Waigeu. — **regina** *Fldr.* The violet terminal border on both wings is broader than in the forms from New Guinea, the submarginal bands on the forewings more complete and farther extended. Discovered in Aru by *myra.* Wallace; several specimens in the British Museum. — **myra** *Fruhst.* (108 b as *imperialis*-♂). In both sexes the distal half is dark blue-violet with lighter undulate submarginal bands. Under surface: Basal half thinly eovered with gray scales, with a broad ochreous median band marked with white; the distal half is traversed *ducalis.* by broad undulate bands of a metallic gray lustre. From Kapaur in south-western New Guinea. — **ducalis** *Wall.* In both sexes the submarginal bands are, especially on the hindwings, somewhat more conspieuous than in the preceding form. On the under surface the ochreous colour of the basal portion spreads still farther and is but slightly dusted with gray-blue. The white median band is very narrow, the metallie submarginal *sophene.* fasciae are obsolete. From Humboldt Bay, eollected by W. Doherty. — **sophene** *Fruhst.* ♂ is smaller than in the preceding species; the blue-violet submarginal bands upon the forewings are more sharply defined, but are obsolete in the hindwings; on the under surface the markings are more redueed, the red-brown bands larger, the undulate lines darker grey-violet, the forewings reddish-gray in the basal half. From Milne Bay, where it flies from June until November; also from Mount Hansemann, Friedrich Wilhelmshafen in German New Guinea. 2 ♂♂ in eoll. Fruhstorfer. Hagen found in July near Simbang at an altitude of 1000 ft. only one ♂ and one ♀, while in February of the preceding year several hundred speeimens were taken by two English collectors, which proves the periodical appearance of this form.

imperatrix. **C. imperatrix** *Sm.*, of which only one specimen is known discovered by Doherty in the islands of Biak, called Schouten Island by the Dutch, in Geelvink Bay, is distinguished from *regina* by the fact that also the basal half of both wings is shining blue. On the underside the forewings are adorned with large black spots, distally bordered with a little white; the silvery white median line is very narrow.

12 Genus: **Terinos** *Bsd.*

The few species belonging to this genus differ from those of the elosely-allied *Cynthia* and *Cirrochroa* in being adorned with a most magnificent, blue-violet velvety lustre. Their ehief eharaeteristics consist in the ciliated eyes (which in the Argynnidae appear nearly always naked), in the manner in whieh the subeostal nervules branch off, in the direction of the lower discocellular which closes the eell in the hindwing and finally in the enormous sexual spots. In *Terinos*, the first subcostal is plaeed before the end of the cell, the second at the very end or a short distance beyond, the third and fourth stand close to one another and some little distance from the eell. In the ♂ the lower discocellular joins the median vein at the origin of the seeond nervule, in the ♀ between the first and second, The costa of the forewing is serrate. In the hindwing the eell is remarkably small and is elosed by the lower discoeellular whieh is very thin and in both sexes joins the median between the first and second branch. Moreover the ♂♂ have a deep fold beyond the eell, as is found in *Cynthia* and *Cirrochroa*. Palpi distended as in *Cirrochroa*. However the main charaeteristie of the genus is the inconstancy of neuration, which not only shows a difference between different speeies or sexes, but varies even among individuals of the same species or sex. As a rule sueh differences in neuration are generic, only rarely occurring among species that are closely related; in the genus *Terinos* however this

variability appears to be largely a sexual distinction, occurring moreover in an uncommon degree among the different species. Altogether the species of the genus *Terinos* show such a great tendency to vary that they must be classed among those Nymphalid genera which are still undergoing a process of evolution, possibly representing a phylogenetically younger branch of the great Nymphalid family. The ♂♂ of all the species have black scent-patches along the radials, the medians and the submedian veins on the forewings, as well as along the subcostal and radial veins on the hindwings; these scent-spots flowing together form one large glossy patch which in the eastern species extends as far as the upper median of the hindwing. The ♀♀ of all species have in common that the lower discocellular joins the median vein invariably before the origin of the two upper median branches. Thus the course of the discocellular is in the ♀ quite constant, whereas it varies in the ♂♂, thereby affording us a sure means of separating the different groups. The relationship*) with *Cynthia* is expressed by the projecting apex of the forewing which, being most prominent in the few continental forms, grows more rounded the farther east one goes, — and by the caudate appendages of the hindwings, which follow the same rule as the apex. The bands upon the under surface remind us of *Cirrochroa* and, in the Indochinese forms, the whole style of colouring is repeated on the under surface, being reddish in the ♂♂, gray or bluish-white in the ♀♀. Quite variable appears also the colouring of the anal portion of the hindwings above, which gradually changes in the different islands and thereby renders a distinction and determination of the different forms easy. Nothing is known about the early stages. According to Hagen they are true inhabitants of the forest, fluttering in weak uncertain flight about the shrubs which border the shady lanes, and loving to rest on the leaves with folded wings. All the *Terinos* are confined to the low-lands, being nowhere found beyond the lower foot-hills. One species however I encountered in Java at an altitude of about 1600 ft. Martin observed them circling around certain forest trees; according to his report they appear to be one-brooded, which however is not the case with the forms occurring on the Continent where a number of cases of Polymorphism have been observed by me. The genus has its chief home in the Macromalayan Region, where three forms exist side by side, whilst the eastern islands have only one species each, New Guinea excepted; here two species occur, of which each inhabits, to the exclusion of the other, a certain well-defined area.

a) The median branches in the ♂ at a distance of about 2 mm beyond the point of union with lower discocellular.

T. terpander is the smallest species of the genus; at the same time it displays on the forewings the least-developed scent-patches; they not only begin beyond the cell, but do not flow together anteriorly, being represented along the upper radial by an isolated streak of thinly scattered scales. The hindwings are either orange-coloured in the distal half, or spotted with white in the anal area or they may be uniform blue, according to the locality. The under surface is red-brown, differing from all the other known species in being adorned with very broad longitudinal fasciae of a vivid metallic gray lustre, which in some forms are accompanied on the hindwings by pure white submarginal bands. Distributed throughout the Macromalayan Archipelago. Semper's coll. contains a form from Luzon which is closely allied so the type. — **robertsia** *Btlr.* *robertsia.* The ♀ differs from the ♂ (108c) in that the upper surface of the forewing is black in the outer half and that the black longitudinal band on the hindwing intersects the blue area at the cell. Hindwing beneath with a white band consisting of three crescent-shaped spots and reaching from the upper radial to the submedian. From the Malay Peninsula. — **teos** *Nicév.* In this species the anal portion of the hindwing shows asomewhat *teos.* lighter reddish tone; on the under surface the pure white area distinguishing *robertsia* is again met with in the shape of a lead-gray lustrous band. *teos* is the most frequent species of *Terinos* found in north-eastern Sumatra. I possess also a great number of specimens from the western part of the island. It is most abundant at Deli during November and December. — **niasica** *Fruhst.* is an intermediate form between *robertsia* *niasica.* and *teos,* in as much as the hindwings display a whitish tinge which becomes still more distinct in *robertsia.* From the island of Nias, where it is very rare; only one ♂ is known, the type in coll. Thieme. — **natunensis** *natunensis.* *Fruhst.* (108c). The ♀ differs from *terpander Hew.* in the presence of two blue dots in the middle portion of the black outer half of the forewing, and in that the yellowish subanal band on the hindwing is reduced to less than one third in width. On the other hand the dark violet submarginal band increases proportionately. Underside: The colour of the forewing is rather paler than in *terpander*, the silvery white submarginal band on the hindwing is, corresponding to the upperside, reduced in width. 1 ♀ from Bunguran, Natuna Islands. The forewings measure 41 mm., those of *terpander* 45 mm. — **bankanensis** *subsp. nov.*, resembles much more *bankanensis.* *terpander* than *teos* from the neighbouring island of Sumatra. The hindwing has before the distal margin a broad, dark ochre-yellow zone and a narrow terminal border of the same colour. In the ♀ this border is considerably broader, the submarginal area is correspondingly reduced but still reaching the lower radial as it does in the ♂. The type which came from Banka, is in the Museum at Munich. — **terpander** *Hew.* is *terpander.* among all the insular forms the most brillantly-coloured: the hindwings have the very broad outer margin light orange-coloured, with a fine black subterminal line in both sexes. The under surface is richly marked with white, the forewing with a very large white spot before the apex, the hindwing with a prominent white submarginal band which, starting from the upper radial continues to the border. A number of specimens

*) The Tegumen bears no relation whatever to *Cynthia*; the uncus short and stunted; shape of valve broad and short such at it is in *Cupha*, but with two skinny dorsal lobes and differing from all the *Issoriidi* in the presence of an antler- shaped double-pointed crest, in which it resembles *Argynnis.*

piepersi. from Borneo and Pontianac contained in FRUHSTORFER coll. — **piepersi** *Mart.* has been but lately discovered in western Java and described in the Entomologische Zeitschrift, Stuttgart, Sept. 1909, on page 114. In size it stands between the larger *terpander teos Nicév.* from Sumatra and the smaller *terpander robertsia Btlr.* from the Malay Peninsula; in its design and colouring it approaches most closely *robertsia,* a fact not to be wondered at in a Javanese species, considering the many analogous cases that have been observed. It may be said that as all the subspecies of *terpander* display among themselves considerable differences, one might, without an accurate knowledge of their perhaps but slightly differentiated larvae, treat them as separate species: this error was indead committed by the earlier authors. Whereas *robertsia* has on the outer border of the upperside of the hindwing but two whitish wedge-shaped spots, with two corresponding yellowish marginal lunules, *piepersi* displays three such confluent spots which display the dark yellow colour of old ivory; this continues along the outer border as far as the apex of the subcostal vein. Owing to this light colouring of the outer border, the two dark-blue marginal lines can be traced much more easily and farther than in all the other subspecies. On the underside of the forewing we find along the outer border au uninterrupted white area which, commencing at the submedian increases in width until it reaches the lower radial; also the space betweeu the two marginal lines is, as far as the lower radial, pure white. In *robertsia* there are to be seen but two white separate wedge-shaped spots, whereas in *teos* the corresponding area is of a blue-gray, in *terpander* of a whitish-yellow colour. Tlie ground-colour of *piepersi* is richer than in the other subspecies, also the dark red bands and spots on the under surface of both wings are of a deeper shade and more prominent. The bluish-white spot at the apex of the forewing beneath is larger, lighter and more distinct than in the other forms of *terpander.* But all have that in common that the discocellular veins are on the upper surface of the forewings more or less dusted with a brick-red colour, which is most prominent in *piepersi.* But one ♂ available, from near Sukabumi. *piepersi* is undoubtedly very rare in Java, more so than *Papilio caunus* or *Charaxes kadeni,* judging from the fact that it has not become known until now. In Sumatra I often observed the ♀♀ of *teos,* circling around some rather high trees which I did not recognize, evidently engaged in depositing their eggs. Most likely these trees have been largely destroyed in Java, but few being preserved, and it was upon one of these that I met with the type. (MARTIN).

b) The medians branch beyond the lower discocellular.

T. clarissa has of all species the widest range, extending over the whole Macromalayan Archipelago and the southern Philippines. — **clarissa** *Bsd.* is one of the rarest butterflies found in Java, where I obtained, *clarissa.* in the space of three years, but two ♂♂ and three ♀♀. I only encountered it in the western part of the island, in the Djampangs to the south of Sukabumi, on the wooded linestone-hills at elevations of about 1800 ft. ♂ resembles above *malayana* (108 c) but the distal margin of the hindwing, while not quite so broad, is of a yellowish red colour. The predominant colour of the ♀ is black; the forewings are dark blue at the base, with a narrow median band of the same colour. The hindwings are towards the anal angle yellow, proximally with a slight reddish tinge; the yellowish anal border is confined by an oblique blue intermedian band, and the anal area contains in addition two indistinct crescents as well as two circular patches of violet. The underside is in the ♂ redbrown, with white longitudinal bands having a slight violet tinge, and with a strongly undulate reddish-yellow submarginal fascia, which latter is met with in all the subspecies. The ♀ is chiefly gray with whitish anal area and a pale yellow submarginal band. — **malayana** *Fruhst.* (108 c) from the Malay *malayana.* Peninsula and Singapore has been repeatedly spoken of in connection with *clarissa*; but it seems as though it has always been mistaken for some other form, because it is not mentioned in DISTANT's *"Rhopalocera".* A few years ago, I happened to discover among the stock of a dealer two *Terinos* labelled "Penang". These two specimens are closely allied to *clarissa.* They are rather smaller in size than specimens from Borneo and Java; their under surface is very similar to that of the species from Borneo. But the upper surface displays a considerable difference. The orange-coloured anal border of the hindwing is in the ♀ wholly obliterated, being replaced by a whitish irroration; the ♂ has only a narrow orange-red submarginal band showing through from the under surface. The distal border itself is black, the violet and black submarginal lunules are more conspicuous than in the other forms of *clarissa.* ♀ closely approaches ♀ of *clarissa* from Java, but is distinguished from it by the more elongate, narrow apex of the forewings, which rather reminds us of *atlita.* The discal area of the forewings is adorned with a distinct red-brown band which is lacking in specimens from Java. The hindwings display a richer blue than in *clarissa.* Upon the under surface the colour is richer and darker, the bands more prominent, the forewings of a light whitish gray in the submarginal and anal portions. ♂♀ from Penang, 1 ♂ from north-eastern Sumatra, in FRUHSTORFER coll. In Sumatra it is very rare, according to HAGEN and MARTIN. — **diunaga** *Fruhst.* was received from the "Bovenlanden" near Padang in western *diunaga.* Sumatra. It approaches, as is not infrequently the case in species from western Sumatra, rather the Javanese type, but is larger in size and has in the anal area of the hindwing a narrow orange-coloured zone which is traversed by a violet band and encloses three violet crescent-shaped spots. The under surface is adorned *nympha.* with red-brown bands which appear brighter than in *clarissa.* — **nympha** *Wall.* (108 d as nymphaea) displays among all the *clarissa* forms the richest colours. The ♀ is larger in size than the ♀ of *clarissa,* the blue-violet colour extending farther and being paler; the hindwings richer red-yellow with more prominent lunular spots. In the ♂♂ the under surface is still lighter and more gaily-coloured than in the ♀♀ of *diunaga* being

traversed by very narrow reddish and more extensive whitish bands. It occurs in northern and southern Borneo and is apparently nowhere rare. — **bangueyana** *subsp. nov.* is closely allied to the Javanese *clarissa*, but *bangueyana.* smaller in size; the reddish anal border of the hindwing is considerably narrower, the under surface shows upon the darker ground of the hindwing a dusky ochre-yellow submarginal band, which is rather much contracted. From the island of Banguey situated to the north of Borneo. ♂ in STAUDINGER coll. — **luciella** *luciella.* *subsp. nov.* from the island of Balabac which lies to the north of Banguey and belongs to the Philippines. closely approaches *lucia Stgr.* from Palawan; the upperside which, although darker, is still a more brillant blue, shows in the hindwings an intensely dark red-yellow anal area, on which the lunular spots are larger, darker and more sharply-defined than in *lucia*. Under surface in both sexes is more variegated, deeper red-brown with more extensive violet shading. The type is contained in STAUDINGER coll. — **lucia** *lucia.* *Stgr.* from Palawan resembles in ♂ the form *nympha*, from which it differs in that the anal border of the hindwings is of a deeper yellow-red irrorated with violet. In the ♀ the difference is much greater in as much as the upper surface of both wings is largely of a chocolate-brown colour, and displays but a faint trace of the blue spots; the under surface is paler than in *nympha* ♀. — **lucilla** *Btlr.* represents another case of *lucilla.* Melanism; above it shows some similarity with *diunaga* in the conspicuous violet band in the anal area of the hindwings which, however, is orange-coloured and rather broader. The under surface of the hindwings has smaller red-brown median spots than in *lucia.* BUTLER describes it as coming from Luzon, but SEMPER limits it to Mindanao. One ♂ in my collection is labelled "Mindoro", Flies in May and again in November. Occurs in north-eastern Mindanao north of the ninth degree of Latitude. — **ludmilla** *Stgr.* in this form the *ludmilla.* blue antemarginal line is shorter than in *lucia*, the colour of the under surface paler. From the islands of Sangir. — **militum** *Obthr.* differs from the other forms in that the apex of the forewings is more elongate and *militum.* the anal border of the hindwings is somewhat lemon-yellow and broader. The black or bluish patches placed upon the yellow distal half are quite faint. In the ♀ which differs but slightly from the ♂, the predominant colour is brown, the forewings are without any blue median band. but display in the basal half a sharply-defined blue tract. The 5 specimens before me show on the underside all the characteristics of the dry-season forms: All the bands have disappeared, being only in the ♀ barely indicated by a fine longitudinal streak. Upon the pale, "washed-out" underside of the hindwings is seen, as in *Polygonia c. album*, a short white hook-shaped line, right there were the cell appears to be closed by the median fold; it stands quite isolated, as the bright band which in the other *clarissa*-forms traverses the entire wing is lacking. Both wings mimic on the under side withered leaves; their colour is a peculiar sand or earth-brown; only in the ♀♀ the original banded design is slightly noticeable, resembling however more *atlita F.* than *clarissa.* As to the colouring of the upper surface, *militum* stands in the middle between the violet specimens of *clarissa* and the blue forms of *atlita.* The anal half of the hindwings is of a gorgeous yellow with a reddish shade, whilst in *clarissa* it is orange-coloured with a tinge of violet. But with regard to the shape of the scent-scale spots, *militum* resembles *clarissa*, whereas in *atlita* they appear much broader, filling up the upper half of the cell. In the ♀ only the basal half of the forewings and the cell of the hindwings show that beautiful blue colour; the entire outer half of the forewings is dark chocolate-brown, traversed by a number of black bands. The hindwings are red-brown, with a black-brown costal border. The anal area is darker yellow than in the ♂, the submarginal lunules in the costal and anal area rather more distinct than in the ♂. The under surface is paler gray, with a dull lustre and traversed by red-brown and yellowish bands. Before the apex is placed within the white spot a black dot which is also met with in *teutlras.* If we accept PIEPER's theory regarding the species with far-projecting apex of the forewings and the longest anal appendages to the hindwings, *militum* appears phylogenetically the oldest form. It combines the characteristics of *clarissa* on the upper surface with those of *teutlras* on the under surface. From Tonkin, found at Than-Moi in June and July; very scarce. — **falcata** *falcata.* *Fruhst.* (= falcipennis *Lathy*) appears to be but an indistinct local form of the preceding, possibly only an intermediate or extreme dry-season form. Both wings are more obscured and less richly shaded with violet. The yellow colour at the anal angle is more like that of sand, and bordered with more red. In size it is somewhat smaller than normal specimens from Tonkin. From Siam, where it was found near Hinlap in January, at an elevation of about 1000 ft. — **lioneli** *Fruhst.* represents a form wich is more lavishly banded *lioneli.* on the underside, pictured by NICÉVILLE and BINGHAM; their type which came from Tenasserim, approaches *clarissa* in the colouring of the anal portion of the hindwings as well as in the more rounded apex of the forewings. Perhaps *lioneli* will later on prove to be only the wet-season form of *militum.*

β. The upper medians branch in the ♂ at the very point of union with the lower discocellular.

T. atlita is the earliest known species of the genus. It inhabits the Macromalayan Archipelago, with the exception of Java, displaying in its various insular forms the same general scheme of colouring as *T. clarissa.* Also in this species Borneo produces the most brillantly coloured forms, while Perak stands in the middle and Sumatra contains the darkest. — **atlita** *F.* (108 d as *atlites*) is beneath not so brightly red-brown *atlita.* as *clarissa;* the submarginal band which traverses the wings, is reddish or yellow, less strongly undulate. The hindwings lack moreover the white streak which in *clarissa* is enclosed between the nervules distally to the cell; in the ♀♀ the forewings show at the anal angle a whitish patch which in *clarissa* appears on the hindwings. In the shape of the wings all the forms of *atlita* resemble rather *T. clarissa militum.* It is not

scarce in the wooded low-lands in north-eastern Sumatra; several specimens from the Bovenlanden above Padang
teuthras. in western Sumatra in Fruhstorfer coll. — **teuthras** *Hew.* from the Malay Peninsula and Singapore differs from *atlita* in the presence of a yellowish area irrorated with violet beyond the cell in the hindwing which reaches from
fulminans. the submedian to the lower radial, but does not recur on the under surface. — **fulminans** *Btlr.* (phalaris *Weym.*) In this form the basal half of both wings is dark violet instead of blue, the scent-scale patches on the forewings are bordered with reddish-brown and the hindwings have an immacular reddish-yellow anal area, which has a violet tinge and reaches the cell. Specimens from northern Borneo are larger in size and provided with richer red-brown bands than those from the south-eastern part of the island. Shelford mentions a form from the Batang Lupar River in Sarawak which approaches *teuthras.* The ♀ of *fulminans* seems very scarce; it is not represented in my coll.

T. abisares. Although this species closely approaches *clarissa,* both with regard to the outline of the wings and the general style of marking, and represents the continuation of that species in the east, it is given a place here on account of its identity in structure with *T. atlita.* The under surface is gray, the forewings with several conspicuous rows of reddish spots which do not unite to form a coherent band as in *clarissa.* Hindwings with an intramedian, sharply serrate, reddish submarginal band and with huge, elongate red-brown patches placed beyond the cell. The scent-patch on the upper surface in the ♂♂ covers nearly the entire cell, on the hindwings it continues to the upper median. ♀ not unlike that of *clarissa*-♀, but with much less blue; the anal area is darker red-yellow and, as in *clarissa diunaga,* traversed by a conspicuous undulate subterminal band; besides it is adorned with four intramedian
abisares. lunular spots. Two local forms must be distinguished; **abisares** *Fldr.* (108 d), which inhabits the northern part of the island, where I have met with it near Toli-Toli at the border of the woods near the shore, in November and
poros. December, and **poros** *Fruhst.* This form differs from *abisares Fldr.* from northern Celebes in the same way as *amplior* does from *taxiles.* The reddish-yellow portion of the hindwings becomes duskier at the anal angle and shows a tendency to disappear altogether. The underside grows lighter and more indistinct. All the longitudinal bands assume a a pale-gray hue and the spots on the median area become obsolete. The sexual organs have been described in the diagnosis of this genus. From the vicinity of Maros, where it occurs from November until January.

T. taxiles, erroneously described by Hewitson as coming from Celebes; its real home is Batjan, as has been first shown by Wallace in 1869. The contours of the wings are still more rounded than in *abisares,* the red colouring of the anal area in the hindwings is reduced, but the forewings show in its place an orange-coloured spot before the apex. ♀ is black-brown in colour, with faint traces of blue spots and the anal area wholly obscured. Also the underside is duskier than in *abisara,* but with more prominent red-brown bands and spots. There exist four
taxiles. local forms: — **taxiles** *Hew.* The upper surface of a beautiful violet-blue colour, with a glossy velvet-brown scent-scale spot which does not cover the cell so completely as in *abisares.* The under surface displays a
amplior. number of very broad red-brown as well as some exceedingly narrow gray-bands. From Batjan. — **amplior** *Fruhst.* This species lacks the yellow subapical spot at the Costa, which plainly appears on the upper surface of the forewings in the form from Batjan (v. Hewitson's figure 4). The reddish terminal area on the upper surface of the hindwings is considerably reduced assuming in some specimens a gray hue, in which *amplior* forms a transition so the form *helleri Fruhst.* from Waigeu. Beneath the wings are more lavishly adorned with paler gray bands than in *taxila.* In the ♀ we notice two gray-yellow bands along the distal border of both wings, and the forewings contain a rudimentary reddish gray median fascia beyond the cell. The submarginal lunular spots on the hindwings continue to the costal border, being nearly twice as broad as in *abisares Fldr.* and in *poros Fruhst.*
helleri. from Celebes. From Halmaheira. — **helleri** *Fruhst.* Looking at the upper surface of this form one might get the impression of its being a separate species, chiefly because we miss one characteristic feature of the *Terinos* namely the violet or blue iridescence on the basal half of both wings; its place is taken by a peculiar, dull, dusky red-brown colour, upon which the large scent-scale patches are clearly distinguished by their plush-like lustre. Otherwise *helleri* appears to be the plainest among all the *Terinos* with regard to design and colouring. The anal angle is pale brown; on the hindw. one just notices the submarginal bands which faintly show through from the underside. In the ♀ the distal border of both wings is somewhat lighter and adorned with two pale yellow submarginal bands. The median area of the forewings and the anterior half of the hindwings are shaded with dark brown, whereas the basal half is chocolate-brown, but somewhat paler than in the ♂♂. The hindws. are in the anal portion light coffee-brown, the spots on the underside reappear quite distinctly also on the upper surface. The under surface has preserved the characteristic features of *taxiles,* which has caused us to unite *helleri* with the latter. — *helleri* is considerably darker brown than both *taxiles* and *tethys,* the red-brown longitudinal bands however are more indistinct. The distal border of the hindws. grows steadily lighter reminding us of *tethys,* but the outer border is not yellowish as in *tethys,* but gray-brown. From Waigeu. The British Museum contains another, fourth form which is distinguished from *taxiles* and *amplior* by the lighter blue areas above and the larger median bands of a glossy silvery white on the under surface of both wings. It is said to come from Amboina, but this is presumably an error.

T. alurgis closely follows *T. abisares* from Celebes, the apex and the anal portion being even more elongate. The blue colouring is more brillant, reminding us of the forms of *clarissa,* which indeed it approaches in the ♀ much more closely than it does the forms from the Moluccas, although geographically speaking it is nearer to the latter. —
alurgis. **alurgis** *Godm.* (108 d) from Port-Moresby, British New Guinea, above brillant blue. The scent patch on the forewings extends but imperceptibly beyond the end of the cell. The hindw. resemble *clarissa* in the markings of the anal portion

which, however, is narrower and interrupted by a few nearly extinct lunular spots and traces of an anteterminal band. On the underside it is marked like *taxiles,* but the longitudinal bands are paler red-brown. — **novaguineensis** *Tryon* is above still more intensely blue than alurgis and possibly only a seasonal form of this race. From Milne Bay. *novaguineensis.*

T. tethys inhabits the northern coast of New Guinea and some of the smaller adjacent islands, in contradistinction to *alurgis,* which is confined to the southern coast. This species is easily distinguished by the yellow patch at the apex of the forewings and the light yellow anal border of the hindwings, both of which reappear also on the under surface as indistinct pale patches upon the light-brown ground. The costal border of the forewings changes in colour more or less from dark violet to dark blue, according to the locality, but is quite narrow and apt to disappear altogether. In the ♀ the predominant colour is brown, the median area black, and on the forewings are but faint traces of blue colouring near the costal border. — **tethys** *Hew.,* forewings with a white or light cream-coloured spot before the apex: hindwings are reddish in the subanal region. From the island of Mysole, where it is exceedingly scarce. — **udaios** *Fruhst.* (108 c), easily distinguished from *tethys Hew.* by having the apical spot on the upper surface of the forewings ochre-yellow instead of whitish or white and the hindwings darker; the reddish colour found on the subanal portion of *tethys* is obsolete, and the whitish anal area which in *tethys* extends as far as the tail, is reduced to a narrow zone between the second and third median nervules. Also the under surface of the forewings is deficient in white, and the submarginal fascia on the hindwing is brown, instead of reddish-yellow. In the ♀ (108 c) which appears rather lighter brown than the ♂, the subapical spot on the forewing is pale yellow, the anal area of the hindwing grayish-yellow. On the under surface the markings are quite faded. but the yellowish-gray apical and anal spots are larger. The type came from Humboldt Bay, Dutch New Guinea, where it flies in September and October. Lately I have received some specimens also from Kaiser-Wilhelms-Land, where it was discovered near Friedrich-Wilhelmshafen by Dr. Eugene Werner. 2 ♂♂, 3 ♀♀ in the Fruhstorfer coll. — **wahnesi** *Hell.* is a form from Finchhafen, differing from *udaios* in that the dark blue border parallel to the costal on the forewing is more distinct. The hindwings are in the anal region quite faintly obscured with dark brownish-yellow. The geographical distribution of the Papuan *Terinos* shows no regularity whatsoever. The far-spreading *taxiles* forms are accompanied in Mysole and the northern part of New Guinea by the paler forms of *tethys;* in British New Guinea both disappear, and their place is taken by *alurgis Godm.,* which in the gorgeous blue colouring on the upper surface approaches on the one side the *clarissa nympha*-group belonging to the Macromalayan Region, whereas in the style of markings upon the under surface it appears closely allied to *taxiles;* a case of Atavism which appears even to greater perfection in *T. maddelena.* Wherever we turn, we meet with the most surprising facts which we may only explain by assuming that in the Nymphalid family insignificant causes may bring about great changes. *tethys.* *udaios.* *wahnesi.*

T. maddelena *Sm.* This is a remarkable species, easily distinguished by its almost circular wings. The ♂ shows even in the forewing no apical projection whatsoever. The forewings are completely covered whith black androconial tufts, one streak of blue-violet excepted commencing about at the extremity of the cell. The hindwings contain a quadrate scent-scale spot extending as far as the lower radial. The cell and the entire median area are blue; two yellowish subterminal bands, separated by a blue line, reach from the scent-patch to the anal angle. The underside resembles *taxiles amplior Fruhst.,* but is distinguished by a prominent red-yellow submarginal and two distinct light yellow subterminal lines. The brown patches placed beyond the cell, seen in *T. abisares Fldr.* and *taxiles Hew.,* are present also in this species, suggesting that *maddelena* really is more closely related to the Moluccan forms than to those from New Guinea. In the ♀ of which Pagenstecher gave in 1899 a very good picture, the blue colour spreads over the entire submarginal area on the forewings, continuing also to the hindwings in which only the anal fold and the costal border are of an other colour. Very scarce; only a few specimens have become known from Neu-Pommern and from Neu-Hannover; flies in March. *maddelena.*

Tribus Cethosiinae.

13. Genus: **Cethosia** *F.*

This genus, although quite singular in its external appearance and easy to recognize, very closely approaches *Cynthia* as well in its structure as in the shape of the larva which, like that of *Cynthia,* lives on Passiflorae. The palpi are slightly distended, recalling the *Issorini* and *Argynnini.* But the peculiar shape of the claws which possess no appendages whatever, distinguish this genus from all the other Indo-Australian Nymphalid genera and bring it close to the Neotropical *Dionini,* whose larvae likewise live upon Passiflorae. The latter however are, with regard to their structure, sharply separated from *Cethosia* by the angular lower discocellular in the forewing, the single precostal vein and by the fact that the cell is not closed. From both the *Dionini* as well as from *Cynthia* this genus is distinguished by the strongly denticulate and deeply excavated wings. The fact that the system of neuration varies extraordinarily among the different species, differing even quite considerably between the sexes, recalls the genus *Terinos.* Thus in the ♂ of *C. bernsteini* the first subcostal nervule above arises proximally to the end of the cell, in the ♀ precisely at its anterior corner; however, these distinguishing features show no regularity whatever within the species (genus *Terinos*). But the fact that in no case two subcostal branches are seen to arise before the end of the cell, removes this genus far from *Cynthia, Terinos* and *Argynnis,* bringing it close to the Neotropical *Dionini.* On the forewing the precostal is pointing outward and is bifurcate. Palpi moderately distended, thickly clothed

with hair. Antennae with gradually thickening clubs tapering to a point. The sexual organs are very peculiar: The valve projects far beyond the last segment, sometimes presenting the appearance of a glistening, chitinous hemisphere, at other times being concealed by long bristling hair; uncus, in some species rudimentary, is provided at the point of juncture with the tegumen, with two lateral horn-shaped spines *(C. biblis, penthesilea);* in *C. myrina* and *cydippe* it is slender and pointed. Penis extraordinarily minute, sharp as a needle. Valve distally provided with tooth-shaped organs varying in the different species. Larva lives on Passiflorae: it is black or brown in colour, marked with yellow belts or with brown rings and yellow bands; as a rule gregarious, living together in great numbers, especially during the earlier stages. They are not unlike those of the genus *Heliconius;* the head is somewhat rounded, slightly bilobed and provided with two feebly diverging horns whose length is approximately that of the head. The body is cylindrical in shape, whith a deep incision at each segment, the back is provided with laterally branching spines, somewhat resembling the larvae of *Cynthia.* Pupa is said to be similar to those of the genus *Heliconius,* at any rate it copies the pupae of *Cynthia* but is not so grotesquely ornamented. It hangs suspended, is slender in shape, and provided with two large leaf-shaped projections protruding from the middle of the back, and with a number of smaller prominences, especially at the head, thorax and abdomen. The colour varies through all shades of brown, sometimes displaying golden spots. The time necessary for the development of the imago from the egg is about four weeks. These butterflies are among the most gaudily-coloured in the Oriental Region. The predominating ground-colour is red-brown with a violet iridescense, the wings are adorned with a broad black border. Transcellular spots. patches or lunules are the rule; another characteristic found on the forewings of all the species is a delicate submarginal line which either presents an uniform undulate or (which is more frequent,) an irregular bold curve formed of sharp points and arches. All the species, without any exception, show sexual Dimorphism which appears so highly developed, that there exist but a few forms in which it does not also produce a difference in colour. The ♀♀ themselves are polychrome; in some species they resemble their ♂♂, several light-coloured species vary from whitish to yellow and nearly green. As is the case in *Cynthia,* nearly all the species have at least two differently coloured forms of the ♀; and the insular and local differentiation increases the farther east one goes. Whereas tertiary sexual organs are not found in the ♂♂ of *Cethosia,* a number of species are distinguished by a penetrant aromatic or slightly acid odour. According to Martin and Hagen the species which are found in Sumatra are inhabitants of the forest, haunting the more or less dense jungles, but avoiding the open fields. As far as I could observe in Java, Lombok and Celebes as well as in Tonkin, Annam and Siam, they actually avoid all shade, being only seen along the border of the forest, on broad paths leading through the fields and coffee-plantations. They are attracted by flowers, especially those of Lantana, but also frequent low shrubs resembling in their leasurely stately flight the Danaidae. Their geographical distribution is approximately the same as that of the genus *Cynthia;* but they extend their range westward along the foot of the Himalayas as far as Masuri, northward beyond Hainan as far as Hongkong and the Yangtsekiang; in the east however they cross from New Guinea only to the nearest adjacent islands, but do not reach the Salomon Archipelago as *Cynthia* does. All the *Cethosias* prefer the low alluvial plains; with the exception of *C. biblis* which ascends in Sikkim to elevations of 7000 ft, and of *C. penthesilea,* which in Java still occurs at altitudes of 4000 ft., no *Cethosia* is found above an elevation of about 2000 ft.

a) The first and second subcostal nervules are placed close together; in the forewing the discocellular runs to the point of furcation of the two median veins; in the hindwing the discocellular is very feeble, presenting a sharp concave outward curve.

C. biblis. This species is the smallest in size, but has in the genus the greatest number of forms and the widest range. Pl. 110 b and c demonstrate to what extent the ♀♀ may vary in colour and design. The forewings have in most cases three rows of white submarginal dots or lunules, which in the Micromalayan forms may be displaced by the far-extended black distal margin; the same applies to the transcellular row of dots upon the hindwings. The ground-colour is reddish, in the ♀♀ either red or greenish: the basal half is red, distal half yellow-brown, both are interseeted on either wing by two white fasciae. One form is spotted with white in the median area on the underside of the hindwing. The forewings are adorned with three greenish longitudinal bands bordered with black, the hindwings with an oblique basal band of the same colour. The abdomen of the ♂ is red with a yellow stripe beneath, that of the ♀ is brown with a white stripe. The larva is yellow with black longitudinal stripes *(logani)*, or yellow with black at the back and 10 black rings at the segments. The head is black, provided with horns of the same colour and on each segment with four rows of fine black spines extending horizontally from the sides. Pupa, according to Semper's figure, gray-brown, dotted with black, provided at the head with three curved horns and with tubercles and prominences on the abdomen. On the Continent of India seasonal Dimorphism is common. Its range extends from India (excluding the southern part and Ceylon) to the Moluccas, and in northerly direction from the Philippines to

phanaroia. Hainan and Hongkong. — **phanaroia** *subsp. nov.* is the most northern insular branch of the collective species; the upper surface is very dusky, the white transcellular patches on the forewing are very much reduced, but the colour of the under surface is very pale. Although rare at Hongkong, where it is met with in the gardens in March and April, it is rather abundant on the little rocky island of Wag lan, about 20 miles to the south-east of Hongkong, where also the larva was in the early part of December discovered by Dr. Seitz upon Passiflora foetida, which plant had in some way or other been brought over from America. —

hainana. **hainana** *Fruhst.* is rather smaller in size than specimens of the rainy-season from Tonkin, Assam and Sikkim; on the hindwing the distal border is black and much narrower than in *biblis* from the neighbouring *territories*

Characteristic of the upper surface is the lack of black spotting in the median area of the forewing, where the cell appears red almost throughout, being only at its outer extremity shaded with black. On the hindwings the transcellular dots are in the ♂ very delicate, in the ♀ quite prominent. ♂ above light bottle-green, marked in the submarginal area with white; on the under surface the median bands are considerably narrower and paler yellow. ♀ of a peculiar faded gray-green colour spreading also to the basal half, which latter in the continental forms of *biblis*, that otherwise are green, always appears reddish. From Hainan. — **biblis** *Drury* (= tonkingiana *Stich.*) closely approaches in ♂ *perakana* (110c) in the more distinct white lunular spots on the upper surface of the forewings. The white median fascia on the underside of the hindwing is distally not bordered so profusely with black as in seen in ♂♂ from Sikkim; in the ♀ the aberrative green colour prevails, although quite indistinct above. — **viridiana** *Fruhst.* (110c); type from China; collected by me in Annam and Tonkin, by Pavie at Luang-Prabang. I possess one specimen with entirely black upper surface, from Annam. — **tisamena** *subsp. nov.*, the well-known Indian form, of which the underside of the ♂ belonging to the dry-season form has been figured in Vol. 1, Pl. 72. The rainy-season produces much larger specimens, and in the ♀♀ three different shades of colour are found: One resembling the ♂, reddish above; another green analogous to *viridiana Fruhst.*, and a third one intermediate between the two, in which the base of the forewings remains reddish, whereas the subanal area is greenish; the anterior half of the hindwing is beautifully red, the entire basal and intramedian areas are shaded with a moss-green colour: — **mixta** *form. nov.* Nicéville reports that *biblis* occurs in Sikkim at elevations of up to 7000 ft., where it abounds the whole year round, and that the caterpillar is frequently met with in great numbers upon the blue and white passion flower; still, the larva has never been described. *tisamena* also occurs in Nepal, Bhutan and Assam; specimens from Burmah and Tenasserim approach the Chinese form *biblis Dru.* and *perakana Fruhst.* — **thebava** *Sm.* is the name of an aberrative form in which the markings on the under surface are quite indistinct with but faint traces of the usual bands, whereas the white median spots on the upper side of the forewings coalesce with the submarginal dots. Moore gave a picture of a form which, while similar to *thebava* above, presents beneath the normal banded pattern and in addition is more extensively spotted with black. Both aberrative forms came from Burmah. — In the Malay Peninsula the place of *biblis* is taken by **perakana** *Fruhst.* (110c), which shows a more marked difference from *biblis* in the ♀ than in the ♂. A splendid ♀ in my collection has the outline of wings more rounded than normal *biblis*-♀♀; all the white spots upon the forewings are enlarged and more prominent, moreover there appear between the uppermost median nervule and the submedian vein below the cell, two gray-white discal spots which in *biblis* are absent. The black discal spots on both wings are very much broader; the same is the case with the black terminal margin and the subterminal spotting on the hindwings. On the under surface of both wings the subterminal bands are purer white and stand forth much more sharply from the ground-colour; the red and yellowish-brown faseiae are darker than in *biblis*. The second ♀-form is corresponding to *viridiana* light blue-green. Beside *perakana* we find in the Malay Peninsula another form of *biblis* with Sumatran character: **logani** *Dist.* (110a) which is also found in eastern Sumatra, chiefly distinguished by a large white patch in the median area of the forewing beyond the cell. The exceedingly scarce ♀ very closely resembles the ♂; but the wings are more rounded and reddish-brown above. On the under surface the white bands are, compared with *biblis*, much broader and on the forewing the spots reappear. Martin reports that the larva not only attacks the leaves of Passiflorae, but also the young shoots, lives gregariously and is often found together in great numbers. Its colour is yellow with black longitudinal stripes, according to Hagen dirty yellow-green and covered with long black bristles. Pupa provided with many protuberances and spines, and upon the head with some antler-shaped excrescences. The gay colours of these butterflies form a pleasing contrast to the monotonous deep green of the forest; they never rise high up in the air or to the top of the trees, but flutter restlessly between the low shrubs bordering the outskirts of the woods, or under the shady trees of the orchards. The pupa takes but 8 days to develop, so that in one year 10 broods may be produced. — **adantonia** *subsp. nov.* from the western part of Sumatra, whence I received four specimens from near Padang, represents a distinct transition to *javana;* but the white median spot on the forewing between the middle and lower median is still complete, approaching the anterior spot in size and not so obliquely cut off as is seen in *javana;* also the black distal border on the hindwing is rather broader. On the under surface it approximates more closely to *logani*, differing from it in that the white bands upon the hindwing are narrower and the median spot on the forewing is smaller. — **javana** *Fldr.* (110b) is rather scarce in Java, occurring in the western part of the island up to an elevation of 2500 ft. Above it preserves the type of *logani,* although the median spot hardly approaches in size the white patch which appears in *adantonia* from western Sumatra. But the under surface represents a complete retrogression to the continental *biblis* and still more to *perakana,* while all that is left of the spots found in *logani,* is the somewhat broader oblique band on the forewings. — **nacoleia** *subsp. nov.* displays most plainly the high degree of sensitiveness of the Cethosiae towards climatic influences; it is a local form from eastern Java distinguished above by the confluent costal and median spots, the design of which bears a much greater resemblance to that of *sumbana* (110c) and *penthesilea* (110a) than to that of *javana.* On the hindwings of the ♂♂ the submarginal lines have united with the outer black border, leaving free only the series of transcellular spots. Also the median spot on the hindwing of the ♀ is smaller than in *javana*-♀. Beneath, both sexes approach *logani* in the greater development of the white bands on the hindwings, which terminate in a sharp point and unite between and along the medians. On the forewings the white spotting of the median area is still further

biblis. *viridiana.* *tisamena.* *mixta.* *thebava.* *perakana.* *logani.* *adantonia.* *javana.* *nacoleia.*

reduced than in *logani* and *javana,* but on the other hand the median band broadens over its entire length, appearing especially in the costal portion of nearly double the width as is seen in *javana.* I found this species in the Tengger-Mts in eastern Java at an elevation of about 2000 ft, and in the Zuidergebergde to the south of Malang. Very scarce. — **andamanica** *Stich.* has been hitherto united and confounded with *nicobarica.* It is rather large in size; in both sexes the white spots on the upper surface of the forewings are more prominent, and the bands on the under surface more delicately marked with black. Has been figured by Moore (Lepidoptera Indica Vol. IV, Pl. 349), but was erroneously named *nicobarica.* On the under surface of the forewings we completely miss the network of black spots which appear so distinctly in the specimens from the Nicobar Islands, as is shown in Felder's figure. The black marginal dots bordering the white submarginal band are on either wing much less distinct than in *nicobarica,* appearing therefore always isolated; the outer black dentate band on the underside of both wings is, in contrast to *nicobarica,* broadly striated with minute, curved white streaks. The black striation in the cell is much closer, rendering the blue-gray background less visible. The colouring of the upper surface of *andamanica* is a more vivid brick-red than in *nicobarica Fldr.* The forewing measures in the ♂ 44 mm, in ♀ 45—47 mm in length. Quite plentiful in the Andaman-Islands. — **nicobarica** *Fldr.* inhabits the islands from which it has been named; smaller in size than *andamanica.* Felder described a specimen of *nicobarica* from the island of Kondul, figuring a ♂ with very little white in the apical area of the forewing; beneath, the two parallel bands on the forewings appear beyond the cell connected by some black mesh-like lines. The under surface of the hindwings is traversed by a submarginal row of almost coherent, large, black and circular spots arranged along the outer edge of the whitish submarginal band. The helmet-shaped marginal spots are but indistinctly striated with white. Two ♀♀ in the Fruhstorfer coll.; apparently only the form which corresponds to *viridiana* is known. The forewings are nearly black with insignificant gray-green intermedian area, the hindwings with yellowish-green disk. Upon none of the smaller islands adjacent to Sumatra any forms have hitherto been observed approaching *Cethosia biblis,* and going east, we only meet the species again in Bawean; this island has produced a most distinguished race, which forms the transition from the western Macromalayan forms to the eastern Micromalayan ones: **alceste** *Fruhst.* (110 c). Above it resembles *sandakana Fruhst.* (110 c) from North-Borneo and *narmadoides Nicév.* from Bali. From the latter it differs in its smaller size and in the subapical band on the forewing being lighter yellow and more compact. The outer border of the hindwings is black, but not so broad as in specimens from Bali, the submarginal dots much smaller. Beneath both wings are paler red-brown than in *biblis* and the preceding forms, the longitudinal bands are dull orange-yellow instead of being white. ♀ differs but slightly from ♂: On the forewings we find an extensive black border and a bright fulvous semi-band. The colour of the upper surface is on the whole more intense red, slightly dusted with brown in the intramedian portion of the forewings. From Bawean, where it occurs from July until September and is very scarce. — **narmadoides** *Nicév.* Above it approaches *alceste,* but the colour is more striking, being an intense red broadly bordered with black at the distal margin on both wings; the under surface displays a number of very conspicuous canary-yellow longitudinal lines and a prominent row of black discal dots. ♀ not known, ♂ very scarce, discovered in Bali by Doherty. — **narmada** *Fruhst.* (110 c). In the ♂ the upper surface of the forewing is deep black, only the inner margin is crimson extending from the cell to within one third of the distance between that and the outer margin. Beyond, but still quite close to the cell, are placed four spots, the two uppermost of which are elongate and yellowish, the lower ones quadrate and reddish. The hindwings with broad black marginal border and two macular bands traversing the median area which otherwise is red; the inner margin is shaded with orange. The under surface of the forewings is towards the base red with four gray discal bands bordered with black, and with a white discal band bordered in the same manner, which latter reaches the submedian; the outer half is brownish displaying the usual denticulate margin. The under surface of the hindwings is red in the basal area, with an adjacent yellow band broadly bordered with black. From this band the red ground-colour extends all the way until it is intersected by a yellowish median band which is only in the basal portion bordered with black. The other half although somewhat paler, appears to conform to the forewings. The ♀ is on both sides darker than the ♂; the wings are more rounded, abdomen red-brown above, underneath white streaked with black. Length of forewing in ♂♂ 33—37 mm, in ♀♀ 39—41 mm. To this diagnosis which I made in Lombok in June 1896 from freshly-captured specimens, I may add, that ♂♂ and ♀♀ vary quite considerably. My coll. contains ♂♂, in which the black submarginal dots appear completely united with the broad black outer border; in others these dots closely touch the border, and still in others they appear isolated as in the figure. Also the subapical spots vary in form and colour. I found one ♂ in which the spots are entirely yellow, one in which they are reddish and one specimen with white and pale-red spots; in one ♀ they are blood-red and small, in another very large and pale yellow. This latter is also distinguished by the fact, that both wings are coloured deep red-brown in the basal half which in all the other specimens is suffused with a gorgeous crimson. Farther west it is replaced by *biblis javana Fldr.;* in this form the spots are in the outer half of the forewings much larger and of pure white colour, and the under surface is much lighter, especially in the hindwings which are traversed by three white diagonal bands. Of these bands only the two innermost are found in *narmada,* displaying here a yellowish tint. — *narmada* approaches much more closely the form *tambora Doh.* from Sumbawa, but is paler throughout, the marginal borders are less broad and the subapical spots much reduced. On the under surface of the forewings of *narmada* the notches in the marginal border appear deeper and broader. But the chief difference is

andamanica.

nicobarica.

alceste.

narmadoides.

narmada.

in the colour which in *tambora* is beneath a deep blue-black and reddish-white, whereas in *narmada* it is an intense brick-red with yellowish and black markings. Together with *javana Fldr., tambora Doh., lamarckii Godt.* and *leschenaultii Godt., narmada* belongs to the rarer forms of Cethosia which are a characteristic feature in the smaller Sunda-Islands. — **tambora** *Doh.* represents the most extreme case of Melanism within the collective species. In both sexes the upper surface is nearly wholly obscured, only a reddish streak remaining visible along the submedian vein. On the forewings the transcellular spot is yellowish in colour, nearly always united with the costal spot and always broader than in *narmada*. Hindwings bordered with black as far as the cell. The under surface is marked with a compact black border having a bluish iridescense and reaching the cell. The forewings have the usual striation in the cell and a broad median band of greenish-white, otherwise they are black throughout. The hindwings are in the basal half gray-white with black markings. From Sumbawa, where it was discovered by W. Doherty. — **sumbana** *Pagenst.* (110c) resembles *atia* on the upper surface, but the pale lemon-yellow oblique band which adorns the forewings is larger in this than in any of the other known forms. ♀ differs from ♂ in that the basal area of the hindwings is yellowish-brown instead of red. In the ♂ the median bands upon the under surface appear also on the hindwings unusually broad, the submarginal area is brown-yellow as in *narmada*, but in ♀ black as in *tambora*, only with a pale yellowish-white submarginal band. From the island of Sumba, very rare. — **atia** *Fruhst.* presents above the most deceptive resemblance to *sumbana Pagenst.*, but is smaller in size and the yellow subapical band as well as its black inner border are narrower; on the other hand there is more red in the forewings. Beneath the differences are more distinct: The discal band on the forewing has not joined the broad yellowish submarginal patch to form a compact mass, but the patch stands entirely by itself. The brown submarginal bands are considerably darker and narrower, the black band following it is more indistinct and also contracted, but the postdiscal inner band is composed of larger brown spots. The black and brown basal spots on the hindwings are smaller than in *sumbana*. From the islands of Kalao, where it flies in December. — **floresiana** *Fruhst.* resembles above most strikingly *narmada*, from which it differs in that the oblique band on the forewing is wider, more yellowish in colour and more compact. The forewings themselves are not so broadly black as in *tambora*. Beneath, the median band is farther extended, paler and rather yellow than dirty-white in colour; the distal half occasionally traversed by a broad brown submarginal band. Island of Flores. Forewing measures from 35—39 mm. — With **sandakana** *Fruhst.* (110b) we begin the series of the Philippine—Moluccan forms, all of which agree rather well among themselves and do not diverge so much as the Micromalayan forms hitherto enumerated. *sandakana* has the most striking resemblance with *insularis* from Luzon differing from it above only in the larger dots placed upon the black submarginal band of the hindwings; the median and basal spots and bands on the underside of *sandakana* are narrower, the submarginal band broader than in *insularis* and more profusely bordered with a deeper black. On the hindwing *sandakana* agrees almost completely with *biblis*-♂♂ from northern India. But the forewings lack altogether the white discal spots so conspicuous in *biblis* which are, here as in *eurymena*, replaced by a yellowish costal spot and a subapical row of four whitish streaks. ♀ of *sandakana* is olive-green without a trace of white, much plainer than *biblis* and *eurymena*-♀♀. *sandakana* has hitherto been found only in the most northerly portion of Borneo where it represents a purely Philippine element in the Fauna of that island, being a relic from the time when Borneo was connected by land with Mindanao. The ♀ shows in the dull green colour of the upper surface some analogy to the ♀-form *viridiana* from Tonkin. — **liacura** *subsp. nov.*, found in Mindanao, is distinguished from *insularis* from the northern Philippines by the more prominent white markings on the upper surface of the forewings, in which it closely approaches *amboinensis*. In fresh ♂♂ the red basal area displays above a feeble but lovely blue irridescence never found in the paler light green or yellow-brown ♀♀. — **tagalorum** *subsp. nov.* (type in Staudinger coll. in the Berlin Zool. Museum) closely follows *liacura* from Mindanao, but has above the white patches smaller and the black distal border of the hindwing broader; ♀ above darker red-brown than *liacura*-♀. Island of Mindoro. — **insularis** *Fldr.* (= eurymena *Fldr.*) (110b) shows in its bright red colours and the banded Catocala-like pattern a much greater similarity to the continental *biblis tisamena* than to *sandakana*. Larva found on Balbas baquero, lemon-yellow in colour with deep black bands at the segments; head, feet and spiracles glistening black. On each segment are four stiff bristles, two longer ones pointing upwards and, below the spiracles, two shorter ones pointing in downward direction. Pupa light brown, irregularly spotted with dark brown and black, with a few dashes of gold and provided with sharp gaily-coloured points of irregular size. ♀ barely to be distinguished from ♂; upper surface richer black, under surface a more dull yellow-brown. Luzon, Polillo and several other islands of the northern Philippines. — **moesta** *Fldr.* deviates from *insularis* in the broader black bordering on the upper surface of both wings and in having four instead of three rows of yellowish dots and lunules on the forewings. The dark red basal area has a blue-violet iridescence. Among all the neighbouring forms *moesta* is characterized by the narrowest white and the broadest dark coffee-brown bands on the hindwings as well as the dusky, dirty-red colour of the basal portion of both wings. Type from Halmaheira; quite plentiful in Batjan, also found in Ternate. — Also from Obi we may expect some form of *biblis*, though none is known so far; but we again encounter the species in the southern Moluccas in **buruana** *Holl.* This form reminds us, by the greatly enlarged white crescent-shaped spot on the upper surface between the upper and middle median nervules somewhat of *logani* and *javana;* from *moesta* it differs in having but three rows of pure white spots on the forewings. In ♀ the forewings are blackish, dark brown in the basal half; hindwings of a lighter shade, more reddish-yellow

tambora. *sumbana.* *atia.* *floresiana.* *sandakana.* *liacura.* *tagalorum.* *insularis.* *moesta.* *buruana.*

in colour. Beneath, the ♂ is quite similar to *nicobarica*-♂, only the distal bordering of the white outer sub-
amboinensis. marginal band is not quite so intensely black. Buru. — **amboinensis** *Fldr.* Above like *sandakana*, but with more distinct white markings and inferior in size. ♀ resembles *buruana*-♀, but lacks the enlarged median spots and the hindwings are somewhat paler yellow-brown above. The under surface corresponds to that
ceramensis. of *sandakana* in all but the narrower white median band. — **ceramensis** *Fruhst.* is of a paler colour throughout; the upper surface is yellowish-red conspicuously marked with white upon the forewings, in which the whitish costal streak in the median area beyond the cell is still more obsolete than in *sandakana* and *amboinensis.* Beneath, it is distinguished by the far-spreading median bands on the hindwings enclosing a lighter yellow transcellular area than is noticed in *amboinensis.* Island of Ceram, where it must be very
picta. scarce as it has never been mentioned by previous collectors. — **picta** *Fldr.* (110 b) is among all the forms of *biblis* farthest remote from the name-type. Whereas in the ♂♂ we notice the elongate contour of the forewings so characteristic of the Celebian Fauna, the hindwings display in both sexes two rows of white spots of which we count in the median area four, in the basal region two. Both ♂ and ♀ are subject to variation according to the locality; thus two ♂♂ in my collection from Lompa-Battan in South-Celebes have the cell striated with light-gray, in another specimen contained in the Berlin Museum, the cell encloses a conspicuous white spot; (this may possibly be a form from northern Celebes). The ♀♀ are quite similar to the ♂♂, but are more brown-red and the bands on the under surface of the forewings are rather larger and of a paler shade. Holland received from Doherty ♀♀ from Taneta some of which were reddish, others purple-gray; in a ♂ captured by Doherty the white patches on the hindwings were quite obsolete; and the Staudinger collection contains moreover two ♀♀-forms, one in which the hindwings are reddish-brown throughout the submedi-
viridipicta. dian area, and the other marked with greenish and blackish: ♀ fa. **viridipicta** *form. nov.* — ♀♀ from eastern
sarsina. Celebes seem to belong to a separate local form: **sarsina** *subsp. nov.* noted for the peculiar light yellow-
togiana. brown tinge on the upper surface. — **togiana** *Fruhst.* is distinguished from *picta* in that the forewings have on either side of the submedian a pure white spot and that the white median patches on the hindwings are twice as broad. From the Togian Islands to the east of Minahassa, in the Gulf of Tomini.

C. lamarcki must also be considered as belonging to the *biblis*-group, as I have shown in my monography on the genus *Cethosia* (Stett. Ent. Ztg. 1902), appearing in the Macromalayan Region where the forms allied to *tambora* cease to exist. One encounters this lovely species on all the islands in the Timor Sea ranging eastward as far as Selaru and Kur belonging to the Key group. Godart reports that the type came from "New Holland", but it cannot be doubted that its home is Timor, where it was discovered together with *C. leschenault.* Forbes who rediscovered it writes: "Trembling from joy I caught among other butterflies the beautiful *Cethosia lamarcki,* whose blue wings had, as I beheld it from the river-bed below flying along the inaccessible slopes, stirred up in me the strongest desire to possess it." *lamarcki* completely harmonizes in structure with *biblis tisamena* from India proper, and approaches in the design of the markings on the under surface which is in the
lamarcki. distal half of a blackish colour, closely *C. biblis tambora.* **lamarcki** *Godt.* (= timorensis *Stich.*) (110 e). Boisduval was the first who gave us a correct picture of this form and clearly stated Timor to be its home. Above the forewings are dark blue with black distal border, a yellowish costal streak and in the basal half a more or less extensive reddish-yellow spot which both in ♂ and ♀ may be quite distinct or more obsolete, but hardly ever is quite obliterated. The under surface is in like manner subject to variation. According to Godart's description, the colour of the basal half is dirty white, the outer half black traversed by a red-brown submarginal band. Beyond the zone of white follows a band composed of 8 red-brown streaks divided by the veins. Bois-
justa. duval's figure however represents a rarer form from Timor without this band and median striation. = **justa** *form. nov.* Between this and the type there exists still an intermediate form which possesses the submarginal band but lacks the postdiscal spots in the terminal area of the hindwings. Timor, Wetter, Babber, Kisser, 7 ♂♂, 2 ♀♀
elateia. from Babber and Wetter in my coll., the figured ♀ came from Babber. — **elateia** *subsp. nov.* Above of a lighter and more lustrous blue; on the forewings the yellowish-red basal area extends farther; the under surface is characterized by the dull chalky-white basal half which on the forewing is irrorated with greenish, on the hindwing with cream-colour; the distal half is traversed by a yellow instead of red-brown submarginal band. The intranervalspots are not found in the ♂ before me, in the ♀ they are of paler colour and less conspicuous than in ♀♀ from Babber. The apical patch on the forewing is larger than in *lamarki.* Type came from the islets of Kor; also found in Tjanda, presumably ocurring also in the Timor-Laut group but unknown in the Key Islands.

b) On the forewings the first subcostal branches off before the end of the cell, the second in ♂ distally farther out than the first; on the forewings the lower discocellular arises distally to the point of furcation of the median nervules. In the ♂ the cell of the hindwing is more distinctly closed than in ♀. In ♂♂ the valve is not visible.

C. cyane is one of the best-known Indian butterflies, although its range of distribution is but limited. Extending no further west than to the limits of the province of Oudh, not reaching in the north China and being replaced in the southern part of India by another form, *cyane* must be regarded as a purely Indian species. The two local forms which are known are not very sharply separated; neither do the several seasonal forms present great differences; but the sexual Dimorphism is strongly developed, the ♀♀ differing in such a way that those belonging to the rainless season are of greenish colour at the base of the forewings, while those of the wet season are brown. Both sexes have in common a sharply dentate, white transverse band on the forewings varying in width according to the locality. The gaudily-colored larva is pink with yellow rings, provided at the head with the usual horns and

covered with fine black spines. It lives upon Passiflorae. **cyane** *Drury* (Type from Bengal) resembles above somewhat *fruhstorferi* (110a). beneath *aeole* (110a). ♂ above on both wings red in the basal half distally turning yellowish, and with broad black terminal portion which leaves the lower half of the cell free. Hindwings strongly dentate with a series of sharply curved white pointed arches. On the hindwings are always present two ultracellular median dots and also the submarginal row of dots met with in *biblis*, which in the ♀ is joined by an other row in the median area. The under surface is more gaily-coloured, black with red basal area and yellow-brown submarginal bands. The ♂ has in addition three white longitudinal stripes proximally thickly sprinkled with black. The ♀ has on the upper surface of the hindwing a whitish-green area; beneath the bands appear more indistinct. Specimens of the dry-season are of inferior size and paler yellow, and display in the ♀ between the submedian and the edge of the cell a whitish or green instead of a brown irroration. Plentiful in Sikkim, particularly between April and December, at elevations of up to 5000 ft. The larva is generally found together with those of *C. biblis* and *Cynthia erota*, occasionally causing some damage on account of their great numbers. Notwithstanding this we possess as yet no picture of it. Found also in Assam and Burmah, where it ascends to about 1000 ft. above the level of the sea. — **euanthes** *subsp. nov.* inhabits Farther India and has been observed by me all over Indo-China between January and July or August. In the ♂♂ the white oblique band on the forewing is broader, and the yellow-brown submarginal and postdiscal stripes on the under surface of the hindwings are enlarged. In ♂ the cell of the forewing is red almost as far as the costal margin, in ♀ greenish-yellow or brown, whereas in *cyane* it is black. From Tonkin, Annam and Siam, up to abont 1600 ft. *cyane.* *euanthes.*

C. nietneri replaces the preceding species in southern India. The sexes do not in this species display so strong a Heterochromism as in *cyane*, being much more alike. The hindwings only show the whitish colour at the periphery of the greatly enlarged postdiscal patches. In both sexes the oblique band on the forewings is notably narrower than in *cyane*. **mahratta** *Moore* (110d ♀ as *nietneri*-♀). In both sexes the underside is adorned with very clearly-defined white longitudinal lines. ♂ has on the upper surface of the forewing the basal half reddish instead of yellowish and more extensively marked with white, but in other respects resembles the ♀. The larva is dark brown marked with bright red on all the segments excepting the sixth and eighth, which show a broad lemon-yellow band. Pupa purplish-brown, provided at the middle of the back with two leaf-shaped appendages and with numerous tubercles on the head, thorax and abdomen. On the back there are six golden dots. Very abundant in southern India from Juni until October. The pupa is very sentitive to the touch. Generally one finds on the same branch from 20—30 caterpillars together. The imago is very common from beyond Karwar throughout southern India, being found in the Nilgiris at elevations of about 3000 ft. — **nietneri** *Fldr.* (110d as *mahratta*-♀) is a quite distinct melanotic insular form. In ♂ it may be distinguished from *mahratta* by the more obsolete and rather greenish transverse band and in general by the more obscured colour of the forewings; the hindwings above are greenish-white instead of reddish; ♀ greenish-blue instead of yellowish-brown, with the entire cell of the forewing blackish and slightly dusted with green. On the under-surface both sexes are nearly alike, whitish-green in colour with a broad brown-yellow submarginal band. The hindwings are ornamented with five irregular bands formed of dots and streaks that more or less fuse together. Larva resembling that of *mahratta*, but with narrower red and yellow and more distinct black rings. The segments are provided with two dorsal as well as two lateral rows of long, finely-branching spines. Pupa brown spotted with yellowish white; the sheaths of the wings are inflated; the head bifurcate. Abounds in the lower mountain-region about Kandy; during some years it may be rather scarce, in others very common. Occurs occasionally also at Colombo, in June and July. *mahratta.* *nietneri.*

c) First subcostal branch in ♂ very close to the angle of the cell, in ♀ still at some distance therefrom. (This characteristic is not constant).

C. hypsea forms the natural continuation of *cyane* in the Macromalayan and Philippine Region, occuring everywhere side by side with *biblis* and just as much subject as this to geographical influences. It chiefly differs from *cyane* in that in the ♂♂ the chitinous valves are externally visible, a distinction to which I called attention for the first time in 1899. The colour of ♂ is more vivid red, the submedian area of the forewings is in the Malayan forms invariably less extensive; in ♀ we frequently find a yellow subdiscal spot. The under surface always shows but one very broad, proximally still more enlarged median fascia. Both wings have the basal half crimson. The transverse band on the forewing is yellow in all but the Javanese forms which still retain the white band of *cyane*. Larva is scarlet with a white belt; it is somewhat protected from being discovered by man by its habit of several crowding together upon one leaf and curving, during the process of feeding, in a certain manner around the twigs, (just as is observed in the case of the larva of *C. biblis logani Dist.*) whereby they may be easily mistaken at some little distance for the scarlet berries of the food-plant. (Martin). The butterflies fly in the open woods enlivening with their gay colours the sombre green. In Java I encountered them at the edge of the woods preferring the half shade afforded by the under-brush to the hot sun, unlike *C. penthesilea* which is quite partial to the open. — **hypsina** *Fldr.* originally inhabiting the Malay Peninsula, has pressed northward as far as southern Tenasserim and Pegu, whence however but few specimens have become known. It is distinguished from the allied forms by the exceedingly narrow yellow subapical line on the forewing and from *aeole* (110a) by the perceptibly reduced median band on the under surface of the hindwing. ♀ deviates from ♂ by the presence of a beautiful chrome-yellow subdiscal spot on the upper surface of the forewing. — **aeole** *Moore* (110a) from north-eastern Sumatra, has on the upper surface of the forewings a very broad, yellowish, oblique band appearing proximally rather frayed-out, *hypsina.* *aeole.*

and which in ♂ far exceeds in width the band peculiar to the Borneo- and Malacca-forms. It is the most
triocala. common form found in the Sultanate of Deli. — **triocala** *subsp. nov.* is distinguished from *aeole* and *hypsina* by the paler, rather whitish band on the forewings which appears moreover less deeply excavated inwardly. From the Bovenlanden at Padang, western Sumatra. ♂♂ not rare. Although the difference between this form and *aeole* is less marked than is the case between *C. biblis adantonia* and *logani,* it is at once recognized. —
hypsea. **hypsea** *Dbd.* represents the most extreme case of Melanism among the Macromalayan forms. The band on the forewing is beautiful yellow, in ♂ more regular than in ♂♂ of *hypsina* and *aeole,* equalling in width that of *tricala.* In ♀, the submedian area of the forewing is represented by a narrow yellow-red or yellow-brown streak, beyond which as a rule but traces of a whitish subdiscal spot are found. The specimens from Pontianac are of lighter colour and less obscured with black beneath than is the case with ♀♀ from northern Borneo; ♂♂ from Sandan are inferior in size to those from the rest of the island. On Mt. Mulu it occurs still at elevations of about 3000 ft. Everywhere quite common; my coll. contains also specimens from south-eastern
pallaurea. Borneo. — **pallaurea** *Hag.* This pretty butterfly whose forewings measure 44 mm in length, may be considered as being intermediate between *C. fruhstorferi Stich.* from Java and *C. cyane Drury* from India. The contour of the forewings is not quite so elongate as that of *aeole* ♀♀ from Sumatra, or *hypsina* from Malacca and *bankana Fruhst.;* the apex is less projected resembling more closely *cyane*-♀♀. Above its colour comes closest to that of *fruhstorferi,* but is much paler, rather yellow instead of red, and the discal transverse band on the forewing is cream-coloured and somewhat broader. The pale-coloured patch along the inner margin of the forewing stands with regard to its size half way between *fruhstorferi* and *aeole,* being whitish-yellow in colour, feebly shaded with red towards the base. That portion of the forewing which in *aeole* and *fruhstorferi* is unicolorous black without any other markings than the fine white dentate marginal line, presents in *pallaurea* approximately the same design as in *cyane,* most notably the submarginal row of white streaks behind the dentate line. The white discal transverse band which, in *cyane*-♀♀, adjoins over its entire breadth this submarginal row of streaks, in *pallaurea* only just touches it at its farthest extremity on either side of the second median nervule. The black space between these contains, starting from the band, a number of fine, faded dashes of whitish colour. The cross-striation of the cell beneath is distinctly repeated above, a fact which in the available ♀♀ of *hypsea* and *hypsina* is not at all observed and in *fruhstorferi* but in a very slight degree. On the hindwings which have the orange-coloured area sprinkled with black in the same manner as in *fruhstorferi,* the black outer border is nearly twice as broad as in all the other forms hitherto mentioned. Beneath *pallaurea* is chiefly remarkable on account of the much greater width of the black border on both wings and moreover by the fact that, accompanying the white dentate marginal line there is another white, undulate line interrupted at the veins which latter are on the hindwings of yellow colour. The entire apical area of the forewing completely lacks the ochre-yellow colour found in the other forms; the inner border of the white transverse band is more like a straight line, whereas in *aeole* and *fruhstorferi* it is dented in stair-like fashion; furthermore there is hardly a faint indication of the white, black-bordered semi-band running from the second median to the middle of the inner margin. The white discal band on the hindwing is more obsolete and becomes, from the second median onwards, gradually absorbed by the yellow ground-colour: its outer border is, one blackish streak near the external margin excepted, entirely devoid of the black striation characteristic of *aeole* and *fruhstorferi,* and its inner margin is much less deeply
batuensis. excavated. From Mentawei. — **batuensis** *Stich.* approaches *triocala Fruhst.* from western Sumatra, although inferior in size; the transverse band adorning the forewing is paler and of rather whitish colour, and on the upper surface of the hindwings the black border is ornamented with purer white and more delicate crescent-shaped streaks. The under surface displays some deep black submarginal bands exceeding in size even those
fruhstorferi. of *aeole* from Deli. Found in the Batu Islands. — **fruhstorferi** *Stich.* (110a) comes from eastern Java. Distinguished by the unusually broad subapical band on the forewings and the rich lavender irroration over all the
munjava. black portions of the upper surface. — **munjava** *subsp. nov.* The white oblique band is very much reduced in width and, especially in ♂, disappears altogether towards the costa; the blue iridescence above is much darker. The white bands traversing the underside of both wings are noticeably narrower than in *fruhstorferi.* Habitat: Java, where it is very scarce, and is found at elevations up to 2500 ft.; 4 ♂♂, 4 ♀♀ from near Sukabumi, in the Fruh-
bankana. STORFER coll.. — **bankana** quite abundant in the island of Banka; smaller than *aeole Moore* from Deli, differs from both *aeole* and *hypsina* in the narrower, less deeply excavated white semi-band before the apex of the forewing.
palawana. — **palawana** *Fruhst.* Already Staudinger observed, in 1889, that ♂♂ from Palawan show no black spotting upon the red colour of the hindwings; moreover the band on the forewing is shorter than in *hypsea* from Borneo, and the red colour extends farther spreading over one half of the cell. On the under surface of the forewings the cross-striation in the cell is lighter and both ♂ and ♀ appear more vividly crimson than in *hypsea.* But the ♀♀ from Palawan are much paler than ♀♀ from Borneo, and the yellowish subdiscal spot on the forewings occasionally found in the latter extends in *palawana* far enough to reach the middle median. The hindwings show a whitish spot before the costa, and are only at the base pale red, the rest being yellowish-brown. In one ♂ the black submarginal spots on the hindwings beneath are double, forming a transition to *Cethosia magindanica Semp.* Described from 3 ♂♂ and 3 ♀♀ contained in my coll. Palawan, collected by Doherty during January. Two specimens from Balabac closely allied to *palawana* are somewhat smaller and adorned with darker yellow bands: the transverse band on the forewing is narrower, deeper yellow and less frayed-out proximally; beneath the white median band is contracted, particularly in ♀, and the black submarginal strigae on the hindwings are much reduced in size.

C. mindanensis replaces *C. hypsea* in the south-western Philippines and the Iolo Archipelago. It is without any doubt the showiest speeies in the Oriental Region and displays, next to *gabinia Weym.* and *C. cyane*, the most highly developed sexual Dimorphism. The ♂♂ have on the upper surface a great deal in common with *hypsea*, the forewing resembling that of *hypsea aeole Moore* in the colouring and extent of the yellow band, whereas the ♀ harmonizes in its markings with *palawana*-♀. Only the upper surface is less variegated than in the forms of *hypsea,* of a peculiar cream-colour, irrorated with greenish along the margin of the black distal border, whieh is eonsiderably broader. On the under surface both wings have the yellow-brown, subterminal, longitudinal stripe narrower, but display, in consequence of the coaleseence of the black submarginal spots, a chain of large square patches. The median band which is, especially on the hindwing, almost as broad as a finger, eontinues to the anal angle of the hindwing. The ♀ has on the hindwing the basal area which in *hypsea* is bright erimson, dull clay-yellow. Two local forms are known: **mindanensis** *Fldr.* (109d), inhabiting *mindanensis* south-western Mindanao, whence Semper received but one pair from Gusu; ♀ is distinguished by having all the parts that in *hypsea* are reddish, beautifully cream-yellow. The under surface, especially on the hindwing, is remarkable for a double row of very heavy, black submarginal spots which in *hypsea* are only rudimentary. The deep blue iridescence visible in all the forms of *Cethosia* on the inner margin of the black border of both wings is in *mindanensis* uneommonly brillant, being only surpassed by *hypsea fruhstorferi* from eastern Java, which has the entire hindwing suffused with a violet glow. My colleetion contains 4 ♂♂ 1 ♀ from Bazilan, colleeted during February and Mareh by W. Doherty. — **festiva** *Fruhst.* is much smaller than *min-* *festiva.* *danensis Fldr.* from Mindanao and Bazilan, the forewing measuring only 39 mm in length as against 46 mm and above. On the forewing the yellow oblique band is more eompact, neither proximally nor distally so deeply notehed as in speeimens from Mindanao, and has, considering its small size, the black inner border much broader. On the upper surface of both wings the red-brown colouring of the basal area is darker, likewise the red-brown longitudinal bands on the under surface which has also the median rows of black dots more distinct. Jolo Arehipelago; only 2 ♂♂ in the Fruhstorfer eoll.

C. gabinia *Weym.* (109d) represents *C. hypsea* on the island of Nias where it appears to be quite abundant. *gabinia.* The under surfaee is eharaeterized by having both wings broadly bordered with white. On the forewing the oblique band is very short and coalesees with the median band; beyond the cell there is a white spot, almost obsolete in ♂, quite broad in ♀. The hind wing which is distally lighter yellow-brown than in all the forms of *hypsea,* has the white middle stripe more uniform and beyond the cell not constricted as in the Macro-malayan *hypsea*. On the whole the ♀ is underneath hardly to be distinguished from the ♂, a phenomenon which proves the resistibility of the under surface, and whieh is found in many Nymphalids, f. i. *Kallima, Doleschallia.*

C. luzonica; althongh formerly I had united this species with *hypsea* with which it has a great deal in eommon, I am now eonvinced that it should be treated as a distinct species. On the under surface it does not greatly differ from *hypsea,* aside from having on the fore wing the white band somewhat narrower and on the hind wing the median area, espeeially in the middle, broader. But in having on the upper surface the band which in *hypsea* is yellow, white. and in the resemblance of the ♂♂ to the ♀♀ it approaehes more closely *C. methypsea Btlr.* (and *carolinae Forb.*) (110 a) from which it is distinguished by the entire lack of white on the black distal submarginal strigae on the hindwings. In the insular raees the white band on the forewing increases from north to south, being most indistinet in **luzonica** *Fldr.* which, although broadly bordered with *luzonica.* blaek at the apex. shows on the hind wing but a very narrow marginal border, and has the hindwing as well as the median area of the forewing entirely devoid of all spotting. On the forewing the cell is almost red. with quite distinet, black, isolated strigae, as seen in *hypsea palawana.* The under surface has the median area yellowish, instead of white as in the form from Mindanao. Flies from May until September. My collection contains speeimens from Manila; according to Semper it is found also in the northern part of the island. — **boholica** *Semp.* described from Bohol, Cebu, Leyte and Panaon in the south-eastern Philippines, has on the *boholica.* forewing the eell entirely blaek and the white band short but very broad. — **pariana** *Semp.* from Panay. *pariana.* Guimaras and Negros is closely allied to *boholica,* but has the white oblique band on the under surface consi-derably broader. — **magindanica** *Semp.* is a sharply-defined insular form of larger size than the more northern *magin-danica.* raees, having on the forewing the band very variable, in some specimens quite rudimentary as in *luzonica,* in others almost as eonspicuous as in *pariana;* one half of the cell is reddish. On the under surface both wings have the median area pure white and much broader. Flies from May until October and again from Deeember until January.

c) On the forewing the first subcostal arises distally to the upper angle of the cell, the discocellular runs to the furcation of the two medians; the lower discocellular is closer to the base and terminates proximally between the origin of the second and third median nervules. Valve externally not visible.

C. myrina is the last and most highly differentiated species of the *cyane-hypsea* group, diverging also strueturally most widely from all the Cethosias. The limits of its distribution are closely drawn, embracing only the Celebian Subregion where it is represented by three or four local forms. Colour-variations are not only the rule in the ♀♀, but are found also in the ♂♂, which in Central Celebes may be red, or display a gorgeous

blue iridescence. Among other marks of distinction we notice especially the far projecting outline of the wings and a white disk on the hindwings. The imago is found along the edge of the woods from the sea-shore up to an elevation of about 3000 ft, flying leasurely but by no means slowly in the open jungle or in fruit-orchards. They emit a most highly aromatic odour resembling a delicate perfume. According to the locality *Cethosia myrina* is in Celebes mimicked by several forms of *Euripus,* the particular local forms being copied in the northern part of the island by the ♀♀ of *Euripus robustus Wall.* and in the south by those of *Euripus robustus myrinoides Fruhst. Cethosia myrina* is of all known species the largest, the forewing measuring as much as 62 mm; its variability was remarked even in 1874 by Hopfer, who had both red-brown specimens from the north and dark-

sarnada. brown ♀♀ from the south. — **sarnada** *subsp. nov.* (110 d as *myrina*) differs from the name-type from northern Celebes in its smaller size. ♂ has on the under surface the intramedian strigae gray instead of yellowish-white, and on the hindwing the median area aniline-red and less prominent. The ♀ has the upper surface darker, chiefly black-brown, sometimes with a violet or dark purple iridescence on the submarginal area of the hindwing; the under surface is deeper brown without the lighter reddish or yellowish patches found in *myrina*-♀♀. Southern Celebes, where I observed it in the Malayan cemetery at Macassar and collected it in March on the

melancholica. peak of Bonthain at elevations of 3000 ft. — **melancholica** *Fruhst.* (110 d) originally described as a ♀-form, appears to be a local race from eastern Celebes, displaying also in the ♂ melanotic character. The ♂♂ are distinguished by the darker blue iridescence and by the lack of white patches in the discal area of the forewing. ♀♀ are as rule blackish, having on the upper surface of the hindwing the submarginal area dull green. On the under surface the forewings are brown only at the anal angle, the hindwings whitish as in normal *myrina,* traversed by a brown median band which displays on either side a light olive-green iridescence, fading away toward the outside. Collected by Drs. Sarasin at Mapane on the gulf of Tomini, north of Lake Posso. Dr. Martin possesses similar specimens from Paloppo in eastern Celebes. On Lompa-Battan I caught a ♀ having the forewings nearly black and the hindwings, aside from the disk, all over dark coffee-brown, with a similar

myrina. median band on the under surface. — **myrina** *Fldr.* seems to be very constant, judging from the fact that I always received one and the same ♀-form having the median area on the upper surface of the hindwing beautifully light red-brown. The ♂♂ vary on the under surface in such a way that the aniline-red colour continues in the form of a brilliant median band as far as the submedian, or only suffuses the brown submarginal zone as a proximal iridescence. The forewings deviate from those of *sarnada* in having the intramedian patches yellowish instead of gray-white. In the ♀ the submarginal zone varies from light to dark brown. Northern Celebes, caught by me at Toli-Toli during November and December; it is very common, being contained in every consignment

ribbei. from the Minahassa. — **ribbei** *Honr.* originally described from Bangkai, is the most strikingly coloured form of *myrina* and remarkable for the brillant blue iridescence on the upper surface. It is not limited to Bangkai, but was found by Doherty and Prof. Kuekenthal also in central Celebes as an aberrative dry-season form.

d) In both sexes the first subcostal arises near the upper angle of the cell; the lower discocellular terminates a short distance beyond the furcation of the medians. Valve chitinous, externally visible as in the *hypsea* group.

C. methypsea, so far only known from the Malay Peninsula and Sumatra, may perhaps be discovered also in Borneo. The upper surface is well represented by our figure of *carolinae* (110 a). Beneath it resembles *hypsea,* but has on the hindwing a white submarginal band not unlike that of *C. cyane,* although considerably

methypsea. narrower. — **methypsea** *Btlr.* has on the forewings either a white or narrow yellowish band; the hindwing is marked with minute, partially obsolete, postdiscal dots, otherwise like that of *carolinae.* Under surface with an indistinct white submarginal line, the yellowish-white median area distally slightly dotted with black.

carolinae. Malay Peninsula, scarce. ♀ resembles the ♂, having on the upper surface the pale ochre-yellow, macular band broader. — **carolinae** *Forb.* (110 a), common in western Sumatra (type), more scarce in the north-eastern part of the island, unites the characteristics of the *cyane* and *hypsea* groups, illustrating at the same time, in the similarity of the under surfaces, a transition to *penthesilea.* It is especially remarkable for the strongly glistening, distended anal valve which, although smaller than in *hypsea,* is distinctly visible on the under side of the last abdominal segment. The ♀♀ resemble the ♂♂ in every way, also in the violet iridescence. The under surface which is also in the *hypsea* group least sensitive toward external influences and less subject to variation, harmonizes best with *penthesilea,* but in the markings of the forewings and the broad outer border of the hindwings it rather approximates *cyane* and *hypsea.*

C. penthesilea replaces the preceding species in Java and the Micromalayan islands, but differs in that the abdominal valve is not visible. The neuration is presumably more constant than in *methypsea,* displaying practically no difference between the sexes. Under surface with narrower white bands, as in *carolinae* (110 a) in ♀ irrorated with greenish in the median area. The different forms vary in their general colouring, according

baweanica. to the islands on which they are found, from bright crimson to pale leather-brown. — **baweanica** *subsp. nov.* is a small-sized, very pale, insular form having in the ♂ the upper surface somewhat paler red than in *penthesilea* from Java. Its colouring is very well shown in figures 110 a ♂, b ♀ (where it is marked *penthesilea*). The under surface has the white band on the forewing narrower and in the ♂♂ the outer half of both wings light yellow-

brown, the basal half red. In the ♂ we notice the beginnings of insular Melanism in the reduction on the hindwing of the white median area, and a corresponding blackening of the discal area. Very common in Bawean, especially from July until September; 18 pairs in my collection. — **penthesilea** *Cr.* is one of the most common Javanese butterflies, found during the rainy-season, beginning about in February, on the blossoms of low shrubs growing along the road-side or on the edge of well-cultivated fields, at elevations of up to 2500 ft, in such numbers that they constitute a characteristic feature of the landscape and are brought hundreds at a time by the Javanese collectors. They prefer elevations of 1500-2000 ft., but ascend to 4000 ft. where they fly together with *Argynnis niphe javanica Oberth.* and, being very similar to the ♀♀ of that species, are the more easily mistaken for them as they have the same slow, little-enduring flight. Both sexes are somewhat larger than the figured *baweanica,* with deeper red upper surface and in the ♂ with heavier, in ♀ with less distinct postdiscal dots on the hindwings. The ♀ has the ground-colour paler than the ♂, and on the hindwings a black-blue dash having a dull gloss and resembling a scent-scale spot extending from the cell in a downward curve toward the outer margin and showing through on the under surface. In the ♂♂ it is more feebly developed, being in *exsanguis* (to be described hereafter) barely indicated. *penthesilea* also inclines to colour-aberrations like *biblis,* and the Fruhstorfer coll. contains as well melanotic as albinotic aberrations. — **elgitha** *form. nov.,* the darkest form, has the white semi-band on the upper surface of the forewings obliterated, but the border as well as the subterminal crescents on the hindwings considerably broader. The under surface lacks, with the exception of the more conspicuous, white, marginal crescents, of three greenish strigae in the cell, and a moderately broad, greatly intermittent, transcellular patch, all other markings and bands. The general colour is a faded fulvous, red at the base and in the cell of the hind wing. A similar aberration was figured by Snellen as early as 1895, but my *elgitha* is still darker and completely lacks the rows of white dots beyond the cell. The hindwings have on the upper surface, besides the black outer margin with its white dentate edges only the black submarg. dots figured by Snellen, and beyond the cell a blackish dash, characteristic of *penthesilea.* Also the under surface of the forewings lack, analogous to the upper surface, all white dots. The cell displays only a red spot, and the circumcellular region is still more profusely bordered with black. On the hindwing which is otherwise entirely devoid of any markings, the double, white, marginal scallops are united and greatly increased in length and breath, appearing about three times as broad as in Snellen's figure. The forewing of this curious ♂-aberration measures 36 mm. The *albino*-♀ I have from eastern Java is of inferior size, paler red and has on the forewing the white band narrower and the subapical dots united. Under surface pale fulvous, with blurred markings of black and nearly obsolete submarginal band. Also in Bali and Kangean *penthesilea* is quite abundant, but I have no specimens from there: presumably they harmonize among themselves (as in the forms of *biblis*), but deviate from Javanese specimens. — **exsanguis** *Fruhst.* shows considerable differences, particularly in the reduction of the white band on the forewing and the paler ground-colour. The under surface has all the white bands more heavily obscured with blackish, and on the hindwings the submarginal band darker. Lombok, Ekas, on the south-coast of the island, generally found in company with *Hebomoia lombockiana Btlr.* and *Danais litoralis Doh.* on the white flowers of a plant resembling flax-weed, growing in the thorny jungle of the sterile plains and swamps of the low-lands. — **diffusa** *Fruhst.* is distinguished from *penthesilea exsanguis Fruhst.* by the faded colouring on both sides. The forewings have the white subapical band not clear white, but profusely sprinkled with black scales; the white as well as black dots on the upper surface are more reduced: the hindwings have the white submarginal lunules more distinct and the black outer border, especially in the ♀, narrower and more obsolete. The under surface is more richly suffused with black, dark ochre-yellow instead of reddish, and has the median band on either wing not white but blackish-gray. Sumbawa. — **paksha** *Fruhst.* represents *penthesilea* on the island of Wetter, differing from the other forms in having the white subapical band on the forewing broader, at least twice as broad as in *exsanguis Fruhst.* Beneath it is much more variegated than *exsanguis* or *filiola* from Sumba, resembling the Javanese form. From *penthesilea Cr.* it is separated by having the discal bands on the under surface much narrower and whitish instead of yellowish; both wings have the ground-colour of the under surface darker red-brown than in specimens from Java. *paksha* is also reported from Kisser and Letti (Fruhstorfer coll.), and is sure to occur also on the other islands of the Timor Sea. I refer to it also a pair contained in the Fruhstorfer coll. from Pt. Darwin in North-Australia, whence it is also mentioned in Waterhouse's Catalogue of the Rhopalocera of that continent. — **filiola** *Fruhst.* still smaller than *paksha*, represents the palest among the Micromalayan forms. The white band on the forewings is somewhat narrower than in *paksha;* underneath it is pale yellow-brown, resembling *baweanica.* The hindwings have the median bands narrower. Island of Sumba.

penthesilea. *elgitha.* *exsanguis.* *diffusa.* *paksha.* *filiola.*

e) Structure resembling that of *penthesilea.* but the lower discocellular arises beyond and distally to the furcation of the medians. Valve not visible.

C. leschenault *Godt.* (110e as leschenaulti) reminds us on the upper surface which is black-brown, suffused with a dull, dark violet iridescence and bordered with light yellow, of our "Camberwell Beauty" (*Vanessa* antiopa L). The yellowish subapical patches are not always so distinct as in our ligure. The under surface is marked as in *penthesilea,* deep crimson at the base, light coffee-brown in the median area, distal

leschenault.

border as above. Two white median bands with narrow, sharp black lines; the submarginal band consists of minute black freckles, faintly bordered with yellowish. Island of Timor, also from Wetter in my collection, collected during May by Doherty.

f) Structure of forewing variable, generally resembling that of the *C. cyane* group, as a rule greatly differing between the sexes in that the first subcostal arises in ♂ considerably before, in ♀ just at the upper angle of the cell. On the forewing the lower discocellular terminates invariably somewhat distally to the furcation of the medians. In ♂ valve not visible.

cydippe chrysippe. **C. ~~chrysippe~~** has next to *biblis* the greatest number of forms in this genus, having spread from the Papuan Region, the centre of its distribution, to all the Moluccan Islands and in the north to Sangir; but in the east it does not extend farther than the Trobriand Islands, nor does it occur in the Solomon Archipelago, being replaced in the Bismarck Archipelago by another species. The sexes are either monomorphic or show an eminently developed sexual Dimorphism. In the ♀ we encounter forms which, analogous to the forms of *biblis,* may be above either red-brown or greenish-yellow. With the exception of the North-Moluccan form, all the local races have on the forewing a white band, distally accompanied by white specks or lunules and surrounded by the black blue-iridescent apical area. The hindwings are always broadly bordered with black, with the usual dentate markings and a more or less distinct submarginal band composed of whitish spots. The under surface has on the forewing the submedian area red, segment-shaped, on the hindwing always a chain of black, white-margined liver-spots and occasionally a conspicuous whitish median band striated with black. Larva was first found by Wahnes, rediscovered by Kuehn, living gregariously, always 20—30 together; it is deep black, marked at the segments with bright yellow belts enclosing some fine black lines; each segment is armed with 6 black spines of which the dorsal pair is about twice as long as the two lateral pairs. Pupa whitish, shaded with red-brown, marked at the back with four pairs of golden dots. Head provided with two hammer-shaped protuberances, thorax with two lateral pairs of blunt knobs. At the middle of the sheaths of the wings we notice a pair of small wing-shaped appendages; the abdomen is covered with many tubercles. Pupal state lasts 14 days. *cydippe* prefers the forest, being one of the first butterflies, which was seen to visit

sangira. the flowers of Lantana introduced into Australia by Dr. Hagen. — **sangira** *Fruhst.,* the most northern form, having the white subapical band very prominent and broad, just as in *insulata Btlr.* from Key. The submarginal band is very distinct. On the hindwings the small black submarginal spots are proximally bordered by distinct rays of pale-reddish. The forewings are beneath broadly banded with pure white; the hindwings are very pale,

bernsteini. with light gray median and submarginal bands. Island of Sangir. 1 ♂ (type) in Leyden Museum. — **bernsteini** *Fldr.* is on the other band very deficient in white, and has of the subapical band but a few rudimentary rests left. The under surface resembles that of *praestabilis* (111 b), but is without the oblique band on the forewing, having only on the hindwing before the apex of the cell a distinct red patch, lacking in the ♀. Morotai, Halmaheira. From Batjan I possess a ♂ having the upper surface pale fulvous and on the hindwings the submarginal patches

aurigena. obiana. golden-yellow instead of reddish (**aurigena** *form. nov.*). — **obiana** *Fruhst.* approaches the south-Moluccan forms in the white macular band, which resembles that of *praestabilis* but is steeper. The under surface has on the forewing the apex of the cell delicately streaked with red; the hindwings have the distal area profusely laved with white, and display before the edge of the cell a small, roundish, purple patch. ♀ above dull red-brown,

iphigenia. without any blue iridescence on the black marginal area. Obi. Not scarce. — **iphigenia** *Fruhst.* is on the contrary very rare, ♀ not described as yet. The upper surface is pale fulvous, having in the place of the white band only three roundish spots. The under surface, however, is more richly adorned with white than *obiana,* having the quite distinct white median stripe irrorated with violet, and the whitish distal area broader.

cydippe. Island of Buru. — **cydippe** *L.* is a typical butterfly of the southern Moluccas and everywhere common. The forewings are beyond the very large subapical patch marked with three broad pointed arches; the under surface is very gaily-coloured, having the submarginal chain of arches and spots more pronounced than is seen in the other forms hitherto described. Hindwings with a broad, violet-white median band and increased cellular and transcellular spotting. Of the ♂ two forms exist: a smaller one, known already to Clerk and Huebner, presumably a dry-season form, lighter on both sides and having on the forewing the band relatively narrow, on the hindwing the submarginal band more conspicuous; the other one is of normal size, just as it was figured by Cramer, having on the forewing the transcellular spot square and nearly twice as broad; the ♀ is dark red-

ino. tymbrasa. brown and may retain the name **ino** *Cr.* Amboina, Saparua. — **tymbrasa** *subsp. nov.* approximates in its markings more Huebner's *cydippe,* having on the forewings the white strigae narrow, more elongate and pointed, and the macular band accompanying them broader. The hindwings have on the under surface the median area, especially in ♀♀, more blurred. The ♀♀ are paler red-brown, having the distal margin not so sharply defined as in *cydippe,* but shading into the colour of the basal area. Ceram. — *cydalima Fldr.* is the first of a small series of insular forms which in the development of the white area on the forewing are closely allied to *theona* (111 b). —

theona. **theona** *Fruhst.* (111 b) had been described by me as coming from "Buru" which was given as its habitat by the English dealer from whom I purchased it. It closely resembles *insulata* from Key, being presumably derived from some island near the Key group. But it is larger, having on the forewing the white area proximally more broadly bordered with black. The ♀ has the black border broader, but is without the gorgeous blue iridescence. Beneath it resembles *obiana Fruhst.* but with more distinct median band on the hindwing. On the latter the

insulata. subterminal band is as in *cydippe* but rather darker brown. — In **insulata** *Btlr.* the white area reaches on the

forewing as far as the middle median, but its distal border is reduced to small, comma-shaped streaks. On the hindwing the submarginal band is in ♂ absent, in ♀ almost obsolete. The under surface has on the hindwings some olive-green subterminal stripes and the liver-spots margined with dark gray-violet. Larva as above described, discovered by H. Kuehn. **cydalima** *Fldr.* has on the upper surface the most pure and prominent white subterminal band and at the same time the narrowest black proximal border flanking the spot on the f. w. On the hindwings which are more variegated than in *theona*, the blue iridescent marginal area is interrupted by red-brown cuneiform spots. The under surface has the white markings on the forewings confluent, the hindwings are of a faded, "washed-out" brown and traversed by a gray-green-margined median band. Larva according to Ribbe on a species of vine. Type from Aru; but I have only specimens from Goram available. — **cyrene** *Wall.* is one of the most beautiful butterflies in the Papuan Region, differing from all known forms of *cydippe* in that the white band on the hindwing proximally surrounds the black patches usually found in the *Cethosias,* and gradually shades into the submarginal area which, especially in the ♀, is over a narrow space reddish, and finally black. On the forewing the white area is considerably narrower than in *insulata,* but likewise prolonged to the middle median; the basal area is paler red-brown than in *theona*. On the under surface of the hindwing the white submarginal zone is separated from the conspicuous subterminal lunules only by a narrow gray stripe; otherwise the hindwings are as in *insulata*. Scarce, island of Waigeu. — **damasippe** *Fldr.* was based by the author upon specimens brought to Europe by the Aetna Expedition and stated to come from the "Litus occidentale" of New Guinea. According to Felder *damasippe* occurs also in Dorey and Mysol, but not in "Aru". From the 54 specimens contained in my collection it appears that in New Guinea there are found beside *damasippe* three other local forms, namely:

cydalima. *cyrene.* *damasippe.*

a) one in north-western Dutch New Guinea,
b) one in south-western Dutch New Guinea,
c) one in German and British New Guinea.

To the first I refer 14 specimens from Dorey and the Arfak Mountains, distinguished by having on the forewings the whitish, subapical, transverse band very narrow and often quite indistinct, the black distal border on both wings very broad and the upper surface dark brown-red at the base. b) is represented by 6 ♂♂-specimens from Kapaur collected by W. Doherty, and 1 ♀ from Kajumera Bay, in which the transverse band is brillant pure white, 9—10 mm in breadth, and the basal area on both wings pale reddish. From Felder's description it does not appear whether his diagnosis refers to a or b, wherefore I reserve for the hitherto unnamed form the name **claudilla** *Fruhst.* (111 b ♀); — the form from German and British New Guinea I call

claudilla.

praestabilis *Fruhst.* (111 a, b); it deviates from b in having on the forewings the white band somewhat narrower, only 6—7 mm wide, and the under surface more richly marked with white; altogether it approaches more the Australian *chrysippe F.* But in no case is the transverse band on the forewing so much reduced as in specimens from Dorey. In all three New Guinean forms we find ♀♀ with red-brown upper surface *(claudilla Fruhst.)* and ♀♀ having the basal area quite pale brown, yellowish-green or even blue-green. The latter is ♀-forma **hermanni** *Fruhst.* (111 a erroneously called *damasippe*). Larva resembles that of *insulata,* black with yellow rings, described in the general diagnosis. *praestabilis* is found on Astrolabe Bay and the Gulf of Huon in Kaiser-Wilhelmsland. Specimens from British New Guinea differ from *praestabilis* only in having on the upper surface the black marginal area broader and suffused by a blue iridescence, and the submarginal patches on the under surface of the hindwings less distinctly ringed with white-violet, approaching in this the local form from Kapaur in south-western Dutch New Guinea. The ♀ which lately was found also on Yule Island, differs from *hermanni*-♀ (111 a) in having on the forewing the white band narrower and the basal region greenish-yellow. — **lucina** *Fruhst.* is inferior in size to the forms from the main island; the ♂ has, considering its small size, the macular band on the forewing very broad, and its proximal border broadly suffused with a bright blue iridescence. The ♀ resembles the ♀ of *claudilla,* but is still deeper red-brown at the base and has the transverse band more compact. Island Jobi. In Mafor we find a form with rather darker under surface. — **chrysippe** *F.* approaches in ♂ *praestabilis,* but the ♀ has the upper surface lighter red-brown and on the hindwing the usual *Cethosia*-spots more translucent. On the under surface the hindwings are, especially toward the outer margin, lighter brown, in ♀ gray-brown. Queensland. — As **imperialis** *Btlr.* a form has been described from Cape York, northern Australia, closely allied to *chrysippe,* but with richer blue iridescence. Not represented in my coll. — **cleanthis** *Fruhst.* in ♂ closely approaches *damasippe* from New Guinea, but has on the forewings a narrower white subapical band and larger white submarginal dots. The hindwings have a distinct row of yellow submarginal spots, resembling *cydippe woodlarkiana Fruhst.* The under surface is somewhat less gaudily coloured than in *woodlarkiana,* but possesses also the green discal and basal bands characteristic of the latter. The ♀ differs from that of *damasippe* in having on both wings the basal area gray-green instead of brown-red, and in the very distinct submarginal row of whitish, elongate spots, and a series of very delicate, white marginal lunules; the forewing has the band very narrow as in the ♂. The ♀ of *cleanthis* is larger than that of *woodlarkiana* and shares with it the dusky colouring, but lacks the orange irroration that gives the latter such a lovely appearance. Kiriwina, Trobiand Islands. — **alkmene** *Fruhst.* The ♂ approaches in the dark red colouring of the base of the forewing and in the bordering of both wings *C. insulata Btlr.* from the Key Islands, but has

praestabilis. *hermanni.* *lucina.* *chrysippe.* *imperialis.* *cleanthis.* *alkmene.*

the white subapical band on the forewing less than one half as wide; beneath it resembles *damasippe Fldr.* from New Guinea. But the ♀♀ approximate those of *cleanthis,* being distinguished by the somewhat broader, white subapical band on the forewing, the lighter, nearly black-green ground-colour and their smaller size. Thus whereas the ♂ is intermediate between *insulata Btlr.* and *damasippe Fldr.*, the ♀ represents a transition from *woodlarkiana* to *cleanthis.* Fergusson, d'Entrecasteaux Islands. — **woodlarkiana** *Fruhst.* named from the island which is its home, is inferior in size to my smallest *damasippe*-♂♂, from which it can only be told by the narrower, black, blue-iridescent outer border on the hindwing, and the less broad, white, subapical band on the forewing. On the under surface the hind wing is marked with a green discal band, not found in *damasippe,* and with a continuous row of irregularly arranged black dots and streaks, such as they are always found in the Australian form *chrysippe F.,* whereas in the Papuan *Cethosias* they appear distinct only at the anal angle, being but faintly indicated or disappearing altogether toward the middle and the costal margin. Also the double, basal row of elongate black spots is separated in *woodlarkiana* by a green band which, added to the light violet-gray bordering of the black submarginal ocelli, gives the entire under surface a brighter and more gaily-coloured appearance. Still greater is the difference in the ♀♀, which deviate from the invariably red-brown ♀♀ of *damasippe* in having the basal half of both wings brown-green, changing to yellowish at the median vein of the forewing and being thinly sprinkled with dark red on the hind wings. Wherever the brown-green shades into the black colour of the outer half, it displays in reflected light a dark steel-blue irideseence. The black marginal border encloses a continuous series of distinct, green-gray, sickle-shaped spots, not found at all or but faintly indicated in *damasippe.* The hindwing has on the under surface the basal and discal bands broader and more distinct than in ♂, and of a dark moss-green colour. In another ♀ which has the basal area not dark red on either wing but only bordered all around with violet, the dainty appearance is still increased by a submarginal row of 7 white spots, enclosed within the black outer border, and of which the three uppermost are sagittate, the four lowest ones helmet-shaped. — **cenchrites** *Fruhst.* approaches in size *woodlarkiana Fruhst.* from which it differs in the following way: The forewings have the white subapical bands somewhat broader, the submarginal row of whitish lunules reduced; the hindwings are much more broadly bordered with black, showing but a trace of the continuous band of lunules distinguishing *woodlarkiana.* On the under surface the forewings are more distinctly marked with white, and the black median band is distally more profusely adorned with metallic green-blue dashes. Came from some unnamed islands adjacent to British New Guinea.

woodlarkiana.

cenchrites.

C. obscura replaces *cydippe* in the Bismarck Archipelago; next to *C. leschenault* it shows the plainest markings in the entire genus. The upper surface is black, in ♂ with more or less intense blue irideseence, in the ♀ without any lustre, so that even fresh speeimens have a worn appearanee. On the forewing we meet the characteristies of *C. cydippe* in the red segmentary patch in the submedian area, and again on the hindwing of the ♂ which resembles in the basal half the ♀ of *cydippe,* but is beneath paler, uniform gray-brown, without any red whatever. The pointed terminal arches or crescents found in all *Cethosias* are laeking, but on the other hand the submarginal band is espeeially strongly developed, varying in width aecording to the loeality. *obscura* inhabits the woods along the shore of the Bismarck Archipelago, and is not so abundant as it Papuan allies. — **obscura** *Guér.* (110e), so far only known from Neu-Mecklenburg and Nussa Laut, has in the ♀ the upper surface pale black-brown, suffused with a faint blue lustre. The submarginal spots are either chalky-white or yellowish. On the hindwings the basal red is redueed to a few ray-like streaks, disappearing in the ♀ entirely. Beneath the submarginal macular band is considerably broader than above, in the ♂ dirty white and quite distinet, in ♀ yellowish, blurred and faded. — **antippe** *Sm.* is a lovely, distinct, insular race with brillant white, nearly twice as broad, submarginal spots on the upper surface which reflects an intense, dark blue-violet iridescence. The under surface has also on the hindwing the basal half broadly yellowish-red, shading into aniline-red at the periphery and resembling somewhat the red upper surface of *C. myrina.* The ♀ has never been described, the figure which Smith gives of the ♀ really representing the ♂. Analogous to *obscura,* it probably deviates from the ♂ in the diminished, if not wholly obliterated, red basal colouring on the under surface of the hindwings. Neu-Pommern, Neu-Lauenburg. The form found in Neu-Hannover differs but slightly from *antippe.* — **gabrielis** *Rothsch.* from St. Gabriel, Admiralty Islands, unknown to me in natura.

obscura.

antippe.

gabrielis.

gabrielis. **C. gabrielis** *Rothsch.* resembles *obscura Guér.*, but has on the upper surfaee the white spots on the fore wings quite small, nearly all round, the upper ones oecasionally subtriangular, $1\,^1/_3$—2 mm in diameter. On the hindwings the spots are more than twice the length of those on the forewings, oval and nearly all of equal size excepting the last one, which is broader and notched in the middle, and plaeed farther from the outer margin than in *obscura.* On the hindwings the eostal region is in ♂ without any orange-red spots, the colour of the under surface a deep blaek-blue. St. Gabriel, Admiralty Islands, collected in February 1897.

Tribus Argynnidi.

14. Genus: **Melitaea** *F.* (Vol. 1, p. 211).

This genus closely approaches Argynnis in those species which have been separated from it as *Brenthis,* and it is not easy to distinguish the two in the imago. Probably the surest way to discriminate between

them is by means of the tibiae and tarsi of the mesothoracic and metathoracic legs, which according to Speyer are in *Melitaea* armed only on the under side with 2—3 rows of spines, whereas in *Argynnis* resp. *Boloria* the spines reach all around. Also in the design of the under surface of the hindwings *Melitaea* deviates widely from *Boloria*, being probably most easily recognized thereby.

But the chief difference between the two genera appears in the shape of their respective larvae, which in *Melitaea* are provided with short, fleshy knobs, thickly covered with hair, in *Argynnis* with branching spines. The subcostal of the forewings is five-branched, the first nervule always arising before the end of the cell, the second far beyond it. The middle discocellular does not as in *Argynnis* form proximally a strongly concave curve, but, like the lower one, almost a straight line. The cell of the hindwings is closed, as far as the middle, by a tubular vein originating beyond the furcation of the medians; the hindwing has the precostal either single or bifurcate, branching off beyond the point where the subcostal is given forth from the costal. The sexual organs are highly developed as in all the *Argynnidi;* uncus cleft, ending in two symmetrical, sharp knobs. Valve frequently *(M. athalia)* adorned with a strongly branching, delicate, antler-shaped appendage *(cercina),* at the median portion provided with a ledge armed with tusk-shaped points. Palpi are not swollen as in *Argynnis,* rather approaching *Junonia*. The genus is in the Indian Region only represented by two species one of which ascends to the enormous altitude of over 16000 ft.

M. sindura splits into a number of local forms enumerated in Vol. 1, p. 225. — **balbita** *Moore* (Vol. 1, pl. 67 e) inhabits Cashmere and Chumba, where it occurs from the beginning of May, at elevations of from 10000—13000 ft. — **sindura** *Moore* was encountered in July in the north-western Himalaya above Shipki, at the Pass of Kongma leading from Kunawur to Tibet, at an elevation of 16000 ft, flying but a few cm from the ground, in company with *Colias edusa* and *Parnassius hardwicki,* on the stony grass-land bordering the everlasting snows, even on days on which an icy wind was blowing. At the Nilang Pass it ascends even to 18000 ft. — **sikkimensis** *Moore,* a charming subspecies, hardly to be distinguished from *balbita* on the under surface, but above paler yellow-brown, delicately marked with black. On the whole it resembles above, aside from the lighter ground-colour, *M. arcesia minor Elw.* (Vol. 1, pl. 67 d) from the Altai Mts. According to the labels accompanying the specimens in my collection, it ascends from 14—19000 ft, flies in July at the border between Sikkim and Tibet. — **tibetana** *Fawc.* (Vol. 1, p. 225) has on the forewing the base and apex of the cell marked with much paler tints, and on both wings a terminal row of pale yellow lunules. Tibet. *balbita. sindura. sikkimensis. tibetana.*

M. didyma, according to Seitz the most aberrative Nymphalid species *), is represented in the Indian Region by a few pretty forms, occurring on the southern slopes of the Himalaya. — **persea** *Koll.* (Vol. 1, p. 218, pl. 66 d) descends at Rawal-Pindi, in north-western India, to 1300 ft. above the level of the sea, where it flies from March until November in two broods, the spring generation being larger in size and darker, having on the forewings the cell deeply obscured with fuscous, the summer brood being smaller, with pale yellow upper surface. — **robertsi** *Btlr.* from Afghanistan, where it is quite common at the foot of steep hills in May, in southern Afghanistan as early as April. — **dodgsoni** *Sm.* observed near Quetta at an elevation of 8600 ft, having the upper surface pale yellow, with very faint, black, distal dots. — **chitralensis** *Moore* (Vol. 1, p, 219, pl. 66 f) closely approaches in size and markings our South-European forms, and occurs in several broods. Specimens captured in April resemble *robertsi Btlr.* from the Punjab, but have the black bands more prominent; specimens caught in July are larger and distinctly sexually dimorphic. Chitral, from 9—10000 ft. It is not unlikely that one or the other of the enumerated forms may belong to *M. trivia,* on account of their deceptive resemblance to *M. trivia collina Led.* from Asia Minor. *didyma. persea. robertsi. dodgsoni. chitralensis.*

15. Genus: **Timelaea** *Luc.* (Vol. 1, p. 225).

An interesting, sharply-defined genus, whose structural peculiarities have hitherto not been sufficiently appreciated, distinguished from all the *Issoridi* and *Argynnidi* by the fact that both fore and hindwings lack the lower discocellular; this brings it close to *Junonia* with which it also shares the long and slender and not swollen palpi. Like *Melitaea* and *Boloria* it has but one subcostal nervule arising before the end of the cell, the second issuing distally far beyond it and being separated from the third by a greater distance than in *Melitaea.* The palpi are ventrally covered with yellowish, above with black spines; the last joint is longer than in *Argynnis* and *Melitaea,* not distinctly separated or constricted. This genus has been lately discovered for the first time in Formosa by H. Sauter.

T. maculata so far only known from China, where according to Seitz (Vol. 1, p. 226) it occurs throughout the valley of the Yang-tse-Kiang and northward as far as Peking, entering the tropics in Formosa as **formosana** *Fruhst.* (137 b); the ♂ appears in two forms of which the more common one closely approaches *maculata Brem.* in the uniform fulvous upper surface, differing from it in having the median zone broader and lighter coloured. — **muliebris** *form. nov.*, however, resembles *albescens Oberth.* from western China in having the more or less extensive median area pure white, and occasionally also the f. w. mottled with white; presumably *maculata. formosana. muliebris.*

*) The most variable Nymphalid species is undoubtedly *Hypolimnas bolina L.*

it is a dry-season form, since all the specimens which show the most beautiful white markings, were collected in March and April. The ♀ is always larger than the ♂; the rainy season (July and August) produces the largest specimens having the upper surface pale yellow, without the conspicuous white area on the hindwing; the dry-season form, however, has, analogous to *albescens*, both the cell and the disc of the hindwing pure white. But the horodimorphic or individual markings are not transferred to the under surface, which has invariably a white basal area extending to the third proximal row of dots or macular band. Formosa, Taihanroku, found in the alluvial plains in the southernmost part of the island, and ascending to about 4000 ft in the mountains. Not very scarce.

16. Genus: **Boloria** *Moore* (= Brenthis *Auct.*).

The varied history of this sharply-defined genus is not a bright star in the Entomological Heavens; much rather must it be called a record of human errors and thoughtlessness. From the first the separation of *Brenthis* by Hübner was superfluous, because the type of *Brenthis Hbn.*, the well-known *hecate*, is a true *Argynnis*, and vice versa all the species classed by Hübner with *Argynnis* are true *Brenthis* in the sense of later authors. Kirby united in 1871 both these names under *Argynnis*, and in 1872 and 1875 Scudder introduced *hecate* as the type of *Brenthis*. Although later on Dr Schatz recognized the difference of the species in question and gave a correct morphological definition, he again made the mistake of assuming the wrong name *Brenthis* for that group which, although recognized by Felder in 1861 and separated from *Argynnis*, had been allowed to retain the worthless name *Brenthis*. It was Moore who introduced for the general group which structurally had been founded by the ingenuous Felder, the better and comprehensive name of *Boloria Moore*. It comprises all those species which may by any one disposing over a magnifying glass be unmistakably separated from the true *Argynnis* by having on the forewing but one subcostal nervule arise before the apex of the cell, whereas in *Argynnis* invariably two are given forth. Of *Boloria* Hübner had drawn but one species *(B. thore)* to his mixed genus *Brenthis*. But also in *Boloria* we can discover some faults, since Moore who quite logically had established *B. pales* as the type of the genus, had confounded with the other species of *Boloria* also *A. gemmata* and *A. clara* which, however, are true *Argynnis* with two subcostal branches arising before the end of the cell. Of the species enumerated in Staudinger's Catalogue, all the numbers from 202—220 inclusive *(B. eva Gr.)* must be united with *Boloria*, and in addition also *B. eugenia Ev.* (which is placed behind *Argynnis daphne*) and the purely Indian species *B. jerdoni Lang.* Also the Central-African species enumerated by Aurivillius under the name of *Brenthis*, belong to *Boloria*, as well as the Neotropical forms of which Felder had as early as 1861 taken over the Chilean *cytheris* and placed it next to *pales*. Of the North American species, Scudder in his incomparable handbook "Butt. New England" from which a number of the best illustrations were taken for Berge-Rebel, has figured the sexual organs of *Boloria bellona, montinus* and *myrina:* The uncus is very plain, hook-shaped, valve broad, without the clinopus common to all the *Argynnis*, but sharing with them the spoon or spatula-sharped cercina*). The Indian forms of the genus mostly approximate the Palaearctic forms or may be considered as mere off-shoots of Chinese-European species.

hegemone. **B. hegemone** *Stgr.* (Vol. 1, p. 228. pl. 67 i), only lately discovered in Ladak, flying in July and August at elevations of 15000 ft.

pales. **B. pales** whose capacity for expansion surpasses even that of *M. didyma*, having spread even to parts of the North American Continent (also *B. helena Edw.* collected by me on Pikes-Peak in Colorado at an elevation *sipora.* of 12000 ft. is almost certain to belong to pales), passes the Himalaya in Cashmere and Ladak. — **sipora** *Moore* (Vol. 1, p. 231, pl. 68 b) is a local form found in Cashmere and Kulu from June until August at elevations *baralacha.* of from 11—13000 ft., of very small size, pale yellow above, marked with fine dots. — **baralacha** *Moore* considered by its author and Bingham as *synonymous* with *sipora*, but separated by Seitz (Vol. 1, p. 231, pl. 68 b). The much larger local form from Afghanistan and Ladak, although drawn by Moore to *generator Stgr.*, approximates *korla.* more to **korla** *Fruhst.* (Vol. 1, p. 230, pl. 68 a) if for no other reason but its great size; it finds but rarely its way to Europe, only a few specimens being known in the Crowley and Leech collect. in the British Museum. It *eupales.* flies in July, at an elevation of about 15000 ft. — **eupales** *Fruhst.* (Vol. 1, p. 230, pl. 68 b) has the under surface quite variegated, and was on account of its rich red ornamentation classed by Bingham with specimens from Norway. I received it from Native Sikkim, where it had been captured in July at the Tibetan frontier at elevations of from 14—15000 ft. together with *Melitaea sikkimensis, Parnassius acconus Fruhst., P. lampidius Fruhst.*, the gorgeous *Parnassius imperator augustus Fruhst.* and *Argynnis clara manis Fruhst.* From *pales* which oddly enough it resembles more than *pales generator Stgr.*, the ♂ of *eupales* differs on the upper surface in having the black bands and dots much broader and the base of both wings darker. The under surface has on the forewings the black dots likewise more sharply marked and all reddish patches darker brown; the hindwings are more gaily-coloured, the bands and spots dark red-brown instead of yellow-brown as in *pales*, narrower, more sharply dentate and notched, due to the fact that the silvery spots, although reduced in size,

*) Cf. p. 513.

are more sharply curved. Also the ♀ has the bands on the f. w. above broader, and at the apex a very distinct, pale yellow spot. The apical area of the f. w. beneath is light yellow and traversed by a short, light red-brown band; the distal margin with red-brown markings. The under side of the h. w. is especially remarkable for the narrow, sharply dentate and nearly entirely black discal band, drawn across the middle of a silvery white area; the brown spot at the base has almost the shape of a triangle, with one corner drawn out to a sharp point and reaching the centre of the wing. The submarginal and subanal dots and patches are of a deeper brown colour and larger than in pales ♀♀. Khamba-Jong in southern Tibet.

B. jerdoni slightly resembles *B. eva gong Oberth.* (Vol. 1, p. 232, pl. 68 d) in the deep black shading of the h. w., spreading beyond the cell. It is found along the northern border of India in two distinct forms: **jerdoni** *Lang* (= eashmirensis *Moore*) (Vol. 1, p. 233, pl. 68 d), approximating in size to our *B. dia,* but marked on the under surface more like *B. euphrosyne.* Type came from south-western Cashmere (Gulmurg), where it is quite abundant at elevations of from 6500—8500 ft. I have but one ♂ from Mardan (Peshawar). — Of **chitralensis** *Moore* (Vol. 1, p. 233) only a few specimens are known from Chitral at the Afghan border which are contained in two or three English collections. *jerdoni.* *chitralensis.*

B. altissima which in Vol. 1 has been classed with *Arg. gemmata,* has without any doubt nothing to do with that species, but rather belongs to the genus *Boloria.* It occurs likewise in two well-defined forms: **altissima** *Elw.* (121 d), type from Chumbi at the eastern border of Sikkim and from Bhotan. I have quite a number of specimens from Kamba-Jong, near the frontier between Tibet and Sikkim, where it is found at elevations of ca. 14000 ft. together with *Argynnis clara manis Fruhst.* and *Melitaea sikkimensis Moore.* It closely approaches *B. eugenia Ev.* from Central Asia, but is rather smaller in size and its wings are more pointed. The silvery markings beneath are like those found in *Argynnis gemmata,* but more dull, and the terminal spots are more elongate and narrow. — **mackinnoni** *Nicév.* approximates more to *eugenia Ev.* in its superior size and in that the h. w. are beneath more richly spotted with red. It was first found on a tributary of the Sutley River near the Gonas Pass, at an altitude of 11000 ft., and is very scarce. *altissima.* *mackinnoni.*

B. eva *Gr.,* of which the local form *gong Oberth.* from western China is frequently met with in collections, is also represented in the Indo-Australian Region by the form **charis** *Oberth.* from Yunnan. Also this form, being only found in the highest Alpine regions, has justly been drawn to the Palaearctic Fauna (Vol. 1, p. 233, pl. 68 d). *eva.* *charis.*

17. Genus: **Argynnis** *F.*

This genus is, like *Boloria,* quite remarkable for the enormous range of territory over which all its species are found to extend from east to west, one species *(A. hyperbius)* ranging, moreover, almost equally far from north to south. No purely Indian species is known among the forms of *Argynnis* which we consider in this place, outside of *A. kamala Moore.* The others inhabit either the Chinese-Tibetan Region, or are found throughout the entire Palaearctic Region. All the species of *Argynnis* differ from *Boloria* in that two subcostal branches originate before the end of the cell in the forewing, and that in the hindwing the lower discocellular runs to the point of furcation of the two medians, whereas in *Boloria* it joins beyond that point. Moore and other English authors have proposed to split up this homogeneous genus, but this has been justly opposed to by Dr. Seitz. For aside from the fact that such an artificial division would be sure to cause great confusion, it cannot in any way be based upon any peculiarity of structure; for this varies greatly between the different species, and quite sharply-defined extreme forms are always connected by some intermediate form. It is, however, possible that at some later time a distinction between, and definition of the known groups may be made with the help of the sexual organs which among the various species present considerable differences. Even now we may distinguish between such species, in which the uncus has an appendage somewhat in the shape of a cock's comb *(A. paphia, maja),* and others in which it is quite plain *(A. childreni* belonging to the Indian, *A. atlantis, aphrodite, idalia, cybele* to the North American Fauna). The uncus peculiar to the first named group is richly adorned with fine spines, being in its complicated organisation rivalled by the valve; in this we first notice, standing out from the middle, a peculiar appendage which on account of its similarity to the foot of a bedstead may be termed "elinopus". In the North American species named above, this elinopus is placed more in front than in the forms of the Old World. A short distance before the distal end of the valve an organ is seen to branch off, not unlike the "cerei" in Insects, which for that reason I may call "cercina".

With regard to structure we observe, moreover, between the sexes a distinct Dimorphism which is expressed in the neuration as well as in the presence of tertiary sexual androconia. This appears most clearly in the larger species, but may also be recognized in the smaller forms *hecate, ino* and *daphne,* and it is remarkable that previous observers have never noticed these sexual characteristics, which consist in that the second (distal) subcostal branch coalesces basally with the main subcostal trunk, called the "radius" by Comstock-Rebel.

This partial union is probably the beginning of a complete fusion of both veins, which is already developed in the stronger-winged ♂, whereas the ♀ does not show it. This places the *Argynnis*, phylogenetically speaking, into a higher class than the more ancient *Boloria*, in which the veins are still farther separated. Whereas all the species of *Argynnis* show this more or less perfect coalescence, the *Dryas*-group is, moreover, distinguished by the fact that in the forewing the position of the lower discocellular is changed. This causes the cell to assume a different shape, being in the ♂ distally oblique, but quite broad in ♀. At the same time the median nervules are in the ♂ drawn more closely together, with the result that the discocellular, notwithstanding its basal direction, arises in ♂ distally farther from the origin of the central median branch than it does in the ♀, in which the discocellular approaches quite closely the point where the two median nervules furcate. This is most distinctly seen in *A. maja*, *paphia*, *anadyomene*, *sagana* and *kamala*, whereas *ruslana* and *laodice* as well as *childreni* approximate to the type (*A. aglaja*), in which the cell of the f. w. does not display in its shape any essential sexual difference (*A. adippe*, *niobe*). As regards *A. hyperbius*, it was formerly considered to belong to a separate genus, on account of the extraordinarily long fork formed by the fourth and fifth subcostal nervules of the forewing. But this distinction which in comparison with *aglaja* is quite remarkable, considering their relative size, begins to grow less marked in *A. maja*, disappearing almost completely in *childreni*. Hand in hand with this structural divergence goes the development in the ♂♂ of the sexual striation which, culminating in *Dryas*, grows less distinct in the *Argynnis*, and is almost obsolete in the *Acidalia* and *Brenthis* groups. We may therefore distinguish;

Group a) *Argynnis F.* (= *Acidalia Hbn.*, *Brenthis Hbn.*)

In ♂ the sexual striation is indistinct or quite obliterated; the subcostal nervules coalesce but slightly; the shape of the cell is not altered; the course of the discocellular is the same in both sexes.

Group b) *Dryas Hbn.* 1806 (= *Argyronoma Hbn.* 1816).

♂ with highly-developed sexual striation, and marked coalescence of the subcostal branches; the cell is contracted, and the discocellular of the f. w. running obliquely toward the base.

Group a) Argynnis.

gemmata. **A. gemmata** is found from western China to Tibet and in the Himalayas from Sikkim as far as Kumaon. Two forms are now known to exist: — **gemmata** *Btlr.* (Vol. I, p. 233, pl. 68 d, e) described from Sikkim; not uncommon during July near Chumbi and in western Bhotan, lately also mentioned from the Kumaon-Himalayas
genia. by Bingham. — **genia** *Fruhst.* (Vol. I, pl. 68 e) is smaller in size, ♀ rather darker, also on f. w. This species has been erroneously described by me as *eugenia Ev.* in Vol. I, p. 233.

clara. **A. clara** is a graceful alpine species, approaching in size *A. aglaja elisa Godt*, with sexually dimorphic ♀♀. Two Indian forms exist: **clara** *Blanch.* (Vol. I, p. 236). In ♀ the base of both wings is blue-green, the under surface of the h. w. light moss-green, traversed by a gorgeous, silvery median band, broadest toward the costa. So far only found in the north-western Himalayas, at elevations varying from 12—14000 ft.; flies
manis. in August and September. — **manis** *Fruhst.* (Vol. I, p. 236, pl. 69 a) is a smaller form; in ♀ the upper surface is of lighter colour, with larger yellow submarginal spots. Has been found in Tibet at elevations exceeding 15000 ft.; possibly also occurs at Chumbi, Sikkim.

lathonia. **A. lathonia** has quite an enormous range of distribution both from north to south and from east to west. It is found on both sides of the Himalayas, from Chitral as far as Sikkim, reaching even Upper Burmah. The
issaea. Indian form described as **issaea** *Dbl.* (Vol. I, p. 236, pl. 69 a) is found in several broods all the year round, at elevations of from 15—16000 ft., where its favoured haunts are dry, grassy slopes and summits; flying even at times when the valleys farther down are covered with snow; wet places it avoids. Specimens caught at elevations of 17000 ft are of very small size. The silvery discal spot on the under surface of the h. w. is distally more elongate and pointed than is the case in *lathonia L.* from Europe, and the subanal, macular band extends as far as the border of the cell. Quite common at Mardan, North-West Province, and in Bhotan.
messoa. — **messoa** *subsp. nov.* exceeds in size by more than one third specimens from India, being nearly twice the size of the European form. Above very pale; beneath it may be distinguished from *issaea* by the still more profuse silvery markings. Western China; type from Ta-tsien-lu.

aglaja. **A. aglaja** is found along the border between the Palaearctic and Indian Regions in two forms: —
vithata. **vithata** *Moore* (Vol. I, p. 237, pl. 69 c), originally described from Cashmere, where it is found in July at elevations of from 12—15000 ft. I have not any specimens from India, but one pair from Kashgar, which
yopala. closely corresponds to the figure. According to Moore it also occurs in both Pameers. — **yopala** *subsp. nov.*, a local form which displays, particularly in ♀, melanotic character, both wings being shaded with a dark blackish-purple. On the f. w. we notice a white spot near the costa beyond the cell, the two foremost black spots

in the postdiscal row are pupilled with white, the subterminal row of crescents is distally studded with white dots; cilia brillant white. Chitral. — **taldena** *subsp. nov.*, originally from the Palaearctic Region, resembles much more the European *aglaja* than *bessa Frühst.* from western China which latter is figured in Vol. 1, pl. 69. But whereas *bessa* is a large, light-coloured form, with the basal spots on the under surface of the h. w. very elongate and pointed and the black patches above of extraordinary size, in *taldena* the spots are very small and the under surface shows the usual circular silvery spots upon a pale grass-green ground; but on the h. w. the brown-yellow submarginal area is equally narrow as in *bessa*. From near Ta-tsien-lu in Setchuan. *taldena.*

A. adippe is known in the Indian Region in two forms: **jainadeva** *Moore* (Vol. 1, p. 238, pl. 69 f), locally common in Kunawur, generally found together with *A. kamala Moore*. It flies from May until November on grassy hills devoid of trees and shrubs. Occurs also in Cashmere and the Kumaon Himalayas; specimens from Kulu in my coll. It is known to occur at elevations of from 9—17 000 ft. — **mohmandorum** *subsp. nov.* is considerably larger than *jainadeva* and, analogous to *aglaja taldena*, much darker above. From the North-West Province at the Afghan border. We have to add here to the forms from Eastern Asia, described in Vol. 1, several others which are newly discovered: **rückerti** *Frühst.* from near Tshifoo, without any doubt closely related to *jainadeva Moore*, but larger in size and above chiefly black, with flesh-coloured, square intranerval spots on the f. w.; the h. w. are blue-black with fawn-coloured, submarginal patches and a median band composed of ochre-yellow spots. The under surface is adorned by a conspicuous submarginal row of large, black dots, not unlike nerippe. — **zarewna** *subsp. nov.* is a very small form, closely approaching the European Alpine form of *adippe*. ♂ above dark ochre-yellow, ♀ basally more dusky than ♀♀ from the Alps. Beneath it resembles *xanthodippe* (Vol. 1, pl. 69 e). From Irkutsk. — **garcila** *subsp. nov.* is the other extreme, being a very pale form. ♂ above almost brown-yellow, delicately dotted with black. ♀ unicolorous pale ochre-yellow, not obscured at the base. Occurs in southern Russia; type came from Saratow on the Wolga. *adippe. jainadeva. mohmandorum. rückerti. zarewna. garcila.*

A. hyperbius has a great tendency to migrate, being found at elevations of above 4000 ft throughout the Tropical and Subtropical Regions, from Abyssinia to Australia and from southern Japan to the Malay Archipelago. In India and the tropics one generation succeeds the other; in the north, where it descends also to the lower plains, they only breed in summer, but occasionally specimens have been taken at Nagasaki as early as March. In Tsushima I only encountered it at the end of September, when it was very common in the village-gardens; near Hongkong it is found in the "Happy Valley". The ♂ is, in contrast with the ♀, a restless, rapid flier. — **hyperbius** *Joh.* (= niphe, Vol. 1, pl. 71 c, d) has among all known forms the widest range; all the specimens found on the mainland may be referred to it. We known ♀♀ with a narrow white band on f. w., as is shown in the figure in Vol. 1, and others in which this band is nearly twice as broad, both occurring together in China and Japan. The specimens collected by me in Tonkin, on the grassy slopes of the Man-Son Mountains, at elevations of from 1600—2500 ft., do not differ from those obtained from Formosa or Hongkong. In the north-western Himalayas there exist two seasonal forms, the one found in April being rather inferior in size to the one found in June. In India it ranges from Bombay to Burmah; in Sikkim it is, up to elevations of 1000 ft., quite common wherever the wild violet thrives, especially in the tea-gardens and clearings in the woods. In China it occurs wherever *A. childreni caesarea Frühst.* is found. The ♀ resembles somewhat *Danais plexippus*, *chrysippus* and *Cethosia biblis*. Also hermaphrodites have been observed, likewise a melanotic aberration: **aruna** *Moore* which has been described from northern India, is above distinguished by the fact that the black patches found on both wings and on the underside of the f. w., unite to form a sort of band, and that the basal half of the h. w. is nearly white, bordered by a blackish, submarginal zone. — **castesti** *Oberth.* is a dwarfed form from southern India; type came from Trichinopolis; quite abundant in the Nilgiris. In this form the ♂♂ resemble the ♀♀ (cf. Vol. 1, p. 242). — **taprobana** *Moore*. A rather dark form; ♂ above deeper fulvous with larger black dots. In ♀ the bands on the under surface are more red-brown than greenish. Rather common in the mountains near Nuwara-Elliya, occasionally also found in the lower plains. Some stray specimens have been taken in the Maldive Islands. — **sumatrensis** *Frühst.* (121 c). Although an insular form, the upper surface of both wings is pale yellow; also the ♀♀ are of a lighter colour than those from the continent. The white patch on the f. w. is relatively broad. Beneath it resembles *hyperbius*. Confined to the high table-land, where it is one of the most common and characteristic butterflies, preferring the extensive, tree-less Lalang-Savannahs, where it generally frequents the roads, resting with folded wings in the manner of the European *A. lathonia L.* The ♀ is much rarer than the ♂, about as 1:10. Occasionally stray ♂♂ are driven by the wind to the low-lands of Deli. My coll. contains also specimens from the Highlands of Padang, in western Sumatra. Although hitherto *hyperbius* is not known from the Malay Peninsula, it is to be expected that it does exist there in some form analogous to *sumatrensis*. — **javanica** *Oberth.* is inferior in size to *sumatrensis*, which it resembles in ♂ above; beneath it is distinguished by the lack of the fulvous bands whose place is taken by patches and spots of greenish colour. The dark red colouring of the upper surface of ♀ recalls much more the Indian type, but the white area on the f. w. is broader and the silvery ornamentation of the under surface of the h. w. is much richer. Found in eastern and western Java, at altitudes of from 4—5000 ft, generally together with *Cethosia penthesilea Cr.* which it highly resembles in the ♀. *javanica* *hyperbius. aruna. castetsi. taprobana. sumatrensis. javanica.*

may like *Pyraneis dejeani, Acraea vestoides, Danaida albata, Prioneris autothisbe, Papilio arjuna, Stibochiona nicea,* and *Amnosia decora*, be called a living barometer, indicating to the observer that he has left the Fauna of the hot low-lands and has reached or passed the Alpine zone at an elevation of ca 3800 ft. Both in Tonkin and Java I could observe that *hyperbius*, resp. *javanica* were most abundant right after a heavy rain-fall,
sagada. which may be explained by the influence of the moisture upon the pupa. — **sagada** *subsp. nov.* displays, compared with *hyperbius* from Formosa, Ishigaki and Okinawa, the melanotic character of an insular form, closely approaching *taprobana Moore* in the deep red colouring both in ♂ and ♀ above. Inferior in size to *hyperbius* from China, the ♀ shows a narrow, white, transverse band and, following this, a dark blue, proximally contracted border. Beneath it resembles *taprobana* in the fulvous band. From north-western Luzon, where according to Semper it is found at elevations of from 3500—5200 ft, between June and September. Reported also from Sagada on the Cagayan River. The specimens contained in my collection were taken by
inconstans. Whitehead in the north-western part of the island. — **inconstans** *Btlr.,* a small form with darker black subapical spots on f. w., having the black terminal border on the h. w. not lined with blue. The ground-colour above somewhat darker than in ♀♀ from Java, beneath identical with *javanica*. The ♀ I do not know. Found in Australia, from the Hunter River as far as Rockhampton. The ♀♀ from northern Australia are said to lack the white band; they are exceedingly rare in Continental collections.

Group b) Dryas.

laodice. **A. laodice** has spread from China southward to Upper Burmah and Assam, where it forms the beautiful
rudra. subspecies **rudra** *Moore* (Vol. 1, p. 239, pl. 70 e). It is easily recognized by the lovely verdigris-colour of the basal area on the under surface of the h. w., which is traversed by an exceedingly narrow median band, partly of pure white, partly of blue colour, and by a broad, brown stripe. Found in Upper Burmah as early as March, in Assam from May until August.

kamala. **A. kamala** *Moore* (Vol. 1, p. 240, pl. 70 c) resembles in either sex above *A. maja Cr.,* but is inferior in size. In ♂ also the h. w. are of dark ochre-colour, in ♀ of a glossy moss-green, distally laved with light yellow. Confined to the western Himalayas, whence I received a great number from Mardan in the North-West Province; also quite common between Cashmere and Kumaon. It prefers open clearings near the border of the woods where it visits the flowers of thyme, thistle and Scabiosa. Found between July and October at elevations of from 6000—10000 ft. In Cashmere it has occasionally been taken in wet places near the banks of rivers.

maja. **A. maja** *Cr.;* of this species one stray specimen, presumably belonging to the eastern form *pasargades Frühst.* (Vol. 1, p. 242), was found near Gilgit, in north-eastern Cashmere.

A. childreni has its chief home in India, although according to Leech it is found also in western China,
childreni. though in sparse numbers. Three local forms must be distinguished: **childreni** *Gray.,* originally described from Nepal, (Vol. 1, p. 240, pl. 70 ♂♀) ranging from Nepal to the Khasia-Hills; it is quite common in Assam, but less so in Sikkim, where it is found during the summer from Juni until October at elevations of from 3000—13000 ft. It is found ol visiting flowers. Moore reports it from Manipur, Doherty from the Naga-Hills, where he encountered it at altitudes of between 5—8000 ft. during July and August, and Dr. Manders observed
sakontala. it at Bernardmyo in Upper Burmah. — **sakontala** *Koll.* (Vol. 1, p. 240, pl. 70 b) is the form from the western Himalaya. flying from May until September on the grassy slopes, near the edge of the woods, at elevations of from 6—10000 ft. Distributed from Cashmere to Kumaon, frequently in company with *A. Kamala Moore* which it greatly surpasses in the rapidity of its flight, exceeding that of any other *Argynnis* found in India; still they
caesarea. are easily trapped while visiting the blossoms of the thistle. — **caesarea** *subsp. nov.* is closely allied to *sakontala,* in size about midway between that and *childreni.* In ♂♂ the blue anal border of the h. w. is somewhat broader than in *sakontala.* Beneath it is distinguished by the narrower, silvery, longitudinal stripe on the hindwing. According to Leech it ranges throughout western and central China from the Himalaya as far as Ningpo. Walker reports having seen *caesarea* at Kau-lun near Hong Kong as well as in the Chusan Archipelago. Nothing is known of the earlier stages. The sexual organs deviate considerably from those of *paphia* and *maja.* Uncus without dorsal ornamentation, very long, stout, hook-shaped, rather dentate above. Valve complicated, uncommonly broad and high, abruptly constricted distally, drawn out in the shape of a thumb, chitinous at the distal extremity, thickly covered with long bristles. Dorsal ledge provided at the base with a pointed clinopus, distally with a sharp, long, antler-shaped crest the lower edge of which is dorsally dentate. In front of this ornament is found a transverse dentate ledge.

Tribus **Vanessidi.**

18. Genus: **Precis** *Hbn.*

The genera *Junonia-Precis* and their close allies *Salamis*, *Napeocles* and *Rhinopalpa* are in certain respects widely different from the *Vanessids* proper, forming a group by themselves. They may be distinguished by their eyes being naked, the forefeet being but scantily clothed with hair or scales, and above all by the fact that the lower discocellular vein of the forewing, when at all present, does not terminate on the arch of the third median nervule, as in the genus *Vanessa,* but immediately at the origin of the third median

nervule, or even a short distance before it. On the generic relationship of the various species the authors have so far not been able to agree. Moore places even the Indian *Precis iphita, ida* with *Junonia,* whereas Butler to whom we are endebted for the best work on this subgenus, more justly draws *Junonia* and *Precis* to the common and elder genus *Precis.* This is born out also by Aurivillius in his master-work on "Rhopalocera Aethiopica" on the ground that it is a fruitless undertaking to seek for any reliable marks of distinction between the genera *Precis* and *Junonia*. If I have kept apart in this work the two specific genera, I was prompted only by reasons of a purely practical and in a way also aesthetic nature, having regard to the colour. Probably every collector of Asiatic Lepidoptera places the gaudily-coloured, bright-eyed (sensu strictiore) *Junonia* separate from the monotonous, insignificant-looking Oriental *Precis* with their leaf-like under surface. The best mark of distinction, at least in the more typical forms, is purely external: *Junonia* invariably has rounded wings, and shows on the upper surface certain well-developed eye-spots, whereas the wings of *Precis* are always rather angular and on the upper side without ocelli. In *Junonia* (which according to Schatz had its prototype in *J. lemonias L.*, according to Scudder in *J. lavinia Cr.*) the Palpi are but scantily clothed with hair anteriorly, having the middle joint covered with a prominent tuft of hair; they are but slightly thicker in the middle; the last joint varies in length, conically tapering towards the end. Antennae are provided with a somewhat pear-shaped club. Eyes naked. On the h. w. the cell is generally open. H. w. with a single precostal, which either curves outward or is at it extremity indistinctly bifurcate. Whereas *Precis* is in the Oriental Region limited to the tropics, several species of *Junonia* are also found outside of these. Indo-China claims six species of the genus *Precis-Junonia,* Java the same number, Sumatra five; Nias with its exceedingly moist climate has only two or three species; also in Borneo *Precis* is not often met with; on the other hand we encounter on the small island of Sumba no less than 9 species, which proves that this genus centres in Asia in the small Sunda Islands, whose dry climate is especially favourable to its development. This abundance in forms in these islands is partially due to immigration, for it is certain that e. g. the Australian *villida F.* which according to Moore has been taken even in Java, has crossed over from the east, particularly from Australia, where it is one of the most common butterflies. On the other hand, it appears likely that *erigone* and *orithya* have spread from Java to the Macromalayan islands. The only endemic species is probably *timorensis Wall.,* occuring as well in Sumba as in Timor and the adjacent islands. Although for the most part confined to the low-lands, several species ascend in the Himalayas to elevations of from 6000—10000 ft.

Group a) Precis.

Its range extends from Africa to Australia, but it is not found in the Neotropical Region. Upper surface without variegated ocelli. In the Indian Region seasonal Dimorphism is not greatly developed, in contradistinction to the Ethiopian species.

P. iphita, found all over central China and Formosa as well as from Cashmere to Ceylon and the Macromalayan Archipelago. **iphita** *Cr.* (Vol. 1, p. 197, pl. 61 e), type from southern China, extends according to Leech as far as Chang-Yang, where he encountered a very small form, presumably belonging to the dry-season, whereas the specimens from further west are much larger, measuring as much as 80 mm in expanse. Specimens from Tonkin closely resemble Cramer's figure, whereas in ♀♀ they are rather darker in colour than those from Hainan, but of the same size. This wide-spread species is in all those localities a regular street-urchin, always "on the go", flying about from morning until night without regard to the weather. A dry-season form, similar to that found in Sikkim, I could not observe. — **siccata** *Fruhst.* (Vol. 1, p. 197, pl. 62 a). Of this form I have only seen well-developed specimens from Sikkim. — **hopfferi** *Möschl.* is an aberrative form with increased black spotting, found in Silhet. — **pluviatilis** *Fruhst.* a rather dark-coloured race from southern India, Ceylon and the Maldives, without the lighter submarginal zone on the upper surface. Under surface black, displaying in the dry-season form a yellow median band. — **tosca** *Fruhst.* Above the ground-colour is black-brown, intersected by some sharply-defined, gray-yellow stripes; under surface is yellow, marbled with brown. From north-eastern and western Sumatra. — **horsfieldi** *Moore,* inhabiting Java, Bali, Bawean, Kangean and Perak; the upper surface is ornamented with indistinct, longitudinal bands of a dull gray-brown tone; beneath the prevailing colour is blackish, broadly irrorated with lilac, the distal portion of the f. w. occasionally flesh-coloured or white. — **viridis** *Stgr.* is a distinct insular race, above dark green, striped with lighter green, the under surface dull black-brown. From North-Borneo, Kina Balu district. — **neglecta** *Swinh.*, above dark brown, with gray longitudinal bands. Described from Sandakan; this may possibly also include the form from south-eastern Borneo, with reddish-brown streaks irrorated with purple, which in **adelaida** *Stgr.* are completely suffused with purple, as is also the entire upper surface. The under surface is pale gray-brown, broadly irrorated with whitish. From Palawan. — **cebara** *subsp. nov.* (116 c), distinguished by its small size and the greatly enlarged light area above from the closely allied *horsfieldi Moore* from Java. Not all ♂♂ are quite so pale as appears in the figure, but on the other hand none of the speeimens from Java have the median band as broad as in *cebara.* From Sumba. ♂♂ and ♀♀ from Lombok surpass *cebara* in size, whilst with regard to the banded pattern they are intermediate between specimens from Sumba and Bali. I have no specimens from Sumbawa.

iphita. *siccata.* *hopfferi.* *pluviatilis.* *tosca.* *horsfieldi.* *viridis.* *neglecta.* *adelaida.* *cebara.*

P. adulatrix *Fruhst.* (117 a), has almost the appearance of an African species. Beneath it closely resembles *P. iphita*, but the median dots on the h. w. are blue-gray instead of yellowish. In ♂ the f. w. measures 44 mm

adulatrix.

in length. Possibly *adulatrix* is only an aberrative and at the same time an extreme rainy-season form of *iphita cebara Fruhst.* Only one specimen is known which came from Sumba.

hedonia. **P. hedonia** has its origin in the Papuan Region, whence it may be supposed to have spread to the Philippines and westward as far as Java, Engano and Nias. From *iphita, ida* is easily distinguished by the row of ocelli which are always present on the upper surface of the h. w. and which, in the forms found farther east, are also recurring on the f. w. The h. w. may or may not display on the under surface two more or less distinct, silvery-white spots Seasonal forms exist as is the case with *iphita.* The ♀♀ are beneath more variegated than the ♂♂; those belonging to the dry season have occasionally red-brown eye-spots also on the
ida. f. w. — **ida** *Cr.* (= idamene *Godt.*) was first described in 1779 from a form belonging to the dry-season, having the upper surface pale ferruginous. Above it is mainly red-brown with feebly ringed ocelli. Beneath it resem-
pseudiphita. bles *iphita*, but has always some fulvous eye-spots which never occur in *iphita.* — **pseudiphita** *form. nov.* is an aberrative form, already figured by Cramer in 1782 (Pl. 374), above grey-brown like *iphita*, but beneath most gaily-coloured, yellowish-white, irrorated with violet, with very distinct fulvous ocelli. Its range extends from Nias to Sumba, embraces the whole Macromalayan Archipelago and, in the North, Palawan and the Philippines; throughout the latter islands it is very common, from the Babuyanes in the north to Sarangani, Sangir and Jolo in the south. ♀♀ from Luzon are extraordinarily pale and on the under surface of a faded yellow-brown
apollonia. colour. — **apollonia** *Fruhst.* The ground-colour holds the middle between the red-brown *P. ida* and the black-brown *intermedia Fldr.* The ocelli on both wings are very small, slightly pupilled with black. The discal band on the f. w. is more strongly undulate than in *ida*, its inner border more broadly black before the apex. Also the submarginal band on the f. w. is broader than in specimens from Java, but on the other hand the black discal band on h. w. is quite narrow. The two undulate, black, submarginal bands on h. w. are placed more closely together than is found in the allied races, *hedonia* from the Moluccas excepted. Beneath it is not unlike *intermedia,* being profusely shaded with gray in the submarginal zone of both wings and in that portion of the h. w. which is enclosed within the very oblique and conspicuous, discal band. Flores (type), Sumbawa. —
intermedia. **intermedia** *Fldr.* found throughout Celebes, resembles above *teurnia* (116 c), but is of larger size, the ocelli are always smaller and paler fulvous, and the dark portions of the upper surface are less prominent. The ♀ is larger and paler gray than ♂. Collected by me during January near Macassar whence also Felder obtained his type. The ♀♀ from this locality are much larger than those caught during November or December at Toli-Toli
teurnia. in the northern part of the island, and are much paler in colour. — **teurnia** *subsp. nov.* (116 c) is distinguished from *intermedia* by its darker colouring and the bright red-brown ocelli on the under surface of the h. w.
hedonia. Sula-Mangoli. — **hedonia** *L.* (116 e) from the southern Moluccas, is very common in Amboina, Ceram and the
thero. Ulias Islands. From Buru I have but one ♀. — **thero** *subsp. nov.* from the Spice Islands (Banda, Goram e. a.),
hellanis. with still brighter fulvous ocelli and a nearly white, subterminal border on the f. w. — **hellanis** *Fldr.*, above almost black-brown with a row of dark red eye-spots. Beneath it is black-brown, banded with blue-violet, the submarginal band nearly whitish, but not nearly as broad as in *hedonia*, or chalky-white as in *thero.* ♀
numana. above somewhat lighter brown, beneath irrorated with pale violet. Ternate, Batjan, Halmaheira. — **numana** *subsp. nov.* forms a transition from *hellanis* to the southern form *hedonia* which latter it resembles above; beneath it is distinguished by a broad, gray-violet, submarginal zone. From Obi, where it is quite rare. —
zelima. **zelima** *F.*, originally described from Australia, inhabits the entire Papuan Region, extends eastward to the Salomon Islands and west as far as the Aru and the Key Islands. From the Salomon Islands and the Bismarck Archipelago I have no specimens, but judging from the specimens derived from six different localities, the form appears there extraordinarily constant, displaying even in the different islands but slight and unreliable differences in colour. The ♀♀ are slightly paler than the ♂♂, differing beneath only in the greater or lesser extent of the gray-violet irroration. But the presence of a white subapical spot on the costal margin of the h. w., which Felder and other authors after him considered to be peculiar to the species, is purely individual and common to all forms of *hedonia* and even *iphita,* being not influenced even by the season. In addition we find occasionally a small dash, one ♂ in the Honrath coll. displaying even three of remarkable size. But it seems that in the Aru and Key Islands colour-aberrations are frequent, for Nicéville reports from the Key Islands *P. hedonia ida* and *hedonia zelima*, whilst Pagenstecher names three forms, among which also *hedonia*, as peculiar to Aru; but as *hedonia* is confined to the southern Moluccas, and *P. hedonia ida* to the Macromalayan Archipelago, I can only explain it by assuming those forms to be colour- aberrations. Above *zelima* resembles *teurnia*, but is as a rule paler brown. Found in Australia from the Nerang River to Cape York. Specimens from all over New-Guinea, Mysole, Waigeu, Key, Queensland and Kiriwina in my collection. The Australian rainy-season form resembles, according to Butler, the specimens from the Key Islands.

Group b) Junonia.

Although its range of distribution embraces four Continents, the greatest number of species are found in the Indo-Australian Region: they are partly of African, partly of Australian origin. Most species are very constant; although distributed over enormous territories, they vary but little, one species *(orithya)* excepted, which

is very sensitive to geographical influences. All forms are subject to Horodimorphism which is especially noticeable on the under surface, giving it a monotonous, leaf-like appearance. With regard to their structure the several species belong to different groups, i. e. the discocellular veins in the f. w. have not yet arrived at their full development. In *atlites* and *almana* we still notice a fine, lower discocellular, whereas in *rillida*, *lemonias*, *erigone* and *orithya* the cell remains open; in *orithya* indeed there exists according to Semper occasionally a sort of rudimentary transverse vein which partially closes the cell. As is the case with *Argynnis* and nearly all the other Nymphalid genera, the subcostal branches are placed in ♂♂ much more closely together than in the ♀♀; but such a confluence as is observed in the *Argynnis* of the *Dryas*-group does not exist. In the structure of the male sexual organs *Junonia* deviates from the *Vanessids;* judging from a drawing of Scudder's (Butt. New England), the uncus is slender, thin and very sharp; the valve basally broad, ventrally deeply excavated and drawn out to a cylindrical, distally gently curved form.

P. atlites found throughout the Indian Empire, the Nicobars and Mergui Archipelago included, and spreading as far as Hainan and southern China. I collected it all over Indo-China, Tenasserim, Java, Kangean, Lombok and Celebes. Specimens from Siam and Annam are smaller in size, those from Tonkin larger, even in the dry-season form. The latter is blue-white above, whitish and almost devoid of any markings beneath. The rainy-season form is above dark gray, with more delicate and lighter orange-coloured ocelli; the under surface is marmorated with blackish, with large ocelli. The ♀ is beneath always duskier and more richly marked than the ♂, with broad, brown transverse bands. Also the upper surface is dark-gray, conspicuously striped with black. Of every local race are found some specimens, having the upper surface light gray, marked with a deep smoky-brown. The continental forms always surpass in size those from the islands. The egg is according to Nicéville barrel-shaped, provided with 13 vertical lines which do not reach the flattened top, where a white ring marks the micropyle. Its colour is green, slightly translucent, with white ribs. The larva lives on Hygrophila spinosa And., a species of Acanthus; it is smoky-brown, laterally striped with orange and with a pale subdorsal line. Each segment is adorned dorsally as well as laterally with black, branching spines. Pupa gray-coloured with purple lustre, thorax and abdomen provided with a dorsal row of sharply pointed tubercles and with smaller lateral prominences. The imago flies very slowly, generally along the edge of paths leading through the rice fields, or congregating in moist places; they are never found at elevations above 2000—2500 ft. In the markings of the upper surface they are not unlike the South American *Ageronia*. — **atlites** *L.* (117a) was based by its author upon specimens of the dry-season, while those of the wet-season are named **laomedia** *L.* Occurs in India and southern China, Hainan. — **acera** *subsp. nov.* is the form from Celebes: the ♀ is nearly always smoky-brown, whereas the ♂ is distinguished by the more prominent red ocelli on the upper surface of the f. w. It is closely allied to the specimens from Batjan and, among the western Malayan forms, to those from Engano. I have no specimens from the Philippines, but they are according to Semper very similar to those from the Macromalayan islands and Celebes. The earlier stages were described as early as 1829 by Horsfield; judging from his excellent figure, the larvae found in Java are darker than those from Continental India.

atlites. *laomedia.* *acera.*

P. almana presents a classical example of the most highly-developed seasonal Dimorphism, which is more evident in this form than in any other of the eastern species. In the form belonging to the dry-season, not only the colouring of the under surface is quite monotonous, devoid of ocelli and altogether resembling dead leaves, but also the outline of the wings is affected, in such a way that the apex of the f. w. projects as it does in the genus *Polygonia,* whereas the hindwings are drawn out so as to form a short tail mimicking the stem of a leaf. The same appearance is presented by the continental forms of the genus *Kallima*. Also the various local forms of *almana* are more markedly distinct than is the case with *J. atlites*, and one may distinguish between two types:

a) The continental type, remarkable in the dry-season form for the altered shape of wings and the perfect leaf-design beneath; this embraces also the Philippine form.

b) The insular type, in which the outline does not change, even the hindwings are not angular, and the under surface, although devoid of eye-spots, does not completely resemble a leaf.

almana *L.* (Vol. 1, p. 197, pl. 62a), of which the dry-season form is characterized by the black shading on the upper surface of the h. w., and the violet iridescence spreading over the distal border of the f. w. In the rainy-season form the median band on the h. w. is always pure white beneath, and the submarginal lines are blackish. ♂♂ caught by Walker during October near Shanghai are larger than those from Hongkong; specimens from China and Formosa are the largest in size, those from Tonkin, and still more those from the Indian Empire and Ceylon being much smaller. The larva has been found on Acanthus, also on Gloxinia, Osbeckia and Lippia nodiflora. The imago is found all the way up from the shore to an altitude of 6000 ft. It is often met with in gardens, where it visits Lantana, and in wet places. In the Philippines it occurs from Luzon to Mindoro and Bohol, but has never been found in Mindanao. — **nicobariensis** *Fldr.* was founded upon a small insular form which I am not acquainted with. Semper reports it from the Nicobars and the Maldives. — The Macromalayan specimens

almana. *nicobariensis*

javana. may be referred to the form **javana** *Fldr.* Although not inferior in size to *asterie-almana* from Ceylon and Luzon, the median band on the under surface of the h. w. is invariably yellowish instead of white, and the submarginal lines are not so dark as in *asterie* from the mainland. As we have said before, the wings remain unaltered in the dry-season form, and whilst the eye-spots have disappeared from the under surface, there is always some remainder of the yellow and brown bands left. The three black bands on the upper surface of h. w., particularly in the marginal area, may be confluent or be separated by yellow subterminal lines. Occurs throughout
sumbae. the Macromalayan Archipelago, including Perak, Kangean and Lombok. — **sumbae** *Doh.* is distinguished by the fact that the black terminal stripes on the upper surface of the h. w. are always far apart, and that on both wings the under surface is paler in colour, marked with reddish submarginal lines. From Sumba and Sumbawa, may
battana. also exist in the other islands adjacent to Flores and Timor. — **battana** *Fruhst.* is a local form found in southern Celebes, in which both wings have the black distal border greatly enlarged; the submarginal bands are twice the size of those of *javana,* the ocelli on the f. w. are larger and more broadly black with a minute white pupil. Beneath the submarginal bands are at least twice as broad as in *javana;* the h. w. are adorned with three clearly defined, whitish stripes, one close to the base, the other in the median and the third in the submarginal area; in all the other insular races these stripes are yellowish in colour. From southern Celebes, where it was taken in January near Patunuang, and on Lompa-Battan, at an elev. of ca. 3000 ft, in March; *almana* does not seem to have spread farther east than to Celebes.

P. lemonias inhabits the Oriental Region including Formosa and the Philippines. As we noticed in *almana*, also in this form the Chinese specimens are by far the largest and showiest; it extends as far as
lemonias. Sikkim and Bhutan. Two well-defined seasonal forms are found wherever this species exists. — **lemonias** *L.* (117 b), a form of the rainy-season, resembles above *aenaria* (117 a), from which it differs in the larger
aonis yellow patches on the f. w. — In the form of the dry-season: **aonis** *Cr.* (117 b) the anal eye-spot on the f. w. is always present, but the brown stripes have disappeared from the under surface. Known to occur in China, Hainan, Burmah, Assam and Sikkim. Found in the Himalaya at elevations of up to 7000 ft. Larva lives on Baleria prionitis L. and on three other genera of the Acanthaceae; its head is provided with two small spines, which in the other Indian *Junonia* either are absent or but feebly indicated. After the first moult, it is black, with four parallel rows of black branching spines. Abdomen black, legs likewise, head black with a yellow stripe, spiracles white. After the last moult its colour is that of leather, thickly dotted with dark and white. On the first and second segments there is a black line, on the other segments a row of spines; lateral stripes milky white. the head brown.
aenaria. abdomen and legs lead-coloured; Pupa is light brown, spotted with whitish and dark brown. — **aenaria** *subsp. nov.* (117 a); in the ♀ the under surface is still more variegated than in *lemonias,* showing at times a blue-white subapical band on the f. w. Side by side with gray-coloured ♀♀ of the dry-season form we occasionally see ♀♀ with flesh- or peach-coloured under surface of the h. w., similar to the ♂ pictured by Moore (Lepid. Indica. Vol. IV, pl. 313 c)
persicaria. — **persicaria** *form. nov.* This very small form, of which I possess specimens of the rainy, intermediate and
vaisya. dry-seasons, is found in Cashmere, Ceylon, Siam and southern Annam. — **vaisya** *subsp. nov.* (named after the lowest of the Indian castes). None of my dry-season specimens show on the upper surface of the h. w. the small anal ocellus found in all the ♂♂ and ♀♀ of *aenaria* from Formosa, but the anterior ocellus varies, in as much as in some specimens it is single, in others double. Presumably also the *lemonias* found in Luzon may be referred to this form. Moore reports that *vaisya* is quite common at Bombay; Aitken attributes the fact that they are mostly found in a mutilated state, to the attacks by lizards whose favorite food *lemonias* constitutes.

P. erigone and its subspecies take in the Macromalayan islands, Java and the Papuan islands the place of the preceding species. It differs from *lemonias* mainly in the presence of a complete row of ocelli on the upper surface of the h. w.; the seasonal forms are less sharply separated, for even in the most extreme dry-season specimens the general colour is never quite so pale as in the continental *lemonias.* On the other hand, we notice in *erigone* a greater tendency to vary in colour than in the extraordinarily constant Indian form. It is not found in Borneo or Sumatra, but my coll. contains a specimen obtained from the
erigone. Museum at Singapore, labelled "Johore". — **erigone** *Cr.* is especially in eastern Java one of the most common butterflies, occurring at elevations of up to 2500 ft. on the foot-hills of the Tengger Mts, but is also found in the western part of the island, near Sukabumi. Its ground-colour is light brown, bordered with black and marked with red-brown ocelli; the f. w. bears several rows composed of pale yellowish spots. ♀ is lighter in colour. with larger ocelli. Beneath the f. w. resembles that of *lemonias,* being ornamented with a large, black, red-ringed eye-spot. The h. w. has the ground-colour gray-yellow, marmorated with fulvous and black. —
persiccata. **persiccata** *form. nov.,* a form of the dry-season, shows in the apical portion of the forewings as well as on the under surface of the h. w. a monotonous red-gray colour. Very common between July and September in Java and Bawean; also in Kangean, Bali, Lombok (where I collected it in April at an elevation of about 2000 ft), as well as in all the Micromalayan Islands as far as Babber Kalao, where it flies in December. Starting from Lombok in easterly direction, the colour of the specimens, especially those belonging to the intermediate and dry-season forms, gradually becomes lighter. The brown colour disappears, gradually

shading into the yellow-red characteristic of expansa. — **walkeri** *Btlr.* (type from the small Island of Semao to the west of Timor). Appearing as a great rarity in Java, the yellow form *walkeri* becomes more abundant, the farther east one goes. In Key apparently only these yellow forms exist, while **expansa** *Btlr.* (117 a) occurring exclusively in the Timor Islands represents the lightest form. — **gardineri** *Fruhst.* (= celebensis *Btlr.*) is a very large form; the upper surface is heavily obscured bearing relatively small, yellowish patches on the f. w. and small ocelli brightly ringed with red on the hindwings. Rather scarce. I took it in January at Patnunuang Asue. S. Celebes. It is closely allied to specimens from Buru and Saparua in my coll. — Röber also mentions Ceram, and Semper S. E. Mindanao as its home. In the Aru islands, however, we meet with an exclusively Papuan design of colouring in the form **antigone** *Fldr.*, approaching *leucophora* (117 b) both in outline and markings, but with smaller white spots on f. w. and proximally larger ocelli bordered with black and of a deeper brown-yellow tone on the h. w. — **tegea** *subsp. nov.* represents a distinct form in the Staudinger collection having the white spots in the subapical fascia on the f. w. twice as large as in *antigone*. Waigeu. — **tristis** *Misk.* (117 b) type from British New-Guinea, is the most extreme case of Melanism in the collective species. ♀ a little larger, outline of wings more rounded, the spots on the forewing more pronounced and partly of a purer white. The eye-spots in the row of ocelli on the h. w. are proximally more broadly ringed with red-brown than in *leucophora* (117 b). Very scarce in Astrolabe-Bay, occurs more frequently near Finschhafen and Simbang from November until March. — **iona** *Sm.* is a somewhat lighter form from Dutch New Guinea with the basal half of the upper surface of both wings pale olive-coloured. Under surface less reddish-brown than in *antigone* from Aru. From Humboldt Bay, unknown to me in natura. — **leucophora** *Fruhst.* (117 b, ♀ instead of ♂). The ♂ differs from the figured ♀ in its somewhat darker ground-colour and the smaller white spots on the f. w. Underside as in *antigone Fldr.* and the other Papuan forms gray-brown, the f. w. being thinly laved with white in the apical portion and bearing a white double fascia distally to the anal eye-spot. The 3 or 4 white blotches placed proximally to the ocellus are but slightly indicated, more distinctly in the females, forming the continuation of the subapical macular band. In *iona Sm.* and *tristis*, however, the white spotting is wanting. Kiriwina and Fergusson Islands.

walkeri. *expansa.* *gardineri.* *antigone.* *tegea.* *tristis.* *iona.* *leucophora.*

P. timorensis, a distinct species peculiar to the Timor Islands. ♂ rather similar to the ♀. Ground-colour dark-brown, a little lighter exteriorly. Forewing always with a short, white-yellow diagonal fascia and a small subapical spot; h. w. with two well-marked ocelli, the foremost of which is nearly always double, sometimes showing posteriorly an accessory ocellus. As a rule the ♀ shows also an intramedian eye-spot. Two seasonal forms, the larger of which belonging to the dry-season displays a gray marmorated underside, whereas the specimens belonging to the rainy-season are smaller and black underneath. The white semi-band in the ♀ of the latter form is sometimes dusted with brown beneath in specimens of the dry-season and may occasionably be almost wholly obliterated. The extent of the macular row on the f. w. above varies according to habitat or season. — **valesca** *Fruhst.* (117 a) of which the ♀ is figured, is a little larger and lighter yellow distally than specimens from Wetter and Sumba. Everett has discovered this form in Alor. — **timorensis** *Wall.*, type from Timor, shows a somewhat larger fascia of a white colour, especially on the f. w. beneath; a number of specimens from Wetter and Letti in my coll. — **cibota** *subsp. nov.* represents the much smaller form from Sumba Island, in which the white distal bordering beneath characteristic of *timorensis* is almost wanting. Of the specimens in the author's collection some ♂♂ belonging to the rainy-season form have the underside entirely black, others of the dry-season slightly mottled with blue-gray; others again show on the f. w. a transverse series of pure white spots together with 3 large and two smaller occelli on the h. w. (rainy-season), and finally there are specimens in which the gray colouring is indistinct, without any well-marked ocelli on the h. w. and without the white subapical spots on the f. w. beneath (dry-season).

valesca. *timorensis.* *cibota.*

P. villida, an Australian species ranging eastward as far as the Fiji and Samoa Islands and westward to Sumba and Java. Extreme cases of variability are shown in our figures 116 e, f. The under surface changes according to the season, the hind wings being either an uniform gray or displaying bright bands of fulvous. On the f. w. is invariably found an anal ocellus with an extensive red-yellow border, moreover the cell is traversed by two reddish streaks. In the rainy-season form a reddish submarginal zone is occasionally found, studded with small eye-spots pupilled with blue, which are reduced to mere dots in the dry-season form. In addition to this it has on both wings a subterminal series of black dots well pronounced in the brood of the rainy-season, fading away into gray in the dry-season form. The butterflies fly in open places, often settling on the ground with the wings expanded. Larva, according to Dr. Pagenstecher and Mathew, feeding on Plantago major and lanceolata, also on Antirrhinum and other plants, such as Daphne; when fullgrown, it measures 37—40 mm. in length; it is cylindrical, tapering in front. Black-brown, with a series of short, blunt and branching, dorsal and subdorsal spines placed at and below the spiracles. Each segment has above the spiracle a gray lunular spot and a white-green line. Head black, heart-shaped, with a shorter spine on either side and sparingly covered with fine black hair. On the second segment an orange-tinted collar becomes visible, when the head is stretched out in feeding. Legs black, prolegs spotted with brown-yellow. Pupa short and stout, attached to the underside of leaves, to a trunk or a stone; dark-brown spotted with gray. — **phylace** *subsp. nov.*, the smallest of all known forms, on the upper side with very narrow yellow subapical

phylace.

spots: the ocelli show at the periphery less inclination to run together than is the case in *taitica*. Under surface more dainty than in the allied forms, h. w. almost gray white, with a narrow, nearly white median band proximally shaded with a delicate black and distally limited by an undulate band. Outer zone of ocelli but slightly red: terminal band again gray-white. These richly ornamented specimens were already noticed by DOHERTY, according to whose report they frequent the sterile plains of the island and are very searce. I possess only the rainy-season form. Specimens belonging to the dry-season form are probably larger, judging from 2 ♂♂ taken in the Islands of Tenimber and Kisser during that period, which are the largest from among

procax. 34 *villida* in my coll. In these, termed **procax** *form. nov.*, the bordering of the ocelli is enlarged as far as the centre of the wing. Eye-spots prominently pupilled with blue. Under surfaee gray sand-coloured, pale

villida. red in the cell and at the anal eye-spot. — **villida** *F.*, occurs thoughout Australia spreading thence to all the neighbouring islands. Thus it is found in Tasmania, the New Hebrides. New Caledonia. Key, Aru, Christmas Island, and Java, where it has at one time been found by HORSFIELD. Four local forms are distinguished by BUTLER. one each for the wet and dry seasons and two intermediate forms. The specimens before me are very small, belonging to an intermediate form shaded above within the red eorona with a beautiful green-

astrolabiensis. blue, such as is not found in the other *villida* in my coll. — **astrolabiensis** *Hag.* represents on the whole an obscure form. in which the rings around the ocelli on the h. w., at least in the ♂♂, stand quite isolated. In the ♀♀. however. these rings are generally united. The specimens from the Moluecas may also

bismarckiana. be classified here. — **bismarckiana** *Hag.* is a separate insular race of very small size in which the bordering of the ocelli is confluent. From Bismarek Archipelago, also from several islands of the Marshall and Caroline Groups.

taitica. (Jap, Palau) and the Solomon Islands. — **taitica** SEITZ in lit., are called speeimens with an extremely pale upper surface broadly marked with fulvous, such as I have before me from the Marquesas Islands and also from the Fiji Islands. BUTLER names also the Gilbert. Elliee and Navigator Islands. MATHEW the Friendly Islands and Royuman as localities where this form is found. As with the exception of the Sumba race, no other form is constant, the names must be rather considered to signify the locality than to designate well-

samoënsis. established insular races. Specimens from Samoa have been described in 1910 as **samoënsis** *Reb.* This variety differs from the Australian forms of *villida* in its inferior size (19—25 mm. as against 22—27 mm.) as well as in the confluent yellow-red bordering of the blue-pupilled ocelli; the ground-colour is darker throughout. Is fond of visiting the blossoms of Mimosa pudica. Upolu, Samoa, common in May.

P. orithya, a species displaying a strong migratory instinet and eapacity for expansion; it ranges from W.-Africa to Australia reaching the islands situate to the north of the latter continent. Being geographieally of the greatest sensibility it splits into a long series of territorial and insular races, but seems to be more constant in the Ethiopian region than in the East. Its varietal forms have repeatedly been studied. AURIVILLIUS alone having in 1882 filled two large quarto pages in enumerating the literature relating thereto. Even LINNÉ has known three varieties which have always been eonfounded with each other. Like all the *Junonia,*

orithya. *orithya* reaches its highest degree of development in China as **orithya** *L.* (Vol. 1, p, 197) both in size and character of markings of the ocelli on the h. w. Only the blue apical spot on the f. w. is as a rule smaller (sometimes wholly disappearing), than in *orithya* from other localities. Very beautiful are the speeimens of

isocratia. the dry-season (Vol. 1. p. 197 pl. 62b). — f. temp. **isocratia** *Hbn.* (LEECH, Butt. China ete., Fig. 10 ♂, Fig. 8 ♀). In the ♂♂ the ocelli on the h. w. are surrounded by distinct rings of red, and the distal margin is dusted with blue, while the underside is an ashy-gray. The ♀ is polyehrome. There are specimens in which the upperside of the h. w. is suffused with smoky-gray throughout (LEECH Fig. 7 and SEITZ. Vol. 1, pl. 62c); in others again the outer half of the wings is violet or blue (CRAMER. Pap. exot., pl. 19, LEECH Fg 8 and SEITZ. Vol. 1, pl. 62b). South-western China, southern Formosa, very common up to elevations of 4800 ft., Ishigaki (one ♀ with the space between the ocelli on the upper side of the h. w. having a toueh of yellow), southern Japan. Whereas but two different shades of colouring may be detected (depending on the season) among the specimens found in Formosa, the rainy season produces in China ♀♀ whose hindwings are blue on the upper surface. Thus six ♀♀ of the rainy-season form have only a yellowish or yellowish-green subanal zone on the h. w.. those of the dry-season form, however, a more or less sharply marked distal portion whose colour

hainanensis. varies from light-blue to green-blue. — **hainanensis** *subsp. nov.,* described from a ♀ of the summer brood, has a narrow. light-blue submarginal area on the h. w. above, on the f. w. a yellowish area still larger than in ♀♀ from China, and a strikingly broad cream-eoloured distal margin on the hindwing. — Specimens

ocyale. from Tonkin, Annam and Siam form the transition to **ocyale** *Hbn.* from Hindostan: also in these the rainy-season produces the lovely blue colour exhibited on the hind wings of ♀♀ from China. but which never is

phycites. quite sharply defined proximally; this is **phycites** *forma nova* (*phycites,* a gem of the ancients unknown to us). Larva lives on Hygrophila and Antirrhinum orontium. The butterfly aseends to an elevation of from 9—10000 ft. in Sikkim. Dry-seasonal specimens are very small; one ♂ from Sikkim has the apex of the f. w. on the upper surface white. Frequents dry, stony plaees, where large numbers may often be seen together with *J. hierte* hovering over low-growing flowers. To *ocyale* belong most of the specimens that eome from

swinhoei. Tonkin, Annam and Siam, Sikkim, Assam and Tenasserim. — **swinhoei** *Btlr.* is the name of a form in whieh the stone-gray underside never varies throughout the whole year, always showing the eolouring peeuliar to

the dry period; its chief characteristics are is the sharply defined black basal area, the light blue colour of the distal portion of the h. w., which does not blend with the inner half, and the increase of blue colouring on the subanal area of the f. w. above. I have before me a great many specimens from the neighbourhood of Mardan, N. W. Province; it is met with in all the dry parts of western India and the western Himalayas, and ranges northward to Quetta in Baludshistan where it gradually changes into the eastern *ocyale*. — **patenas** *subsp. nov.* is an extremely dwarfed race of the rainy-season, from Ceylon. ♀ above either brown or appertaining to *phycites*. F. w. with delicate, narrow. very distinct, almost white fasciae and a large quadrate subanal patch of blue. Under surface not so gaily mottled as in ocyale from Sikkim and Assam. Ceylon. in the Patenas, the dusty and dry grass-lands, up to 3200 ft. alt. — **here** *Lang* (Vol 1, p. 197) inhabits Asiatic Turkey and Arabia; *boopis Trim.* occurs in S. and E. Africa, *madagascariensis Guén.* in Madagascar. The series of the Macromalayan branches begins with **wallacei** *Dist.* which is a form with highly variegated underside marmorated with a rich red-brown and with an extensive blue irroration on the f. w. above. ♀ brown with a relatively narrow, yellowish intramedian area between the ocelli on the h. w. Malay Peninsula; not very abundant. — **minagara** *Fruhst.* is a sharply-defined local form with a very broad, light-yellow subapical fascia on the f. w. and broad, yellowish outer margin on the upperside of the h. w., which occasionally continuing beyond the inner black submarginal band becomes visible between the ocelli. Lucas has given a good picture of it, also Godart knew specimens of it from Java, but confounded them with the preceding continental and Chinese forms. ♀♀ from eastern Java, although noticeably smaller than those from the western portion of the island, have a broader, yellowish band on the f. w., more sharply defined proximally and forming a straighter line. Specimens from Java differ from *wallacei Dist.* in the much lighter colouring of the f. w., the more richly red-bordered ocelli, and the whitish tinge on the inner portion of the submarginal fascia of the h. w. Semper considered it synonymous with *wallacei Dist.* being seconded by Nicéville. Thus more than a century elapsed before this beautiful local race, first figured by Hübner, gained its well-deserved place in the system. Western and eastern Java, Bali. The ♀ form phycites is very scarce; among 10 brown ♀♀ only one was found showing a slight blue-green tinge. — **sumatrana** *Fruhst.* The yellow diagonal band on the f. w. broader than in *wallacei*, narrower than in *minagara,* the ocelli on the h. w. in the ♂ larger than in *wallacei*, those on the h. w. of the ♀ smaller than in specimens from Java. The yellow distal margin of the h. w. narrower than in *minagara*. As a great rarity the ♀-form phycites is represented by specimens showing a faint, pale green area on the h. w. Sometimes occurring in immense numbers in the Lalang Savannas clinging to grasses or resting on the ground with expanded wings. — **baweana** *Fruhst.* forms the geographical and morphological transition from *minagara* to *mevaria*. The yellow band on the f. w. shows the characteristics of both races. Bawean, abundant from July until September, presumably also in Kangean. — **metion** *Fruhst.* Specimens from N. Borneo are distinguished from *wallacei Dist.* by having the subapical bands on the f. w. lighter yellow but much reduced, rendering more prominent the black apical colouring. The underside of the f. w. is at the anal angle darker, while on the h. w. the submarginal zone is blackish instead of brown. A ♂ from Sandakan bears essentially broader bands on the f. w. than ♂♂ from the Sultanate of Brunei, and a mere dot-like anterior ocellus on the upperside of the h w. — **leucasia** *subsp. nov.* has extraordinarily large, orange-coloured discal patches on the f. w. and very large, black anterior ocelli on the h. w. above. The under surface of both wings is just as dark as in specimens from Borneo, and the red-yellow connecting stripe between the subterminal eye-spots on the f. w. as prominent as in *minagara Fruhst.* from Java. 5 ♂♂ from Luzon in my coll. According to Semper it occurs throughout the Philippine islands, having two broods there. Specimens from the Jolo Islands lean in both sexes more towards the Sandakan race. — **mevaria** *Fruhst.* (116 f) inhabits Micromalayana, from Lombok to Kalao, with the exception of the Timor and Tenimber Groups. Distant has quite correctly foreseen that his *wallacei* would not go beyond Wallace's Line: for the Javan form *minagara Fruhst.* which he considered to be identical with the Perak race, disappears in Lombok. Unfortunately I have no material from Bali, but it may be imagined that specimens from that locality resemble Javan ones. Certainly the Lombok race named *mevaria* by me diverges considerably from *minagara,* in as much as the yellowish subapical bands are much narrower, just as in *metion,* while the ochreous bordering of the ocelli on the f. w. is very much reduced, causing the black ground-colour to spread much farther, especially in the apical area. As a rule the upper ocellus on the h. w. becomes darker, always remaining inferior in size compared with specimens from Java. The under surface becomes dusky, the tinge changes from ochreous to brownish. Also the ♀ has narrower subapical bands and smaller ocelli on both wings, while the yellow tinge between the ocelli on the h. w. vanishes. 2 ♀-forms are known: one uniformly smoke-brown, the other (which is a more frequent aberration,) with a blue or violet submarginal zone on the h. w., whilst in the ♀♀ from Java the predominant tinge is smoke-brown. Lombok (type), Sumbawa, Flores, Alor, Savu, Kalao. Most striking is a ♀ which I captured in April 1896 on Sambalun plateau, well-known for its wealth of butterflies, at an altitude of about 4000 ft. In this ♀, a beautiful violet-blue spreads over the distal portion of the black basal area on the upper surface of both wings. The ♀ from Kalao shows, both above and beneath, a greatly extended red-yellow colouring resembling *celebensis* and *saleyra*. — In Sumba we find the smallest form: **minuscula** *Fruhst.* This rule holds good for all the *Junonia* species and almost all the Nymphalids and Pierids found in this island. All the specimens which I have before me belong to the rainy-season form.

patenas. *here.* *wallacei.* *minagara.* *sumatrana.* *baweana.* *metion.* *leucasia.* *mevaria.* *minuscula.*

I have only seen ♀♀ with brown uppersides and broad cream-coloured area between the ocelli on the h. w.

eutychia. — **eutychia** *subsp. nov.* came from the islands of the Timor Group. Among 8 couples from Wetter which are in my possession, the ♂ seems to be an intermediate form between *mevaria Fruhst.* from Lombok and *kühni* (116 f), with strikingly small black ocelli on the upperside of the h. w. The ♀, although belonging to a rather variegated rainy-season form as concerns the under surface, has on the upper side a prominent light-blue submarginal area with a yellowish light over its distal portion, whilst the ♀♀ from Sumba, as well as those of

kühni. *kühni* remain brown. — **kühni** *Fruhst.* (116 f) is a remarkable local race from the Tukan-Besi Islands, to the south-east of Celebes, named so by me in honour of its discoverer, Mr. H. Kühn. It closely approaches *albicincta Btlr.* from Australia and Wetter both in shape and the pointed outline of the wings. The yellow subapical band is still more reduced than in *mevaria,* consisting of four spots separated by broad black veins, whilst in all the other local races they are confluent. The apical ocellus on the h. w. is entirely black and in three specimens very small, the distal margin on the h. w. as far as the medians, is blue or blackish, whereas it invariably appears whitish in *albicincta.* In the ♀, the subapical fasciae are in proportion to its size still narrower, and the ocelli on both wings are broadly ringed with ochre. The anal angle on the f. w. beneath is blackish, the submarginal area on the h. w. a rich ochre colour, the ocelli distinct, with blue pupils. The f. w. is richly adorned with black. *kühni* is rather larger than specimens from Sumba, but much smaller than *celebensis Stgr.* and *mevaria Fruhst.*

palea. Binongko, Kalidupa (Dec, 10 th. to 13 th). — **palea** *subsp. nov.* resembles above *kühni*-♀, but is larger, with broader yellow bands on the f. w. and much smaller ocelli on the h. w. which have violet pupils; upper surface of the f. w. brown with a touch of pale violet on the anal portion; distal margin of the h. w. broadly white, recalling *albicincta Btlr.*-♀ from Australia. On the underside of the h. w. the predominant colour is grey-yellow,

saleyra. with conspicuous almost white median band. Teninber. — **saleyra** *subsp. nov.* forms a transition from the Micro-malayan races to the splendid form found in the southern part of Celebes, which among the 200 spec. in my coll., is most conspicuous on account of the red orange-yellow colour of the submarginal portion of f. w., which extends still farther than in *minagara,* and the ocellus on the h. w. which is greatly enlarged posteriorly. The *saleyra*-♀ is darker brown than the *celebensis*-♀, its yellow band on the f. w. is contracted and the red eye-spots on the h. w. are smaller; the submarginal portion of the h. w. beneath is smoke-brown instead of red.

celebensis. Saleyer. Flies in November. — **celebensis** *Stgr.* exhibits also on the under surface the most vivid red in the distal half of both wings. The ♂ has a reddish intramedian zone between the large, red-yellow ocelli above. Southern Celebes, where I found this form in January and March all the way up from the shore toward the

orthosia. peak of Bontham, a rise of 3200 ft. — **orthosia** *Godt.* (= royeri *Voll.,* = orbitola *Swinh.*) (116 f., under the name of orithya) is on the other hand in ♂ nearly deprived of the red colouring on the f. w., in the ♀, however, the ocelli are completely confluent. The violet pupil of the anterior ocellus bears two white dots. Under sur-

novaeguineae. face of h. w. with very large, black patches. S. Moluccas, I only have spec. from Saparua. — **novaeguineae** *Hag.,* described from a ♂ from Stefansort, where Hagen found it impossible to capture any of the coveted ♂♂ on account of their rapid flight. 3 ♂♂ in my coll. It is closely allied to *mevaria Fruhst.* from Lombok, from which it is only differing in the three pure white terminal lines, which also indicate its relationship with *albicincta* of Australia. The relatively narrow submarginal band on the underside of the h. w. is sharply defined, and is inwardly accompanied by an almost pure white median band. Apparently very scarce; ♀ unknown. —

noepommerana. **neopommerana** *Ribbe* of which only the description is accessible to me, has bright ferruginous markings on its under surface. ♀ above red-brown. Neu-Pommern, on the sea-shore near Ralum, rare; flies in May. —

albicincta. **albicincta** *Btlr.* is a small form without the red subapical colouring on the f. w. The border of the h. w. is, however, pure white. The ♀ ressembles those from the Wetter Island, but its distal part is light-blue, ocelli small and of lavender colour. The transverse band on the underside of the f. w. reaches in the ♂ the terminal border. Ranges from Queensland to Cape York.

hierta. **P. hierta** *F.* (= oenone *Cr.*) (Vol. 1, p. 197, pl. 62 b) distributed from Bombay and the western Himalayas to southern China, Hainan and Hongkong, but is also found as a great rarity in the lowlands of Ceylon, in the Andamans and the Mergui Archipelago. I also met with it right in the city of Canton as well as in Siam. In spite of the glaring colour on their upper surface, the butterflies manage to conceal themselves with perfect security amidst the dry grass with which their gray underside quite harmonizes. Like all the other species of this genus, they are very fond of flying about in the hottest sunshine, preferring stony places devoid of vegetation, being most numerous during the rainless time of the year.

19. Genus: **Pyrameis** *Hbn.*

On the forewing the central discocellular is incurved, and the subcostal branches stand less close than in the genus Vanessa; the sexual organs, however, very closely approximate those of *Vanessa;* the whole sexual apparatus is largely chitinous and hardly transparent; uncus not lamellar dorsally with a trough-shaped depression, as in *Vanessa,* or covered on the underside by the larger torus, but analogous to the species of the subgenus *Junonia* it is simple and short, and presents a sharp downward curve. The valve, however shows the peculiarities of all true Vanessids, to wit, a shield-shaped enlargement which is in contradistinction to *Junonia* basally contracted, presenting here the appearance of a jaw-bone, *(P. cardui)* according to

Scudder's figure (Butt. New England). The species of this genus are widely distributed. *Cardui* for instance is found throughout the entire continent of Asia exepting the portion within the arctic circle, ranging over all the islands as well as Australia. All the others are Alpine species.

P. cardui (Vol. 1, p. 199, pl. 62 d), called "the painted lady" in England, and "belle dame" in France, "hime tateba" or "kime cho cho" ("the red maid") in Japan. Found throughout India, from Bombay to Burmah and Ceylon as well as to the Andaman Islands. Scarce in the plains of Bengal, it becomes very abundant on the higher mountains, adapting itself even to elevations of over 13000 ft. above the level of the sea and appearing occasionally in immense swarms which migrate to other regions. — **cardui** *L.* is a particularly small race found on the grassy table-land of Battak in Sumatra and on the Tengger mountains in eastern Java, whilst on the western volcanoes it attains a rather sturdy size displaying very large, black spots on the upperside of the h. w. Thus specimens from western Java resemble those from Japan which have been given the specific name of **japonica** *Stich.* only on account of their great size, whereas the other features by which the author characterizes japonica, cannot be confirmed. — I took *japonica* in Tsushima in September. *cardui* is plentiful in Formosa, but very scarce in the northwestern portion of Luzon and in Palawan. — **kershawi** *McCoy*, represents a very distinct local race, inhabiting the whole of Australia and bearing on the upperside of the h. w. three intramedian blue submarginal ocelli. Under surface of h. w. darker, with grey-white instead of yellowish, longitudinal fasciae. — **suffusa** *Oll.* is a dark aberrative form from New South Wales, and **elymi** *Ramb.* (Vol. 1, p. 199) was taken by me on the table-land of Pangalenga in western Java at an elevation of 4700 ft.

cardui. *japonica.* *kershawi.* *suffusa* *elymi.*

P. indica (Vol. 1, p. 199) may be considered, like the preceding species, to be of palaearctic origin having presumably spread from China to the southern slopes of the Himalayas and to the Philippine Islands. I discovered it in S. Celebes which it may have reached from the latter islands. According to Oberthür it is also found in Australia, and Alfken mentions it from New-Zealand under the name of *atalanta*. There are 3 local forms known: **indica** *Herbst,* (Vol. 1, pl. 62 c), is occasionally found in Bombay; its chief haunts are however the alpine regions where it has been observed in November at elevations of 16000 ft., on the glaciers in the Sikkim Himalayas, the only living creature in those bleak regions. In the N. W. Himalayas hibernated specimens were met with just as *atalanta* is with us in Spring. *indica* becomes rare at the Burmah-Chinese frontier. According to Walker it is scarce in Hongkong, flying from Decbr. till May, more abundant in the Chusan Archipelago. Specimens in my coll. from the northwestern portion of Luzon bear pure white spots on the f. w., otherwise they are hardly to be distinguished from specimens from India. — **asakurae** *Mats.* is a Formosan form with only two instead of three black spots in the red area on the f. w. Specimens collected for me by Mr. Sauter in Formosa at an elevation of about 4000 ft do not differ either from those collected by me in Tsushima in the end of Sept. nor from *indica* found in India or Japan. — **buana** *Fruhst.* which must be considered as a quite distinct local form of *indica Herbst (calliroë Hbn., callirhoë Mill.)* came from the northern slopes of the peak of Bonthain, S. Celebes at about 4000 ft. alt. I named it buana after the Celebian name of the mountain Bua-Kraeng. — This form differs from the typical *indica* form Sikkim, Japan, and Mu-Pin in having the ground colour of the basal half of both wings much more obscured with black-brown, whereas in *indica* it is pale grayish-red possessing a dull gloss. The 3 black median spots on the f. w., of which the upper one is within the cell and which in *indica* are isolated from each other, form here a confluent band. The white apical and subapical specks and rows of dots are much smaller than in *indica*. The terminal border on the h. w. of *buana* is analogous to that of *indica,* however the 4 spots which are scattered over the red submarginal band are shaped like a helmet in *buana,* having an oval form in *indica*. Four specimens of a further subspecies which I received from the mountains of Ceylon and which I described under the name **nubicola** *Fruhst.* (117 c), deviate still more from the typical *indica* in as much as the whole distal border of the h. w. is broadly bordered with an intense black, whilst *buana* and *indica* have a greatly reduced narrow anal border. All the other marks of distinction found in *buana* apply also to *nubicola*. Owing to the predominant melanotic tinge of the basal and apical areas on the f. w., the red median band which reddish-brown in *buana* is in *nubicola* a deep crimson, is considerably reduced. Whilst in *indica* the black spot in the cell is enclosed within the light-red median band, in *nubicola* the black tinge spreads to such a degree that only a thin, dark red curve is left: in *buana* finally all traces of red have vanished and the deep black spots unite into a confluent median band which closely surrounds the brown-red base of the wings and gradually fuses with it. — The larva of *nubicola* lives on Urtica nelgherriensis; the imago flies in wooded localities at 3—6000 ft. alt. It is almost never seen in continental collections. Occurs at Nuwara Elliya and in the Horton plains, flying nearly the whole year round. — **pholoë** *subsp. nov.* from the Nilgiris, contained in the British Museum, is the transition from *nubicola* to the northern form *indica*. The red transverse band on the f. w. changes into orange exteriorly, and the horse-shoe-like cell which in *nubicola* is so characteristically filiform becomes a little broader. The h. w. are considerably lighter at the distal margin.

asakurae. *buana.* *nubicola.* *pholoë.*

P. samani *Hag.* (117 b) of which only one specimen has been found in the Karo Mountains. Sumatra. replaces *dejeani* (117 c) in that island and differs from its eastern form in the red-yellow upper surface of the h. w. (Flies at about 3000—3800 ft. alt.).

samani.

P. dejeani formerly known only from Java, was found by me also in Lombok; likely to occur also in
dejeani. Bali. There are two insular forms: **dejeani** *Godt.* (117 c). Under surface resembling *samani*, which unites *dejeani* with *indica*, but with black base on the forewing limiting the transverse band to a narrow, yellow area, corresponding to the upperside. The cell of the f. w. with a reddish horse-shoe-like figure near the base and a distinct blue spot before the apex; h. w. yellowish-grey with indistinct, whitish design and blurred red-brown and blue ocelli. The main locality where *P. dejeani* occurs, is eastern Java, particularly the Tengger mountains. I was by no means astonished at the appearance of *dejeani* in Java, notwithstanding its palæarctic habitus; for the surroundings bore European character throughout with their fields of potatoes and gardens planted with beans, cabbage and lettuce in which dejeani was seen flying together with *P. cardui.* These gardens were widely spread covering nearly all the slopes and valleys in the middle region (from 4—6000 ft.), of the mountains which rise to a height of 8000 ft. At these elevations a very agreeable temperature prevails in spite of the proximity of the equator, the thermometer often registering during the night 53 degr. F., and the traveller is obliged to provide himself with warm clothes and blankets. Such a temperate climate, of course, so much like the European one, is very favourable to the development and distribution of *Pyrameis. Dejeani* is much rarer in western Java. I met with it only quite occasionally at the Pengalengan plateau at an alt. of about 3800 ft., but also on the Tjicorai at an elevation of 8000 ft., flying during the few hours of bright weather, around the summit of the extinct volcano, but otherwise found hovering about the blossoms
sambulana. of the Cinchona tree. — **sambulana** *Fruhst.*, differing from the Javanese race in having the usually darker and narrower median band on the f. w. above sometimes heavily suffused with black. The ♀ can be distinguished from the ♂, as in *dejeani*, by the more rounded outline of the wings, the purer white and lighter yellow markings on the f. w., and the duller clay-yellow intramedian border of the h. w. I observed *Pyrameis dejeani* also on the Sambulun plateau in Lombok, 4—5000 ft. above the sea level, fluttering around the painfully common and large Urticaceae on which the larva is feeding. These stinging-nettles attain in Lombok a height of from 3—$6^1/_2$ feet.; they are provided with sharp, poisonous hairs of such a length that even my clothes of heavy duck could not protect me from being severely stung while chasing after *dejeani.* The passionate ardour of the collector is of course not to be dampened by such obstacles, and I succeeded in collecting a fine series of *dejeani* in that island.

itea. **P. itea** splits into two local forms: **itea** *F.* (117 d, e), of which the ♀ and ♂, leaving their size out of the question, differ only in the greater intensity of the markings on the under side. Habitat: throughout the
lucasi. South of Australia, southern Queensland, also in New-Zealand. — **lucasi** *Misk.* unknown to me, mentioned by Waterhouse in his Catalogue of Australian Lepidoptera.

P. gonerilla inhabits New-Zealand, was discovered by Dr. Schauinsland in the Chatham Islands. Two
gonerilla. races must therefore be distinguished; **gonerilla** *F.* (117 d), from New-Zealand, of which no specimens were
ida. brought to Europe within late years, and **ida** *Alfken* (117 d), which is easily distinguished from the former by the enlarged red area of the h. w., and the variegated underside. Habitat: Chatham Islands, distant from New Zealand about 500 miles. Owing to the strong winds prevailing in these parts of the Pacific ocean it is impossible that these insects could have come over from New-Zealand (?). As it is not likely that this species has been in some way imported, it must be assumed that *ida* has gradually been developed from *P. gonerilla.* It is not to be doubted that at one time a connection existed between New Zealand and the Chatham Islands; both may have been parts of some larger island. This view is sustained by the subfossil occurrence in the Chatham Islands of the wingless *Kiwi* which is still found living in New Zealand. In those times when both islands were still united, *P. gonerilla* flew also on the Chatham Islands, but after the separation had taken place, it was gradually transformed into *ida.* (Alfken).

tameamea. **P. tameamea** *Eschsch.* (117 c) a further highly specialized insular form, which is exclusively confined to the larger among the Hawaiian Islands. The underside is characterized by a beautiful tinge of green on the basal area, resembling patina, and by the prominent, white median spots. The submarginal portion of the h. w. often shows a roseate tint as in our picture, sometimes it is whitish.

20. Genus: **Vanessa** *F.*

The widely distributed species of this genus have their origin, without exception, in the palaearctic regions, including also *Van. canace L.* although this latter species differs somewhat in its shape and is found throughout the oriental regions, ranging all over Macromalayana. In contradistinction to *Pyrameis* no species is found in Australia. All the Vanessids, the North American forms included, have highly developed sexual organs in common. In *Van. io*, the uncus is bipartite, a smaller lamella deepened above being inserted in the larger torus. The valve, especially in the American species, is greatly distended, sometimes of the shape of a bagpipe. In *io* it terminates in a point not unlike the tooth of a hippopotamus.

V. urticae; of this species there are found in India two forms peculiar to different altitudes, and both closely resembling our common *urticae*. They are seldom brought to Europe and rarely seen in continental collections. — **rizana** *Moore*. Outline of wings almost quadrate, the black basal portion of the h. w. is larger than in the German V. *urticae L.,* more approaching *connexa Btlr.* from northern Japan and the larger *chinensis Leech.* Rare in Sikkim, occasionally found by the natives in Native Sikkim, but its chief range extends from Cashmere to the Kumaon Himalayas at elevations of from 9—17 000 ft. — **ladakensis** *Moore* (117 e), of which a ♀ from Ladak is figured, seems to be mainly confined to Tibet, only found in Sikkim and Nepal on the Tibetan frontier. The type came from Ladak, where this species flies in June, July and August at an elevation of about 16000 ft., ascending northwards in the Karakorum to about 19000 ft. *urticae.* *rizana.* *ladakensis.*

V. caschmirensis (Vol. 1, p. 203), inhabiting the southern slopes of the Himalayas; there are two local forms which may be distinguished from the *urticae* forms by the slender outline of their wings and their larger size. — **caschmirensis** *Koll.* is more abundant than *rizana* and *ladakensis*, occurs from May to October, appearing on fine days, even in winter. Larva on nettles. According to Doherty, the sexual organs differ from those of *urticae rizana*. 7 spec. in my coll. from the northwestern part of Cashmere. Upper surface with broad red submarginal *fasciae* of the same tone as in *urticae.*— **aësis** *subsp. nov.* (Vol. 1. pl. 62 f and IX, pl. 117 e), ranging from Simla and Mussorie to Sikkim, taken by me near Darjeeling in May and June. According to Nicéville, *aësis* is flying there all the year round at elevations of from 2200—11000 ft. Easy to distinguish from *cashmirensis* by the mostly yellowish submarginal zone above, which is often wholly suffused with black. Distal area of both wings beneath lighter than above. *caschmirensis.* *aësis.*

V. polychloros is represented by **fervida** *Stdfss.* (117 e), a very pale form, analogous to the European *dilucida Fruhst.* (Vol. 1, p. 204) (type from the Wolga), figured, for the first time, from Indian specimens derived from Mardan in the north-western province. I have 4 ♂♂ and 1 ♀ that were collected by officers of the local garrison. *fervida.*

V. xanthomelas deviates but slightly from the Indian form **fervescens** *Stich.* (117 e), which was obtained from the same source as fervida. Figured from a ♂. Larva on Celtis australis, Pistachia integerrima, occasionally on willows. Rare throughout, sometimes hibernating and reappearing in February. A fresh brood occurs in March and April: the butterfly is fond of visiting the blossoms of Rhododendron. Moore names Cashmere, Kangra, Simla and Masuri, as localities where it has been found, besides I possess several ♂♂ from Mardan, Kulu, and Cashmere. Type came from Mardan. *xanthomelas fervescens.*

V. antiopa. This species is occasionally found at the Chumbi Pass and in Bhutan, whence Elwes at one time obtained through his collectors a large number in July and August. Judging from Moore's figure, they may be regarded as belonging to the small race **yedanula** *Fruhst.*, the type of which came from Siao-Lu. It is easily distinguished from European specimens by having the yellow distal border on the upperside of both wings thickly dusted with black. — **asopos** *Fruhst.*, from Japan, is larger than *yedanula*, less heavily dusted with black, with a very narrow white terminal border beneath, analogous to *yedanula*, whilst the upperside resembles the North American form (= obscura *Croocker*, grandis *Ehrm.*) *antiopa.* *yedanula.* *asopos.*

V. canace, widely distributed from North to South, inclines to geographical differentiation. Two general types can be recognized: The first, peculiar to the Japanese and Philippine Islands, displays before the apex of the f. w. a white spot, whereas in the second type that belongs to the Indian-Malayan region, this spot is blue. Of the former group 3 insular races are represented in my coll.; **no-japonica** *Sieb.*, (figured in Vol. 1, pl. 63 d, and described on p. 206) with the underside marmorated and the white spot on the f. w. translucent. By far the greater number of specimens do not show this whitish colouring on the subapical portion of the forewing, but retain in both wings the red-brown apical portion. Sexual organs quite different from those found in the other Vanessids, simpler in structure; uncus narrow, pointed; valve broad, distended, with two long spines crossing each other. Chiefly occurs on the island of Hondo. I have no specimens from Sapporo and Nagasaki showing the exact locality. — **siphnos** *subsp. nov.* is found in the Liu-Kiu Archipelago. To this form those examples with an uniform grey-black colour on the underside and without the red-brown apical area, which have already been alluded to in Vol. 1, must be reckoned. ♀ smaller than the Hondo-♀♀, the submarginal band light blue, studded with quite minute black dots. The white spots on the f. w. although very broad, are quite indistinct, and shaded with blue at the outer edge. Oshima, 3 ♂♂, 1 ♀ in my coll. — **ishima** *Fruhst.* (Vol. 1, p. 206, pl. 117 f) has a still darker subapical spot, edged with dark blue on the f. w. and narrower, shorter bands of blue on the hindwing. From Ishigakishima, the most southern of the Liu-Kiu islands. — **benguetana** *Semp.,* very near to *no-japonica* according to the figure given us by the author, with still farther-extended white spots and bands on the upper surface: the black dots on the submarginal band on the hindwing are just as heavy as in the lightest and beneath most beautifully marmorated ♀-specimen from Hondo in my possession. Known only from N. W. Luzon, flies from July to August at an elevation of about 3800 ft, Type from Mt. Hondo. — With **drilon** *Fruht.* the series of the blue-banded subspecies begins. In contrast to *no-japonica,* the white spotting on the apical area of the f. w. is reduced; the ♀ hardly differs from *no-japonica.* *siphnos.* *ishima.* *benguetana.* *drilon.*

the ♂, both have more enlarged but less sharply defined submarginal bands on the h. w. The underside bears larger black areas than *no-japonica*, but without being so monotonously striated with dull black gray as *siphnos* from Okinawa. Occurs in Formosa at elevations of from 4—6000 ft.; not very rare in the central mountain-
charonides. ranges near Chip-Chip, on the borders of the Dragon and Le-hiku lakes; discovered by H. Sauter. — **charonides** *Stich.* (Vol. 1, p. 206, pl. 63 c), described from the Amur and Ussuri, seems to range as far as western China: 6 ♂♂ in my coll. from Setchuan (Siao Lu. Tien-tsuen), harmonizing with the cited figure. According to Leech it attains 80—90 mm in expanse, is fond of resting on wet spots in the road and of sipping the sap oozing from the trunks of wild cherry-trees. Specimens from Corea are said to approach *no-japonica* rather than *charonides.*
charonia. — **charonia** *Drury* (not Donovan as recorded in Vol. 1. p. 206), from the southern part of China and Hong-Kong, a great rarity in Tonkin (flying from June to August) and in Assam (November, December). The ♀♀ are remarkable for the corkscrew-like sinuous, blue submarginal band on the f. w. In Hong-Kong. *charonia* is very fond of alighting on hot stones and resting upon the trunks of trees; it is very shy and a strong flier. Larva on Smilax, gregarious, in December. Holland says that this species is very rare in Hainan. — Under the general
canace. name of **canace** *L.* (Vol. 1. p. 205) all the forms found in continental India are comprised: the butterfly occurring from Cashmere as far as Burmah, is also recorded from the Nilgiris and other localities in southern India. According to Doherty, *canace* is found in the Kumaon Himalayas. at elevations of from 2500—7800 ft. It is rather scarce in Sikkim and only to be met with during the warm season at altitudes not exceeding 6000 ft.
haronica. It has been observed, in Burmah, from October til February. — **haronica** *Moore* (117 f) is remarkable for the broad, blue band on the f. w. confluent with the transcellular spot, and the delicate blue dots at the terminal border of the h. w., as well as for the underside which in the distal half of the forewing is light brown throughout. I saw this form in Ceylon at elevations of from 2—6000 ft, resting on trunks of the trees in the woods with the wings closed over its back, and still flying in the late afternoon. Larva light red, dotted with black, each segment separated by a purple belt, with 8 rows of yellow branching thorns to each segment: head and feet black: on Smilax. Pupa red-brown, abdominal segments with two dorsal rows of minute knobs dotted with
perakana. red; head with two long horns curved inwards. The butterfly flies all the year round. — **perakana** *Dist.*, somewhat similar to *javanica* (117 f) but with a broader, blue transcellular spot on the f. w. and broadly marmorated
battakana. beneath with bright brown-yellow. Malay Peninsula: scarce in collections; ♂ unknown. — **battakana** *Nicér.* has a broader blue band on the upper surface of the h. w. and a much narrower blue zone on the f. w. than the Javanese form. Scarce: Dr. Martin has only received 8 or 10 specimens in about 12 years. Time of appearance May and December, only on the high table-lands. Dr. Hagen met with it in south-western Sumatra on
javanica. Mt. Kaba. — **javanica** *subsp. nov.* (117 f), a very constant race, of which I have in my coll. 3 ♂♂ and 4 ♀♀ from western Java. The band on the f. w. more enlarged than in *battakana*, its components, while less isolated are not united with the discal spot as is the case in the form from Borneo. ♀ but little larger than the ♂ with the apex of the cell in the hindwing slightly dusted with blue. In the eastern part of Java a somewhat different local race appears which is lighter and more richly decorated with blue, being particularly remarkable for the broad blue markings on the terminal border of the hindwing. It is met with at elevations ranging from 1600—3200 ft. The butterflies could easily be attracted with bananas. However they are very shy and can only be netted if one approaches them very cautiously, otherwise they dart off in wild flight, but return obstinately
maniliana. to their attractive meal. — **maniliana** *subsp. nov.* from the Brunei Sultanate, N. Borneo. comes closest to *perakana Dist.* from which it differs in both sexes in the presence of the very broad, light blue band on the forewing, which is united with the discoïdal spot. Underside darker than in the other Macromalayan subspecies. ♀♀ apparently more frequent than the ♂, or more easily captured.

21. Genus: **Polygonia** *Hbn.*

Of this genus, separated from Vanessa by the sharply projected apex of the f. w., two of the commonest species of the Palæarctic Fauna arex also found in the tropics.

c-aureum. **P. c-aureum** *L.* (vol. 1, p. 207, pl. 64 b). A beautiful, large form of this species occurs in the Central Mountains of Formosa (Le-hiku lake, Chip-Chip, Polisha), not rare in July and August. I have captured it also in the northern and central parts of Tonkin, from June till August, at about 1000—2600 ft alt. Quite similar specimens from the mountains of western China, Futschau and Japan are also contained in my coll.

l-album. **P. l-album** *Esp.* (vol. 1. p. 206. pl. 63 d) enters the Indian Region through Chitral and Cashmere. Moore and Bingham name it *Var. v-album Denis.* Scarce, but few spec. hitherto known, among which 2 from Gulmurg, Cashmere.

P. c-album, occurring in the north-western Himalayas in two forms, of which the more common form
cognata. is **cognata** *Moore* (117 f), already described (vol. 1, p. 208). The 8 ♂♂, 3 ♀♀ from the neighbourhood of Mardan, while displaying some slight differences among themselves in the extent of the dark fasciae on the
agnicula. upper side of the hindwings, are all distinguished from the second form **agnicula** *Moore* (117 f) by having an uninterrupted yellow band accompanying the margin, which in agnicula is reduced to a few yellow dots within a brown marginal area. I possess specimens from Cashmere and Kulu, which are scarcely distinguished

from European specimens of *P. c-album*, and were known already to Moore. The darker **tibetana** *Elw.* is found also in Native Sikkim, Chumbi, Bhotan, Nepal and the Kumaon Himalaya. The exceedingly rare specimens which I received from Lehiku Lake in the mountains of Formosa, where they fly in July and August at elevations of about 3800 ft., belong to **lunigera** *Btlr.* (Vol. 1, p. 208). *tibetana.* *lunigera.*

P. egea was only within recent times discovered at the Chitral-Afghan border, being cited as *interposita Stgr.* (Vol. 1, p. 209) by Bingham, according to whose description it deviates from *egea* in the darker shading on both sides of the wings. *egea.*

22. Genus: **Araschnia** *Hbn.*

This genus in which Geyer made his interesting discovery of the difference among the various broods, is represented only by one form in Assam. From *Vanessa* it differs in that on the forewing but one subcostal nervule arises before the end of the cell. The eyes are clothed with hair. In the Neotropical Region it is replaced by the closely allied genus *Coatlantona*. The ♂♂ have occasionally the first subcostal nervule coalescing with the costa and the second subcostal.

A. prorsoides (Vol. 1, p. 210, pl. 64 f.) is represented by the form **dohertyi** *Moore* in Manipur and the Naga Hills, where it was discovered by Doherty at elevations of from 6—8000 ft. in August and September 1889. The larva feeds on nettles; the imago which is quite common in open places and in the vicinity of small water-courses, has the discal band on the upper surface of both wings white instead of ochre-yellow; the submarginal band on the hindwing is only indicated by a fine fulvous line. *prorsoides.* *dohertyi.*

23. Genus: **Symbrenthia** *Hbn.* (= Laogona *Bsd.*).

This genus deviates from *Araschnia* in having on the forewings two subcostal nervules given forth before the end of the cell and the middle discocellular more concavely out-curved; but the hindwings are identical. The ♀ has, corresponding to the more rounded outline of wings, all the veins spreading farther apart near the costal border, in consequence of which the upper discocellular is longer, more easily recognized and not so short as in the ♂. The sexual organs are quite primitive: Uncus normal, slender and distally gently curved; the valve which resembles that of the Vanessids is trough-shaped, clothed with fine hair, ventrally concave, abruptly ending in a sharply pointed, chitinous spur curving steeply downward; scaphium feebly developed, membranous. Penis long, uncommonly sharp. Saccus slender. The larva which feeds on various Urticaceae, resembles those of the genus *Junonia* as well as *Vanessa caschmirensis Koll.*; pupa in every way like those of Vanessa. The imago prefers the foot-hills to the plains, but occasionally ascends in the Himalaya to elevations of 8000 ft. All the species separate even within short distances into local and insular races, and where the seasons offer different climatic conditions, also into summer- and winter-forms: moreover, in the Malay Archipelago we can distinguish between lowland and alpine forms and, in a few island groups, sexual Dimorphism or even Trimorphism is common. Several species are quite local and limited to certain parts of the Himalaya Mountains, others are purely Macromalayan, whereas the most common species has an enormous range from east to west, being found from northern India to New Guinea; but oddly enough the genus is not represented in southern India and Ceylon. Astonishingly rich is Celebes with three endemic and one ubiquitous species. Their mode of life has been well described by Hagen, who writes that, although endowed with rapid, quick, but somewhat jerky flight, they do not care to make use of their wings unless driven to it by necessity. They love best to sit perfectly still with closed wings, but always on the alert, on sunny forest-roads, sipping the moisture from some wet place or feasting on excrements. When disturbed they only move as far as is absolutely necessary for their safety, quickly returning again, after a few times flying to and fro, to their old places.

C. hippoclus is represented in the Palaearctic Region by *lucina Cr.* (Vol. 1, p. 211), advancing northward as far as I-tschang, and nowhere rare in western China according to Leech, whose figure on pl. 24 of his magnificent work is erroneously marked *asthala*. In Hongkong the subspecies surpasses in size that from India proper, and is not at all scarce from December until May. The first brood appears in February and is generally found on sunny roads, resting with expanded wings on leaves and branches about 10 ft. from the ground. The oldest name for the Indian form is **khasiana** *Moore* which circumscribes at the same time the rainy-season form, erroneously called lucina by Stichel in Vol. 1, pl. 64. — **daruca** *Moore* is based upon the paler specimens of the dry season; the ♀♀ are remarkable for the narrow, peripherically reddish, black bands on the upper surface which are, especially on the hindwings, greatly encroached upon by the increasing subbasal and submarginal bands. The under surface is paler yellow, the red-brown marmoration reduced. *daruca* is most perfectly developed in Sikkim; less characteristic are the specimens I have from Assam, Tonkin (August-September), Annam (February) and Siam (January). The larva which was described in Vol. 1, resembles that of *Vanessa caschmirensis Koll.*; it feeds on Girardinia heterophylla Dcne. and Debregasia bicolor, always gregariously. Pupa adorned on the thorax with beautiful golden spots. The imago is everywhere common, ranging up to about 6000 ft., from the north-western and Kumaon Himalayas as far as Bur- *hippoclus.* *khasiana.* *daruca.*

formosanus. mah, but southward not beyond the western and eastern Ghats, in the Latitude of Vizagapatam. — **formosanus** *Fruhst.* (121 e) has in the ♂ among all the known forms by far the broadest black bands, and also in ♀ the yellow-brown stripes are on the hindwings almost one half as broad as in the ♀ of *lucina Cr.* from China. Found in Formosa from April until August, from the southern point of the island (Taihanroku) to an elevation of 4000 ft.

thimo. in the central mountains. Not scarce. — **thimo** *Fruhst.* is the first in a series of highly interesting, insular forms from the Philippines, the determination of which by Semper and Staudinger was made very difficult by the existence of a number of different seasonal forms. The form from Luzon approaches in the ♂ rather those from Continental India, particulary *daruka Moore*, in the broader yellow subapical and subbasal patches on

galepsus. the forewing, which serve to distinguish it at a glance from *spercheius* and *philippensis*. Luzon. — **galepsus** *Fruhst.* from Mindoro has in ♂ all the black bands broader, and the yellowish-white markings correspondingly

anna. reduced; the under surface is more richly marked with violet and black than in thimo. — **anna** *Semp.*, type from the Camotes Islands (between Cebu and Leyte), has according to the figures made by Semper of specimens from Bohol, two ♀-forms, one of which belonging to the rainy-season has on the upper surface the black bands very broad and the fulvous bands quite narrow; the other one of the dry-season (cf. fig. 8, pl. 21 of Semper's work on Philippine butterflies) has the bands still much broader and laved with yellow at the periphery. Such specimens are also contained in Semper's collection in the Senckenberg Museum, being named

philippensis. semperi. sperchius. by me in 1899 ♀-forma **philippensis** *Fruhst.* — The showy, dark and large form from Mindanao called **semperi** *Moore* (*nom. nud.*) has by far the largest ♀♀, still more copiously laved with yellow at the periphery than ♀♀ from Bohol. — **sperchius** *Fruhst.* differs in ♂ from *semperi Moore* (= *lucina Semp.*, Schmett. Phil. pl. 21, fig. 7, ♂ nec ♀) in the narrower subapical and the much broader black bands on the hindwings. The ♀ which is much larger than *philippensis*-♀, has all the light bands considerably narrower, although somewhat broader than in *anna Semp.* from Bohol. Types from Bazilan in my collection, collected in February and March by W. Do-

dissoluta. herty. — **dissoluta** *Stgr.* Although it was originally established as a subspecies of *hypatia*, it remains still doubtful whether it should not rather be classed with *hippoclus*, considering that Staudinger was unable to distinguish between the three Macromalayan species. According to Staudinger the ♀♀ have the bands almost clear white, resembling *javanus forma hippocla Hbn.* This subspecies seems to be very scarce, or limited to a certain

jolonus. period, for Doherty found during January 1898 not a single specimen. Palawan. — **jolonus** *subsp. nov.* appears from the specimens contained in Semper's collection to have the black bands nearly twice as broad as *dissoluta* and not notched at their edges; judging from the ♀♀-specimens in the Staudinger collection, they are more variegated than those from Borneo, being a distinct transition to the more richly marked ♀♀ from the Philip-

aritus. pines. Jolo, Sulu Archipelago. — **aritus** *subsp. nov.* on the other hand represents a transition from the Jolo race to *dissoluta* from Palawan, differing from either form in the unusually small, subapical patches on the forewings. Collected by the Malay Angara on the islands adjacent to the northern point of Palawan. Type

marius. in Semper's collection. — **marius** *Fruhst.* from Borneo is larger than the Javanese form and rather darker in colour. The black bands are greatly enlarged at the expense of the red-brown ground-colour, although narrower than in *violetta Hag.* from Sumatra. Beneath the ground-colour is lighter than in *violetta*, but darker than in *hippocla*, being intermediate between the two. The ♀ from the lowlands of Borneo closely approaches the lowland-♀ of the Sumatran form, but has the black bands much more frayed-out i. e. more deeply notched or sharply dentate; the red-brown areas are greatly reduced in size. A similar behaviour is noticed in the Alpine forms of those islands; specimens from Sumatra are larger and darker, with broader black and more rectilineal

lucianus. bands. Northern Borneo; type from the lowlands, south-eastern Borneo, Amuntai. — **lucianus** *Fruhst.* from the Malay Peninsula, somewhat like *daruka Moore* from Siam, which it connects with the other Macromalayan

violetta. forms. The yellow bands are somewhat broader than in Sumatran specimens. — **violetta** *Hag.*, based upon specimens from the Battak Mountains in Sumatra, is somewhat larger in size; beneath it is marked with brillant

sumatranus. violet, resembling specimens found in the Bovenlanden near Padang in western Sumatra. — **sumatranus** *subsp. nov.* represents the form from the lowlands, resembling in the ♀ *khasiana Moore*, differing from the ♀♀ of *violetta* in the broader yellow subapical band on the forewing and the general predominancy of the yellow bands. Larva found on Rameh, an Urticacea, always five or six living together in a leaf spun together with silk-threads, quite common in November and December. Pupa like that of Van. urticae. White ♀♀, such as we know from Java, have not been observed in Sumatra. When flying they resemble a yellow Neptis; but their motions are more

niasicus. rapid, quickly carrying them out of sight (Martin). — **niasicus** *Moore* (1899) (= niasicus *Fruhst.* 1900). The ♂♂ are rather darker than in the Javanese form, more broadly banded with black, the orange bands correspondingly narrower. All the black bands are on either side strongly frayed out, giving this form a most peculiar appearance hard to describe. In three out of four ♀♀ the black median band on the forewing does not touch

batunensis. the costal margin. — **batunensis** *subsp. nov.* is more like *violetta* from western Sumatra than like the form from Nias. All the reddish bands as well as the club-shaped spot in the cell are greatly enlarged. The under surface appears more faded than in *niasicus*, and not by far of such a deep red-brown tint as in *violetta*. Batu Islands.

— From Mentawej and Engano no *Symbrenthia* is known. — **javanus** *Stgr.* is a small and delicate form of which Huebner was the first to picture the Alpine ♀, which may therefore be named **hippocla** *Hbn.* All the ♀♀ found from the plains up to about 2000 ft. resemble the ♂♂ in the yellow bands. As I have such yellow ♀♀ only from the Zuidergebergde in eastern Java, I am unable to state whether they deviate in any way from those found in the western part of the island. At any rate the white ♀♀ described by Godart are quite abundant both in the eastern and western parts of the island at elevations exceeding 2500 ft. Those from the east have the white bands somewhat broader, and are invariably rather smaller than those found at the Volcano Gede. — **balinus** *Fruhst.* is closely allied to the East-Javanese form; but ♂ with somewhat larger yellow spots, ♀ smaller and having on the forewing the white transcellular patches greatly reduced; the under surface is in both sexes more variegated than in *javanus* from the Tengger Mountains in eastern Java. Island of Bali. — From Bawean I have never received any *Symbrentia*, neither are any reported by Snellen from Kangean. — **lombokensis** *Fruhst.* appears in two seasonal forms: In the ♂♂ of the dry-season the yellow median band on the forewing coalesces with the cellular spot; the ♀♀ recall those of *hippocla* from Java, having like these the white bands peripherically not bordered with reddish. The under surface is mainly white, distally laved with yellowish. The ♂♂ of the rainy-season resemble the ordinary Javanese ♂♂; but the ♀♀ have the bands narrower, bordered with reddish, and on the under surface broadly marbled with brown-violet. — **illustrata** *form. nov.* found from the coast (Ekas, May) up to the table-land of Sambulun, 4000 ft. above the level of the sea, generally flying on the edge of the small creeks that water the flower-covered table-land. — **sumbawensis** *Fruhst.* (121 e). The ♂ has on the forewing the black bands coherent and broader than in the Javanese form. ♀white, beneath whitish-violet marked with brown, but without the yellowish outer portion characteristic of the white Javanese ♀♀. Sumbawa. It thus appears that all the hitherto known Micromalayan forms of *hippoclus* have exclusively white ♀♀. — **confluens** *Fruhst.* is the form from southern Celebes, distinguished, like nearly all the other species from that island, by its gigantic size, with larger bands than are found in its allies from India and the Sunda Islands; moreover it has on the hindwing the costal spot broader and coalescing with the median band. — **clausus** *Fruhst.* is the form from the lowlands in North-Celebes, differing from the southern Alpine form *confluens Fruhst.* in its smaller size and the narrower, more deeply constricted, black bands. The forewing has the red-brown subapical spot broader than in *confluens*, and tapering but imperceptibly toward the costa. The under surface is darker, the brown net-like markings more distinct. Menado, northern Celebes; specimens from Bangkai are almost identical. — **centho** *Fruhst.*, distinguished by the extraordinarily broad, black bands, which border both wings on every side, and greatly encroach upon the red-brown ground-colour. Sula Islands. On the forewing the red-brown subanal band is very much narrower than in the specimens from northern Celebes, being composed of two isolated spots. The under surface is considerably darker than in *clausus* and *confluens* from northern and southern Celebes. Sula Mangoli. — **obianus** *Fruhst.* differs in the ♂ from specimens from Batjan, Buru and Amboina in that the black bands on the upper surface are greatly reduced, in consequence of which the red-brown ground-colour predominates to such an extent that especially the oblique median band is greatly diminished and between the upper and middle medians quite interrupted. The forewing has the fulvous or reddish-brown subapical band nearly twice as broad as in *hippoclus* from Amboina. The colour of the underside is lighter, the bands narrower; the subanal spot less broad and paler blue, the postdiscal, submarginal, cuneiform spots are pale violet, much broader than in specimens from Batjan and Buru, which have those spots dark blue-violet. Specimens from Obi are larger than those from the northern and southern Moluccas, the forewing measuring 25 mm in length. The ♀ is very much like the ♂, but has the wings more rounded and the ground-colour lighter; the black markings are still more reduced than in the ♂ and, especially at the base of both wings, nearly entirely obsolescent. In this it differs also from *hippoclus*-♀♀ from Amboina, which have the basal area of both wings distinctly spotted with deep black. On the hindwings the yellow submarginal band is darker and narrower than in *Amboina*-♀♀, beneath the helmet-shaped spots at the anal angle are dark violet, instead of white as appears from Cramer's figure and from the Amboina-♀ contained in my collection. Island of Obi. — **batjana** *Fruhst.* ♀ differs from *hippoclus*-♀ from Amboina and *obianus*-♀ in having the black median bands on the upper surface of the hindwings broader, the under surface lighter yellow than in obianus, but more copiously marbled with deep red-brown. Northern Moluccas, from Batjan, Halmaheira in my collection, presumably also found in Morotai and Ternate. — **buruanus** *Fruhst.* is oddly enough more closely related to *batjana Fruhst.* from the northern Moluccas than to *hippoclus* from the neighbouring island of Amboina, or from Obi*) which is situated between Batjan and Buru. It is distinguished from *batjana* by its larger size and the broader red-brown and narrower black bands. The under surface has a faded appearance, with more obsolete and paler, net-like markings; on the hindwings the subanal, helmet-shaped spots are pale gray-violet and much broader, but the blue lunule before the tip of the tail is very much narrower. From Buru. — **hippoclus** *Cr.* from Amboina and Ceram, where it is very scarce. Cramer's type was a dry-season form, resembling the September specimens in my collection,

javanus. *hippocla.* *balinus.* *lombokensis.* *illustrata.* *sumbawensis.* *confluens.* *clausus.* *centho.* *obianus.* *batjana.* *buruanus.* *hippoclus*

*) A similar case was pointed out by me in "Sitzungsberichte Berl. E. Verein" in 1904, in connection with an Ideopsis, of which Batjan and Buru have some forms in common that can hardly be separated, whereas the interjacent Island of Obi is inhabited by a highly differentiated subspecies.

differing in the ♂♂ from all the other Moluccan forms in the broad yellow, club-shaped spot on the forewing; ground-colour of the under surface quite pale; 2 ♀♀ which belong also to this form, deviate from Obi specimens in the broader black patches on the upper surface. The ♂♂ of the rainy-season form differ but slightly from those found in Buru, in the smaller red-brown subapical dots on the forewings. In the Spice, Key and Aru Islands the ge-
hylaeus. nus *Symbrenthia* is not represented, being only met with again in New Guinea: **hylaeus** *Wall.* (121 d) is a highly specialized form, lacking on the hindwing the black median band. It was described from Dorey, and I pos-
hippocrates. sess quite a series collected by Doherty in Kapaur and the Arfak Mts. in Dutch New Guinea. — **hippocrates** *Stgr.* from Kaiser-Wilhelmsland, discovered by Wahnes on Astrolabe Bay, and reported as a great rarity from
atta. Simbang by Hagen, is not represented in my collection. — **atta** *Fruhst.* a distinct local form from the d'Entrecasteaux Islands, representing a transition from the western forms to the highly differentiated *hylaeus Wall.* Both wings have the outer border just as unusually broad as in *hylaeus*, but the hindwing still contains the black median band, which is among all the forms of *hippoclus* only missing in *hylaeus*. In addition the black band below the cell of the forewing is very broad and jet-black, and the black basal and costal bands on the hindwing are at least twice as broad as in *hylaeus*. The ground-colour is a rather uniform light yellow-brown, lacking the whitish and red-brown irroration peculiar to *hylaeus*. On the under surface *atta* resembles the continental forms in every way but the dark violet, very narrow, subanal streak forming the inner border of the
armis. caudate appendage. Fergusson, type, ♀, forewing measuring 25 mm in length. — **armis** *subsp. nov.* is an intermediate form between *hippoclus Cr.* from the Moluccas and *hylaeus Wall.* from New Guinea, in as much as the black median bands on the hindwings are not so completely obliterated as in the latter. Neu-Pommern, very scarce.

platena. **S. platena** *Stgr.* is confined to Celebes and has only been observed so far in the Minahassa. In size like *hippoclus clausus Fruhst.*, but the tail on the hindwing is longer. On the forewing the yellow subanal band is drawn out to a point both in front and behind. The black median band on the hindwing is steeper. Beneath it is marked with two wedge-shaped, whitish-violet patches in the cell and between the furcation of the medians. The forewings are of a richer red-brown colour mottled with violet; also the hindwings are at the base deeper brown, but have the distal half paler and more faded than in *clausus*. Possibly *plateni* is after all only an Alpine and seasonal form of *hippoclus clausus* of the lower plains.

S. hypselis. This collective species is, in contradistinction to *S. hippoclus*, limited to the Indo-Macro-malayan Region; the seasonal forms are less sharply separated, and there is only one ♀-form known which resembles the ♂, but none which is heteromorphic. *hypselis* is more scarce than *hippoclus*, only in Sikkim it is counted as the most common *Symbrenthia*. It has never been observed to ascend to more than 3000—4500 ft.,
sinica. and is not found in southern India or Ceylon. — **sinica** *Moore* (Vol. 1, p. 211) from western China is the most
cotanda. northern form known. — **cotanda** *Moore* (Vol. 1, p. 211, pl. 61 e) based upon specimens of the dry-season from Sikkim, which differ from our figure in that on the hindwing the median band is much narrower, sometimes disappearing even completely toward the base and leaving the yellow-brown basal area quite uninterrupted. The under surface is of a faded, pale yellow tone, marked with light green in the submarginal zone of the hindwing. The imagines are generally seen flying about the rocks in the narrow gorges formed by the mountain-streams, and alighting on overhanging branches. From Cashmere and the Kumaon Himalaya to Nepal and
assama. Sikkim. — **assama** *Fruhst.* replaces *cotanda* in the eastern Himalayas, extending probably as far as Burmah.
lilaea. — **lilaea** *Hew.* is a melanotic aberration of the preceding form, having the hindwings almost completely obscured with fuscous, with faded, diffuse and shadowy markings on the under surface. Hewitson mentions the East Indies as its home. In ♂ the forewing is 25 mm in length against 22 mm in *cotanda*. The ground-colour is a darker orange, all the black bands are much broader. In the colouring of the under surface it resembles much more the typical *hypselis*, but has the discal spots on the forewing dark yellow instead of red-brown. The type was founded on ♂ and ♀ of the rainy-season; also the dry-season form is in both sexes larger and
sinis. darker than specimens of *cotanda* from Sikkim. **sinis** *Nicév.* refers to the form from the Karen Hills, Tenasserim and the Malay Peninsula. The author based his figure upon a specimen of the intermediate form, with paler under surface than either *assama* or *circesia* from Sumatra (which latter passed formerly under the name of
circesia. *sinis*). — **circesia** *subsp. nov.* resembles above *hypselis* (121 d) from western Java, but has on the hindwing the black median band broader towards the anal angle, and the yellow subapical spot on the forewing more elongate. The under surface is more extensively marked with fulvous, the submarginal macular band rather yellow than blue-green. Altogether the black spotting on the under surface is more pronounced than in *assama* and *hypselis*. Of the ♀ we know two forms, one from western Sumatra with broad bands on the upper surface, the other from the Battak Mountains in the north-eastern part of the island, having the bands more frayed-out and narrower, like *redesilla*. Hagen reports that *circesia* is limited to the table-land of Toba and Karo,
ottilia. and to the mountains between Palembang and Benkulen. — **ottilia** *Fruhst.*, an insular form distinguished by the broad, deep ochre-yellow irroration on the under surface and the small blue eye-spots on the hindwings; the forewing has on the upper surface the fulvous subcostal patch still larger, and this patch as well as all the trans-
hypselis. verse bands more cut-up than in *circesia*. Island of Nias, scarce. — **hypselis** *Godt.* (121 d), the best known sub-

species, is one of the most common butterflies of western Java, being found everywhere at elevations of from 2000—3800 ft, generally on moist spots of the roads leading through the woods. Beneath it is distinguished from all hitherto described forms by the red-brown discal spots. — **redesilla** *Fruhst.* differs from *hypselis* in the greater extent of all the black bands on the upper surface, in consequence of which the red-brown spots are reduced in size. Beneath, however, the mottled red-brown patches predominate; the ♀ is much paler, the yellow bands are sometimes pure white in the middle. It is found at altitudes of from 1500— ca. 4500 ft., alighting on wet spots, and is one of the first butterflies which after a rainfall give life to the landscape. If no fit places are available where they may follow their favorite occupation of sipping water, they alight with expanded wings on low shrubs. Considering their delicate wings, they fly very rapidly in a zigzag-course, but never any great distance. Eastern Java, collected by me on the vulcano Arjuna and the Tengger Mountains. — **optatus** *subsp. nov.* the most eastern form, displays all the characteristics of *redesilla*, only in a higher degree. The ♀♀ have on the upper surface of both wings the black median bands bordered with red-brown, and also beneath we notice a great increase of the siena-brown patches at the expense of the black spotting. Island of Bali, first discovered by Doherty; 3 ♀♀ in my collection. — **balunda** *Stgr.* is the largest of all the insular forms, easily recognized by having the subapical spot on the forewing protracted into the shape of a band, although in the ♀ not quite so broad as in *ottilia*-♀ from Nias. Underside with more prominent black marbling than in *circesia* from Sumatra. From the Kina-Balu district in North-Borneo; also one pair from Amuntai, south-eastern Borneo, in my collection. **niphandina** *subsp. nov.* from Palawan, named *niphanda* by Staudinger in his list of the Rhopalocera of that island. It is inferior in size to *balunda*, with lighter yellow bands on the upper surface. Scarce, not found by Doherty. Type in the Staudinger collection in the Zoological Museum at Berlin.

redesilla. *optatus.* *balunda.* *niphandina.*

S. brabira is an excellent, widely-distributed species, ranging throughout the Himalayas and northward to western China, lately discovered by H. Sauter also in Formosa. It is by no means a winter-form of *S. hypselis colanda*, as Stichel states in Vol. 1, p. 211, but splits in the Indian Region into several distinct seasonal and local forms. — **hysudra** *Moore* and **brabira** *Moore* are relatively small forms from Cashmere, representing an intermediate resp. dry-season form. In size they resemble *scatinia*, but have the under surface much paler yellow and less densely spotted with black. — **asthala** *Moore* (nec *Leech*), however, was based on the rainy-season form from Cashmere, surpassing *scatinia* (121 e) in size, with broad black bands above. Doherty found these various forms in the Kumaon Himalaya at elevations of from 5—9000 ft. It is also reported from the upper Ganges valley, Kulu and Masuri. — **sivokana** *Moore* from the eastern Himalaya, where it is often taken by the collectors in Native-Sikkim in considerable numbers, especially during March; still it is hardly ever found in German collections. It is quite likely that some other form of *brabira* will be discovered in western China, but the specimens figured by Leech as *asthala* belong really to *hippoclus lucina Cr.*, whereas his description refers to a form of *hypselis* named *sinica* by Moore, with which he may have confounded some forms of *brabira*. At any rate it is certain that **scatinia** *Fruhst.* (121 e), whose appearance in Formosa is rather surprising, belongs to *brabira*, differing from all the other subspecies in the more irregular, zigzag-shaped subapical spot, and the darker bands on the upper surface. Beneath it is remarkable for the melanotic colouring and the minute, dark blue, submarginal specks. The ♀ has the wings more rounded, with paler yellow bands, and is larger than the ♂. Not at all scarce at Chip-Chip and Lehiku Lake in Formosa, at an elevation of about 4000 ft.; discovered by H. Sauter.

hysudra. *brabira.* *asthala.* *sivokana.* *scatinia.*

S. niphanda *Moore* (121 d), another species of the *hypselis* group, limited to Sikkim and Bhotan. It is easily known by having on the under surface the otherwise pure white median areas faintly irrorated with pink, and the submarginal region broadly marked with blue; the upper surface has the subapical band undulate and angled like in *scatinia*, the subanal stripe uncommonly narrow, and on the hindwing the median band reddish-white in the centre. — **silana** *Nicév.* appears from the specimens in my collection to be a well-differentiated winter form, possessing all the characteristics of such, namely the increased lighter striation, and on the under surface the brown-margined, black, square spots. *silana* is peculiar to the lowlands, *niphanda* an Alpine form. The former has so far only been found between March and May, *niphanda* however as late as October, at elevations of from 3500—5000 ft.

niphanda. *silana.*

S. hypatia, an interesting, purely Macromalayan species, not heard of again since Wallace's time, and quite rare until I rediscovered it in considerable numbers during my stay in Java, and published in 1894 the first recognizeable picture in the Stettiner Entom. Ztg. Staudinger considered for a long time *hypatia* to be identical with *hippoclus*. On the upper surface it has the longest and broadest, zigzag-shaped, subapical stripe which, in connection with two roundish patches above it, render it easily recognizeable among all the other species. Still more characteristic is the under surface which is entirely devoid of all black markings, displaying

a delicately-woven network of red-brown lines, interspersed with large quadrate and wedge-shaped patches of whitish-yellow, and at the inner margin of the forewings a recumbent ≍ shaped design; the tails of the hind-
chersonesia. wings are very long and sharp-pointed. Three forms are known: **chersonesia** *Fruhst.* having on the upper surface the yellow stripes somewhat narrower, but the under surface marked with the deepest chestnut-brown. Type from the Malay Peninsula. As I do not have any specimens from thence available, I unite with it also the forms from north-eastern and western Sumatra. According to Hagen it is limited to the foot-hills, being found on
hypatia. wood-roads up to about 3000 ft. — **hypatia** *Wall.* has especially in the ♀ the upper surface covered with broad, pale yellow patches bordered with reddish-brown, and on the hindwing the black median band partly obsolete. Beneath it is lighter yellow than *chersonesia*, delicately marked with red. I only found this form in western
hippocrene. Java up to about 3800 ft. — **hippocrene** *Stgr.* appears, curiously enough, to approach much more closely *hypatia* from Java than the Sumatran form, having on the under surface the red-brown network more conspicuous, and on the hindwing the intranerval spot analogous to *chersonesia*, blue-green, broader and protracted as far as the tip of the tail, whereas in *hypatia* it is smaller and rather purplish in colour. The ♀ is distinguished by the white instead of yellowish bands, resembling somewhat *hippoclus javanus*-♀, forma *hippocla Hbn.* Possibly there exist also yellow ♀♀. Kina-Balu district.

intricata. **S. intricata** *Fruhst.* (121 e). In the ♂ the apex of the forewing is rounded, the hindwings are of equal breadth as the forewings, and provided with very long slender tails. On the forewing the black distal border is divided at the anal angle by a brown streak. The black median band bifurcates at the end of the cell, the inner branch coalescing with the black costal border; the outer one continues at first towards the apex, but turns finally also towards the costa, increasing in width to such an extent that there remain of the ground-colour in the ♂ but a few brown dots, in the ♀ a rather broad stripe. From the black costal border a fine spur advances into the cell. The hindwings have in the basal area a broad, black, distally deeply frayed-out spot and, adjoining it, in the middle of the costal margin a very conspicuous, white, quadrate patch. The middle of the wing is traversed by two bands starting from the costal margin, of which the inner one is very broad and reaches the anal angle, whereas the outer, narrower one ends at the submedian. The brown outer border is traversed by a thin black line, and bordered by a narrow, black, macular band. From the tail which is yellow at the tip, a fine black line is drawn to the inner margin. The forewing has the yellowish under surface crossed by a net-work of whitish and brownish spots. The costal margin is black, and below the cell we notice a violet dot as in *hippoclus Cr.* The hindwing has on the under surface a whitish median spot continuing to the lower radial, two whitish, basal, longitudinal bands and a similar transverse band, which latter starts from the middle of the inner margin and, turning upwards, crosses the wing parallel to and within the white median spot, and ends at the costal margin. The outer border and fringes are black. On both wings a greenish band reaches from the middle to the anal angle, being separated by a light brown stripe from the submarginal band, which is composed of silvery-green, almost square dots. Antennae alternately ringed with black and white, club black, red at the tip. The ♀ is larger, lighter-coloured on both sides, with less distinct bands and spots. In ♂ the length of forewing is 20 mm, in ♀ 22 mm. Of this species I found in November and December 1895, 2 ♂♂ 1 ♀ at the edge of the woods bordering the Bay of Toli-Toli, since which time no specimens have ever reached Europe again.

hippalus. **S. hippalus** *Fldr.* (121 e) is the third species of *Symbrenthia* peculiar to Celebes and, with *S. hippoclus confluens Fruhst.* and *S. hippoclus clausus Fruhst.*, the fourth species found on that island, which therefore ranks with the entire continent of India, in which also four species are known, whereas the whole Macromalayan Archipelago boasts of but three species. On the upper surface *hippalus* resembles much rather *Prothoë dohertyi* (121 c) than a *Symbrenthia*. The under surface is like that of *Mynes*, being remarkable for the large square spots of pure white which are crossed by a network of heavy black lines; moreover both wings are marked at the base and inner angle with light ochre-yellow. As a rule the ♂♂ greatly exceed in size our figure, the ♀ which was until now unknown and undescribed, measuring even as much as 53 mm in expanse. Still more it resembles *Prothoë dohertyi* in having on the forewings a whitish median band which reaches nearly to the costal margin, and a yellowish basal, as well as a dirty-white median spot in the cell. The hindwings are adorned with a dull yellow lace-band, surrounding the black submarginal spots. The ♀ has the under surface more cream-coloured, marked with paler yellow. Northern Celebes, Minahassa, ♂ always rare, ♀ exceedingly scarce. But 2 specimens in the Fruhstorfer collection.

24. Genus: **Mynes** *Bsd.*

Notwithstanding the gaudy appearance of the members of this genus they are true Vanessidi, which is not only proved by their structure, but especially also by the earlier stages, which are vanessoïd in every way. On the other hand, *Mynes* deviates in structure essentially from *Prothoë*, in spite of its close external resemblance to that genus, which really is closely allied to the *Charaxidi*. In the neuration it closely approximates *Hypolimnas* in that the subcostal is five-branched, two nervules arising before the end of the cell, and the second branch coalescing for a short distance with the main stem. The origin of the third nervule is closer to the end of the cell than to the fourth, reaching the costal margin above the apex; the fourth and fifth bifurcate

in such a way that the upper (fourth) one runs to the apex or a short distanec below it, the lower one to the outer margin. These features at once distinguish *Mynes* from *Prothoë* and on the whole from the true Nymphalids, in whieh the fourth subcostal nervule is bent over at the end, forming with the fifth nervule a very long fork. On the forewing the cell is closed by a very fine discocellular, which joins the median shortly beyond the point whence the second branch is given forth; on the hindwing the cell is open. Both wings have the upper and middle discocellulars very short, in consequence of which the radials are very close together. The precostal is at the end bent inwards and branches towards the subcostal. All *Mynes* have in common a broad, blunt tail at the upper median of the hindwing, whieh is also found in *Prothoë*. The sexual organs approach most closely those of *Kallima*, having no connection whatever with *Symbrenthia* and being, as far as I know, distinguished from all the Nymphalids by the uncus antieus in which it resembles *Discophora*. Both uncus antieus and uncus proper are cleft (as in *Kallima*); but the valve is limenitoid throughout, resembling that of *Limenitis*, *Athyma* and *Euthalia*, short, nearly triangular, obliquely cut off in front, provided with a finely dentieulate, lateral ledge, sparsely covered with long bristles. No connection appears to exist with the sexual organs of *Prothoë*. — The larva is pale leather-brown, with red-brown lateral stripes and yellow dots arranged in pairs. Every segment is armed with black, yellow-branched spines. Pupa resembles that of *Vanessa canace*, but is more slender, with the usual horns at the head and with sharp, basally broad, ventral spines; its colour is blackish-brown streaked with black, ventrally deeply constricted at the thorax. Ribbe supposes that the scarcity of the imagines is due to the fact that the larva has to suffer greatly under the attacks by parasitic Diptera. The larva lives gregariously on low-growing shrubs; the pupal state lasts a fortnight. The butterfly is never seen in great numbers, ascending from the lower plains up to about 4800 ft; it prefers the woods; its flight is weak, resembling that of the *Pieridae*. Only the ♀♀ venture occasionally upon the open fields for the sake of depositing their eggs. The centre of their distribution is *Melanesia*, in the east they range to the Solomon Archipelago, reaching in the west the Moluccas and Mieromalayan archipelago. They are most interesting for the fact that in some forms the under surface of the hindwings may vary from nearly black to almost white, all the intermediate shades being likewise represented. This variability does not seem to depend on the seasons, but to be purely individual.

M. doubledaii has but a limited range, being known with certainty only from the islands of Ceram and Flores, where it occurs in two forms: **florensis** *Roeb.* (121 a) of which but two ♀♀ are known, one of whieh I was fortunate enough to acquire from the author of the species, for my collection and to serve as a pattern for our figure. The upper surface is bordered with brown-black as far as the cell, both wings have the inner half gray-white, laved with yellowish at the base, and irrorated with blue. This species is likely to be discovered also in Timor which is nearer to the Molueeas than to Flores, which latter island *doubledaii* may have reached by the island of Wetter. — **doubledaii** *Wall.* (= schenki *Stgr.* ♂), distinguished in the ♀ by having the upper surface of both wings basally irrorated with blue-green, and by having on the hindwing a macular band composed of yellowish-green, submarginal strigae, which especially towards the inner margin is broken up into smaller fragments. Beneath it differs from *florensis* in the somewhat reduced yellow irroration on the hindwings, and in that the median band on the forewings is partly obsolete; the ♂ has the distal margin narrow and black, and the upper surface yellowish-green. Ceram, very rare.

florensis.

doubledaii.

M. plateni *Stgr.* is perhaps only a local form of *doubledaii*, but is separated from it here on account of the broader and more blunt tails of the hindwings, and for the reason that the ♂♂ are chiefly black, having on the forewing only a narrow, nearly triangular area of yellowish-green whose base runs along the submedian nearly to the outer margin, whereas its apex hardly reaches beyond the apex of the cell. On the hindwings the basal area is clothed with long fine hair and irrorated with gray-blue. The ♀ has the basal area somewhat broader, but dull gray-green, and before the margin a narrow yellowish-green band of nearly uniform width, continuing on the hindwings to the anal angle. Beneath it resembles *doubledaii*, but the ♂ has the basal area and the narrower submarginal band white, the latter interrupted by a red intramedian spot. The hindwings are black with broader white stripes and a submarginal band, which is proximally moss-green, distally more blue-green. In the ♀ the submarginal area is whitish-yellow, the red spot quite faded, all the green markings are represented by a delicate, yellowish irroration; the basal area is sulphur-yellow. The hindwings have the discal area either broadly lemon-yellow or uniform dull black (= ♀-f. **zoa** *form. nov.*). The latter was figured by Staudinger from a Batjan-specimen; another specimen from Halmaheira is in my collection. Habitat: The northern Moluccas, possibly also Morotai.

plateni.

zoa.

M. woodfordi represents the eastern continuation of the *doubledaii*-group. The contour of the wings is more acuminate, the tails more sharply pointed than in the forms from the Moluecas. In the ♂ the upper surface is largely white with a sharply-defined black border; both apical and median areas are, especially beneath, interrupted by white spots. The characteristic *Mynes*-spots are larger, also the ♂♂ having on the under surface a white or yellow discal spot. Occurs exclusively in the Solomon Islands. Larva for the first time figured and described in "Iris" 1897, was mentioned in the general diagnosis. — **woodfordi** *Godm. a. Salv.* (121 a), type from Alu, Salomon Islands. Distinguished above from all the other forms by having the plainest markings; both wings are white at the base, peripherically thinly sprinkled with blue, displaying at the apex of the cell a

woodfordi.

rudimentary band, and on the submedian a blue-black irroration. On the hindwings we notice occasionally the vestiges of a greenish-gray submarginal band. The ♀ has also the apieal area of the forewing spotted with
albata. yellowish-white. Under surface rather gray than jet-blaek. — **albata** *Ribbe* from Bougainville and Treasury Island is a colour-aberration, having on the under surfaee of the forewing a yellowish diseal spot, on the hind-
isabella. wings the median area broader and the black border correspondingly narrower. — **isabella** *Fruhst.* ♂ darker than *woodfordi*, the black ground-eolour spreads farther, broadly surrounding and isolating the yellowish-green discal spots on the forewings, which in *woodfordi* and still more in *hercyna* form a eompact mass. The hindwings have beneath the yellow subanal spot broader and longer than in *guerini*, with whieh all the forms of *woodfordi* share this eharacteristic of the *guerini*-group. The hindwings are above and beneath more riehly banded with black than in *woodfordi*. Isabel Island, eollected by A. Meek, type in the British Museum. —
hercyna. **hercyna** *Godm. a. Salv.* is an interesting, melanotie, insular race from Aloa in Guadalcanar, a transition to whieh is, aecording to Ribbe, found in Rubiana. Both sexes are almost alike, largely black, having the median areas interrupted by the very heavy veins. In the ♂ the under surface is chiefly yellowish instead of white, the black
wahnesi. basal spot extending distally farther on the forewing. — **wahnesi** *Roeb.* must probably be elassed with *woodfordi*; as I laek authentie material I repeat the original diagnosis: ♀ measures 60 mm in expanse; above it is blaekish-gray with a whitish, macular, apical resp. marginal band and two similar diseal stripes on the forewing; the large, red, marginal spot seen between the seeond and third median nervules shows through above. The hindwings have the inner half dirty-white, sharply bordered along the subcostal, otherwise but indistinetly defined. The broad, dark, outer border which reaehes almost to the middle of the wings, is between the subeostal vein and second median nervule accompanied by a band composed of partly indistinet, white spots. On the under surfaee light yellow tints predominate. The forewings have, in addition to the usual maeular apieal band (cf. *doubledaii*), another shorter proximal one; the blaek outer border is narrow, the inner blaek submarginal band hardly twice as broad as the outer margin and sharply cut off at the submedian; the light red marginal spot is very large (more so than in the 3 ♀♀-specimens of *doubledaii* before me), quadrangular and thinly margined with white. The hindwings have a red basal spot of normal size, (not a stripe like the above-described ♂), and a rather broad, black, marginal stripe whieh shades into the broad and dark outer border; this latter eovers almost one half of the wing and is divided by the whitish, partially indistinet, maeular stripes into 4 (or, eounting the narrow dark margin, into 5) bands; the yellow irroration of the basal area characteristic of *doubledaii* and *guerini* is entirely wanting. Said to come from Constantin-hafen on Astrolabe Bay; but this seems uncertain as Mr. v. Schoenberg, whose eolleetion eontained the type, received matcrial from every part of the Archipelago, but hardly ever labelled it.

M. geoffroyi is represented by three local forms, found in New Guinea and a few of the adjaeent islands as well as in Queensland, whence the type eame. It is espeeially interesting on account of the Dimorphism of both sexes, either of whieh may have the hindwings either eompletely blaek (121 a), or half white and half ehrome-yellow, with corresponding intermediate forms. Staudinger and myself separated formerly the dark from the white form, but on further examination this was proved a mistake, both forms having the sexual organs identical. In *Kallima* however, the sexual organs are even in otherwisc closely allied forms widely different, and considering the near relationship between the two genera, I do not feel justified in separating those two forms of *Mynes*. Most sharply defined and modified is the Australian form; in the others white ♂♂ are more
geoffroyi. scaree than black ones. — **geoffroyi** *Guér.* is presumably founded upon the light form from Dutch New Guinea, approaching *eugenia* and *sestia* (121 a), but differing from these in ♀ in having the distal border on the upper
doryca. surface of the hindwing half blue-gray and half black. — **doryca** *Btlr.* (121 a) is the eorresponding black form, from
turturilla. Duteh New Guinea, Dorey and Kapaur in my eolleetion. — **turturilla** *subsp. nov.* is the form from Waigeu, based on specimens whieh are black in either sex. The ♀ has on the upper surface the forewing more broadly bordered with blaek, but on the hindwing the dark border is often redueed, being replaeed by a lovely blue-gray zone. On the under surface the hindwings have the green submarginal band broader. In one ♂ the red intramedian spot
braga. on the under surfaee of the forewing is absent (**braga** *form. nov.*). — The white ♀-form I name **scatinia** *form.*
scatinia. *nov.*, distinguished from *geoffroyi* by the very narrow, ehrome-yellow zone on the under surfaee of the hind-
ogulina. wings, and from the Dorey-form by the darker green subanal area. Both forms are searce in Waigeu. — **ogulina** *Fruhst.* based on the black variety from Milne Bay, British New Guinea. In this form the green eolour on the under surfaee of the hindwings is still more redueed than in *turturilla* from Waigeu; above it is at a glance reeognized by the blaek distal border, which is in the ♂ on the hindwings towards the anal angle as
sestia. fine as a thread, and proximally bordered by a lovely blue-gray zone. — **sestia** *Fruhst.* is the corresponding light ♀-form (121 a), differing above from the analogous aberration from German New Guinea in having espeeially on the forewings the apieal area more broadly irrorated with blue-black. Flies from May
eugenius. until November at Milne Bay. — **eugenius** *Fruhst.* (121 a, eugenius ♀ instead of ♂) is the form from Kaiser-Wilhelmsland, based upon specimens placed at my disposal by the generosity of Dr. Eugene Werner. From these it almost seems, as if in the German eolony the yellow-white form predominates;

for my collection contains six light-coloured specimens and only one which is black, and Dr. HAGEN's report is to the same effect. The upper surface of the ♂♂ is, as in all the male specimens from New Guinea and in the Waigeu form, of a greenish colour with all the dark portions of the under surface appearing blue. The black distal border which in the ♂ is very broad, is in the ♀ considerably narrower than in *sestia* ♀. The forewings but rarely show any gray-white subapical spots. Occasionally ♀♀ are found which greatly resemble *ogulina* ♂♂ from New Guinea, at least HAGEN reports having found one at Stephansort in which the terminal border is at the anal angle nearly as fine as a thread and proximally shaded with blue. Three ♂♂ contained in my collection, one of which came from Mt. Gelu in the Finisterre Range, have on the under surface the yellow discal area much lighter anteriorly and broadly bordered with black. The dark ♂ **atinia** *Fruhst.* is of larger size than the black ♂♂ from British New Guinea, with a longer yellow subapical band on the under surface of the forewing. — **hesychia** *Fruhst.* is based upon the light form from Goodenough Island, situated to the north-east of British New Guinea. The ♀ is larger than *guerini Wall.* from Queensland, having the ground-colour above much paler, almost approaching *geoffroyi* which it resembles also in the broad black bordering, particularly at the anal angle of the forewing. The broad, black, apical border which is more sharply defined than in *guerini* contains 3 yellowish spots. The costal border of the forewing is yellow as far as the middle of the wing. Beneath the black border of the forewing is much narrower, allowing a greater width to the white basal area which extends as far as the anal angle. The yellow subanal patch is broader, the green subanal band darker and nearly reaches the costal margin. — **dertona** *Fruhst.* is the melanotic form of *hesychia*; like this it is larger than the form from the main island and *semperi Stgr.* from Queensland. Beneath all the red and yellow spots on the forewing as well as the white spot near the costal margin above the cell are larger. On the hindwing the black border is narrower but the whitish submarginal band broader. The red basal spot greatly exceeds in size the one found in specimens from Waigeu: instead of two black subanal transverse bands we find but one; the canary-yellow shading extends much farther and the green subanal irroration is lighter. The upper surface is not greatly different; only the black distal border shows a tendency to grow broader. Goodenough Island. — **elissa** *Fruhst.* A ♂ specimen from Aru contained in the British Museum approximates much more to *geoffroyi semperi Stgr.* from Queensland than it does to the Papuan form. From *geoffroyi* it is easily distinguished by the presence on the upper surface of the forewing of a broad, yellow subapical band which is still darker ochre-yellow and broader than in *semperi*. On the under surface of the forewing the subapical band is nearly twice as broad as in typical *geoffroyi*, and lighter coloured than in *semperi*. The white costal patch is very narrow, long and sharply defined. The anal angle is dusted with black, the red patch between the median nervules very broad. On the hindwing the red basal spot is short, broad at its base, tapering to a sharp point. The subapical band is more oblique than in *semperi*, is narrower and ends in the middle part of the wing, whereas in *semperi* and *geoffroyi* it borders the entire outer margin with black. The subanal portion is not so broadly dusted with greenish as in *geoffroyi*, but much more than in *semperi*. From Wanumba, one of the Aru Islands Type (from MOORE's coll.) in British Museum. — **guerini** *Wall.* inhabiting tropical Australia from Queensland to Cape York, has been reared from gregariously living larvae as early as 1877. The brood appears first in June, but some specimens are found also in October and November. As both forms are more distinctly separated than is the case with the Papuan races, it may be assumed that on the Continent of Australia they are influenced by the seasons. — The white form **semperi** *Stgr.* does not show, even in the ♂, the greenish irroration of the ♂♂ from New-Guinea, but has the blue-gray submarginal zone of the hindwing still farther extended. The subapical patch on the under surface of the forewing as well as the chrome-yellow area on the hindwing of the ♂♂ are still larger than in *geoffroyi Guér.* from DOREY. Of *semperi* we know specimens which represent a transition to the darker form, in such a way that whereas the under surface of the forewings remains white, the entire surface of the hindwing is suffused with black: ♂ **negrito** *form. nov.*, figured by SEMPER (Journal Museum Godeffroy, 1878, Pl. 9. fig. 13). — **guerini** *Wall.* is gray-blue above, black beneath, sharing with *semperi* the large, white, subapical spots on the forewing that distinguish it from the Papuan races. In ♂ the under surface of the hindw. is adorned with a whitish, in ♀ with a pale green submarginal band which, together with the general richer colouring, distinguishes it from all the other forms.

atinia. *hesychia.* *dertona.* *elissa.* *guerini.* *semperi.* *negrito.*

M. eucosmetos replaces *geoffroyi* in the Bismarck Archipelago whence we know two well defined insular forms, both belonging to the lighter type. **eucosmetos** *Godm. and Salv.*, inhabiting Neu-Mecklenburg and Nussa Laut, is very rarely found in collections. Larger in size than *geoffroyi* and *woodfordi*, having the broad subapical area on the upper surface of the forewing white in ♂, yellowish in ♀. The under surface is at once recognized by having in the place of the basal spot found in the other species, a broad red band traversing the entire costal margin of the hindwing. — **cottonis** *Sm.* is found in Neu-Pommern during February. The pupa is described by Dr. PAGENSTECHER: Brownish in colour, keeled at the back, resembling those of our Vanessa and not unlike those of *M. woodfordi*. — In ♂ the black distal margin is broader without any subapical markings, in ♀ the forewings are broadly marked with white instead of yellow. The under surface of ♂ is still more brightly crimson, but the yellow bands are less broad than in *eucosmetos*. The ♀ is much larger, having the subapical area of the forewing also above pure white, beneath still broader and more oblique. This form, one of the most beautiful Mynes, is very scarce. — **schoenbergi** *Röb.* is another form with broad red costal margin on the under side of the hindwing, the type of which is said to come from Constantinhafen. It this is not an error, *schoenbergi* must be regarded as an aberrative form of *geoffroyi*. Its size (about 60 mm) points to *cottonis* with wich it has also in common the crimson stripe on the hindwing.

eucosmetos. *cottonis.* *schoenbergi.*

websteri. **M. websteri** *Sm.* is the only known form of Mynes lacking the red basal spot on the hindwing, which is replaced by a long, yellow subbasal stripe parallel to the costal vein. In ♀ the upper surface is as in *geoffroyi* blue-green, on the forewing the distal border black, broader at the apex than at the inner angle. The hindwings are marked as in *Eriboea hebe* (134b), with a narrow terminal border and behind this with from three to five crescent-shaped intranerval spots accompanied by a few dots. The under surface is very characteristic: The forewing resembles that of *Pap. antiphates* (40b, c), with five black longitudinal stripes growing narrower anally, upon a white ground. Hindwing black with a clay-yellow apical and subanal patch, between which four blue eyespots. Behind the cell a yellow line imitating the shape of a hammer. The figure which Smith gave us of the ♀ has been corrected by Hagen. The ♂ is smaller in size, having beneath the black Papilio-stripes broader and the longitudinal lines on the hindwing somewhat lighter in colour and more conspicuous. The submarginal band on which the blue spots are placed, is of a metallic golden colour. Very scarce. Hagen found but one pair, wheras I have only seen one ♂ in the Thiele coll., Berlin. It is known so far only from the Sattelberg.

katharina. **M. katharina** *Ribbe*, the smallest species of the genus, resembles both above and beneath *Symbr. hippalus Fldr.* (121e) to which it also corresponds in size. This species is interesting, because the intramedian spot on the forewing as well as the basal patch on the under surface of the hindwing are yellow, which is also the colour of the subanal band on the hindwing; otherwise the design of *S. hippalus* recurs in the shape of white spots on the forewing and of a more circular discal area on the hindwing. Described from Neu-Pommern; Dr. Pagenstecher reports it also from Neu-Hannover whence it came to the Tring Museum.

25. Genus: **Rhinopalpa** *Fldr.*

In this genus which contains only one species, the palpi are uncommonly long, densely covered with scales and widely diverging at the ends. The third subcostal nervule stands much closer to the fourth than to the end of the cell, arising in a straight line. The cells are both on forewing and hindwing completely open. The lower radial of the hindwing is at its origin slightly curved; the precostal is single, straight, but slightly bent over at the end. The hindwings are at the inner margin between the submedian vein and the first median branch broadly projecting, and form at the lower radial a long, sharp-pointed tail; the forewings are at the apex broadly produced and angular, all of which gives the only species of this genus among all the other Nymphalids of southern Asia a most characteristic appearance. The ♀ always surpasses the ♂ in size and is dimorphic. Extends from Burmah throughout the Macromalayan Islands to the Philippines and Celebes. Even small distances are sufficient to produce changes; thus we find in eastern Java a form which differs from that found in the western portion of the island. They inhabit the lower plains, not ascending beyond the foot-hills, and are neither in Java nor in Sumatra seen at elevations exceeding 2900 ft. The sexual organs which are sharply differentiated, bear no relation either to *Yoma* (with which it agrees as to neuration) or to *Cynthia* (which it closely approaches in the larval state). Uncus cleft, the valve broad, open anteriorly, covered with fine bristles, slightly rounded and curved outward in the shape of a lamp-chimney longitudinally cut in two. Penis distally slender, very sharp, inserted in a short sheath, the lobes of which are triangular in shape and provided both interiorly and ventrally with a tooth-like appendage. The uncus is bipartite as in the genera *Mynes* and *Kallima*, with which however *Rhinopalpa* has no connection with regard to structure. Its flight is easy, rapid but short-stroked. The ♂♂ often alight upon dried-up twigs near the ground, on manure and on the walls of houses. Otherwise they prefer the shade, frequenting wood-roads and fruit-orchards. ♀♀ very rare. The larva which was discovered by Dr. Piepers represents exactly the type of the larva of *Cynthia* and lives on Conocephalus suaveolens Blainw.; its colour is alternately light and dark brown, with very finely-branched spines curving forward upon each segment, the head black with very long, branching horns of the same colour. Dr. Piepers has proposed to figure the early stages of this as well as of other species discovered by him in his work „The Rhopalocera of Java".

Rh. polynice splits in the Macromalayan Region into a series of insular and local forms. Particularly the ♀ is subject to geographical variation, whereas the ♂♂ vary but little. In the Philippines the ♀♀ assume an extreme melanotic attire, resembling the ♂♂. To what extent this variation may be carried is shown in our figures 113b and c. The under surface is in a very characteristic manner marked with a submarginal row of six connected ocelli on the forewing and five on the hindwing. Both sexes have in common an always recurring white spot over the submedian of the forewing, which may be square (Macromalayan Islands) or crescent-shaped (Celebes): the ♂♂, display moreover fulvous subanal patches, which occasionally appear also *birmana.* proximally to the ocelli in the shape of short bands, but are hardly ever found in ♀♀. — **birmana** *Fruhst.*, the most northern branch (type from Lower Burmah); some times it is found in Assam as far as the Naga Hills: but in the Karen Hills as well as in the Margui Archipelago it is exceedingly rare. The variability of ♂ and ♀ may have something to do with the sharply-defined seasons peculiar to Burmah. My type corresponds to Bingham's figure (Fauna Indica, pl. 10, fig. 75) in the greatly extended distal portion which has a much greater width at the apex than at the anal angle, whereas Moore (in Lepidoptera Indica pl. 327) figures a ♂, presumably belonging to the dry-season, with a much more insignificant black border. Also the ♀ differs, according to Moore, from all the other forms in that on the forewing the terminal border is barely half as broad and at the anal angle even divided by a yellow stripe. The under side surprises by its very pale colour, having the *eudoxia.* median area pale yellow, proximally bordered with an intense pale gray-violet. — **eudoxia** *Guér.* (= fulva *Fldr.*) is

a rare form from the Malay Penisula, which for a long time was not recognized on account of the unnatural figure which Delessert gave us of the ♀, and which Distant rendered still more unrecogniceable by the addition of some heavy blue lines. Moore, Semper and myself were the first who established its identity with Felder's *fulva*. The ♀♀ contained in the Staudinger coll. in Berlin are closely connected with ♀♀ of *birmana*, differing from ♀♀ from Sumatra in the purer and paler yellow shading of the median area on the upper surface of both wings. — **polynice** *Cr.* is rather common in north-eastern Sumatra, where the ♂♂ may be often found feasting on the ordure of animals along forest-roads. The ♀♀ present a superficial similarity to the ordinary *Cirroehroa* ♀♀. Cramer's type came from Padang in western Sumatra, whence I have several ♀♀ in my collection which are distinguished from those of *helionice* (113 b) by the narrower black marginal border and the lighter basal area above, as well as by the presence of a reddish-yellow zone inside of the chain of ocelli. — **acharis** *subsp. nov.* connects *polynice* with *helionice*, manifesting its melanotic insular character by the loss of the white anteterminal lines, the red-brown bordering of the ocelli and the altogether duskier colouring of the under surface. From the Natuna Islands. — **helionice** *subsp. nov.* (113 b) differs from *polyniee* ♂ in that the colour of the upper surface is lighter yellow-brown instead of red-brown. Of ♀ there exist two forms, one represented by the figure, found in the lower plains, of relatively small size, with quite minute submarginal dots on the upper surface of the hindwing, but without the red-brown approach to the ocelli in the distal half of the hindwing beneath. — **elema** *form. nov.* however, shows on the hindwing some prominent round intramedian dots and, moreover, a cocoa-brown basal area and a dark purplish-brown submarginal zone on the under surface of both wings; but the whitish median area, although reduced in extent, contrasts more sharply with the deep colour of the neighboring portion. From northern Borneo, Kina-Balu district. — **callonice** *Fruhst.* (113 c) is distinguished among all the Macromalayan forms by its small size, and by having the distal border of both wings uncommonly broad in ♂, whereas in ♀ it is obsolete and only indicated by a shade of brown, which again leaves more room for the development of the black ocelli on the hindwing, rendering them free and visible as far as the subcostal. Beneath the ♂♂ are more richly marked with brown-red than specimens from Java and Sumatra. In the ♀ the whitish submarginal and median zones on both wings are enlarged to such an extent that they surpass even the Javanese race, which otherwise is so remarkable for its light colouring. Occasionally one meets a form of the ♀ having the upper surface of both wings dusted with smoky-brown; this may be due to the rainy-season: **nocturnia** *form. nov.* Occurs on the island of Nias, where it is rather scarce. — **mentawica** *subsp. nov.* is distinguished from *calloniee*-♀♀ by the very conspicuous, 10 mm broad, black distal border on the upper surface of both wings. From the Mentawej Islands. — **elpenice** *Fldr.* resembles in ♂ somewhat *callonice*, but on the forewing the black distal

polynice. *acharis.* *helionice.* *elema.* *callonice.* *nocturnia.* *mentawica.* *elpinice.*

border is more straight i. e. the apical border does not extend so far towards the middle portion of the wing as is the case with ♂♂ specimens from Nias. The ♀ is comparatively small, very closely allied to the ♀ of *helionice*, beneath darker than those of polynice, almost without any whitish tint in the median zone. In eastern Java a dry-season form appears to come into existence, having in ♀♀ the entire upper surface pale yellow, whereas the black marginal border becomes obsolete near the lower radial, and gradually shades into the ground-colour. *elpinice* is quite rare in Java; the ♂♂ are found at elevations of from 1500—2000 ft, in wet places on the roads leading through the forest. Doherty has collected it also in Bali. Beginning with *tamora* we bring now a series of insular races, which inhabit the Philippines and are easily distinguished from the Macromalayan forms by the fact that in the ♀♀ which differ but slightly from the ♂♂, the black border extends on both wings as far as the cell, whereby the basal area is greatly reduced in width. According to Semper, specimens from Luzon have the basal area larger than those from Mindanao. Darkest of all appears to be the form from Mindoro; in Panay a specially modified insular form has developed. — **tamora** *Fruhst.* from the island of Bazilan, is of very large size and approaches in the proportions of the black border *birmana*. Ground-colour as in *eallonice*-♂♂. Flies in February and March. Discovered by Doherty. — **validice** *subsp. nov.* (113 b) is probably the dry-season form of the Mindanao race. The figure corresponds to the ♀ from eastern Mindanao which Semper represented on pl. 21 of his work on the Philippines. Besides this there exist in Mindanao ♀♀ with bright yellow basal area on both wings and superior in size to *validiee*; it may be the wet-season form, if it does not indeed come from some other island. This may be named **bellinice** ♀-*form. nov.* — **amoenice** *subsp. nov.* is intermediate between the forms from Mindanao and Luzon. The only ♂ specimen I possess closely resembles *validiee* in its general colouring, but the basal area is shaded with a brighter fulvous colour. Smaller in size, resembling *callonice*-♀. The ♀ of *amoenice* I do not possess myself, but saw it in the Staudinger coll. In size it is inferior to *validice*, and the basal area is still more obscured. From Mindoro. — **panayana** *subsp. nov.* represents a distinct retrogression to the Macromalayan forms. Both wings are light yellow at the base and slightly shaded with red-brown at the distal margin. The outer border is narrow and black, contrasting with *amoenice* in which the dark colouring exeeds the red-brown. From the island of Panay. The type is in the Semper collection in the Senckenberg Museum at Frankfort-on-Main. **stratonice** *Fldr.* inhabits the northern Philippines, extending even to the Babuyanes. ♂ differs from the Mindoro race in having the basal area of the hindwing light fulvous, and the black outer half of the forewing proximally more sharply defined than is seen in *amoenice.* It is reasonable to believe that there exist also seasonal forms of *stratoniee*, which however are not sufficiently known as yet. The large ♀ forms found in the southern Philippines approach the gigantic **megalonice** *Fldr.* from northern Celebes, which I had formerly treated as a distinct species on account of the ♀ being totally different. But beneath the ♂♂ agree so completely with the forms from the western Malay islands that they must be united with *polynice.* In ♂ the under surface is traversed by more

tamora. *validice.* *bellinice.* *amoenice.* *panayana.* *stratonice.* *megalonice.*

conspicuous whitish-blue lines, and more lavishly irrorated with violet. The red-brown terminal border of both wings is more prominent, the ever-recurring white spot at the submedian is crescent-shaped instead of square as in polynice from the Macromalayan islands. The ♀ which had heretofore never been described I captured at Toli-Toli in northern Celebes in November and December. Its outer border is gray-brown, suffused towards the inner edge with black, and enclosing on the forewings a series of six black submarginal dots. At the cell there is a brown spot which sometimes is drawn out in the shape of a band reaching the submedian. Base light red-brown, thickly dusted with black. Beneath it resembles the ♀♀ from Mindanao, but is paler, with the ocelli proximally margined with bright red and surrounded by a light coffee-brown halo. — **eunice** *Fruhst.* In this form the markings on the under surface of the ♂ are of a still more intense blue-white and the crescent-shaped spot at the submedian of the f. w. is nearly twice as broad; the sexual organs have been described in the general diagnosis. From southern Celebes, where I collected it in January at the falls of Maros. The ♀ found by Doherty near Pare-Paré was described by Holland in 1890.

eunice.

26. Genus: **Yoma** *Doh.*

Formerly united with *Rhinopalpa* it was justly separated from that genus for the reason that in both wings the cells are closed by a very thin transverse vein, whereas in *Rhinopalpa* they are not only open but also more contracted. Moreover in *Yoma* the subcostal nervules are placed more closely together, and the third subcostal branches off exactly midway between the apex of the cell and the tip of the forewing, whereas in *Rhinopalpa* it forms only a very short fork, as its origin is very close to the fourth subcostal. The middle discocellular is concavely out-curved, broad, not short as in *Rhinopalpa,* causing the two radials which do not (as is the case in *Rhinopalpa*) start from one point, to be rather far apart. On the hindwing the precostal is shorter than in *Rhinopalpa.* However it differs but slightly from the Ethiopean *Salamis* in that on the hindwing the transverse vein is somewhat thinner, closes the cell more basally and starts proximally to the furcation of the medians, whereas in *Salamis* it runs straight to this point. Much more conspicuous are the differences between *Yoma* and the Neotropical *Napeocles,* which consist in the middle and lower discocellular veins being curved, whilst in *Napeocles* they stand almost vertically. Moreover the precostal is in *Napeocles* not distally bent over as in *Salamis* and *Yoma,* but only consists of a short stump. In *Yoma* the tails of the h. w. start at the third median nervule, in *Rhinopalpa* at the lower radial. The sexual organs are extremely complicated. Tegumen with stout, hook-shaped uncus and a membranous scaphium provided with broad flaps. Valve broad at the base, obliquely cut off, running to a finger-shaped point surmounted by a cylindrical clinopus resembling that of *Argynnis.* Penis long, sword-shaped, sharp and pointed. Saccus very slender and minute. The vanessoid larva most closely approaches those of the genus *Doleschallia;* it is black, provided at the head and back with branching spines of the same colour arranged in pairs, also with lateral spines above the feet, beyond which it is spotted with red as in *Doleschallia.* Pupa resembles those of *Hypolimnas;* head with projecting front, but not bipartite as in *Doleschallia* or *Vanessa.* Its colour is gray, on the abdomen is placed a number of tubercles less developed than in *Hypolimnas.* (Description from Semper's figure in Rhopalocera of the Philippines Pl. A.). In the imago the under surface varies individually both in colouring and markings, surpassing even *Kallima.* Whereas in the continental as well as the Australian and Macromalayan forms seasonal Dimorphism is the rule, their geographical differentiation is in comparison with *Rhinopalpa* and other Nymphalid genera quite insignificant. They inhabit the lower plains, never ascending beyond the foot-hills or higher than about 2000 ft.; they prefer the open woods, assembling around flowering shrubs growing along the water-courses. Their true home is the Papuan and Moluccan Insular Region, extending in the east to Java, whence they have spread to Bawean and the Malay Peninsula and as far as Upper Burmah. In Sumatra it is not represented and in Borneo exceedingly rare, but excessively common in the Philippines; also from Formosa I possess a great number of specimens. But all the collectors complain of their scarcity on the mainland and of their bad state of preservation, which I have also observed in Annam and Siam. The genus comprises probably only two species which, moreover, may be considered as branches of some elder species, and of which the more common *Y. sabina* inhabits the western part, the rarer *Y. algina* the eastern portion of the Malayan Archipelago.

Y. sabina, ranging from India to the Moluccas and in southerly direction beyond the Key-Islands as far as Australia, is represented in Upper Burmah by the most northern form **vasuki** *Doh.* (113 b). This is as a rule somewhat smaller in size than *sabina* from the southern Moluccas, the ♀ never approaching the dimensions of *sabina* ♀ (113 c) and the ♂♂ never showing on the f. w. such conspicuous yellow subapical patches. The under surface is exceedingly variable, displaying either a) some broad whitish median bands, sharply angled distally on the forewings just beyond the cell (Cramer's type), or b) showing upon these bands blackish fungiform markings (**atomaria,** *form. nov.*) (137 c), or c) having no longitudinal bands at all, the under surface being of a monotonous gray sand-colour (**sabulosa** *form. nov.*). The form *atomaria* recurs also in Kallima, which occasionally is spotted on the under surface in a manner which imitates some sort of fungus. The ♀ is easily distinguished from the ♂ by the two whitish submarginal dots on the forewings placed on either side of the upper median. It has not been decided yet whether these aberrations in colouring and design have anything to do with the seasons; I am inclined to doubt it, taking into consideration the fact that in various localities dwarfed ♂♂ are found, which in the rich light yellow markings on the upper surface represent an extreme dry-

vasuki.

atomaria.

sabulosa.

season form. This I regarded formerly as a distinct species, naming it **javana** *Fruhst.* (113 b up. surf., 137 c un. surface), being originally described from Java; lately I have received quite similar ♂♂ also from Siam (January), the Key Islands and the Micromalayan Islands (Dammer and Roma) which latter furnished the specimen represented by our figure. The under surface is chiefly yellowish instead of whitish-gray, having the yellowish median area sharply defined proximally. The fulvous spot placed in the centre of the cell on the forewing may occasionally be absent. The sexual organs correspond to those of *sabina*, but are proportionally more delicate and smaller than in the larger form. With *vasuki* I class all the specimens from the Oriental Region including the Philippines, whence Semper received at one time 500 specimens caught in July near Camiguin de Mindanao. In Formosa and Bawean it is very common between July and September. Specimens from eastern Java are remarkable for the beautiful violet iridescence on the yellow median band. Found throughout the Micromalayan islands as far as Alor where its place is taken by **sabina** *Cr.*, described by its author from Amboina, and found also in Buru and the Key-Islands. This form displays on the under surface, in addition to all the deviations in colour found in *vasuki,* two further remarkable ♀ types, one with a brown leaf-like pattern (**foliacea** *form. nov.*) and the other with the gray ground-colour suffused with purple (**purpurea** *form. nov.*). — In the northern Moluccas the ♀♀ undergo some little change, displaying in the median area a narrow longitudinal band, which on the h. w. is sometimes white in the centre: **vasilia** *subsp. nov.* My collection contains only the form with the broad white stripes beneath; type from Batjan; presumably occurs also in the other islands belonging to the northern Moluccas. — **parva** *Btlr.* is a rather small form from Australia, whose extreme dry-season form, analogous to *javana,* is **australis** *Fruhst.* Specimens with brown leaf-like under surface are found side by side with those having a conspicuous white median band. Queensland, from Cape York to Cooktown.

javana. *sabina.* *foliacea.* *purpurea.* *vasilia.* *parva.* *australis.*

Y. algina is found throughout Melanesia; it is easily distinguished from *sabina* by the more rounded outline of the wings and the presence on the under surface of perfectly formed ocelli, which in the ♀ are seen also on the upper surface of the hindwing, and increase in size the farther east one goes. In contradistinction to *sabina* the ♀♀ are dimorphic; in each subspecies we find ♀♀ with a white and others with a yellow median band on the upper surface of the forewing. But rarely the band is white also on the hindwing, and vice versa the intramedian portion of the forewing may be at the periphery of a reddish or golden-yellow colour. The ♀♀ show invariably smaller subapical spots than are found in *sabina*-♀♀, and the white intranerval dots have a tendency to become obsolete, disappearing completely farther east. Seven local forms may be distinguished. — **algina** *Bsd.*, type probably from Waigeu. Rather inferior in size, ♂ but very slightly spotted with yellow at the apex; ♀♀ mostly belong to the yellow form. The median band on the under surface runs more in a straight line and is distally less angled than in *sabina;* the under surface displays but occasionally the leaf-pattern. Waigeu, very scarce. — **vestina** *subsp. nov.* (113 c) is the dark form from Dutch New-Guinea; the ♂ has the yellow apical spot on the forewing quite indistinct; the ♀ is small in size, with the white median band narrower than in specimens from Waigeu. — **viruna** *form. nov.* is a rare ♀ form having the marginal area of the forewing banded with pale ochre-yellow, and the median stripes on the hindwing much narrower than in the other subspecies of *algina,* ending anally in a fine undulate line. Type from Kapaur; my coll. contains also specimens from Dorey. — **netonia** *subsp. nov.* inhabits British and a portion of German New-Guinea; it surpasses in size and richness of colouring all the preceding forms. The forewings of the ♂ are richly spotted with yellow, in ♀ with white. In the white ♀ form the ocelli on the upper surface of the hindwing are sometimes surrounded by a black, at other times by a gorgeous reddish ochre-yellow halo. The median area is in both sexes extraordinarily broad, and it would almost seem as if the rainy-season favours the development of the white bands also on the under surface, whereas in a ♀ which beneath displays the leaf-pattern peculiar to the dry-season, the band grows much narrower anally and the eye-spots become obsolete, reminding one of *sabina.* — **taurisca** *form. nov.* (113 b) is a rather rare variety in which the bands on the upper surface of both wings are snowy white, whereas beneath the ground-colour is completely suffused with sandy-gray. The form *atomaria* met with in *sabina* is also noticed here in a ♀ from Finschhafen. According to Hagen *netonia* is not at all rare at Stephansort on Astrolabe Bay between December and April. ♀♀ from Simbang (Gulf of Huon) are larger, with more prominent, violet, submarginal spots on the forewing, and having the ocelli on the hindwing more broadly bordered with yellow, similar to the ♀♀ from Milne Bay. This renders it probable that *algina* from Stephansort more closely approaches *vestina* from Dutch New Guinea than the showier form from British New Guinea, a phenomenon which has been observed also in many other species of Rhopalocera found in those regions. — **odilia** *subsp. nov.* closely allied to *netonia* and approaching it in size, has the most highly developed fulvous subapical spots on the forewing; on the other hand the median area diminishes in width towards the costa both in ♂ and ♀. The black ocelli on the hindwing are more conspicuous than in the forms from New-Guinea, and beneath more prominently ringed with yellow, in which it approaches the following species; from Fergusson and Kiriwina Islands. — **kokopona** *Hag.* does not show on the upper surface of the forewings the white and yellow dots; the median band is less oblique and greatly reduced in breadth. The eye-spots on the f. w. are larger than those found on the hindwings in the forms from New-Guinea. The longitudinal band beneath is nearly pure white, very narrow, of equal width on both wings. Neu-Pommern, Neu-Lauenburg and Neu-Mecklenburg. — In **helisson** *subsp. nov.* from Neu-Hannover, the yellow band on the forewing is steeper, and not curved as in *pavonia,* on the hindwing uniform golden-yellow, slightly shaded with fuscous exteriorly. The black eye-spots are hardly visible within

algina. *vestina.* *viruna.* *netonia.* *taurisca.* *odilia.* *kokopona.* *helisson.*

their faint yellow rings; the under surface is greenish-brown, the white band suffused with violet in like manner
pavonia. as the distal border of both wings. The blue pupils of the ocelli on the hindwing are somewhat more distinct. — **pavonia** *Math.* approaches *kokopona,* differing in that the ♀♀ have the longitudinal band on the forewing more curved. The ocelli are broadly bordered with yellow, the third eye-spot before the first median on the hindwing is distinguished by its beautiful blue pupil. Among the ♀♀ we find such as resemble the ♂♂, and others having the median area above white. Type came from Treasury Island; occurs also in Bougainville and the Shortland Islands.

27. Genus: **Hypolimnas** *Hbn.* (Apatura *F.,* Diadema *Bsd.*)

Although according to the laws of priority this genus should by rights bear the name of *Apatura F.,* as was proved by Scudder in 1875 and after him by Moore in 1881 and 1900, we refrain from introducing this change in order to not came in conflict with Vol. I, Pg. 160 and 185. The members of this genus are probably the most variable and for that reason the most interesting among the Rhopalocera. The Polychromism of the ♀♀ surpasses even the well-known contrasts in colouring found in *Papilio memnon;* moreover, whereas the ♂♂ of *memnon* are rather constant, in *Hypolimnas bolina* also the ♂♂ are subject to variation, surpassing on the mainland of India even the ♀♀, which on the other hand vary on the many islands and archipelagoes to such an extent that hardly two may be found to be alike. Both sexes are subject to seasonal as well as geographical Polymorphism. It must be observed that whereas in Polynesia the local races are more sharply separated than in the Micromalayan-Australian Region, all the West Malayan-Moluccan ♀-forms are again found there on a reduced scale. Notwithstanding however this individual Heteromorphism, it must be understood that this distinction between the insular races of *bolina* is but an external, geographical one, whereas morphologically speaking they are more stable than f. i. *Cethosia, Argynnis, Terinos, Kallima* a. o. As to structure, we are unable to discover any discrepancy whatsoever between the sexes, and the sexual organs of the ♂♂, although highly specialized, remain even over very great distances practically unchanged (Amboina, Formosa). Uncus simple, stout, distally even more so than is found in *Yoma;* valve complicated, ventrally ending in a point not unlike the sting of a scorpion or resembling somewhat the penis of a Carabus; at the middle it is provided with a semi-spherical flap presenting the appearance of a rowel. Larva resembles those of Vanessa, with nine longitudinal rows of finely branching spines and with one pair of longer and stronger spines at the head; its colour is brown, lighter at the head. It lives on Urticaceae and Portulaca. Pupa dark-brow, angular at head and thorax, the abdominal segments covered with dorsal rows of short, pointed tubercles. Imago, (a few insular species excepted) is extremely abundant, especially after a heavy rain; it prefers open places and is often found in gardens, being a characteristic ornament to the submontane landscape. Even in the Himalayas it does not ascend to beyond 4000 ft. of alt. Considering its size it is but a moderate flier, the ♀♀ being downright lazy; they move about very little, and one may observe the same specimens day for day upon the same flowers. The fact that one so frequently meets dilapidated specimens, is explained by the pugnacity of the ♂♂ which do not tolerate any rivals near by, and it is a daily spectacle presented to the collector in Java and Celebes to see groups of fighting ♂♂ in the air. According to Martin and Hagen they appear periodically in great numbers, while at other times they may be very rare. One species is distributed over four continents; whereas *bolina* has an enormous range in east-west direction, the forms of the *pandarus*-group are confined within rather narrow limits. The highest degree of development as to beauty and number of species it has reached in the Moluccan Subregion (5 species) and in the Papuan Region (New Guinea with 6 species). In the Micromalayan Archipelago we have still four, in the Macromalayan islands three and on the mainland of India only two species. *H. bolina* we encounter anywhere between Bombay and the farthest South-Sea Islands. Several species are also interesting on account of their similarity to Euploea and Danais.

antilope. **H. antilope** is an eastern species, in which the markings are still rather primitive and the sexual contrasts least conspicuous. We distinguish two chief types of colour: one peculiar to the West Malayan-Philippine Region, in which the ♀♀ resemble Euploea and often display on the upper surface a lovely blue iridescence, and the second type found in the Moluccan and Papuan Subregions, in which the ♀♀ are dull brown and resemble their own ♂♂. Characteristic of the under surface is the double row of minute, white, crescent-shaped anteterminal spots of which one row is always, the second frequently repeated also on the upper surface. — Another feature, common to all forms, is the submarginal series of white intranerval dots upon both wings, which likewise nearly always recur also above. The costa of the forewing is dusted with white, and the cell contains four white costal spots. The hindwings finally display almost invariably at the subcostal a white-yellow spot which is obsolete only in a few Papuan specimens. Among all the insular races we encounter individuals with whitish intranerval tracts in the submarginal portion of the hindwings, and again others of melanotic character without these. The forewings contain moreover not unfrequently some white apical patches, and in a few insular races the upper surface of both wings is bordered with white, analogous to certain species of Euploea. The larva which was discovered by Dr. Hagen in Kaiser-Wilhelmsland, lives gregariously, many hundreds together, upon some kind of a shrub in May. Its colour is black, the head yellow, armed with two long black spines. The segments are laterally spotted with yellow, and provided with yellow branching spines coloured black at the ends. —
anomala. **anomala** *Wall.* (119 e) occurs in the Malay Peninsula and, without undergoing any appreciable change, also in Sumatra, Engano and Bawean; but it is in Java where its blue iridescence and the white transcellular striation

are most beautifully developed; in Lombok whence the specimens represented in the figure came, the white striation disappears from the upper surface, and the white subapical spotting which in the Javanese form adorns also the ♂♂, shows a tendency to disappear. In both sexes the specimens from Java and Lombok show the most perfectly developed white submarginal dots on both wings. ♀ specimens showing the blue iridescence only on a very narrow marginal area (fa. **circumscripta** *form. nov.*) are quite rare in Java, but I possess specimens (both ♂♂ and ♀♀) of *anomala* from all localities where it is found, in which the submarginal portion of the hindwing is extensively laved with white (f. **nivas** *form. nov.*). In another rather rare varietal form which I possess only from Java, the entire apical area of the forewing is as far as the cell of a violet colour which also spreads over the whitish oblonge streaks between the radial veins (fa. **violaria** *form. nov.*). In Nias exists a rather constant race: **discandra** *Weym.*, easily recognized by the enlarged white submarginal spots, the nearly always present white apical patches drawn together into a band, and finally by the transcellular striation of the forewing which is nearly always observed also in the ♂♂. In a ♂ from Pulo-Tello in the Batu Islands the white strigae are repeated also on the under surface of the forewing. In the Micromalayan Archipelago a dark form of *anomala* exists from Kangean as far as Sumbawa and Flores: **arnoldi** *Fruhst.* in which the ♀♀ are of a deeper blue, without the beautiful lustre, and display either on the forewing no intraradial striation at all or but faint traces. Even the ♂♂ show less blue, belonging (if there is any iridescence at all left and if they are not uniform brown) to the fa. *circumscripta*; on the other hand the form *nivas* is quite abundant, but having the underside of the hindwings more profusely marked than is found in my Javanese specimens. Dr. Pagenstecher has also noticed this in *arnoldi* from Flores, and he claims that specimens from Sumbawa resemble somewhat *Euploea de heeri Doh.* — **albula** *Wall.* This interesting form which is but rarely met with in collections, is of quite small size; its ground-colour is ferruginous with a broad white distal border on both wings. The under surface is traversed by an oblique band composed of four white elongate spots, the costal spot on hindwing is larger than in *anomala* and *arnoldi*. The ♀ is darker brown and richer purplish red-brown than the ♂. The transverse band on the forewing has a blue iridescence; under surface rather paler. — Already Wallace called attention to the fact that *albula* resembles in its general appearance the *Euploeas* of the *eurypon* group. The type came from Timor; specimens from Babber in the Staudinger coll. — **interstincta** *Btlr.* refers to a large-sized insular form of darker colour. The ♂ is deep brown, the anteterminal dots on the forewing with a very faint blue iridescence; the ♀ is darker blue than *anomala*-♀♀, occasionally with a snowy-white double subapical spot on the forewing. The costal spot on the under surface of the hindwing is more prominent than in *anomala*. From North-Borneo, where it is rather scarce. — With **euvaristos** *subsp. nov.* we commence the series of Philippine forms, which nearly in every case display at the apex a rich white ornamentation, and the ♀♀ of which show in the terminal area even of the hindwing a magnificent blue iridescence, faint indications of which we have noticed in *interstincta*. The ♀♀ are moreover distinguished by the dark cocoa-brown basal area on the hindwing growing rather lighter distally, of which we find slight traces also in the Borneo-form. According to Semper about one half of the specimens of this form have the apex white at the tip, whereas among 30 ♂♂ of *anomala* contained in my collection only one from Java is thus marked. Quite common in the southern Philippines; type from Mindanao. Its resemblence to *Euploea dufresni Godt.* is remarkable. One ♂ captured at Bazilan in February represents the *nivas*-type. Semper reports that in August and September 1865 more than 300 specimens were taken at Camiguin de Mindanao by Malay collectors, furthermore that brown ♀♀ with a large white apical spot on the forewing are found also in the Palau Islands of the Caroline group. — **truentus** *subsp. nov.* is a small-sized form from the northern Philippines, occurring also in the southernmost Liu-kiu Islands without changing in appearance. It seems that in this form the apical white spotting is still more the rule than in *euvaristus*, for six out of eight specimens show it. (Analogy to *Euploea megilla Erichs.* from Luzon). In the ♀♀ the colour of the hindwing is no longer brown but black. One ♂ from Mindoro follows the *nivas* type; in another ♂ which otherwise is brown, the white patches on the hindwing are of unusual size. ♂ type from Ishigaki-shima, ♀ type from Luzon. It is found also in Mindoro, presumably also in all the remaining islands of the northern and central Philippines. — **phalkes** *subsp. nov.* a very large-sized form from the Talaut Islands, approximates somewhat to the forms of the Moluccas in the light brown colouring of the ♀♀, which is not found in the other eastern races. ♂ belongs to the *nivas* type. — **wallaceana** *Btlr.* In this form the ground-colour is a monotonous deep brown, somewhat lighter towards the margin and only relieved on the under surface by a whitish transcellular striation. It is found in southern and central Celebes between August and January, and represents probably the dry-season form. — **stellata** *subsp. nov.* (119 d) is distinguished from all the other forms by the presence on the upper surface of some conspicuous submarginal star-shaped spots which are white in the ♂, light blue in the ♀. In three out of four ♂♂ and in one ♀ the white spaces between the nervules beneath are considerably enlarged; the costal spot on the hindwing is of more than double the size of that found in *anomala*. The ♀ is dark brown with a gorgeous blue iridescence, not extending beyond the submarginal zone. *stellata* is most likely the rainy-season and alpine form of *wallaceana*. From the Minahassa, but not found by me at Toli-Toli. — **antilope** *Cr.* (119 d, ♂ instead of ♀) is the first in the series of forms peculiar to the East Malayan Region, with a monotonous, chiefly brown colour. Cramer reported a ♀ in which the outer half of the hindwing was yellowish, a type which is rather frequently observed and of which our figure represents the ♂. In Amboina, Saparua and Ceram there exist (though more scarce) unicolorous brown ♂♂ as well as ♀♀ which

circumscripta. *nivas.* *violaria.* *discandra.* *arnoldi.* *albula.* *interstincta.* *euvaristos.* *truentus.* *phalkes.* *wallaceana.* *stellata.* *antilope.*

sila. we name **sila** *form. nov.* Those from Ceram seem, as far as I can judge from the available material, to incline even in the lightest type more to Melanism than *antilope* from Amboina. In one ♀ the basal portion of both wings has a distinct brown-violet iridescence, in another the forewing is broadly spotted before the apex with white-yellow and shaded with gray-violet beyond the cell. Both the hindwing and forewing show a number of distinct white submarginal dots. The outline of the wings is more rounded, reminding one of *pithoeka* (= ♀ fa. *pseudo-pithoeka.* **pseudopithoeka** *form. nov.*). — In Buru we encounter a form which in ♂ displays on the upper surface almost *maglovius.* invariably some yellowish-white subapical spots; this is **maglovius** *subsp. nov.,* and all the ♂♂, even those not distinguished by this yellowish colour, are remarkable for a band-shaped, light brown zone on the forewing. It seems curious that ♂♂ which above lack the apical ornamentation, represent on the under surface the type *nivas,* whereas the ♂♂ which do have it, have the hindwings dark coffee-brown. From the island of Buru. — In *quinctinus.* **quinctinus** *subsp. nov.* the yellowish transverse band on the forewing is very distinct and appears also on the under surface. On the hindwing the submarginal zone is mainly whitish instead of yellowish (as in *antilope*), recalling *typhlis.* on the under surface the *nivas*-type peculiar to the West Malayan forms. Batjan, Obi. — **typhlis** *subsp. nov.* I received from Mr. v. Schoeneberg without being able to ascertain whence it came from. The white bordering of both wings which reminds one of *Euploea eurypon Hew., E. hopfferi Fldr.,* and *E. assimilata Fldr.*, and which is again met with in *H. alimena heteromorpha Röb.* (119 e), causes me to suppose that it may have come from the Key Islands. But as neither Ribbe nor Kuehn nor Pagenstecher mention *antilope* from Key, it is not impossible that this interesting aberrative form may have come from New Guinea, notwithstanding the fact that all the specimens I possess from there are relatively small in size and of the same brown tone as *antilope.* I have specimens from all parts of New Guinea where the collective species is very rare, but only one from each place, and each one exhibiting a different shade of colour; one ♂ from German New Guinea quite closely approaches the form from Batjan in the yellowish-brown apical portion of the forewing. Hagen mentions four brown specimens in which the outer border of the hindwing is above quite pale, and another in which also the forewing is affected in like manner. On the under surface the outer border of the hindwing is nearly white, only interrupted by the black veins. Flies from December until May. The larva which has been described in the general diagnosis, lives gregariously on some sort of shrub, several hundred together, and must be greatly exposed to the attacks by parasites, taking into consideration the scarcity of the imago. I possess a ♀ resembling the forma *sila Fruhst.* from Dorey, Dutch New Guinea, and another one, rather closely allied to *forma pseudopithoeka*, from Milne *mela.* Bay in the British part of the island. — **mela** *Fruhst.* is inferior in size even to the forms from New Guinea. The ♂ is light brown with yellowish or even snowy white, moderately broad distal border on both wings which recurs also beneath. The ♀ (119 e wrongly called *afra*) is brown with a faint violet irroration and adorned (as all ♂♂ are) with a white apical spot; hindwing distally lighter, the under surface is yellowish brown. From Kiri- *short-landica.* wina and Fergusson Islands. — In **shortlandica** *Ribbe* which appears to be greatly inferior in size, both wings are red-brown at the base, and the forewing shows a very distinct band of light ochre-yellow as in the form from Batjan. The hindwing is thinly dusted with yellowish in the distal half. The larva lives gregariously upon a low shrub. Shortlands Islands. The forms found in some localities of the Bismarck Archipelago appear *scopas.* to be closely related to *shortlandica.* — **scopas** *Godm.* a quite similar form from Maleyte Island, is characterized by a rather narrow yellowish patch on the hindwing, extending in the ♀ as far as the cell and accompanied *lutescens.* on the forewing by a light-coloured subapical zone. — Of **lutescens** *Btlr.* I possess but one specimen from the Fiji Islands, somewhat larger than *shortlandica;* the hindwing shows, in addition to the ever present costal spot, two other, indistinct, yellowish-white patches between the radial veins, a design which may be purely individual.

H. pithoeka is very closely allied to *H. antilope,* differing from it in the more rounded outline of both wings, and in ♂ in the absence of the white submarginal spots from the upper surface of the forewing, those found on the hindwing being invariably ringed with black. Beneath the two terminal rows of white crescents are obsolete, and the dots which are blue instead of white, are placed farther away from the outer margin and more toward the center of the wing; the otherwise so obstinate costal spot on the hindwing is not found here. At the same time *pithoeka* is a more constant form, considering that only two ♀-forms exist and that the white apical spots are not found in the ♂♂. Our knowledge of the larva we owe to Dr. Hagen. It rather resembles that of *H. misippus L.,* only it is larger, with two ochre-yellow lateral stripes which are broadest at the head. Three insular *pithoeka.* forms must be registered; **pithoeka** *Kirsch* shares with *H. antilope* the white spots at the anterior edge of the cell, but is in both sexes of a darker black-brown colour above. In the ♂ the submarginal zone of the hindwing *illuminata.* is slightly shaded with red-brown, which is not infrequently replaced by a dark golden-yellow colour (= **illuminata** *form. nov.* 119 d) recurring also beneath in the shape of a pale yellow patch. Occasionally this colouring may be accompanied by a fulvous anteterminal band on the forewing Two ♀♀ from Finschhafen have the outer half of both wings gray-black, three others from Astrolabe Bay show a yellowish area of different width in each specimen, appearing in the most extreme ♀ nearly white beneath and being accompanied by a yellowish marginal striation at the anal angle of the forewing. The type came from Geelvink Bay; but it must be exceedingly rare there, being never again found by Doherty. Hagen found only six specimens at Stephansort, *unicolor.* and the Fruhstorfer coll. contains 12 ♂♂ and 7 ♀♀ from Astrolabe Bay. — **unicolor** *Godm.* is generally considered synonymous with *pithoeka;* but three ♀♀ before me decidedly deserve this name on account of the nearly unicolorous brown ground-colour, which is but slightly relieved exteriorly by some little shading of gray; the white dots on the forewing are more prominent, and also beneath larger and more plainly visible.

The type came from Neu-Lauenburg; Ribbe found *unicolor* also in Neu-Pommern and Neu Mecklenburg, and the Tring Museum contains a ♂-specimen from Neu-Hannover. The specimens found in the Solomon Islands seem to approach fa. *illuminata* in having the upper surface of both wings paler along the outer margin. Shortland Islands and Ysabel. — **sumbawana** *Pag.* is a greatly differentiated form, which might almost be treated as a separate species, were it not for the fact that on the under surface it harmonizes so completely with *pithoeka* that it must be looked upon as an isolated, stray western form of that species. The description reads: *antilope arnoldi Fruhst.* from Sumbawa greatly differs from some ♂♂-specimens in my possession which, according to my knowledge, have never been described, and which I call *Hypolimnas sumbawana* as they are limited to Sumbawa. In size (75 mm in expanse) and shape they closely resemble *arnoldi*, but are at a glance distinguished by their very dark, velvety black upper surface which is marked on the fore wings with 8 bluish-white submarginal spots, increasing in size towards the apex, and with 4 smaller ones on the hindwings, which latter in addition display in the discal area a deep blue iridescence. In this they recall not only *Hypolimnas bolina*, but greatly resemble also some species of Euploea, f. i. *Stictoploea lacordairei Moore* and *Euploea gelderi Snell.* (*dongo Doh.*) from Sumbawa and *melolo* from Sumba, and in some respects even *Elymnias undularis*. The under surface is blackish-brown, darker than in Hyp. *anomala*; on the forewing the costa is at the base spotted with whitish and marked with stripes of the same colour in the middle, whence a lighter brown zone extends to the middle of the wing which has also the inner angle lighter in colour. The outer margin is lighter brown, the 5 submarginal spots are bluish-white, the upper three but feebly developed. The hindwings have the ground-colour brown-black, the outer margin lighter, with 7 small bluish-white submarginal spots. The blackish marginal border is on either side edged with a lighter colour, the fringes are on the veins whitish. The antennae are black, palpi beneath white, above blackish. At the head and on the lower portion of the thorax we notice a few bluish-white spots. Abdomen and legs are blackish (Pagenstecher). — One ♀ in my collection differs from the afore described ♂♂ in the absence of the blue iridescence on the hindwings. The outer border of the hindwing is like in *pithoeka* irrorated with red-brown. On the under surface the cell is along the edge marked with a short, pale brown band. The hindwings are, like those of *Euploea tisais Fruhst.*, distally lighter brown. Island of Sumbawa, where it must be very rare, as it was not found by Doherty. It is quite likely that we may discover some other forms in Timor and Flores. *sumbawana.*

H. alimena inhabits exclusively the Moluccan and Papuan Subregions throughout their entire extent, but is also found, like *H. pithoeka*, in a few greatly modified forms in the farthest eastern islands of the Micromalayan archipelago. Both sexes are subject to variation. The ♂♂ have on the upper surface invariably a blue band, changing in width according to the locality, and distally dotted more or less conspicuously with white. ♂♂ from Australia, the Key and Timorlaut Islands as well as from the isles of the Timor Sea resemble in the white-mottled transverse band on the forewing the male-like ♀♀. In the ♀♀ we distinguish between two main colour-types, of which the brown one is the more frequent, whereas the rarer one is, analogous to the ♂♂, mostly banded with blue. In the Key Islands and Dammer only brown ♀♀ seem to exist; on the other hand, all the specimens before me from Australia, Neu-Pommern and the Talaut group belong to the blue type. The brown ♀♀ have as a rule on the forewing a white macular band which is but rarely wanting. Beneath the design of the upper surface is repeated, but the median band may in the blue ♀♀ change to white and in the brown ones become almost obsolete. Both sexes show double rows of white terminal spots and, separated from them by a black line, a series of adnerval patches, growing larger towards the anal angle, and followed by a row of 6—8 submarginal dots which are blue in the ♂, white in the ♀. The larva lives always gregariously on a shrub-like tree with large, rough leaves. When disturbed it emits a green liquid just like those of Vanessa. Its colour is black, the head provided with two long black horns, the segments with yellow spines and three yellow lateral dots placed one above the other. Pupa gray, shaded with blackish and red-brown; head pointed, thorax keeled; abdomen ventrally armed with long, thin spines. Pupal state lasts 10—13 days. The larva is nearly always found infested with parasites, so that one hardly obtains 15 imagines from one hundred pupae; still the imago is quite common, and even the ♀♀ are not rare, among the shrubbery bordering the outskirts of the woods. — Of **alimena** *L.* (119 d) from the southern Moluccas the ♀ is known in 4 different colour-aberrations: one in which the ♀ is quite like the ♂, only having on the forewing the oblique band slightly laved with white; — the other ♀-fa. **coelia** *Fruhst.*, having the longitudinal bands on both wings light blue instead of dark and on the hindwings some large white anteterminal patches; — in ♀-fa. **velleda** *Cr.* the ground-colour is brown, the forewings are adorned with a more or less distinct, white, violet-bordered, macular band, the hindwings are distally pale brown, spotted with yellowish along the black-brown antemarginal line; — ♀-fa. **porphyria** *Cr.*, the darkest form, described from Amboina but available only from Ceram, has both wings dark cocoa-brown at the base, distally a trifle lighter, without any transcellular band on the forewing. In Amboina, Saparua and Ceram quite common. — **senia** *subsp. nov.* (119 c) has in the ♂♂ the blue bands somewhat broader than *alimena*, and the three known ♀-forms have on both wings the white submarginal dots more distinct. Among the latter we distinguish one form analogous to *coelia Fruhst.*, another corresponding to *velleda Cr.*, with somewhat darker hindwings than in *velleda* from Saparua; the third is ♀-fa. **diadema** *form.* *alimena.* *coelia.* *velleda.* *porphyria.* *senia.* *diadema.*

nov., found in the island of Buru, resembling in general the ♀-fa. *velleda Cr.*, but with blue, instead of white, oblong, transcellular patches on the forewings. In Buru it seems to be very common, since Doherty collec-
bandana. ted there a great number in March. — **bandana** *subsp. nov.* represents in the ♀ the very extreme of *senia*, in as much as the outer portion of the hindwings is lighter in colour, being broadly yellowish in the forms
remigia. corresponding to *velleda Cr.* and *diadema Fruhst.* Island of Banda, flies in September. — **remigia** *subsp. nov.* resembles in the conspicuously white-dotted ♂♂ the form from Buru, but has the blue bands on the forewings narrower. Of the ♀ I know but one form, belonging to the brown type; having the forewing like that of *velleda*, but distally laved with a lovely golden-brown, the hindwing like that of *bandana*, with smaller, yellowish subtermi-
eligia. nal patches. Island of Obi, ♀ very scarce. — **eligia** *subsp. nov.* approaches the form from Waigeu in that the ♂♂ have the white spots quite large. The ♀♀ are larger than those from the southern Moluccas, dark brown in colour, distally with a lighter reddish tinge, the anteterminal spots irrorated with reddish. On the forewing the insignificant transverse band is dusted with blackish. Batjan, presumably also in Halmaheira,
talauta. Morotai and Ternate. — **talauta** *subsp. nov.* is the most northern form known, approximating in its large size and the profuse white markings on both wings much more the Australian form than those from the neighbouring Moluccas. The ♀ resembles above that of *senia* (119 c), but with a pure white subapical row of spots, and with narrower, blurred and darker blue markings on the hindwings, which have, in addition, the white spots composing the macular band before the black anteterminal line smaller and more isolated. Talaut Islands, pos-
saturnia. sibly also in Sangir. — **saturnia** *Fruhst.* displays among all the forms the largest amount of white in the outer border of both wings; on the forewings the submarginal dots are very heavy, resembling those of *inexpectata*. 1 ♀ is smaller than *lamina*-♀ from Australia, with narrower white markings; another ♀ has on the forewing a magnificent, violet, subapical band, and the hindwing suffused at the base with a violet lustre not found in like inten-
hetero- sity in any other subspecies. Waigeu, rather scarce. — **heteromorpha** *Roeb.* (119 c ♂, e ♀) is the most dis-
morpha. tinct insular form; the ♂ surpasses in the broad, light blue colouring of the upper surface all the other forms; the ♀ closely approaches that of *Euploea assimilata Fldr.* which is found in the same group of islands. The ♂ is on the under surface remarkable for the broad, diffuse, white markings on both wings. Key Islands, most
polymena. abundant in the rainy-season. — **polymena** *Fldr.* resembles in Felder's figure the ♀ of *heteromorpha*. He reports that there exist in the Aru Islands also blue ♀♀, but specimens from Aru are unknown to me in
forbesi. natura, and from Key I only possess brown ♀♀. — **forbesi** *Btlr.* (= salvini *Kirsch*) is a form of very small size, having in ♂ the markings on either side greatly reduced; the ♀ resembles selina-♀ (119 c), but has the yellow submarginal area on the upper surface of the hindwings nearly twice as broad. Timor Laut, Babber.
sclina. — **selina** *subsp. nov.* (119 c) is a highly specialized race, resembling in ♂ the form from Key, but having the markings on the under surface somewhat less broad; in ♀ the forewing is like that of *forbesi*, but the hindwings have the white submarginal area narrower and interrupted by delicate, short, brown intranerval streaks. Beneath the hindwings are marked with a distinct row of white submarginal dots, which in *forbesi* are absorbed by the light marginal area. Dammer, whence I received only the brown ♀-form represented by the figure. —
curicta. **curicta** *subsp. nov.* is the most extreme melanotic form in the entire species, leading over to the dark forms found in the main island of New Guinea; the ♂ is somewhat like that of *alimena*, but greatly reduced in size and with narrower dark blue band; ♀ resembles that of *eremita* (119 e), but is uniformly dark brown, only having the marginal area somewhat lighter. Both sexes have on the under surface the bands obsolete and greatly
eremita. reduced. Island of Mafor in Geelvink Bay. — **eremita** *Btlr.* (119 e), type from Dorey, is found along the entire northern coast of New Guinea. The ♂ varies greatly, being sometimes quite small, with a narrow green-blue band on the upper surface and with uniformly black-brown under surface of the hindwings (Finchhafen), or rather large-sized, with broad longitudinal bands and profusely dotted with white like *heteromorpha*. On the hindwing the median zone is white as usual. Kapaur, south-western Dutch New Guinea. The ♀ is everywhere represented by two forms, one resembling the ♂, with blue longitudinal stripes, the other unicolorous brown (fa. *eremita Btlr.* 119 e). In some specimens the whitish or pale violet, transverse band on the forewing is enlarged. According to Hagen it is common between November and March in the bushy outskirts of the
libisonia. woods. — **libisonia** *subsp. nov.* is a transition to the Australian form. Both sexes are larger than in *eremita*, having the blue area always dark, the white spots still more clearly pronounced. The ♀ is either jet-black or dark chocolate-brown. The five specimens before me recall the ♀♀ of *selina Fruhst.* from Dammer, but have the spots composing the band on the forewing still clearer white and isolated. In some ♂♂ the hindwings are on the under surface unicolorous brown, in others marked with a broad, diffuse, median band. The ♀ lacks also on the forewings every vestige of blue stripes and has the hindwings uniform light or dark
afra. brown. Milne Bay, British New Guinea, from October until April. — **afra** *Fruhst.* still retains the peculiarities of the mainland forms from New Guinea, but manifests also clearly the insular character in the almost obsolete blue areas on the upper surface of the ♂♂, and in the monotonous dark brown ♀♀ which as a rule display on the forewings only a dusky band, irrorated with violet and but in some rare cases marked with white in the middle, recalling *eremita Btlr.* and *libisonia Fruhst.* The ♀♀ are relatively larger than those from British New
obsolescens. Guinea. The under surface is a faded brown, with faint traces of blue and whitish bands. Kiriwina. — **obsolescens** *Fruhst.*, based upon the still darker ♂♂-specimens from the Fergusson Islands, with obsolescent deep
lamina. blue patches, especially on the forewings. — **lamina** *Fruhst.* inhabits Queensland from Cape York to Brisbane,

also Yule Island. In Australia *alimena* differs from the Moluccan forms in the presence of white spots on the blue longitudinal band on the forewing of the ♂♂, and of broad, white marginal spots on the hindwings which, especially on the under surface, grow so large that they form a conspicuous border. The ♀♀ are considerably larger than those of the insular forms. Semper reports also brown ♀♀, which are not contained in my collection. Found in the dense undergrowth during August and September. — **inexpectata** *Godm. a. Salv.* (119 c ♀) is, next to *selina Fruhst.* and *heteromorpha Roeb.*, one of the most striking local forms. The type came from Neu-Lauenburg; it is very common in Neu-Pommern, and Dr. Pagenstecher cites it also from Neu-Hannover. Flies in March. Pagenstecher recognized its resemblance to the ♀ of *Cethosia antippe*. The ♂ is like that of *lamina*, but smaller; forewing with light blue, white-centred band, hindwing with conspicuous white submarginal spots. The under surface of the ♂♂ is just as variegated as in *lamina*, the hindwings bordered with pure white. Both wings differ from those of the other forms in having the basal area suffused with red-brown. — **kuramata** *Ribbe* is somewhat larger in size; the ♀♀ lack the white band on the forewing and are on the hindwing less profusely marked with white, beneath still more broadly and intensely suffused with red-brown than in *inexpectata*. Neu-Mecklenburg. — **diphridas** *subsp. nov.* based on specimens from the Solomon Islands, essentially differing from those from the Bismarck Archipelago. In ♂ the upper surface is intermediate between *obsolescens Fruhst.* and *libisonia Fruhst.*, but the blue band, although narrower, is not quite so obsolete as in *obsolescens* from Fergusson. Of the ♀ the two usual forms exist, one resembling the ♂, having the longitudinal stripes obsolete and more violet than clear blue, the forewings occasionally marked with three indistinct white spots, the hindwings with large, distally blue-bordered, submarginal spots or resembling those of *eremita Btlr.* -♀; the other more uniform and deeper brown, sometimes with a golden-brown submarginal zone. Beneath the ♂♂ resemble those of *lamina Fruhst.* from Australia; but also the ♀♀ have invariably the median area white, and on the forewing a rudimentary, violet, median band. The larva which was discovered by Ribbe, has been described in the special diagnosis. Imago quite common. Both types from the Shortlands Islands. My collection contains blue ♀♀ from Bougainville, brown ones from Rubiana and Renonga in New Georgia; the largest specimen comes from Guadalcanar (April). — **ysabela** *subsp. nov.* is a small form of extreme melanotic character, at once distinguished from *diphridas* by having the median bands on the upper surface light blue and reduced to quite thin stripes. The hindwings are beneath dull violet-white in the median area. The brown ♀ shows on the forewing traces of a dark violet intramedian band (= ♀ fa. **interjecta** *form. nov.*). Collected by Ribbe in St. Ysabel. — **fuliginescens** *Math.* from the island of Ugi is on the other hand an extremely light form, resembling *inexpectata Godm.*, with a broader white subapical band on the forewing.

inexpectata. *kuramata.* *diphridas.* *ysabela.* *interjecta.* *fuliginescens.*

H. misippus *L.* (Vol. I, p. 195, pl. 60 c) probably has its real home in the Etheopian Region, since it occurs there in a number of ♀♀-forms not found in the Oriental Region. From Afrika this species has crossed to South America (specimens from Suriname in my own, from the Ucayali in the Staudinger collection) and the West Indies. It is quite abundant in Florida and has even been met with at New York. It is very common in India, with the exception of Sikkim, in Formosa and the Macromalayan Islands, but grows more scarce farther east. From Neu-Pommern only one specimen is known, whereas in Kaiser-Wilhelmsland it is very common during the rainy-season. Dr. Hagen found there the larva on sweet potato vines and an ubiquitous, small Portulacea. Of the ♂ two seasonal forms are known, a dwarfed form of the dry season (60 c), and the other almost half as large again, reaching its greatest development in Formosa (October until December) and western Java. The ♂♂ from Formosa have, in addition, the otherwise black forewings red-brown at the base (fa. **picta** *form. nov.* observed already by Moore). The ♀ occurs in three forms, all of which are found on the continent of India, two in Ceylon. The form **alcippoides** *Btlr.* which is in Africa exceedingly common, with whitish discal area on the hindwing, is occasionally found as a great rarity in Java, and by Moore reported from the Nilgiris. The ♀-form **inaria** *Cr.* (Vol. I, pl. 60 c), conforming to *Danaida dorippus*, is nowhere rare in Deccan; also from Ceylon specimens are in my collection, and Moore reported having a specimen from Java. The well-known third ♀-form **diocippus** *Cr.* (Vol. I, pl. 60 c) presents a startling likeness to *Danaida chrysippus*, differing somewhat in the width of the white band on the forewing; some specimens resemble the lighter *chrysippus*, others the dark *chrysippus batavianus*. There are also known perfect *hermaphrodites* (left ♂, right ♀-fa. *diocippus*), found at Kanara, southern India (Moore) and at Malang in eastern Java. The most northern locality where the ♂ has been found, appears, from the material in my collection, to be Ishigaki-Shima of the southern Liu kiu Islands. The time required for the development of the imago from the egg lasted, according to observations made in India, from October 16th until November 20th. Pupal state lasts 12 days. In the south of India it first appears at the commencement of the dry period, when it is most common; in Ceylon the larva lives also on Abutilon; Doherty found it in the Nicobars, Rosset on Malé, an atoll in the Maldive Islands.

misippus. *picta.* *alcippoides.* *inaria.* *diocippus.*

H. bolina, one of the characteristic butterflies of the eastern tropics, is not only one of the most common, but next to *P. memnon* also the most interesting among all Lepidoptera. A great deal has been written about this species; the notes published in the various magazines by English and Indian authors on the Biology and the occurrence of the Indian *H. bolina* were collected by Moore (in Lep. Indica Vol. IV.), filling 7 quarto-pages. Nicéville was the first, who in 1886 observed in northern India the Dimorphism depending on the sharply-separated seasons, whereas Semper wrongly denies its existence in the Philippines. Of *bolina* we

know that it is found together with *antilope* and *misippus* on every larger island, and that the ♂♂ are mono chrome, the ♀♀ nearly always polychrome; between the most extreme ♂-forms *auge Cr.* and *lisianassa Cr.* we find numerous transitions, as also between the various ♀♀, which renders it impossible to draw a sharp parting line between the different aberrations and individuals. Cramer figures 5 ♀-forms from Java alone which, however, by no means exhaust the forms found there, as I possess three other aberrations deserving a name with equal right, besides a number of intermediate forms connecting the two extremes. In spite of the almost endless individual variability found in *bolina*, it was still possible that under the influence of a tropical sun and the moisture of the equatorial and Monsoon zones special local forms could develop. Side by side with these "local forms" to which always the greater number of the inviduals belong, we find also stray aberrations characteristic of some other region. Thus Distant figures together with *incommoda Btlr.*, which is peculiar to the Malay Peninsula and Sumatra, also a specimen resembling *perimele*-♀, which is otherwise only known from Java. In the latter island I found, on the other hand, a *jacintha*-♀ which is peculiar to India and Nias; in the Philippines, where the form *philippensis Btlr.* figured by Semper occurs, we observe occasionally stray specimens of *iphigenia Cr.* from the Sunda Islands, and the ♀♀ found in Luzon seem to be altogether identical with *jacintha*. — The nomenclature is very complicate, because previous authors used the names of the ♀♀-forms to designate local forms, at the same time disregarding altogether some names, such as *antiope Muell.* With *antiope* we must probably unite all the forms of *bolina* from the small Sunda Islands, Australia and even the Solomon Islands. In the east it is replaced by the extremely variable forms of the South Sea Islands, whereas in the west its variability decreases, only one ♀-form (the quite dark *avia F.*) being found on the continent of India. The larva lives on Portulaceae, in the Philippines also on Urticaceae; it was first figured in 1857 by Horsfield and Moore. Probably it varies somewhat according to the locality, those from Australia and the Caroline Islands having above the spiracles a lateral stripe of yellow not found in Indian and Javanese specimens. It is blackish, with 9 rows of yellow spines and with black cephalic horns. The pupa is earth-brown with lighter markings, angular at the head and thorax; the abdominal segments are provided with dorsal rows of sharp tubercles. Pupal state lasts from 10—11, in the Carolines 12, in Australia sometimes 20 days. The larva is occasionally found in the verandahs of Indian dwellings, and is very easy to rear. The imago is nearly everywhere common, occurring during one year in immense numbers, in another rather sparsely. It prefers the open fields, gardens, outskirts of woods and plantations. In the Malay Archipelago it hardly ascends beyond 2500 ft, but on the southern slopes of the Himalayas it is still found at elevations of 4000 ft. We distinguish between two groups of subspecies: α) those of the Oriental Region, having both wings marked on the upper surface with white submarginal dots, occurring throughout the Indies, Sumatra and Nias, northward ranging over the Philippines and Formosa; β) those of the Malayan-Australian-Polynesian Region, without any white dots.

bolina Group α.

kezia. **kezia** *Btlr.* (119a ♂, b ♀), a relatively small, well differentiated, insular form of which, beside the figured ♂ of the rainy-season, we know also larger ♂♂ resembling the form *charybdis Btlr.* (118c), having the disc on the hindwing either indistinctly blue, slightly centred with white, or altogether blue. ♂♂ conforming to *liria F.* or *auge Cr.*, having the longitudinal bands on the underside of the hindwings white, I do not know from Formosa; the ♀ of the dry-season has, as is seen in the figure, on the forewing a violet transverse band. *priscilla.* — **priscilla** *Btlr.* is the more frequent ♀-form of the rainy-season, richly marked with white above, and with a gorgeous, dark blue-iridescent, transverse band on the forewings, composed of 4 whitish patches. Occasionally also part of the cell and the entire apical area show the dark blue lustre. In both sexes the under surface is in the median area of the hindwing slightly laved with grey-yellow. According to Consul Swinhoe, who discovered *kezia* in 1865, the ♂♂ fly incessantly around stones or plants, quarrelling with all butterflies that may come near. The ♀♀ however are inert and rarely leave the dense under-brush; whenever they come to the open, several ♂♂ are sure to rush out upon them. The uncus is in the middle somewhat less thick than in *lisianassa Cr.* from the southern Moluccas. Not rare in Formosa. ♀♀ having on the hindwing the disc white as in *philippensis*, (118 c) do not seem to exist in Formosa; but as they predominate in Okinawa, I unite the form from Liu kiu with *philippensis Btlr.*, until further material is available. My Okinawa-♀ surpasses even all my Philip- *philippensis.* pine-♀♀ in the extent of the white apical markings on the forewings. — **philippensis** *Btlr.* designates a whole series of insular races, easily distinguished from the forms of the Malay Archipelago and the mainland by the extent and brillancy of the profuse white markings in the apical and subapical areas of the forewings. All the Philippine forms have, as a peculiarity of their own not found outside of that insular group, ♂♂ with a very broad, white semi-band on the forewing and on the hindwing a dark blue disk like in *charybdis*, and it was this endemic ♂-form, which was chosen by Butler as the type for his *philippensis*. But such ♂♂ are by no means common in the Philippines, although occurring everywhere. The normal ♂♂ stand about

midway between *auge Cr.* (118 b) and *lisianassa* (118 c), but surpass in the amount of white all their allies. Among 100 ♂♂ examined by Semper, 30 had the white median band on the under surface of the hindwing quite broad(approaching *auge Cr.*, *liria F.*), 45 somewhat narrower, 20 very narrow and in only 5 it was wanting altogether. All ♂♂, from Luzon to Mindanao, have without exception the submarginal area dotted with white. Specimens from the southern Philippines are larger than those from farther north. Of 100 ♀♀ from Camiguin de Mindanao only 7 were entirely without the white median area on the under side of the hindwings, in 30 it was narrow, and in 63 very broad. But since we find in the ♀♀ as well as in the ♂♂ intermediate forms, it is impossible to make a sharp separation. In the southern Philippines it is principally found from July until September, Semper receiving in 1865 at one time over 1300 specimens from Camiguin de Mindanao, the ♀♀ of which mostly were intermediate between the extreme forms *perimele Cr.* and *iphigenia Cr.* (118 d). ♀♀ with red-brown spots such as *iphigenia*, *alimena*, *melita*, *eriphile Cr.* are but rarely found in the Philippines. But according to Semper's figures (on pl. 24 of his work on Philippine Rhopalocera) there occur in Luzon ♀♀ approaching more closely the Indian *jacintha* and the Formosan *kezia*, having on the forewings a blue transverse band upon a brown ground, and on the hindwings a narrow, white submarginal band (**cyanecula** *form. nov.*). One ♀ from Palawan has the entire outer margin of both wings broadly bordered with clear white (**subucula** *form. nov.*). Among 14 ♀♀ in my collection, 8 conform to the ♂-fa. *philippensis Btlr.* in the white zone on the forewing and the dark blue disk on the hindwing, which sometimes is greatly reduced and but rarely laved with some white. Very rare are ♂-like ♀♀ having the transverse band on the forewing blue (**viriliformis** *form. nov.*) figured by Semper (fig. 2); very common however are ♀♀ with large white discal area on the hindwing (**victrix** *form. nov.*) (118 c). To the latter must be referred all ♀♀ from the island of Okinawa, 2 ♀♀ from Bazilan and one from Palawan, contained in my collection. The larva feeds in Luzon on nettles, is dark brown with orange-yellow spines; the head is orange-yellow with two black horns; pupa dark brown, takes in Luzon during the months of August and October 10 days, in December 9—11 days to develop the imago. *philippensis*, as it is now understood, ranges from Luzon to Mindanao and Palawan; but it appears certain that the northern form may be separated from the one occuring in Mindanao. There are also in my coll. 4 ♀♀ from Mindoro, which are more unicolorous and darker than those from Basilan collected by Doherty during February and March. In Okinawa the ♀ is rather rare in February and March, more abundant in July and August; it loves to rest on the leaves of the Banana tree. — **joloana** *subsp. nov.* is at once distinguished by its small size. One ♀ is of the type of *philippensis*, another of *victrix* (118 c marked philippensis), but with a small white discal spot on the hindwing. Jolo, Sula Archipelago. — **bolina** *L.* (118 b) is probably based on the small-sized ♂♂ of the rainy-season, having on the underside of the hindwing a broad wide band; in older works they passed under the name of **liria** *F.*; they are analogous to the Javanese form *auge Cr.* Some other ♂♂ deviate from the figure in having on the upper surface of the hindwings two rows of antemarginal dots arranged as in *philippensis*-♀ (118 e) (= **ornamentalis** *form. nov.*). Of this subspecies Moore figured both the summer and winter forms, the ♂♂ of the dry -season being the larger, having on both wings the white colour in the disc more or less suffused with blue; if no white is left, we have **charybdis** *Btlr.* (118 c), in which the distal border also on the under surface is no more clear white, but yellowish like in the ♀♀, and the gray-yellow median band is narrower, more blurred and indistinct. Both marginal border and the light median area may be completely wanting (**luctuosa** *form. nov.*), or more rarely the indistinct median striation on the under surface of the hindwings may be in places irrorated with violet (♂-fa. **subviolacea** *form. nov.*). Of the ♀ we distinguish two chief types: **jacintha** *Don.* (119 b) without any blue on the forewings, having on both sides the hindwings broadly cream-coloured in the distal area. — **avia** *F.* refers according to Butler to a form which is as large as *jacintha*, having on the forewing the transcellular area broadly suffused with a deep blue iridescence, and occasionally on the hindwing the yellowish border somewhat reduced. — **egna** *form. nov.* is a very small ♀-form (dry-season ?) with an anteterminal double row of whitish patches and with a narrow transverse band of pale violet or dark blue colour, not unlike that of *kezia* (119 b); whereas the *jacintha*-♀♀ have on the hindwings either a very indistinct striation or none at all, those of egna have on the under surface a broad, whitish or yellow-brown, median zone. All the hitherto enumerated forms are connected by intermediate forms, and it seems that they are not strictly depending on the seasons or any particular elevation. That much is certain, that nowhere in the entire Indian Empire, the Andaman and Nicobar Islands, Burmah, Farther India, western China and Hongkong there are found ♀♀ displaying any vestiges of a reddish or fulvous postdiscal spotting on the forewing or in the middle of the hindwing. But in the Malay Peninsula and Sumatra we begin to find ♀♀-specimens having on the forewing a broad white band bordered at the periphery with blue, and on the hindwing a large white discal area: **incommoda** *Btlr.*; on the under surface these semi-bands are repeated, being yellowish in colour, and the distal border found in *jacintha*-♀♀ may be dull grey-yellow or clear creme-coloured. Such ♀♀ as have above the spots white, have also the median striation on the under surface of the hindwings whitish (cf. Distant pl. 17, fig. 9). Notwithstanding the great variability of the *incommoda*-♀♀, the light, yellow-marked form so common in Java is according to Hagen not represented. Martin reports that in December 1892 and January 1893 it occurred

cyanecula. *subucula.* *viriliformis.* *victrix.* *joloana.* *bolina.* *liria.* *ornamentalis.* *charybdis.* *luctuosa.* *subviolacea.* *jacintha.* *avia.* *egna.* *incommoda.*

in the Sultanate of Deli in very great numbers, whereas in the following year not one specimen was to be seen. Beside the ♀♀ having the upperside marked with white, we find also such that have on the forewings a blue transverse band, analogous to *avia Btlr.*, figured by Distant (pl. 15, fig. 12, Rhopalocera Malayana), and still others which are hardly to be distinguished from *jacintha*. In Nias and Pulo-Tello of the Batu Islands, we find the typical form of *bolina*, the ♂♂ belonging either to *liria* or to *subviolacea Fruhst.* (dry-season); ♀ exactly resembles *jacintha Drury*.

bolina Groupe ♀.

In Engano we begin to meet with the Malayan type, characterized by the absence of white spots on the
enganica. upper surface of the ♂♂. — In **enganica** *Fruhst.* (118 d) we curiously do not find either the ♀-fa. *proserpina Cr.* (119 a) so common in the Sunda Islands, especially Java, or the ♀-fa. *jacintha Drury* (119 b) from Nias; but the ♀♀ are for the most part spotted with dark brown, approaching *melita Cr.* and *alcmene Cr.* (119 b), and the very rare *perimele Cr.* is likewise represented. Side by side with these we find ♀♀ approximating to the Sumatran *incommoda Btlr.*, and still more frequently others which are quite black, such as I have described from Java under the name of *euryanthe Fruhst.* (118 d). This predominancy of the dusky brown colouring was observed also by Doherty, who states that the Engano-♀♀ resemble when flying *Danais pietersi* (which is likewise dark brown). — The ♀-fa. *iphigenia Cr.* (118 a) which has, like *proserpina*, both wings profusely marked with white, does not occur in Engano either; but the greater number of the ♀♀ have on the forewing a blue or violet transverse band (*perimele Cr.*), and on the hindwing the colouring of *melita* or *alcmene* (resemblance to *aphrodite Fruhst.* from Java). Characteristic of Engano are, moreover, ♀♀ of very large size with red-brown
chrysonicans. anal angle and reddish brown submarginal area on the hindwing, f. **chrysonicans** *form. nov.* The ♂♂ are throughout very dark, occasionally lacking the white pupils in the ocelli on the hindwings (*charybdis Btlr.*). The form *auge Cr.*, so common in Java, seems to be very scarce in Engano, for 9/10 of all ♂♂ are without any white bands
listeri. on the underside of the hindwings. Engano, April-July, 60 ♂♂ 100 ♀♀ in my coll. — **listeri** *Btlr.* is a
antiopa. small form from Christmas Island. — **antiopa** *Muell.* is the oldest name given to the form from Java (1774), whose wonderful variability has ever since Cramer's time called forth great admiration and interest. It contrasts greatly with the mainland form *bolina*; for the first, there are no such small-sized ♂♂ as are found in India, and in western Java the ♂♂ are, probably on account of the absence of sharply-defined seasons, not so much subject to variation as in the Himalayas. The under surface is invariably darker and richer red-brown than in *bolina*-♂♂. Wallace noticed first the lack of the white submarginal punctate rows on the upper surface. ♂♂ belonging to the fa. *subviolacea* or *ornamentalis Fruhst.* are not represented in my collection. The type which, analogous to *liria F.*, is above richly marked with white, having the hindwing traversed by a
auge. broad white median zone, is described as **auge** *Cr.* Also ♂♂ conforming to *charybdis Btlr.* (118 c) are frequent. The ♀♀ differ among themselves in size almost still more than the Indian *bolina*-♀♀, but rarely resemble
perimele. *jacintha Drury*, (I saw during 3 years but one imperfect specimen); also the very dark **perimele** *Cr.*, which is above black with but 4 blue spots on the forewings and some large, white, submarginal dots, but without any other markings, is exceedingly scarce. Cramer's type came from Batavia, and I possess one ♀ from Sumbawa
euryanthe. corresponding to the figure published in 1779. — **euryanthe** *Fruhst.* (118 d) is another, very scarce dark form, above deep brown-black, with the usual white subapical spots and submarginal dots on the forewings. Only two ♀♀ from eastern Java in my collection. Then there are transitions to the more common yellow forms with dark
melita. fulvous subanal patches on the forewing, and occasionally also on the hindwing (= **melita** *Cr.*). — **alcmene** *Cr.*
alcmene. (119 b) is a variety of somewhat more intense fulvous colour, but without the white semi-band on the
antigone. forewing found in *melita*. — **antigone** *Cr.* represents the extreme in this series, having the entire outer half of the hindwings golden-yellow, the anal spot on the forewing reddish, and the white transverse band dusted
proserpina. with the same colour. — In **proserpina** *Cr.* (= antiopa *Muell.*-♀, nerina *F.*-♀) the red-brown colour is in the discal area laved with white. This type is by far the most common among all the specimens of *antiopa* from Java and south-eastern Borneo in my collection. If the hindwings have the surroundings of the white
iphigenia. disc blue instead of fulvous, we have **iphigenia** *Cr.* (118 d). Specimens from western Java display the richest and clearest light blue colouring, far surpassing our figure. This beautiful aberration is in Java next to proserpina the most common form, remarkable for the broad white subapical band on the forewing and the large
aphrodite. white discal spot on the hindwing, both displaying at the periphery a lovely blue iridescence. — **aphrodite** *Fruhst.* (118 d) has on the forewing the subapical band blue or violet, at the anal angle a red-brown spot of varying size, which recurs also in the disc of the dark blue, iridescent hindwings. Both wings bear one, frequently even two, submarginal rows of white scallops and dots. In a particularly beautiful specimen from Java the hindwings are adorned in the discal area with a light blue spot, basally reflecting a dark blue lustre. Western Java, Sukabumi, 2000 ft. Judging from the material contained in my collection it appears that the

richly blue-and white-spotted ♀♀ are limited to the western, the darker *euranthe* rather to the eastern part of the island. During the rainy-season *antiopa* is with its polychrome ♀♀ one of the characteristic butterflies of the Submontane Region in Java. From Bawean I have an interesting small-sized ♀ closely allied to *antigone Cr.* — Great interest attaches to *bolina* from Lombok: In the ♂♂ it conforms to *charybdis*; of the ♀♀ in my collection two are marked like *incommoda Btlr.*, having on both wings white areas without any fulvous spots. Another ♀-form: **astra** *form. nov.* has on the forewing the dark blue band relatively narrow, and on the hindwing a blue disc upon a brown-black ground. As in Sumbawa, also here the ♀-forms *euryanthe Fruhst.* and *proserpina Cr.* are very common, the latter predominating. Also from Sumba I have the ♀-form *euryanthe*, whereas the ♂♂ which are inferior in size to those from Lombok and Sumbawa, belong exclusively to *charybdis*. On the Micromalayan Islands a rather small-sized form (**micromalayana** *subsp. nov.*) predominates, of which especially the ♂♂ have an almost dwarfed appearance, belonging to the *auge* type. In the ♀♀ the colouring of *proserpina* prevails, but during the rainy-season we find in Wetter also *aphrodite Fruhst.* and *iphigenia Cr.* The type came from Babber; my collection contains also specimens from Alor, Kisser, Wetter, Dammer and Kalao. — **labuana** *Btlr.* is the form from northern Borneo, approaching in its markings much more the Philippine than the Malayan races, but differing in the absence of the white and blue submarginal dots on the upperside of the ♂♂, which partially belong to the type of *auge*, and partially to that of *charybdis*. Whereas one ♀ resembles *cyanecula Fruhst.*-♀ in having the transverse band on the forewing blue instead of white, as it is seen in the figure made by Semper of specimens from Camiguin de Mindanao, and in some specimens from Palawan contained in my collection, the others approximate to f. *victrix Fruhst.* (118 e) in all but the white submarginal markings which are absent. North-Borneo. — A ♀ from the Natuna Islands is intermediate between *jacintha Drury* and *perimele Cr.* But in south-eastern Borneo we still find the Javanese *proserpina Cr.* — **celebensis** *Rothsch. nom. nud.* (nec *Holl.*) comprises the forms found in Celebes and its satellite islands. The ♂ is very large, in colouring intermediate between ♂♂ of *antiopa Muell.* and ♂♂ from the Moluccas. Among the ♀♀ *proserpina* and *iphigenia* predominate, the former however is always marked less profusely with fulvous, the latter displaying around the disc a deeper blue colour; the forms *euryanthe Fruhst.*, *perimele Cr.*, *antigone* and *melita Cr.* are not represented; very rare is *aphrodite*. The ♀ seems to appear periodically, for Doherty obtained not a single specimen during August and September, whereas I received during November and December a number of beautiful, fresh specimens from Toli-Toli. — *celebensis* is closely allied, both in ♂ and ♀, to the forms from the Talaut Islands and Saleyer contained in the Fruhstorfer collection. — **gigas** *Oberth.*, a highly specialized form related to *philippensis Btlr.* in the same way as *labuana Btlr.* Above it resembles in its rich white ornamentation the Philippine races, but differs in the absence of the submarginal dots. The ♂ is still larger than *lisianassa Cr.* (118 c), beneath reddish, somewhat resembling the Moluccan forms. The ♀ is brown-black, the forewings irrorated with violet; the hindwings resemble those of *crexa* (118 c) in having the discal spot margined with light blue. The under surface is light brown, dark red in the cell, in general approaching the Moluccan forms. — **lisianassa** *Cr.* (118 c), erroneously called *lasinassa* by most authors since Kirby's time, is confined to the southern Moluccas and remarkable for its large size. The ♀ of the rainy-season form is represented by two greatly different varieties: **eriphile** *Cr.* (118 a called "pandorus") with white transverse band on the forewings and broad, yellowish-red, subanal area centred with white on the hindwings; the other ♀-form is **manilia** *Cr.*, equally large, but without the transverse band on the forewing, in the place of which it has a beautiful, fulvous anteterminal border. Both have the hindwings marked with generally large, clear white, submarginal dots. The white ornamentation is most richly developed in ♀-fa. **discalis** *form. nov.*; the forewing is like in *eriphile*, but the band displays proximally a beautiful, dark blue iridescence, and the hindwings have beyond the cell a long and broad, white discal area (Saparua). Of the ♂ we know a large form without the whitish median band on the hindwing = **alcithoë** *Cr.* (= melaniris *Roeb.*), and besides *lisianassa* also the form *charybdis Btlr.* which is, however, considerably darker in colour. One ♂ from Saparua shows the markings of *luctuosa Fruhst.* having the under surface monotonous dark coffee-brown, and the distal border of both wings adorned with square, whitish-gray, intranerval spots. Besides these large specimens we find in the southern Moluccas also a dwarfed form (118 b called *bolina* ♂) of the *auge Cr.*-type. The corresponding ♀♀ have no resemblance to those of *eriphile, manilia* and *discalis*, but rather represent a retrogression to *proserpina Cr.* and *iphigenia Cr.* For this reason Holland supposed that they belong to the Indian form of *bolina*, from which however they differ in their sexual organs; according to Ribbe the ♀-specimens from Ceram differ to such an extent, that there are hardly two alike. From Amboina, Ceram, Saparua, Banda. From Buru my collection contains specimens of the ♂-forms *alcithoë Cr.* and *auge Cr.*, also the ♀♀-forms *antigone Cr.* in its purest type, *euryanthe Fruhst.* and *proserpina Cr.*, and in addition Holland reports also *eriphile Cr.* From Obi came the model of our figure 118 b; besides which there exists also ♂-fa. *alcithoe Cr.* — **vitramana** *subsp. nov.* designates the ♂♂-specimens from Batjan, Halmaheira and Ternate contained in the Fruhstorfer collection. The ♂ of the larger form resembles above *lisianassa Cr.*, but has the disc on the hindwing more violet than blue and centred with less white; beneath it resembles *alcithoë Cr.*; moreover we find ♂♂ following the *auge Cr.*-type in its purest form. The ♀♀ conform generally either to *proserpina Cr.*, or are intermediate between this and *iphigenia*. But side by side with these West-

astra. *micromalayana.* *labuana.* *celebensis.* *gigas.* *lisianassa.* *eriphile.* *manilia.* *discalis.* *alcithoë.* *vitramana.*

Malayan-Australian ♀-forms we find also, corresponding to the South Moluccan race, very large and dark ♀♀ of the purest Moluccan type, which were already remarked by Staudinger; but instead of the broad, rounded outline of the wings characteristic of *eriphile Cr.* and *manilia Cr.*, they have the more elongate contours of *chrysonicans Fruhst.*-♀ from Engano. The ground-colour is brown-black, the forewings have the anal area dusky red-brown,
ivena. the hindwings the discal area slightly laved with grey-brown (= ♀-fa. **ivena** *form. nov.*). The upper surface is marked with white and blue submarginal dots, the under surface is dark brown, broadly laved with red-brown at the inner margin of the forewing. It is a curious fact and quite singular among the Rhopalocera, that farther east *bolina* is represented again by almost the identical forms as in Java; none the less I give to these forms
nerina. from Australia and the adjacent islands the name of **nerina**, partly because the name exists, and partly because their identity with the Javanese forms is not quite perfect in either sex. For the first the ♂-fa. *charybdis* does not seem to be represented at all in the Australian Region, all the ♂♂ belonging to *auge Cr.*, although they are on the under surface less brillant white and red-brown than the Javanese specimens. Neither are the ♀♀ so varie-
constans. gated, being chiefly represented by the form *proserpina Cr.* and **constans** *Btlr.* which latter is nothing else but a slightly obscured *iphigenia Cr.* In New Guinea we find, moreover, a form closely allied to *aphrodite Fruhst.*, and in
pseudomisippus. Australia the fa. *perimele Cr.* Peculiar to New Guinea is **pseudomisippus** *form. nov.* (119b) which also beneath mimicks *misippus*-♀, but shows its relationship with *bolina* in the white submarginal dots and the broad, white median area crossing the entire hindwing. The larva lives, according to Mathew, gregariously on Sida rhombifolia and refessa, also on Convolvulus; at first it is greenish-black without any spines, grown up it measures 52—55 mm, is cylindrical in shape, black with seven branching spines on each segment, arranged in ring-form. The head is reddish-yellow with long, branching spines; legs reddish-brown. The pupa, which is found on the underside of leaves, is provided with dark brown spines. According to Semper it is very easy to rear; he also states that, whereas the Australian ♂♂ harmonize with *auge Cr.*, there are some which rather approximate to *lisianassa Cr.*; the ♀-forms *iphigenia Cr.* and *nerina F.* predominate. According to Waterhouse *bolina* ranges from Cape York to Sidney; I refer to it also the specimens from New Guinea, where *bolina* abounds everywhere from November until March. Waigeu, Aru, Key (particularly common in December and January, the ♀-form *iphigenia* predominating), Tenimber, Bismarck Archipelago and the Solomon Islands. In the latter we find for the most part a rather small-sized form, the ♀♀ varying but slightly and belonging to the type *nerina F.*
montrouzieri. (proserpina *Cr.*). — **montrouzieri** *Btlr.*, originally described from Woodlark Island, appears to occur also in Fergusson and Kiriwina; the ♀♀ resemble somewhat *iphigenia Cr.*, having on the under surface of the hindwings the yellow-white longitudinal band very narrow, but quite distinct. — **palauensis** *subsp. nov.* (119a) is the first in the sheer endless series of forms found on the islands of the Pacific Ocean which, although as a rule inferior in size to the western forms, vary individually to such an extent that one can truly state, that all the innumerable named and unnamed ♀-forms found on the larger islands situate nearer the mainland, are repeated in miniature, as it were, on the islands and atolls of Polynesia. Moreover in addition to the hitherto described forms, those remote islands have developed also a number of endemic races peculiar to themselves, and we find upon them the most perfect melanotic as well as albinotic extremes. *palauensis* of which I only have four ♀♀-specimens, which I received from the late Mr. George Semper, appears to be very constant, differing only in the greater or smaller extent of the orange-red subanal spot on the forewing, whereas in every other respect it resembles *proserpina*-♀. Palau Islands. Semper received also ♂♂ without any white spots on the upper surface, belonging to the type of *auge Cr.*, but no specimens without the white median area on the under surface of the hindwings. Of the ♀♀ he mentions a few pale aberrations generally only found on the Polynesian islands. In Yap of the western Carolines we find an allied form, of which Kubary has figured the earlier stages; pupal state lasts
rarik. 12 days. — **rarik** is the name of the pale forms from *Micronesia*, discovered during Kotzebue's and Chamisso's journey (1816) and figured by Eschscholtz; the ♀♀ are pale yellow-brown. In size it resembles *bolina*, the ground-colour is dark brown. The forewings have a short white band, composed of 4 elongate spots, extending from the middle of the costa towards the outer margin over 4 interspaces. At some little distance from the outer margin we notice 6 dots, the uppermost of which is very large. A broad, curved, brownish-yellow spot reaches from almost the middle of the wing to the inner margin close to the anal angle. The hindwings reflect on the upper half a slight brownish-violet lustre; in the middle the wings show a large, elongate spot, bordered with dirty yellow at the lower and outer margins. On the under surface the same colouring prevails, only somewhat paler and less distinct; the forewings have on the costal margin between the base and the white band 3 small, white, black-margined spots; moreover, both wings have the outer margin bordered with a double row of grayish elongate spots. The body is above black-brown, beneath spotted with white. Antennae
kraimoku. are black, yellow at the tip, palpi and feet whitish-gray. — **kraimoku** *Eschsch.* is a further colour-variety from the Ratak group of the Marshal Islands. In size it resembles *H. bolina*; it is unicolorous dark brown with olive-green iridescence. Quite close to the outer margin both wings are adorned with a row of small white-gray dots, of which always two are placed in each interspace.

At a distance of 4 mm from the margin we find a second row of still larger white dots, arranged in such a way that every interspace contains one. Beneath the design of the upper surface is repeated, being augmented by two white dots near the base at the costal margin of the forewing. Body and feet are brown, antennae black. In late years, since the occupation of the Marshal Islands by Germany, *bolina* frequently finds its way to continental collections, especially from the Ralik group in the western part of the Archipelago. — **jaluita** *Fruhst.* (119 a) is in some respects closely allied to *palauensis*. ♂ above frequently with clear white disc of larger size than is shown in our figure; beneath uniformly dark red-brown, with blue-violet, instead of white, subterminal rows of minute crescents. The white bands on the h. w. are somewhat constricted in the middle and very sharply defined. Besides the ♀-form represented on pl. 119, we also known ♀♀ without the white disc on the h. w., and still others from Palau with the upper surface pale reddish-yellow, constituting a transition to *pallescens* (119 b); also in these light-coloured ♀♀ the white disc on the hindwing may be present or may not. Jaluit, Marshal Islands, where it is rather common. In the Gilbert (Kingsmill) Islands we find a similar form, contained in the British Museum under the name of *rarik Eschsch.* — **pulchra** *Btlr.* is the oldest name of the Melanesian forms: type from New Caledonia. — **pallescens** *Btlr.* (119 b), based upon a ♀ form from the Fiji Islands, where the variability of the collective species reaches its maximum. The ♂♂ are somewhat larger in size than those of *jaluita Fruhst.*, and as a rule follow the type of *auge*, one specimen being known which belongs to the type of *charybdis*. — **murrayi** *Btlr.* The under surface is most strikingly blue or brown-black, partly irrorated with violet; the median band on the h. w. gradually disappears towards the anal angle, being in the form *charybdis* wholly obscured and, even in the discal area, quite rudimentary. The Fruhstorfer collection contains 35 ♀♀, every single one of which might be given a separate name; they vary greatly in size, from 55—85 mm; all have on the under surface of the h. w. a white median band in different stages of development; only in one ♀ it is altogether obliterated; this specimen is throughout of a light coffee-brown colour, only interrupted by white apical dots, otherwise entirely devoid of any markings (= **maeza** *form. nov.*). The darkest ♀♀ resemble *euryanthe Fruhst.* from Java; ♀♀ displaying, like *perimele Cr.* and *cyanecula Fruhst.*, a blue band on the h. w. are scarce. More frequent are those which resemble the Philippine forms, having the disc on the h. w. blue (= **naresi** *Btlr.*), or the bands upon the f. w. as well as the disc on the h. w. white (= **crexa** *form. nov.* 118 c). In addition to these, all kinds of intermediate forms exist, connecting *alcmene, antigone Cr.* with *chrysomicans Fruhst.* and *pallescens Btlr.* (119 b) so that we find colour-designs peculiar to the Philippines by the side of those characteristic of Java. Finally we observe also *iphigenia-* and *proserpina-*♀♀, although not in their normal but in a rather melanotic form. Quite remarkable is one ♀ representing the type of *euryanthe,* which is distinguished by the narrow, golden-brown, distal border on both wings (= **pelva** *form. nov.*), and which reminds us, in like manner as *pallescens*, of *eriphile* and *manilia Cr.*, thus introducing also the colour-designs peculiar to the southern Moluccas. It is therefore evident that in the Fiji Islands the variability of this species has reached its highest development, a fact that may be explained by assuming that specimens of the various forms have immigrated from their particular localities to those islands. — As **thomsoni** *Btlr.* and **morseleyi** *Btlr.* several closely-allied forms from Tonga Tabu in the neighbouring Tonga Archipelago have been described. — **inconstans** *Btlr.* inhabits the Samoa Islands, being found every where, though never in great numbers, in the lower portions of the islands, where it prefers the plantations and neighborhood of dwellings. Rebel who registers this Samoan form under the name of *montrouzieri,* reports that it always differs from *pallescens Btlr.* (or *murrayi Btlr.*) from the Fiji islands in its smaller size and darker colouring. ♀ with distinct white semi-fascia on the f. w. and with similar subapical spots. H. w. with a bluish-white, circular, median spot. Found at Malifa, Vaimea, in May. — In the Ellice Islands, to the northwest of Samoa, we encounter a very small, melanotic form: **elliciana** *subsp. nov.* represented in the British Museum. — According to Kubary the larvae of all the forms found throughout the South Sea are identical; certainly those found in Yap, Ebon and Samoa quite agree in their markings. — **otaheitae** *Fldr.* described from Tahiti, Society Islands, is another distinct insular form, found also in the Marquesas Islands (British Museum) and in the Paumotu Archipelago. It is generally inferior in size to specimens from Java or the Moluccas; the blue spots found in ♂ are smaller; the ♀ which is above very dark brown, has on the f. w. proximally to the cell an oblique band, composed of 4 short white spots; this is followed by a few white spots, placed rather far apart and, before the outer margin, two rows of fulvous, sometimes rather indistinct, minute, lunular spots; the marginal lunules found on the h. w. are nearly wholly obliterated, but the disc is adorned by a gorgeous, iridescent, sky-blue spot, resembling that of the ♂; the transverse band on the under surface is very indistinct; taking it altogether, there exists but little difference between the sexes in this form.

jaluita. *pulchra.* *pallescens.* *murrayi.* *maeza.* *naresi.* *crexa.* *pelva.* *thomsoni.* *morseleyi.* *inconstans.* *elliciana.* *otaheitae.*

H. diomea is a distinct species belonging to the Celebian Subregion, being known from the main island in two local forms: **diomea** *Hew.* (119 c), inhabiting the Minahassa, appears to be more at home in the submontane region than near the coast, as I have never observed it in the woods on the sea-shore near Toli-Toli. In comparison with the *antilope-* and *bolina*-groups, the ♂♂ of this form vary but slightly, especially in the breadth of the white, violet-bordered band; moreover, some are much smaller in size than the ♂ shown in the figure. A great rarity is the ♂ form **coerulans** *form. nov.*, in which all the white portions of both wings are dusted with light blue. The ♀ has the white patches larger and the submarginal spots on the h. w. more conspicuous; moreover, it is of larger size, and the wings are more rounded, presenting a certain resemblance to the ♀ of *Euploea latifasciata Weym.* — **fraterna** *Wall.* is a much smaller local form, having the wings shorter and more rounded, the whitish portions of the f. w. darker and in the ♂ more heavily dusted with blue and of a more intense blue iridescence. In the ♀ the white submarginal spots on h. w. are more reduced,

diomea. *coerulans.* *fraterna.*

but are, as in ♂, on the upper surface of the f. w. sharper and more complete than in the northern forms of *diomea*. The under surface of the h. w. is distinguished by two white costal spots, of which the one placed right above the cell, is not found in *diomea*. Southern Celebes, where I observed it in the vicinity of the falls of Maros at elevations of up to 3200 ft. Flies between January and March.

dimona. **H. dimona** *Fruhst.* ♂ above closely allied to *H. diomea Hew.* from Celebes, but with a complete row of white submarginal dots on the f. w., which in the ♀ are still more pronounced. ♀: F. w. with somewhat narrower, white, discal band than in *diomea*-♀; h. w. brown-black, similar to those of *H. pandarus L.* (118 a) from the southern Moluccas, with large violet ocelli, pupilled with white. Thus *dimona* is a transition from *H. diomea Hew.* to *H. pandarus L.*, being at the same time separated from both. The discovery of the larva of this beautiful intermediate species is looked forward to with great interest, although it seems still a long way off, considering that we know as yet nothing about the earlier stages of either *H. diomea* or *pandarus L.* Sula Mangoli.

pandarus. **H. pandarus,** one of the characteristic butterflies of the southern Moluccas, forms quite a series of eminently differentiated, insular races, all of which might almost pass as distinct species. — **pandarus** *L.* (118 a, misprinted *pandorus*), one of the most lovely of the Austro-Malayan Rhopalocera, is in the male sex very constant. The under surface is adorned with very large, whitish-violet, submarginal spots, accompanied on the h. w. by an extensive yellowish patch with unusually large, pear-shaped ocelli, ringed with black and yellow. The proximal border of the submarginal area is more or less dusted with white. ♀ is very similar to *H. bolina* ♀ *criphile Cr.* (118 a, 3), but is distinguished by the considerably larger white submarginal spots on the f. w. and the very distinct, elongate, black ocelli which are delicately pupilled with blue-violet. Beneath the ♀ resembles the ♂, except that the marginal area of the h. w. is much broader and chiefly whitish in colour, and that the ocelli are but faintly ringed with orange-yellow. The ♀ which had been given the name of *pipleis* by Linné, was called *lacteolus* by Gmelin, and Hübner transferred the name *pipleis* to the ♂ which had been named *calisto* by Cramer in 1775. But the earlier authors seem to have ignored an interesting aberrative form of the ♀, in which the submarginal spots on the upper surface of the f. w. *triumphans.* are very large and light-blue or violet in colour instead of white (= **triumphans** *form. nov.*). Specimens *pandora.* from Amboina and Saparua in the Fruhstorfer coll. Not very rare, more so in Ceram. — **pandora** *Wall.* presents above an entirely altered appearance, whereas on the under surface the characteristic design of *pandarus* is almost unchanged. ♂: F. w. with a large, blue-violet, double intramedian spot: h. w. with broad, submarginal area of red-orange, enclosing large, black ocelli which are circular and unpupilled. In ♀ the submarginal dots on the f. w. are whitish-violet and smaller than those found in *pandarus;* otherwise it is like the ♂, only the eye-spots on the h. w. are more oblong instead of round, and the three last ones are adorned by small violet dots. On the under surface of the f. w. we find a rudimentary, whitish, transverse band, which in the ♀ is often suffused with blue or reddish. All the ocelli are pupilled with blue or bluish-white. From the island of Buru: scarce.

saundersi. **H. saundersi** *Hew.* deserves to rank as a species on account of the broad, snowy white band found on the f. w. in both sexes, which in the distal half has a blue iridescence. The f. w. has at the anal angle a reddish, black-pupilled spot. H. w. resembles that of *pandora*. The under surface is easily distinguished by the gray-brown ground-colour, which is only interrupted by a sharply-defined, narrow, postdiscal band of pure white. The ocelli are small, white-pupilled, surrounded by a tract of gray-brown, only at the inner angle feebly bordered *junia.* with reddish. Island of Timor. — **junia** *Fruhst.* is of smaller size; f. w. with narrower, white, transverse band: the fulvous distal area on the h. w. is not so far extended, but has the black eye-spots more distinct. ♀ inferior in size to *saundersi*-♀, the length of f. w. being only 58 mm as against 64 mm. Island of Wetter, where it was discovered in May by Doherty, who saw a similar form also in Sumba.

H. octocula is the eastern representative of *H. pandarus*. Although widely distributed, only a few specimens have found their way to Europe; on account of the scarcity of the material we are still in doubt *octocula.* as to whether this or that insular form deserves to be classed as such. But it is certain that **octocula** *Btlr.* is the oldest name given to those forms, being first applied in January 1869. ♂ above black-brown, with a reddish ochre-yellow, transverse band; the submarginal portion of the h. w. is of the same colour, narrow and sharply defined, and contains a number of ocelli which in the ♂ are quite small and unicolorous, in the ♀ oblong and pupilled with violet. In the ♀ there appears, moreover, on the f. w. a row of 4 white subapical dots, and a subanal patch of white. The under surface is lighter brown, with a dull yellow, transverse band on the f. w. The h. w. are in the ♂ traversed by a very narrow longitudinal band, proximally bordering the eye-spots which are always pupilled with white or violet, and in the ♀ surrounded by a brown area. *formosa.* Described from „Tologu". — **formosa** *H. Schaeff.* from Vanua-Lava, one of the Banks Islands belonging to the New Hebrides, described in April 1869. Sempers statement that it is found in the Fiji Islands must be doubted. *elsina.* — **elsina** *Btlr.* from New Caledonia, may be identical with a pair contained in my collection, from Maré of the Loyalty Islands. In all the forms of *octocula* the chief difference lies in the greater or lesser development of *pallas.* the fulvous, transverse bands. — **pallas** *Sm.*, presumably from the southern New Hebrides, is somewhat larger than the preceding forms, and shows only at the costa of the f. w. the rudiments of a broad, fulvous semi-band. The under surface of the f. w. is charaeterized by a large, quadrate, transcellular spot of pure white colour. Also

perryi *Btlr.*, described from a ♀ captured at Erromango in the central New Hebrides, may belong to *octocula*. I only know it from the rather indistinct black drawing made by its author. Above dark brown, with the submarginal spotting usually found in *octocula*. The f. w. has beyond the cell an area of white or whitish colour which has so far not been observed on the upper surface of the ♀♀ from the Melanesian Region. The ground-colour is dark brown, distally somewhat lighter. — **lifuana** *Btlr.* from the Loyalty Islands, is according to Semper identical with *elsina Btlr.* — **arakalulk** *Semp.* Of this form seven specimens were taken in the Palau group of the Carolines, where they are found from April until December. F. w. with a short, brown-yellow transverse band which only reaches the first median and is broader and less curved than in *octacula* and *elsina*. The yellow area of the h. w. is narrower in front and towards the anal angle. H. w. with six black, white-pupilled eye-spots. In the ♀ the ground-colour is lighter, the band above almost as light as beneath, and the white markings of the cell are showing through above. From the Palau Islands; — **marianensis** *subsp. nov.* Whereas the general design is the same as in *arakalulk*, the brown-yellow bands are, especially on the h. w., narrower, and the under surface very much darker. From the Marianas Islands; some specimens are according to Semper contained in the Tring Mus. and in the Obertheer coll. *perryi.* *lifuana.* *arakalulk.* *marianensis.*

H. deois is an interesting and most variable species, inhabiting New Guinea and the adjacent islands as well as the northern Moluccas. We are not acquainted with all the existing insular forms as yet, of which only a few are really abundant, whereas others, like those from the Aru and Key Islands, are reckoned among the greatest rarities. Whereas it is greatly surpassed in size by *pandarus L.* from the Moluccas, the ♂♂ present almost the same general markings as we see in *pandarus*. All the ♂♂ have in common a series of unequally large eye-spots, enclosed within an area of fulvous or black, and interrupted between the lower radial and the upper median; they are all more or less distinctly pupilled with white or violet and show plainly through above. The disc of the h. w. is either violet or white, with blue periphery. The ♀♀ are always dimorphic, having as a rule a broad white band on the f. w.; only in one local form the colour is gray-black throughout. Nothing is known of the earlier stages. — **tydea** *Fldr.*, the most northern form, described by Felder from Batjan and Halmaheira, but possibly also found in Ternate and Morotai. ♂ resembles the figured *paleutes*-♂, but has the violet or blue discal spot considerably smaller and the ocelli on the h. w. pupilled with blue. The ♀ is at once recognized by the whitish tint of the f. w., extending also to the apical portion of the cell which otherwise is shaded all over with brown-gray. On the h. w. the ♀♀ have a large rhomboid discal area of yellowish white colour, gradually shading posteriorly into the fulvous anal region which encloses several large, oblong eye-spots. The under surface of the f. w. is dark gray, lighted up in the middle with gray-white. The h. w. is yellowish-white, having the ocelli ringed with orange. — **obianus** *subsp. nov.* The only ♂ specimen I possess of this form, is rather smaller than *tydea*, but the discal spot on the h. w. is larger, of violet colour and more pure white at the center. The fulvous submarginal area is not so broad as in specimens from Batjan, and more sharply delineated. From the island of Obi: undoubtedly very scarce. — **hewitsoni** *Wall.* occurs as a great rarity in the Key Islands, only a few specimens having been taken by Kuehn in Tiandu; my coll. does not contain it. The ♀ has a very broad white band on either side of the f. w., resembling *Euploea assimilata Fldr.* found in the same islands. — **deois** *Hew.* likewise very rare and unknown to me in natura. The ground-colour is black, on the h. w. a broad, brown-yellow band encloses 6—7 black ocelli, partly pupilled with white. Between this band and the cell the ♂ has on the h. w. a large-sized spot of whitish colour irrorated with violet. ♀ resembles the ♀ of *hewitsoni* in its richer white markings. Aru Islands, according to Staudinger also Waigeu. — **panopion** *Sm.* (118 b), closely allied to *deois*, inhabits the entire north coast of New Guinea; the type came from Humboldt Bay, the model for our figure from Astrolabe Bay. The ♂♂ are rather variable, displaying at times not a trace of white in the violet disc on the h. w., which renders their resemblance to *deois* and *tydeus* most striking. In the ♀ the white area on the f. w. may occasionally be of lesser extent than appears in our figure. Beneath the white markings increase to such an extent that they cover the entire apical portion of the f. w. and leave free even on the h. w. only the brown-gray basal region. Both the radials and the lower medians enclose a white-pupilled eye-spot, almost imperceptibly shaded at the periphery with pale yellow. The white subterminal stripe, seen on the upper surface of the f. w. in our figure, is obsolete in the darker ♀♀. Found according to Hagen from December until April, but never in great numbers. — **divina** *Fruhst.* (118 b), a local form from British New Guinea, has especially on the h. w. much richer white markings. In the ♂ the white discal area of the h. w. is very broad. In ♀ the anterior eye-spots do not show a trace of yellowish rings. In ♂ the under surface of the f. w is sometimes adorned with a complete, broad, transverse band of whitish colour. The hindwings have the outer half whitish, the ocelli enclosed within it are only indistinctly bordered with reddish. Occurs at Milne Bay from October until April. — **palladius** *Sm.* is a magnificent, highly differentiated, insular form and, at the same time, the only one with a white transverse band on the f. w. of the ♂♂. In normal specimens the upper surface of the h. w. is black; in some rarer aberrations, however, we notice in the violet disc a retrogression to the type of *deois* and *tydeus* (= f. **tydeina** *form. nov.*). The anal ocelli on the hindwings of the ♂♂ are occasionally ringed with fulvous. The ♀ most closely approaches the ♀ of *divina Fruhst.* from British New Guinea, excepting that the row of ocelli on the h. w is complete, being composed of circular black patches, all of which are pupilled with white excepting the fourth, which has no pupil. From Fergusson, in the d'Entrecasteaux Archipelago. — **paleutes** *Sm.* (118 a), distinguished by the violet discal spot on the upper surface of the h. w. The ♀ may be easily recognized by the uniformly gray-black ground-colour, only interrupted by the distinct white submarginal *deois.* *hewitsoni.* *panopion.* *divina.* *palladius.* *tydeina.* *paleutes.*

dots which on the h. w. are sometimes ringed with black. The under surface is without any markings whatsoever, only in the ♂♂ the h. w. is beyond the cell slightly laved with gray-white. The ♀ varies in such a way that the submarginal eye-spots either are black with a white dot in the center (type), or that they are chiefly white, surrounded by an indistinct black ring which may even be absent altogether. Such dark ♀♀ lack also
depunctata. the white apical dots on the upper surface of the f. w. (= f. **depunctata** *form. nov.*). From Kiriwina, Trobriand Islands. The sexual organs hardly differ from those of *H. bolina* from Amboina, but the uncus is somewhat shorter, the semispherieal portion of the valve rather flatter and more regularly dentate.

28. Genus: **Doleschallia** *Fldr.*

The few species of this purely Indo-Australian genus merit our deepest interest on account of their highly developed protective colouring. They resemble somewhat in the shape of their wings and the leaf-pattern the Neotropical *Zaretes*, but differ from them in neuration and in the shape of the sexual organs which are more like those of Limenitis. Whereas on first sight one might be tempted to class them with *Kallima*, they have neither in structure nor in their anatomy anything in common with that genus; only in their early stages they have a mutual resemblance with Vanessa. *Doleschallia* is distinguished from *Kallima* by the completely open cells in both wings, and by the single, out-curved precostal. Moreover the entire shape of the wings and the design of colouring are so different that by these alone the two genera may be told from one another. The fore wings are at the apex but slightly curved, forming a broad corner. The hind wings are produced at the extremity of the submedian so as to form a short tail which is curved inward. The palpi resemble those of *Kallima,* the antennae are strong and provided with distinct, gradually thickening, elongate clubs. Two subcostal nervules branch off before the end of the cell, the third midway between this and the fourth nervule. The fourth and fifth branches form a short fork just below the apex. The larva is as a rule black or at least dark in colour, occasionally with dorsal rows of white dots; head and spines are steel-blue. The head is armed with fine, short spines, branching laterally. They live on Eranthemum malabaricum Clarke, an Acanthacea, and according to Hagen also on Craptophyllum hortense, always gregariously. The pupa is slender, the thorax ventrally somewhat inflated, constricted in the middle, and provided at the head with two moderately long horns. It is yellowish in colour, with darker dots and edges. It takes from 8—10 days for the imago to develop. The sexual organs show in their peculiar membranous appendages a certain relationship with *Yoma Doh.*, presenting the greatest possible contrast with *Kallima.* The uncus is remarkably long, slender and sharply pointed. The valve is distally completely globular, somewhat resembling that of *Hypolimnas,* but without serrate edge, only provided with long bristles; ventrally it bears a sort of projection varying in shape in the different species, being either thumb-shaped or bulb-like. The saccus is extraordinarily long, the penis apparently quite broad, membranous, again widely contrasting with that of *Hypolimnas* as well as *Kallima.* Altogether the sexual organs of the genus *Doleschallia* differ in their elongate compressed shape from all the genera that have been so far studied, The imago is an excellent, strong flier; while they are not scarce, they never occur in great numbers, and it is difficult to find more than four or five in one day. Endowed with rapid flight, they prefer the neighbourhood of shady tracts, even of houses and gardens, resting with folded wings upon grasses and flowers, not infrequently also on the wood-work of verandahs or fences. Occasionally one may find them at some moist spot upon the road; this, so Hagen reports, is the exclusive practice of the Papuan species which never select dry wood as a resting-place. *Doleschallia* is presumably a Melanesian genus, finding its greatest development in New Guinea whence we know six species; the Bismarck Archipelago has only four, the Moluccas three, and the Malay Archipelago west of Celebes, and the main land of India have but one species each. All inhabit the plains; only one species (D. continentalis) ascends the southern slope of the Himalaya to an elevation of about 5000 ft. The sexes are more or less distinctly sexually dimorphic. In Java and India the influence of the seasons is manifested in the various broods which are slightly differentiated; but we still lack accurate observations on this subject, — a fruitful field for later generations.

bisaltide. **D. bisaltide** has a wide range of distribution from West to East, being found anywhere between India and Waigeu, and again, avoiding New Guinea, in the Bismarck Archipelago, the Salomon Islands, the New Hebrides and Viti-Levu. Up til now it was considered to be exceedingly variable, because one took the different local races to be mere varieties of one and the same form. In fact *bisaltide* shows, especially in the markings of the upper surface, great constancy and resists climatic influences much better than f. i. *Cynthia* and *Cethosia.* The under surface, however, with its leaf-pattern, varies in the same wonderful manner as *Kallima.* Although it lacks the so-called mildewy spots, it is distinguished, as is indeed the case with all the *Doleschallia,* by a design which may originally have been only found in the ♂♂, consisting of silvery, dot-like or band-shaped spots in the basal area of both wings; their intensity varies in the different individuals, reaching its highest
argyroides. development in the ♂♂ during the rainy-season (= **argyroides** *form. nov.*). Sometimes the end of the cell
nimbata. on the under surface of the f. w. is bordered with white (**nimbata** *form. nov.* [137 b] "wearing a diadem"). It appears that the specimens in which the entire under surface is marked with the dry-leaf pattern, are mainly, although not exclusively, products of the dry-season. As a rule they have, analogous to *Kallima,* the median band very strongly developed, imitating as it were the ribs of a leaf. Side by side with ♂♂ and ♀♀ of rather uniform colouring we find, whereever the species occurs, specimens in which the basal half of both wings beneath is greatly obscured, being red-brown or nearly black, contrasting strongly with the pale yellowish,

reddish or almost white, distal half (= **basalis** *form. nov.*) (137 b). Generally speaking the ♀♀ display the colouring peculiar to the dry-season, even where a distinct rainless season is not known as f. i. in Nias and Amboina: and cases in which they show traces of whitish subbasal patches are rare (♀♀ of *mariae*, *pratipa* e. a.). But both sexes have in common a white spot before the apex of the f. w., which is always present, though it may vary in size. The hindwings have invariably an anterior and an anal ocellus, which are always most perfectly developed in the ♂ of the silver-coloured form, and are repeated at the anal angle of the f. w. as minute eye-spots, finely pupilled with white. Moreover, we observe nearly always some indistinct, accessory ocelli, which may unite to form a delicate chain. Much more interesting, however, is the change which the colour of the discal spots on the under surface of the f. w. undergoes in the eastern forms (Key, Waigeu), where the silvery markings are replaced by light cinnamon-brown or yellowish designs, recurring also on the h. w. in the shape of yellow circles (**cingara** *form. nov.* [137 b] "the gypsy"). — **philippensis** *Fruhst.* (112 a) inhabits the Philippine Archipelago, being rather common, especially in the southern islands, between July and September. Whereas also this form varies on the under surface to such an extent that hardly two individuals may be said to be alike, the markings of the upper surface are nearly constant. There are always two small, white dots at the apex of the forewing, and only the yellow intraradial spot placed distally to the oblique band varies somewhat in size and unites, in the rather lighter-coloured and larger ♀♀, with this band. Regarding the under surface, Semper who examined 900 specimens from Camiguin de Mindanao, states that the ♂ has nearly always some white spots, whereas none are found in the ♀. Otherwise the colouring is the same in both sexes, excepting that the ♀ has the under surface a shade lighter and the apex of the f. w. more blunt. Of the other specimens before me collected by Doherty during February and March in Bazilan, three ♂♂ belong to the f. *argyroides Fruhst.* and one to *basalis*. The ♀♀ are fulvous. Specimens from the island of Palawan collected in January, have the brown-yellow band on the f. w. somewhat narrower. The ♂♂ vary considerably on the under surface, one belonging to *basalis*, another approaching the f. *cingara* in the broad. yellow-brown striation of the cell of the f. w. and in the presence of similar spots in the basal half of the h. w., which may be accompanied by minute silvery dots. The light yellow eye-spots form a vivid contrast to the lovely red-brown colour of the h. w. The larva was found at Manila, feeding on Graphophyllum (Acanthaceae); it is 6 cm in length, black with five white longitudinal stripes, the head and spines are glossy steel-blue, the forelegs black; above the prolegs it is spotted with steel-blue; beginning at the fourth and ending with the eleventh segment, they are adorned with red, wart-like prominences which are connected with one another by two white lines. Pupa reddish-brown with dark spots; at Manila the imago requires in February 11—13 days to emerge, in March 9—11 and in September 8—9 days. — The most northern form of the species is **continentalis** *Fruhst.* (= indica *Moore*). ♂ somewhat smaller than *philippensis* (112 a), having but a most minute, yellow, subapical spot on the f. w. The black band at the end of the cell is more divided and less broad. In the ♀ the f. w. has an extensive area of yellow-brown, somewhat lighter in the median region. The black transverse band beyond the cell appears in specimens of the dry-season almost like a fine thread. One ♀ belonging to the fa. *basalis* has the inner half of both wings nearly black, the outer half almost white. Otherwise the majority of ♀♀ have the under surface red-brown. Quite abundant in Sikkim and Assam between April and December anywhere up to 4000 ft. of alt. The imagines are not at all shy, often alighting upon rocks or heaps of earth, with the wings closed, and are then very difficult to detect. Larva on nettles. The specimens which I collected in Tenasserim in April (dry-season), and in Tonkin between August and September which is here the beginning of the dry-season, (belonging to the f. *argyroides*), are smaller in size and of somewhat deeper fulvous colour, the ♀ being still lighter than is the case with specimens from Sikkim. With these I must class also a ♀ from Hainan which is quite similar in size and appearance. — **siamensis** *subsp. nov.* This form from Siam is, on the other hand, very small and has a shorter, yellow-brown, subapical band on the f. w. than ♂ of *continentalis*. In the ♀ the upper surface of the h. w. is of a darker red-brown colour, representing presumably a transition to the Macromalayan races. Beneath it resembles the f. *basalis*. The ♂ of the dry-season (January) is adorned with silvery spots. — **malabarica** *Fruhst.* found throughout southern India. The apex, whilst still prominent as in *continentalis*, is more rounded posteriorly and not so sharply angular. The ♂♂ have the transverse band deeper red-yellow and shorter; the ♀ is not so greatly different from the ♂ as in *continentalis*. Larva is found on Eranthemum, which belongs to the same family as the food-plant of the larvae of Junonia and *Kallima*. The eggs are deposited in small clusters; the larvae which live always gregariously, are chiefly found in September and October. The specimens from Kanara figured by Moore must also be classed with *malabarica*. Quite abundant on the coast of Malabar and Coromandel. — **ceylonica** *Fruhst.* closely approaches *andamanensis Fruhst.* in the markings of the h. w., but is distinguished by the absence of the white apical dots from the f. w. The yellow subapical transverse band on the f. w. is very similar to that found in *malabarica Fruhst.* (= *indica Moore*, Lep. Ind. pro parte pl. 336 f, 2 a, 2 b), but shorter and narrower and more broadly bordered with black; this renders the yellow patch between the lower radial and the upper median smaller. Both wings are darker yellow-brown than is found in the races from the main land, and have the black borders and bands equally broad as those of the Andaman form *(andamanensis Fruhst.)*. The under surface is lighter yellow than in *continentalis Fruhst.*, and the ocelli are of greater size than in all the allied forms, *malabarica* included, which latter it approaches closest in its fulvous colouring. *ceylonica* is quite rare in Ceylon. I only found two or three specimens some time in May 1889 at the edge of the woods near Nalanda; following a dried-up river-bed, I came across the tracks of wild elephants which had made a broad path through the

basalis.

cingara.
philippensis.

continentalis.

siamensis.

malabarica.

ceylonica.

forest and had been rolling in the sand of the river: the enormous hole resulting therefrom I could only explain, when I noticed the dried-up droppings almost equal in size to a wagon-wheel that had been deposited on the sand by the frolicking animals. — The larva is purplish-black, with dorsal and lateral rows of branching, blue spines and a median row of white spots. The pupa is reddish-purple, with numerous black dots. Also Moore reports that the imago is rare, being found as a rule at elevations of from 2000—4000 ft., occasionally also on the roads leading through the forest-covered low-lands. — **andamanensis** *Fruhst.* (= andamanica *Moore*). The ♂ is above of bright red-brown colour, the ♀ has, compared with the ♀ of *ceylonica*, much broader yellow bands, placed on the f. w. in horizontal direction. Both sexes are distinguished by the conspicuous white double spots on the f. w. Occurs in the Andaman Islands, according to Moore also in the Nicobars. — **mariae** *Fruhst.* (113 a) is the first of the series of Macromalayan forms. The ♂ is smaller than *ceylonica*-♂, having the f. w. dark tan-coloured, with short, broad, subapical bands, sligthly irrorated with reddish The ♀ resembles the figure, always with a black discal spot which is distally never united with the black apical border. The under surface of the ♂♂ invariably follows the f. *argyroides*. Of the ♀♀ specimens only one resembles a dried leaf, whereas five others have both wings spotted with white at the base. The larva is always found on Graptophyllum hortense, an ornamental shrub much used by the Malays for the decoration of their graves; generally one finds several dozens together. It is black with steel-blue head; each segment carries eight long steel-blue spines, which do not branch, but are covered with short bristles. Dorsally and laterally it is striped with white. Above each leg is a brick-red spot. The pupa is light brown with dark brown spots; it takes from 8—10 days to develop the imago. Martin relates that the ♀♀ are often found resting on the woodwork of old bridges in the woods and even alight upon ox-carts; the larva lives also on Artocarpus integrifolia, the Jack-fruit-tree. Valve with nearly circular median disc, ventrally provided with a projecting, distally somewhat curved ledge. Uncus long, stout, in-curved at the end. Penis long, membranous, basally ending in a fine tube.

andamanensis.

mariae.

niasica. **niasica** *Btlr.* somewhat inferior in size to *mariae;* the ♂♂ are, in consequence of their insular character, rather darker; the same may be said of the deeper brown-green upper surface of the h. w. of the ♀♀. The yellow-brown spot on the f. w. of the ♂♂ is still shorter than in *mariae*; in the ♀ the median portion of the f. w. is of a paler yellow colour; the under surface is remarkably light yellow, the ocelli are pupilled with fulvous Also in the ♂ the subapical portions are irrorated with yellowish. From the island of Nias, also from Engano and Mentawej; in the latter two islands very scarce. — **surculus** *subsp. nov.* (112 c), a dwarfed form, distinguished beneath by the presence in the ♂♂ of a whitish, rather broap, anal border on the h. w., occurring also in the ♀♀, although not so distinct. All the ♂♂ specimens taken between July and September belong to the f. *argyroides*. From the island of Bawean: not rare. — **pratipa** *Fldr.* inhabits the Malay Peninsula. In the ♂. the wings are strongly curved, with far-projecting, not rounded apex and with a long, thin, anal tail on the h. w.: its colour is a deeper red-brown than is seen in *mariae* ♂♂ from western Sumatra. The ♀ occasionally corresponds to the ♀ of *mariae,* although some specimens are rather smaller in size, with a broad black band crossing the f. w. Not very abundant. — **borneensis** *Fruhst.* (= borneensis Moore 1900) is the darkest among the Macromalayan insular forms and very constant. It is easily distinguished from *pratipa* by the roundish contour of the f. w. and the unusually broad, black, apical border. The ♂ is also remarkable for an intraradial yellowish spot, located, as in philippensis, beyond the transverse band on the f. w. The ♀ is in the median region somewhat lighter-coloured. In the ♂ the colour of the under surface is rather uniform; the ♀♀ which follow the type of *argyroides*, are dark tan-coloured. North and South-Borneo. — **bisaltide** *Cr.* is, in contradistinction to the preceding form, exceedingly variable, occurring in Java in two forms which, although not influenced by the locality, vary to such an extent that they have always been treated as two distinct species. The ♂♂ with silvery spots on the under surface seem to be in the majority; this spotting is most strongly developed in the larger specimens from eastern Java. Above they may either resemble the ♂♂ of *surculus* (112 c) or be marked, analogous to *celebensis*, with a wreath of white dots (**coronata** *form. nov.*). All the ♂♂ specimens from eastern Java contained in my coll. have the median area of the f. w. red-brown throughout, whereas in some others from western Java it is anteriorly yellowish in colour (**exornans** *form. nov.*). I have ♂♂ with leaf-like under surface from western Java, which show the wreath of white dots, whereas those from eastern Java do not possess it. The large-sized ♀♀ from those localities most probably belong to the monsoon period; they always display the white dots. This ♀ form I name **polibetina** *form. nov.* because it had previously been classed with the Amboina-form polibete and forms the greatest imaginable contrast with the ♀-f. **bisaltide** *Cr.*, which is most likely peculiar to the dry-season; this view is supported by the presence of the pale yellow, median zone which reminds us of **mariae** *Fruhst.* from Sumatra, and the equally light yellow, transverse band on the f. w., both of which are on the under surface accompanied by light yellow or red-brown markings. From eastern Java I possess also three ♂♂, belonging to the fa. *basalis* and resembling above the dark, white-dotted ♂-form. The imago is found throughout Java up to 2500 ft. of alt., generally at the edge of the woods, in plantations and fruit-orchards. The larva I repeatedly encountered in the hotel gardens at Malang in eastern Java; according to Dr. Piepers it feeds on Acanthaceae and Euphorbiaceae; it is most gaudily coloured, resembling that of *philippensis,* but according to Semper greatly differing from that of *ceylonica Fruhst.* It is black, with five white longitud. stripes; above the prolegs are found red wartshaped projections, connected with one another by double white lines. The ♂♂ I took in Lombok follow the type *argyroides* and are, analogous to *surculus*. without the frontal wreath, but with a yellowish intraradial patch on the f. w. The ♀ is very large, not quite so pale yellow as *bisaltide Cr.*-♀, otherwise quite identical with it. Four ♂♂ have the under surface red, five ♀♀

pratipa.

borneensis.

bisaltide.

coronata.

exornans

polibetina.

yellow-brown. It flies from April until June at elevations of up to 2000 ft. In Sumbawa *bisaltide* has undergone considerable changes; the apical portion is greatly obscured, richly dotted with white, but the transcellular spot is quite small (= **scapus** *subsp. nov.*) (112a); the ♀♀ closely resemble the ♂♂ but have the yellow-brown band on the f. w. somewhat broader. Beneath the ♀♀ are gray-violet, irrorated with greenish, the median band is very broad and shaded with greenish or purple. From Sumbawa, Alor, Dammer. Wetter, Kisser in the Fruhstorfer coll. — **ermelinda** *subsp. nov.* is distinguished from *scapus* by its superior size, a surprising fact for a butterfly from Sumba, which is otherwise remarkable for the small size of its insects. In both sexes the transverse band is broader and paler yellow than in *scapus*. All the ♂♂ and five of the ♀♀ contained in my coll. do not show any silvery markings, having the ground-colour of the under surface either greenish-gray or red-brown. Island of Sumba. — **celebensis** *Fruhst.* (112d) is beneath distinguished by dark brick-red, longitudinal stripes placed distally to the black median line; these stripes are most distinctly seen in the ♂♂ belonging to the f. *argyroides* which are generally silver-gray shaded with greenish, but are never found in the rarer red-brown ♂♂. The ♀ is beneath gray, dusted with greenish, having above the white frontal dots more marked than they are in the ♂, and the yellow subapical area rather paler. The type came from northern Celebes, where it seems to prefer the lower hills to the plains; I captured but a few specimens near Toli-Toli. The ♀ is scarce; my coll. contains only ♀♀ from the Minahassa, also ♂♂ from Tombugu in the eastern part of the island. The ♂♂ found in January in the neighborhood of the falls of Maros, in the southern part of the island, differ somewhat from North-Celebian specimens in their lighter colouring and the broader, yellow spot on the f. w. — **sulaensis** *Fruhst.*, a melanotic insular form, has on the upper surface of the h. w. a broader, black distal border, but lacks at the costa of the f. w. the yellow spot, always found in *celebensis*. The *argyroid* under surface is of a peculiar dusky green-brown tint, with brown-black median bands and gray-violet patches. Discovered in Sula Mangoli by Doherty; flies in October and November. — **polibete** *Cr.*, first described from a ♀, is extraordinarily scarce in Amboina; I have only succeeded in collecting two pair during all these years. The ♂♂ are rather variable above, some resembling the ♂ of *celebensis* (112d) in the very narrow subapical band, others more the ♂ of *scapus* (112a), having the band on the f. w. broader and lighter yellow-brown. The h. w. are but moderately bordered with black, as a rule less than in my darkest ♂♂ from Celebes. The ♀ corresponds to Cramer's figure, having distally to the transverse band a yellow intraradial spot, very much like in *philippensis* (112a), some white frontal dots and small black submarginal spots on the h. w. Among the ♂♂, the one with the darkest upper surface follows beneath the type *argyroides*, the one which is lighter above, shows beneath the character of *cingara*. The under surface of the ♀ is a faded red-brown. In one ♂ from Banda (September) the bands on the f. w. partake of the character of the two ♂♂-forms from Amboina. Ribbe reports it also from Ceram, where it is very rare, Holland from Buru, Pagenstecher from the Ulias Islands. — **apameia** *subsp. nov.* is a very small insular race: the ♀ is hardly any larger than the ♀ *surculus* (112c), but has the pale yellow, subapical band on the f. w. which is nearly exactly horizontal much broader, and the white dots more delicate. The h. w. are light yellow-brown, with minute black dots and a scanty border of black. The under surface is of a faded, light fulvous colour. From Obi, only 2 ♀♀ in the Fruhstorfer coll. — **cethega** *subsp. nov.* closely approaches *nasica* (112d), but the black distal border of the h. w. is not quite so pronounced and the submarginal dots, especially in the ♀♀, are considerably larger than in *polibete* and *nasica*. The under surface of ♂♂ belongs to the fa. *argyroides*; it is reddish-brown with yellowish patches, profusely dusted with gray-white or violet. The ♀ is either yellowish or reddish-purple, with large yellow-pupilled ocelli. From Batjan, Halmaheira, Ternate, possibly also Morotai. — **nasica** *Fruhst.* (112d) rather inferior in size to *cethega*. The ♀ is, analogous to the Batjan-♀♀, somewhat variable in as much as the intraradial spot on the f. w. which coalesces with the light-coloured, broad transverse band, may be quite large, or small, or ever disappear altogether. The under surface is very gaudily coloured, in the ♂ either gray-green or, as in *cethega*, red-brown with the *argyroides*-markings; one specimen shows the design of *cingara*; ♀ as a rule reddish-purple, only one among a great number pale gray-green. Island of Waigeu. — **tualensis** *Fruhst.* displays in the ♂ the characteristics of *nasica*, in the ♀ those of *cethega*, but the dots on the h. w. have a tendency to become obsolete, and the band on the f. w. is narrower and longer. The under surface is generally very pale, marked with the *argyroides*-design, often as lavishly as in specimens from eastern Java. Besides these there exist also ♂♂ having the white spots dusted with violet. The rainy-season form is in both sexes much larger than the dry-season form, which latter displays on the under surface the markings of *cingara* upon a light yellow-brown ground, broadly laved with whitish-violet. Rather abundant in the Key Islands: from the Aru Islands I have no specimens. — **tenimberensis** *subsp. nov.* is an intermediate form between *tualensis* and *scapus Fruhst.* (112a) from the Micronalayan Islands. The yellow band on the f. w. is decidedly broader than in the forms from Key and Wetter, the h. w. are only costally broadly bordered with black: the ocelli resemble those of *tualensis*. Beneath red-brown, without silvery-spots. From Selaru, Tenimber Islands. — **montrouzieri** *Btlr.* is a small-sized form with very narrow, yellow band and very distinct, white dots on the f. w. Island of Woodlark: unknown to me in natura. — **herrichi** *Btlr.* from the New Hebrides, resembles above *nasica*, although essentially smaller in size. The f. w. has a very broad, black transcellular band. The under surface is of a peculiar gray-yellow colour, with large ocelli on the h. w. and the markings of *argyroides*. — **romana** *Fruhst.* is a remarkably large form found in Polynesia. The frontal dots on the f. w. are still more conspicuous than in *herrichi*, the yellow band is larger; in the ♀ we always find a large, pale yellow, intraradial spot; the ♂ has the black band on the f. w. still broader than is the case with the ♀♀ of the form from the New Hebrides; it is very pale ochre-yellow, with white-pupilled punctate spots on the h. w. The under surface

scapus. *ermelinda.* *celebensis.* *sulaensis.* *polibete.* *apameia.* *cethega* *nasica.* *tualensis.* *tenimberensis.* *montrouzieri.* *herrichi.* *romana.*

is of a lovely red-brown colour, adorned with silvery markings and large ocelli which appear also on the f. w. quite perfect. Found in Viti-Levu, presumably also on the adjacent islands. The larva is differing essentially from that of *philippensis Fruhst.* and *bisaltide Cr.*, according to SEMPER, who referred to MATHEW's picture of the form from the New Hebrides. — In the Bismarck Archipelago we meet with two other quite sharply differentiated
gurelca. forms: **gurelca** *Sm.* (112 c), the smaller of the two and peculiar to the dry-season, is distinguished by the absence also in the ♂ of the black transcellular band on the f. w., as a result of which the short black spot at the apex of the cell is quite isolated. The ♂ is more darkly shaded with reddish-brown and more broadly bordered with black than the ♀ represented in our figure; the ♀ varies considerably in size, some specimens being fully one third larger than our figure. The ♂ is beneath of a faded reddish-gray, adorned with silvery spots, feebly
orthagoria. shaded with greenish. The ♀ is pale yellow-brown, with indistinct, brown longitudinal bands. — **orthagoria** *form. nov.* (137 c) closely approaches the normal form *bisaltide,* the f. w. being covered with a very broad, black, apical patch, which leaves of the red-brown band only two isolated spots so that *orthagonia* much more resembles *sulaensis Fruhst.* and *celebensis Fruhst.* than *gurelca.* At the same time it is of larger size, and the submarginal dots on the h. w. are more pronounced. Beneath the prevailing colour is red-brown, with yellowish-brown patches and large, glossy, silvery spots; on the f. w. we find at the apex of the cell the *nimbata*-design, and the large ocelli are pupilled with a beautiful red-yellow, all of which gives *orthagoria* the luxuriant appearance of a rainy-season form. Neu Mecklenburg: one ♂ of the type *gurelca* from Neu Pommern in the FRUHSTORFER coll. Occurs according to
sciron. RIBBE also in Neu Lauenburg. — **sciron** *Godm. a. Salv.* (112 c) replaces *bisaltide* in the Solomon Islands. The ♂ is of the *herrichii*-type, distinguished by two black, distal, intramedian ocelli, pupilled with white, and by the pale yellow colouring of the median portion of the f. w. above; the h. w. are red-brown. The ♀ represents a retrogradation to the *gurelca*-type that reappears again in the West-Malayan Region in the forms *pratipa Fldr.* and *mariae Fruhst.* Transcellular region of the f. w. often nearly white, the base darker than in *gurelca*-♀♀. The under surface of the ♂♂ is quite variegated, chiefly gray-brown, with yellow patches and black median stripes margined with violet; in the ♀ it is gray, shaded with purplish in the distal half. RIBBE reports it from all the islands of the Solomon group visited by him. The type came from Guadalcanar: my coll. contains also specimens from the Shortlands and Trea-
menexema. sury Island. — **menexema** *subsp. nov.* The ♀ differs from *sciron*-♀♀ in having on the f. w. the black border of the apical and distal portions much narrower, and the two white patches, one on each side of the upper median nervule, proximally accompanied by scattering, black dots. The under surface is of a faded, pale red-brown colour, darkly shaded with violet and purple in the basal half and with yellowish gray-brown in the outer half. Florida Island.

australis. **D. australis** *Fldr.* preserves on the under surface entirely the characteristics of *D. bisaltide,* whereas the upper surface differs in that the black bordering keeps in both sexes the same considerable distance from the apex of the cell which is not closed even in the rudimentary fashion we notice in *D. browni Godm., noorua Sm.* and *nacar Bsd.* On the other hand, the white frontal dots on the f. w. have been greatly developed. The ♀ is always larger and on the upper surface of the f. w. in of a paler and purer white colour than the ♂♂. The under surface of the ♂ is argyroid, the ground-colour reddish-yellow, purple or greenish-gray, in ♀ quite monotonous, leaf-like, presenting the same shades of colour as we find in the ♂, always with a greenish, longitudinal band, proximally irrorated with whitish. Occurring in Australia from the Richmond River as far as Cape York, it has spread to the Key Islands without undergoing any apparent change; RIBBE reports it also from the Aru Islands.

D. browni probably takes the place of *D. australis* in the Bismarck Archipelago and the Solomon Islands.
scotina. It occurs in 3 insular forms: **scotina** *subsp. nov.* (112 d), figured from a ♀ which was found by RIBBE in the Shortlands Islands, differs from *browni* (Neu Lauenburg) in its smaller size, the more conspicuous white dots, and the lighter-coloured transcellular patch on the f. w. as well as the deep red-brown colour of the upper surface of the h. w. On the under surface the cell is red-brown, spotted with violet, and displaying at the apex the *nimbata*-design. The predominant ground-colour is yellow, before the apex of the cell whitish, with
browni. violet median band, distally bordered with chocolate-brown. — **browni** *Godm. a. Salv.* is above of a more uniform, pale yellow colour, the h. w. almost imperceptibly irrorated with brown. Beneath it resembles *scotina,* from which it is distinguished by the absence of the whitish portion at the extremity of the cell in the f. w.: moreover, the colour is a deeper red-brown and extends farther than in *scotina,* and the *argyroides*-patches are obscured with violet. Found in all the islands of the Bismarck Archipelago. The ♂ which is much rarer than the ♀, is above brillant red-brown, the apical half of the f. w. is velvety-black from the middle of the costal margin as far as the anal angle. Beneath it is darker than the ♀, and the snowy-white spots stand out even more sharply.

D. nacar represents an interesting species, limited to the western Melanesian Region and occurring in
nacar. two forms: In **nacar** *Bsd.* the upper surface has quite plain markings, reddish-yellow in the basal and black in the outer half. The f. w. has a short, black streak at the apex of the cell and five minute white dots, distributed as in *D. browni.* On the under surface the basal half is of a deep coffee-brown colour, the distal half yellow and partially greenish-brown; both are separated by a black median line, distally margined with pale lavender. The ocelli, of which two are found also at the anal angle of the f. w., are very large; the silvery markings quite conspicuous, taking on the f. w. the form of very fine, undulate lines. Only 1 ♂ from Hattam-Arfark in my coll. — SNELLEN figured in 1889 a ♂-form from Andai in north-western Dutch New
trachelus. Guinea: **trachelus** *Fruhst.* (112 b), which is still darker above, but more uniform brown-red beneath. In the ♂ the black anal border of both wings is narrower, more like a straight line; the basal area lighter, especially on the f. w. The h. w. somewhat more elongate, beneath with smaller-sized ocelli. In the ♀ the distal border

of the f. w. is not much broader than in *australis Fldr.* Both wings are bright yellow-brown towards the base, somewhat lighter in the median region, just as in *D. browni.* The h. w. have between the radials a black ocellus, enclosed within the outer border, whereas the ocellus at the anal angle just above the submedian stands quite by itself. The under side is like that of *D. browni Godm.,* but the distal border of the h. w. is paler yellow and more sharply defined; the black, angled median band on the f. w. as well as the apex of the wings are distally more profusely laved with white. Waigeu.

D. noorua is only found in New Guinea and a few adjacent islands in the East, being represented on the main island by three local forms. — **demetria** *subsp. nov.* (112 b ♂, c ♀). In the ♂♂ the under surface is *demetria.* a beautiful, dark lemon-yellow, laved with light reddish-yellow, with a black longitudinal band bordered with violet and with lustrous, silvery-white spots. In the ♀♀ the basal half is not clouded with red-brown and the basal spots are gray-violet instead of white. Friedrich-Wilhelmshafen, not very scarce from November until April and again in July (Hagen). I suppose it must be also found on Humboldt Bay, as Smith reports the specimens collected by Doherty to be smaller than those from Port-Moresby. — **lyncurion** *subsp. nov.* (named *lyncurion.* after a reddish-yellow gem known to the ancients, resembling the eyes of a lynx) is of larger size, the black border of the f. w. is broader, and the yellow frontal dots on the f. w. as well as the black spot at the apex of the cell are more distinct. The under surface is considerably darker, the yellowish markings being reduced and the red-brown portions proportionally increased. The ♀ is nearly one third larger than the ♀ of *demetria,* having the marginal border of the f. w. proximally more sharply defined. 4 ♂♂ 1 ♀ from Finschhafen in the Fruhstorfer coll. — In **noorua** *Sm.* the apical spots on the f. w. are whitish, the ground-colour paler. The *noorua.* black border on the upper side of the h. w. is much more indistinct; the ♂♂ are on the under surface paler, displaying on the f. w. at the apex of the cell the typical *nimbata*-design. The ♀ is considerably larger than *demetria*-♀. The type came from Port Moresby; specimens from Milne-Bay (February) in my collection. — **antimia** *subsp. nov.* is, notwithstanding its insular character, distinguished from the other forms by its extremely *antimia.* pale colour. Fergusson Islands of the d'Entrecasteaux group. In the only ♀ specimen available the outer border, especially of the h. w., is almost totally obsolete and the postdiscal dots are barely visible. From *noorua Sm.* it differs in its larger size and in the paler, more uniform, light buff colour of the under surface.

D. hexophthalmos, although rightly regarded by Kirby as a distinct species and embodied in his catalogue as such, was refused recognition by Staudinger and other authors of his time, until in 1899 I was able, on the strength of my examination of a great number of specimens from Amboina, to re-establish its special rights; now I can moreover prove that it occurs not only in all the Moluccas but also in New Guinea, and point out its anatomical characteristics. The uncus is, notwithstanding the superior size of the specimens, smaller, much shorter and more delicate than in *bisaltide Cr.* The medial part of the valve is contracted, more oval than circular, the ventral ledge not sharp, but blunt and rounded. Penis as well as its sheath are considerably broader, the saccus extraordinarily long and slender, proximally not enlarged. The markings of the upper surface are plainly seen in our figure of *ardys* (113 a), according to which *hexophthalmos* differs from all the forms of *D. bisaltide* in the broad black border of the hindwings. The markings on the under surface are more constant, but throughout darker and richer. In both sexes we notice on the f. w. almost always a series of seven white dots, anally completely surrounded by ocelli. On the h. w. the ocelli are larger and very distinct; although both ♂ and ♀ are less subject to variation than in *bisaltide,* the *argyroides*-design may or may not be present. In the majority of ♂♂ the predominant colour is gray with black or dark red-brown shades edged with whitish, in the ♀♀ ochreous or earthy-brown, always with a blue-black longitudinal band. Ranges from Amboina as far as the Louisiads. — **hexophthalmos** *Gmel.* is by far the most common *hexophthal-mos.* *Doleschallia* found in the southern Moluccas; of the ♂ we known two forms; the larger one with a broad, yellow macular band on the under surface of the f. w., belonging to the fa. *argyroides;* the other, smaller one has the yellow patches on the f. w. still more reduced than is seen in *ardys,* and no silvery markings on the under surface. With the first must be classed the larger ♀♀ with very pale upper surface and chiefly reddish-yellow under surface, whereas the ♀♀ belonging to the latter form have the upper surface more brown-yellow, displaying beneath a greenish-gray leaf-pattern. One ♀ from Buru must be counted with the larger form. This description is based on 20 specimens contained in my coll., from Buru, Amboina and Saparua. — In **solus** *subsp. nov.* the general colouring is a brillant, though dark, reddish-brown, the black border is broader *solus.* and the macular band on the f. w. sharply angled, with the white frontal dots somewhat diminished in size. The under surface is of a lustrous, green bronce-colour, with deep cholocate brown lines running parallel with the black, median longitudinal line. The patches in the cell on the f. w. are greenish instead of silvery. Obi, very scarce. — **gaius** *subsp. nov.,* although at present only known from Halmaheira, will undoubtedly be found *gaius.* also in the other islands of the northern Moluccas. Besides being smaller and lighter in colour than *solus,* the ♂ has the black outer border of the h. w. narrower. Both sexes are underneath very pale reddish gray-brown, broadly sprinkled with gray-white. — **areus** *Fruhst.*, a small-sized, delicate form, approaches *ardys* *areus.* (113 a), but the upper surface is paler brown and has in the ♂ the yellow band on the f. w. extending much farther towards the costa. The underside is uniform dark green, profusely dusted with silvery-gray and violet. From the island of Waigeu, very rare. — **kapaurensis** *Fruhst.* distinguished from the preceding by its larger *kapaurensis.* size, the more isolated yellow patches, and the more prominent white dots on the f. w. Beneath it is greenish

or red-brown, richly adorned with silvery spots. From Kapaur, in the south-western portion of Dutch New
ardys. Guinea. — **ardys** *subsp. nov.* (113 a) inhabiting Kaiser Wilhelmsland, greatly varies as to size, analogous to *hexophthalmos* from Amboina. Some ♀♀ in my collection are rather larger than the ♀ shown in our figure, but their colour is not such a brillant red-brown. Both the largest as well as the smallest specimens come from Finschhafen. The under surface of the ♂♂, which follows invariably the fa. *argyroides*, is green, richly laved with gray-white. The ♀ is greenish-gray or varies through all shades from yellow to red-brown. Hagen who confounded it with *D. bisaltide nacar Bsd.*, reports that the ♂♂ are very common, the ♀♀ exceedingly scarce. Found in the neighborhood of Simbang (Stephansort, Astrolabe-Bay) from December until February; it is a rapid, strong flier, surpassing *bisaltide* from Sumatra and Java: it generally rests upon the ground,
demades. never on wooden walls or trunks of trees, as is the habit of the Macromalayan forms. — **demades** *subsp. nov.* is a greatly obscured local form from British New Guinea, with broader outer border on both wings, and small reddish patches on the band crossing the f. w.; in the ♂♂ the under surface is invariably light coffee-brown,
varus. with an insignificant whitish clouding. From Milne-Bay (Fruhstorfer coll.). — **varus** *subsp. nov.* surpasses all the Papuan forms in size, whereas the black border of the upper surface is narrower than in *demades*. The ground-colour, especially in ♀, is a lighter yellow-brown: the under side is, analogous to *demades*, reddish, only in one ♂ irrorated with greenish. Kiriwina and Fergusson Islds.

D. crameri invariably accompanies *D. hexophthalmos* wherever this is found, and it is not unlikely that it may prove to be only a melanotic form of the same, the more so, as the under surface offers no special characteristics whatsoever. Certainly it is no seasonal form, because it always occurs together with *hexophthalmos*, the ♂♂ of which partially belong to the *fa. argyroides* (supposedly the brood of the wet-season) and partially to the plain, leaf-like variety, which is most likely the dry-season form of all the species of Dole-
crameri. schallia. In **crameri** *Dist.* (112 d), based on fig. C. and D. pl. 235 of Cramer's work, the narrow, yellowish macular band on the f. w. is reduced to three small patches, one ♀ contained in my coll. having only two, of roundish shape and standing far apart. In addition to these there exist ♂♂ that show not even a trace of
nigella. such spots (= **nigella** *form. nov.*), and again ♀♀, described as **ambrinensis** *Stgr.*, with whitish-violet trans-
ambrinensis. cellular spots on the forewing, analogous to our figure (112 d). – **sophilus** *Fruhst.*,
sophilus. a luxuriant form from Halmaheira, where it occurs side by side with *D. hexophthalmos gajus Fruhst.*, with shorter and broader milky-white spots on the f. w. The under side is pale buff or ochre-yellow, like *gajus*. May occur also on the
tanara. other islands of the northern Moluccas. — **tanara** *Fruhst.* is found together with *areus Fruhst.* on the island of Waigeu, where it is rather common. The ♂ differs but slightly from ♀, being only somewhat larger, with the whitish-violet spots more prominent. Beneath the ♂♂ are paler green than in *areus*. In the ♀ the
lactearia. colouring is a faded gray-brown with greenish irroration. — **lactearia** *Fruhst.* (113 a) described from Kapaur, closely approaches *D. hexophthalmos kapaurensis Fruhst.;* the f. w. with a well-developed band which appears in fig. 113 a) too much encroached upon by the black colour. The uppermost spot located on the costal margin is light blue, the following two are whitish, shaded with violet. But in Kaiser-Wilhelmsland we meet with specimens having the band just as narrow as appears in the figure, 5 ♂♂ with greenish and 3 ♂♂ and one ♀ with coffee-brown under surface being contained in my coll. Finschhafen and Astrolabe-Bay. One ♂ from Dorey has the band on the f. w. greatly obscured with fuscous and shaded with reddish. — ♂♂ from
sinda. Milne-Bay, British New-Guinea, I call **sinda** *Fruhst.;* they are of large size, broadly bordered with black, like
tervisia. *D. hexophthalmos demades*, beneath of a faded whitish gray-green colour. — **tervisea** *Fruhst.* is an obscured form from Fergusson, with a row of uniform violet spots on the f. w., in which the apical portion extends beyond the cell, confining the deep red-brown basal area. The under surface is reddish-brown, profusely spotted with white. From the islands of the d'Entrecasteaux and Trobriand groups.

D. melana. In this sharply-defined species which is only found in the Moluccas, the under surface is almost identical with that of *hexophthalmos Gmel.*, but with more prominent frontal band on the f. w. On the h. w. the foremost ocelli are pupilled with a more intense and striking vermillion-red. The ground-colour is
melana. dark coffee-brown, in ♂ with finely undulate, silvery markings shaded with greenish. — **melana** *Stgr.*, described
sinis. from Amboina. The ♀ came from Ceram and was given the name **sinis** *Sm.;* this may be maintained, if it can be proved that the specimens from Ceram are larger in size than those from Amboina. In the ♀ the black apical portion of the f. w. is proximally less sharply defined and the basal half is lighter yellow. Four ♂♂ from Sapa-
jimena. rua and Buru contained in my coll. are somewhat inferior in size to my Amboina-♂♂. — **jimena** *subsp. nov.* based on two ♀♀ contained in the Fruhstorfer collection, differs from *sinis Sm.*-♀ in that the black apical half of the f. w. is beyond the cell almost imperceptibly notched and excavated, and that the black distal border of the h. w. is more conspicuous; the under side is of a deeper shade, more chocolate than yellow-brown, in the subanal zone with a whitish-violet subterminal band. The cell of the f. w. is banded with dark green. Island of Obi.

D. dascon is farthest removed from the type of *D. bisaltide*, being the only species with light cinnamon-brown upper surface and with a very broad, oblique, blue trancellular band on the f. w., which distinguishes it from *D. dascylus*, a Melanesian species represented by a greater number of forms. *dascon* seems to be
dascon. limited to the main island of New Guinea, where it occurs in only two forms: **dascon** *Godm. a. Salv.* resembles above **dasconides** (112 a) but the patches composing the macular band are isolated and darker blue. British
dasconides. New Guinea; very rare. — **dasconides** *Fruhst.* A great number of specimens of *Doleschallia* from Kaiser-

Wilhelmsland, which hardly differ among themselves, deviate quite considerably from *dascon Godm.* from British New Guinea. If one compares *dasconides* with fig. 3 in Proc. Zool. Soc. London 1880, pl. 56, it has the subapical spots on the upper side of the f. w. much broader and lighter blue; moreover, they flow together, forming a broad band, whereas *dascon* has seven single patches entirely separate from each other. Although Hagen reports that the ♀ is not at all scarce, I have only found one ♀ among nearly 100 ♂♂, 20 of which are still in my collection; it differs from the ♂ in its superior size, and the somewhat lighter, and considerably narrower, transverse band on the f. w. Beneath the ♂♂ resemble *D. hexophthalmos* and the allies of *D. lactearia*, being as a rule deep sea-green, clouded and mottled with violet bronce-colour; the markings of *fa. argyroides* are almost obliterated. Six ♂♂ are light coffee-brown, one displaying the markings peculiar to *basalis*; in one ♂, remarkable for its rich silvery markings, the cell of the f. w. shows the typical *nimbata*-design. Known to me only from Astrolabe-Bay, but also found at Simbang. Smith reports that the collection made by Doherty on Humboldt-Bay contained a great number of specimens of this form.

D. dascylus is at once distinguished by its beautiful, rich colouring and the most perfect sexual Dimorphism; at the same time it is more subject to geographical variation than any other *Doleschallia*, and some forms might almost be considered as distinct species. In contradistinction to *dascon, D. dactylus* is also found on the smaller islands adjacent to New Guinea, where it is represented by the most highly specialized forms. In the ♀ the f. w. is mostly marked with a white, vertical, longitudinal band, appearing yellowish only on the upper surface of one single subspecies. Judging from the specimens contained in the Fruhstorfer coll. the great majority of the ♂♂ are black or coffee-brown, less frequently dark olive-green. The *fa basalis* is not represented, neither is the *nimbata*-design which was noticed in *D. dascon.* The larva was discovered by Dr. Hagen. — **phalinus** *Fruhst.* In the ♂ the black distal border of the f w. is narrower than in the remaining forms of *dascylus* and contains six minute, white and blue, subapical dots. This leaves room for an elongate black patch at the apex of the cell which reappears also in the ♀. In the latter the median area of the f. w. which in *dascylus Godm.* is clear white over its entire length, is light yellow throughout, whereas in *demades Fruhst.* it appears white only above the black spot before the apex of the cell, assuming only beneath a whitish-yellow tone. *phalinus* is one of those insular forms which almost deserve to rank as species, and if I treat it here as a local form, it is only because it represents *dascylus* in Waigeu, where it is very rare. — **eudascylus** *Fruhst.* (112 a ♂, b ♀); inferior in size to *dascylus* from British New Guinea. In ♂ both wings have the basal half lighter fulvous and the patch placed on either side of the upper median much smaller, darker blue and pupilled with less white. The ♀ is easy to distinguish from the ♀ of *dascylus* by the smaller subapical dots, the black band crossing the apex of the cell, and the yellowish instead of white colour of the vertical zone on the f. w. The ♂ is beneath dark sea-green (137 c) or olive-coloured (*fa.* **olivacea** *form. nov.*) or red brown. Among 27 specimens, 10 represent the *fa. argyroides.* Smith reported it from Humboldt-Bay under the name of *comrii Godm.*, as a great rarity (2 ♂♂, 1 ♀). According to Dr. Hagen, the larva is brownish-gray with lighter longitudinal stripes; head steel-blue, armed with two thorn-like spines, the segments provided with steel-blue, branching spines; altogether it does not greatly differ from the larva of *D. bisaltide,* only is rather more unicolorous. He reports also that the ♂♂ are between October and February quite common at Stephansort and Simbang, also on Astrolabe-Bay; but only two ♀♀ are contained in my coll. — **dascylus** *Godm. a. Salv.* (112 a) is, as above said, remarkable for its large size and the prominent, light blue submarginal patches on the f. w. as well as the darker brown-yellow basal half of the upper surface. In the ♀ the median band on the f. w. is chalk-white and only interrupted at the apex of the cell by a short streak which barely reaches the middle of the cell; beneath the white patches on the f. w. are larger than in *eudascylus*-♀♀ from Kaiser-Wilhelmsland. Milne-Bay, especially in November and December. — **comrii** *Godm. a. Salv.* discovered by Dr. Comrie during the expedition of Cap. Moresby in 1877, and stated by its authors to have come from British New Guinea; but this is an error because the species is represented there by *dascylus.* On the other hand, I find that the figure of the ♀ given by the authors of the type harmonizes exactly with a ♀ specimen in my possession from the Fergusson Islands, which had been visited by Comrie during the same expedition. It is basally still darker than the ♀ of *dascylus*, with a broader white, vertical band on the f. w. and, touching it distally, longish patches of blue. The under side is red-brown, as *dascylus* ♀, laved with whitish. The ♂ may be said to be the most beautiful *Doleschallia.* The white as well as the light blue patches with white centre, increase in size and unite beyond the first median to form a square area, which is accompanied on the f. w. by two blue-violet subanal spots. The basal half of both wings is dark cocoa-brown, the black bordering of the h. w. is in neither sex very sharply defined, but shades more into the brown colour of the basal half. Fergusson, possibly also found on the other islands of the Louisiad Archipelago.

phalinus. *eudascylus.* *olivacea.* *dascylus.* *comrii.*

D. rickardi takes the place in the Bismarck Archipelago either of *D. dascylus* or *D. dascon.* Whether it deserves to rank as a species, can only be decided after the hitherto unknown ♀ has been examined. It differs from the two preceding species in the light blue transcellular area on the f. w., located below a whitish-blue subapical band. F. w. black with a faint bluish iridescence; h. w. black. The under side is according to Honrath's figure gray-brown, with a red-brown mesial band. Two not very sharply defined insular races are known: **rickardi** *Sm.* from Neu-Pommern and Neu-Lauenburg, in which the patches on the f. w. are not white at the centre. — **pfeili** *Honr.* In ♂ the f. w. is principally marked with white instead of light blue,

rickardi. *pfeili.*

and the blue median area is not so broad as appears in the figure of *rickardi Sm.* Discovered by the Explorer Count Pfeil in Neu-Mecklenburg.

29. Genus: **Kallima** *Dbl.*

This is in every respect one of the most interesting genera, if only on account of the sharp sexual distinction between the various species, which in contrast to the other Nymphalids, although presenting the most striking external resemblance to each other, show a wide divergence in the structure of the sexual organs. Both uncus as well as valve are highly developed; the uncus is in some species cleft; the valve very broad, always bipartite, with a flat medial projection which in some forms is largely chitinized (analogous to the valve of Hestia) and armed with strong teeth. The central portion is concavely produced, being in some forms narrower. in others much broader than the upper ledge, and always covered with long bristles. In the *Kallima* moreover, we find among all Rhopalocera the longest penis, enclosed in a long, vermicular sheath, distally bending upwards and recalling in some species the form of the buccina, a musical instrument used by the ancient Romans. For that reason I refer to the shape of the penis as "bucciniform" and call the sheath the buccina. The saccus is relatively short, basally but slightly distended. The length of the penis indicates a remote relationship with *Doleschallia,* the cleft uncus with Mynes, and the complicated valve would point to the Vanessids. Also in the early stages it resembles the latter. The larva feeds on Strobilanthus callosus Nees and Eranthemum malabaricum Clarke, both belonging to the Acanthaceae. Its colour varies in the different species, as far as known, from black to golden-brown. The head is black, provided with two long horns, the segments are armed with red or reddish spines arranged in from 9—11 rows. Pupa light or earthy-brown, shaded with darker brown. On the abdomen it has some short, broad tubercles, on the head two long points. The imago differs structurally from *Doleschallia* in having the cells of both wings closed and the precostal of the h. w. bifurcate. F. w. with two subcostal branches before the end of the cell, the one to the left, contrasting with *Doleschallia* and analogous to *Hypolimnas,* almost midway between the apex of the cell and the tip of the wing; the middle discocellular in the f. w. longer than in *Doleschallia* and *Hypolimnas.* As to neuration there is no difference between the sexes. The f. w. have near the base a sort of excavation in which according to Wallace it hides its uncommonly little head when at rest. H. w. with an elongate, oval patch composed of yellow scales, corresponding to an ocellus on the under side of the f. w. The protective colouring of the under surface, for which *Kallima* has been famous since Wallace's time, has rendered it popular in the widest sense of the word, and in the exhibitions the *Kallima* excite, to a much higher degree than f. i. *Ornithoptera* or *Morpho,* the interest of the great public, partly by the azure-blue colouring of the upper surface, but largely by their under surface, which in design and colouring imitates withered leaves so perfectly that not only all the stages of discoloration, but frequently even the spots produced by the action of mould, are copied. Not always, however, do these butterflies take advantage of this protective colouring, for Dr. Hagen as well as Elwes and myself have observed that although when frightened it flies away, it alights again at some distance on the upper side of some leaf, with the wings expanded, being far and wide visible on account of the glossy, violet-blue colour and orange markings of the upper surface. As a rule they are found in the undergrowth of the woods, but occasionally they are also seen circling around the tops of the highest trees. In Siam I found them sitting on clay-banks, sipping the water as it was dripping down over them. Like Zeuxidia, Euthalia and *Prothoë francki* they love to feast on overripe bananas, becoming so aborbed in their meal that they may easily be captured. Some have attracted them also with the help of "sake" (rice-brandy) or stale beer, and it is a common occurrence to find them sipping the sweet, fermenting sap, oozing from some injured tree.

The Indian forms are subject to seasonal Dimorphism in such a way that the winter-brood has the apex of the f. w. far projecting and the ground-colour pale blue, whereas the rainy-season produces more rounded outlines, a smaller size and a deeper blue colour. Contrasting with the chiefly insular *Doleschallia,* the *Kallima* are largely confined to the main land; they are not found in the Philippines, but have crossed from China over Hongkong to Formosa and the central Liu-kiu Islands. Southward they do not extend beyond the Macromalayan Archipelago, reaching in eastern Java the limit of their distribution.

inachus. **K. inachus** has among all the species of the genus the widest range, extending from Cashmere through India to Burmah, Tonkin and western and southern China including the adjacent islands. The forms inhabiting the main land show the most perfect seasonal Dimorphism, whereas those found on the islands show the markings of the monsoon-period all the year round. The eggs are, considering the size of the imago, quite small, marked by cream-yellow, vertical ribs. The larva hatches after five days, feeding on Giradinia heterophylla, Polygonum orientalis and Strobilanthus capitatus. During the first stage the head is black, the body dark brown, with stiff black bristles. After the first moult which takes from 2—4 days, the bristles are replaced by spines and the head is armed with two long horns, the colour black. After 3 more days the second moult takes place, the spines being now yellowish in colour, but still short. After the third moult the spines are quite long and the body is spotted with orange-yellow; in the final stage the colour of the body is velvety black. the spines reddish and the segments covered with yellowish hair. The duration of the larval state is altogether about 22 days, and it requires about 10 days more to develop the imago. In Sikkim it is found up to about 5000 ft. of alt. The uncus resembles that of *Mynes,* but lacks the uncus anticus; it is cleft at the end, but not so sharply curved downward as in *K. buxtoni.* The valve is not so stout as in *K. philarchus*

and *buxtoni,* covered with shorter hair; in the middle it is moderately broad, only feebly chitinized and ventrally quite gently curved. The forewings are adorned with a semi-translucent, sometimes white, subapical spot and an intramedian ocellus which is invariably hyaline and only in a few cases found missing in the ♂♂ of the rainy-season form. — **huegeli** *Coll.* is an extreme dry-season form found in Cashmere, having the upper surface very light blue, with quite narrow orange-coloured bands. — **boisduvali** *Moore* (Vol. 1, p 195) is the corresponding smaller form of the monsoon-period. Both forms are confined to the lowest foot-hills of the western Himalayas, where they are found from July until November and again after hibernation in April. Their flight is rapid, carrying them occasionally beyond the tops of the highest trees. — **buckleyi** *Moore* appears from the figure (in Lepidopt. Indica) to be an intermediate form, approaching in the darker colouring and the broader orange band on the f. w. the form *inachus*. — **huttoni** *Moore* (= atkinsoni *Moore*) represents the rainy-season form; the type came from Masuri where NICÉVILLE reports it to be extremely common between July and October. — **inachus** *Bsd.* (Vol. 1, pl. 60 d as *chinensis*, under side) is the best known and at the same time the most variable *Kallima*. Analogous to *huegeli*, the dry-season form is distinguished by the extraordinary length of the apex of the f. w. as well as of the "foot-stalk" of the h. w., and by the enormous size of the ♀♀. — **ramsayi** *Moore,* the rainy-season form, is much darker and smaller; originally described from Nepal, it ranges as far as Tonkin, where it occurs together with *inachus* and can only be distinguished from specimens from India proper by the somewhat richer violet irroration on the orange-coloured band. According to the colouring of the under surface, the following forms may be distinguished: **foliacea** *form. nov.*, pale-gray all over, resembling a withered leaf (Vol. 1, pl. 60 d). — **siccifolia** *form. nov.* mimicking on the under surface the broad, black mid-rib of a leaf and, forming an oblique angle with it, a number of parallel, finer cross-ribs. — **marmorata** *form. nov.,* ground-colour chiefly yellowish, clouded with red-brown. — **uredinophora** *form. nov.,* generally found together with *foliacea* and *siccifolia,* remarkable for the fungiform spots on the intranerval spaces, resembling rust or mildew. *inachus* is very common in Sikkim at elevations of up to 5000 ft, especially from March until November; old beer kegs and stale beer form an irresistible attraction. In Deccan they are found as far as the Central Province and Orissa, reaching the Godavary River in the Eastern Ghats. The specimens I took in Tenasserim in May and in Tonkin during June, all belong to *inachus*, whereas the ♂♂ caught at Chiem-Hoa (Tonkin) in August must be classed with *ramsayi*. A ♀ found in Tenasserim represents an extreme *fa. uredinophora*, having the entire under surface apparently covered with mildew. — **siamensis** *subsp. nov.* is the name of a smaller form, recalling in the pale blue colouring of the upper surface *K. huegeli* and still more *chinensis*. In size approaching the ♂♂ of *chinensis*, *ramsayi* from Sikkim has, although collected during the most extreme dry-season, the apex of the f. w. but moderately produced, even in the ♀. In Siam I had occasion to observe *K. inachus siamensis* under totally different conditions. On account of the intense dryness nearly all the butterflies collected along the water courses or on certain clay-banks over which some water was dripping; also *Kallima* and *Euploea* put in an appearance, alighting on those wet slopes and eagerly sipping the coveted fluid (Hydrotropism); as their wings were folded they seemed very well protected; they fly in January at an elevation of about 1000 ft. — **chinensis** *Swinh.* (Vol. 1, p. 195, pl. 60 d) is inferior in size to *inachus* from India and Farther India; the orange-yellow band on the f. w. is proximally not bordered with violet or purple. From western China, also from Itchang in central China. — **eucerca** *Fruhst.* (Vol. 1, p. 195, pl. 60 d) is of a deeper blue colour, with a darker band of red-orange on the f. w.; the type came from Okinawa; it frequents the woods whence it can be attracted by a cloth moistened with rice-brandy. Being found already in March, it becomes quite common in July. In Ishigaki we find in August an allied form, having as a rule in the ♀♀ the subapical area of the h. w. shaded with yellow. Among the 15 specimens of *eucerca* contained in my coll. the fa. *siccifolia* is not represented, the majority following the more ordinary dark *foliacea*-type. But frequently the under side is coloured a beautiful red-brown, recalling the far-famed autumn-tints of the Japanese Maples and termed for that reason **acerifolia** *form. nov.* This is especially noticed in the magnificent large ♀♀ from Ishigaki. — **formosana** *Fruhst.* (111 e) is rather inferior in size (especially in ♀) to *chinensis* and *eucerca*, from which it differs moreover in the narrower band on the f. w. which as to shade of colour stands about midway between the darker *eucerca* and the rather lighter form from the main land. The brillant, lustrous blue of the upper surface harmonizes better with *eucerca* from the Liu-Kiu Archipelago. The under surface is a rule dark: 1 ♂, 2 ♀♀ contained in my coll. belong to *urediniphora*, whereas the red-brown fall-colouring (fa. *acerifolia*) is only indicated in one ♂. Quite frequent on the southern point of the island (Taihanroku), but also occurring in the foot-hills up to elevations of about 3000 ft, in June. I suppose that a similar form is found at Hongkong, whereas it never has been mentioned from Hainan.

huegeli. *boisduvali.* *buckleyi.* *huttoni.* *inachus.* *ramsayi.* *foliacea.* *siccifolia.* *marmorata.* *uredinophora.* *siamensis.* *chinensis.* *eucerca.* *acerifolia.* *formosana.*

K. limborgi takes the place of *inachus* in the Macromalayan Region, being distinguished from it by the invariably rounded outline of the wings, the deeper blue of the upper surface, the more intense, violet-blue irideseence on the deeper orange-red and more regular band, as well as by the smaller and more circular hyaline spots on the f. w. The under side is darker throughout, invariably traversed by a broader band which is brown or green and proximally striped with white. The predominant form is *foliacea,* but also the fa. *acerifolia* occurs, showing the most perfect development, and displaying a purple irideseence. The fa. *siccifolia* does not occur or appears to be rare, and the fa. *urediniphora* is met with in its pure form only in the continental race *limborgi*, whereas in the insular forms we see no broad "mildewy" spots, appearing like clouds, but only some scattering fungiform markings resembling black powder. The under surface is, moreover,

distinguished from *inachus* by the presence of more distinct ocelli. As in *inachus,* so in this form the ♀ differs but slightly from the ♂ in its somewhat larger size. Altogether the resemblance with the mainland form *inachus* is so strong, that one is greatly surprised to observe the essential difference presented in the sexual organs. The uncus is more sharply cleft, distally not so smoothly polished as in *inachus,* but drawn out to a sharp point curving downward. The valve is larger, ventrally distended, the medial ledge broader, provided with a secondary dorsal ledge, covered with long bristles and more thoroughly chitinized. Only the whip-

limborgi. shaped penis and its sheath are analogous to that of *inachus.* We distinguish four local forms: **limborgi** *Moore* is considerably smaller than the figured *tribonia* (111 d), approaching *inachus* on the under surface, but differing in the general colouring and the presence of the ocelli also in the median area of the f. w., as well as in the broad, green, white-margined longitudinal stripes. Found between February and November anywhere from Bhamo in Upper Burmah to Lower Tenasserim, at elevations of up to 1300 ft. According to Dr. Manders it is quite

amplirufa. common in the Shan-States during the latter months of the rainy-season. — **amplirufa** *Fruhst.* replaces *limborgi* in the Malay Peninsula. The band on the f. w. is deeper red-yellow and narrower than in the more northern form *limborgi.* Beneath it resembles the forms from Sumatra in having in the place of the mildewy patches innumerable, scattering black dots. It is very rare, the few specimens which are known Bingham mistook for

tribonia. *inachus.* — **tribonia** *Fruhst.* (111 d), discovered in Sumatra by Wallace, who made it the subject of his most interesting and popular description of the perfect simulation practiced by these minute comedians. The darker and more violet steel-blue colour and the much narrower bands of the f. w. distinguish *tribonia* from *buxtoni*, with which it had hitherto been united. Beneath it is like *amplirufa* finely dotted with black. In the Fruhstorfer Coll. only the fa. *foliacea* and *acerifolia* are represented. Hagen reports that *tribonia* is not at all rare in the forests of north-eastern Sumatra, being often found on the trunks of certain trees, drinking the out-flowing sap. To see a few of these *Kallima*, sitting on a tree. together with a number of the violet-blue Zeuxidia is enough to move any lover of nature to ecstasy. I possess a number of lovely specimens from near Padang Pandjang,

buxtoni. western Sumatra, where the natives call it "Kupu bandeira" (the flag-butterfly). — **buxtoni** *Moore* is distributed all over Borneo. In both sexes it differs from specimens from Sumatra in the lighter blue of the upper surface, the paler and broader, orange-coloured band on the f. w., and in that the under surface is more darkly obscured with black. It is not at all common; specimens from Kina Balu and the province of Anumtai in my coll. —

paralecta. **K. paralecta** *Horsf.* (111 c) represents an intermediate form between *inachus* and *buxtoni;* whereas in the ♂ we find a great resemblance to *buxtoni*, the sexually dimorphic ♀♀ approach *inachus* in the far-produced apex of the f. w. and in the pale colour of the under surface, which is covered with large "mildew" spots and plainly displays the *siccifolia*-type. Still the total aspect of the under surface is darker, with a tendency towards ocellation. — Both the fa. *marmorata* as well as *siccifolia* may combine with the colouring of *acerifolia.* Some specimens of the fa. *marmorata* display still another colour-design, consisting of peculiarly gray-brown instead of yellowish spots. The mid-rib may be very strongly developed, being distally shaded, both in ♂ and ♀, with

nubilosa. olive-green or black (**nubilosa** *form. nov.*); finally there exist ♂♂ which have the distal portion of the basal half and the anal angle whitish in both wings. In three out of 12 ♂♂ contained in my coll. the translucent spot between the medians above is concealed, analogous to pl. 111 d. The ♀ is above brown, costally somewhat yellowish, with a broad, milky-white band, bordered on either side with light purple or violet. *paralecta* is one of the most characteristic butterflies of eastern Java. On my first excursion to the Tengger Mts in the interior of the island I encountered it at an elevation of ca. 3000 ft above the level of the sea, shortly after the cessation of a violent rain-storm. The butterflies were fluttering about the dense shrubs composing the edge of the woods, alighting without any fear, the wings closed, upon the upper surface of the leaves, but not without having for a moment in a sort of coquettish playfulness allowed their gorgeous blue to reflect the sunshine. One year afterwards I visited the Zuidergebergde in the southern part of eastern Java, where the limestone-hills, at that time still covered with woods, rise to about 2000 ft. With the help of some suspended bananas I succeeded in capturing a great number of *paralecta* which were quite common in that region, although they were exceedingly shy and knew well how to conceal themselves in the dense underbrush. Is it possible that they only leave this protecting cover, when the time arrives for their nuptial flight? The Javanese call them "Kupu-Pleper-Pleper" on account of their clumsy flight. In western Java they are decidedly more scarce, particularly towards the end of the rainy-season (January).

K. horsfieldi resembles *K. inachus* in the shape of the wings, but differs in having the upper surface light gray-blue without any violet iridescence and in having the band on the f. w. appear in all shades from greenish to blue-white; moreover, there are found specimens which are very much smaller in size than *inachus.* Although the same seasonal forms may be distinguished as in the latter, the leaf-design on the under surface does not vary in colour so greatly as in the species from northern India; the f. *marmorata* is apparently not represented and the median band is always much broader, somewhat recalling *buxtoni.* The sexual organs are highly specialized. The uncus is shorter, broader and not cleft as in *K. inachus* and *buxtoni,* but distally deeply excavated and anteriorly sharply cut off. The valve is most complicated, having the broader ventral portion short and flat, the median portion projecting like a beam, sharply dentate, altogether similar to the valve of *Hestia.* Penis is not bucciniform, but sword-shaped, distally pointed, with a projecting tooth just before the end. The saccus is shorter than in any other *Kallima.* The valve is distinguished by two finger-shaped appendages, accompanied posteriorly by two pairs of tassel-shaped attachements not unlike the pistil in a

flower. The larva is cylindrical, golden-brown, covered with fine hair, and with 9 rows of long, reddish, branching spines. The head is black, armed with two long, diverging, black and branching spines. It lives on Strobilanthus callosus Nees and Eranthemum malabricum Clarke, both of the family of Acanthaceae. — **horsfieldi** *Koll.*, the oldest name of the collective species, which is found from Bombay southward, presumably commencing where *K. inachus* disappears; it is rather large, nowhere scarce, in some places quite common and ascends in the Nilgiris to elevations of about 4000 ft. It represents the dry-season form, resembling in its general appearance *philarchus* (111 c). — **wardi** *Moore* (= doubledayi *Moore*) is the occasionally very small form of the wet-season, having on the under surface of the f. w. nearly always two ocelli or, more correctly, translucent spots. The ground-colour is dusky, resembling the fall tints of leaves, occasionally coffee or yellow-brown. According to Aiken it abounds in all the wooded parts of the Canara district, generally swarming about the flowers of Strobilanthus; it is chiefly found between March and May and again in July and August; sugar and brandy attract them to such an extent, that they lose all fear and can be seized with the fingers. The larva is found in July. — **philarchus** *Westw.* (111 c) is one of the most sought-after butterflies of Ceylon; our figures represent the ♂ of the wet-season (**macwoodi** *Moore*) and the ♀ of the dry-season. Beneath it resembles *K. inachus*, but has broader brown or brown-green longitudinal bands, generally of the *foliacea* or *uredinophora*-design. Moore's figures represent also ♀♀ displaying the *acerifolia*-type. The colour of the oblique band on the f. w. varies in the ♀ through all shades from nearly white to light blue; the hyaline spots may or may not be present. In Ceylon I first encountered them near Wellawaja, in the southern part of the island, circling around the crowns of those gigantic trees that overhang the borders of the Kinindi-Ganga; they only appeared at the hottest time of the day, alighting in an ostentative manner with folded wings on the upper surface of the leaves on some projecting branches. Although they were far up in the air, I could easily recognize them from where I stood, both when they were at rest, or leasurely sailing through the air in their amorous, coquettish play. Some time afterwards I again found them in the northern part of the island, in the dense jungle bordering the dried-up river-courses, in some places not at all scarce. Here they knew indeed how to use their protective colouring; chased they would disappear like a flash before my eyes, and although they settled down within a short distance from me I never succeeded in finding them again, especially as they remained motionless for about a quarter of an hour, as if conscious of the danger.

horsfieldi. *wardi.* *philarchus.* *macwoodi.*

K. albofasciata *Moore* should perhaps be united with *horsfieldi* as an insular form, but the sharply defined, pure white and very narrow band on the f. w. appears somewhat more oblique, and the ground-colour is deeper blue and has a more intense lustre. The under surface is greenish-gray, having the delicate, greenish median line proximally irrorated with whitish. Andaman Islands, not very scarce.

albofasciata.

K. alompra is a rare species, only occasionally met with in European collections. It resembles *spiridiva* (111 c) which, however, has the wings rather more elongate, and the hindwings are produced into a tail like that of *K. inachus*. On the f. w. the white transverse band which is bordered with blue, resembles that of *pilarchus;* but the subapical spot is smaller. The h. w. is above of a peculiar olive-green tint, bordered at the margin with brown. 3 ♂♂ contained in my coll. display underneath the dark type of fa. *foliacea*. ♀ only distinguished from ♂ by the far-projecting apex, the lighter blue band and the larger hyaline spots. It is still doubtful whether **alompra** *Moore* which, originally described from Burmah, had after a long interval of time been rediscovered by Hauxwell in the Dannatranger in March 1895, differs from the better known form **knyvetti** *Nicév.*, originally described from Buxa, Bhotan, of which occasionally considerable numbers are captured by the natives during August. Doherty was fortunate enough to collect quite a number in the Naga-Hills at an elevation of 5000 ft, where they occur from June until September. If both forms are identical, the name *alompra* has prior rights. I have only specimens from Bhotan available.

alompra. *knyvetti.*

K. spiridiva *Sm.* (= spiridion *Sm.*) (111 c) has the same characteristics in comparison whith *alompra* as *K. buxtoni Moore* with *inachus*; the outline of the wings is more rounded, the h. w. shorter and broader, and the general colouring richer and darker, corresponding to its insular character. In the ♂ the band on the f. w. is not so broad and more violet-blue, resembling *Zeuxidia*, with barely a faint touch of white; the ♀ is rather larger in size, has the wings more rounded and the band milky-white, with light blue iridescence and a blue irroration at the margin. In the ♂ the upper side of the h. w. displays a dark violet iridescence, in ♀ it is more brown, having only the cell very faintly irrorated with violet. Beneath the ♂ is nearly always red-brown with purple irroration, as is seen in reddish specimens of *buxtoni;* the ♀ which we figure for the first time, has the colouring of *foliacea*. In both sexes the translucent spot on the f. w. is surrounded by a rather large, circular disc. It was discovered in western Sumatra by Forbes; Dr. Hagen met with it once during April on the slope of the Barisan Mtns near Benkulen, and again in May on the table-land of Karo; My coll. contains specimens from near Padang-Pandjang, and Martin has received a number of specimens from the Battak Plains in the north-eastern part of the island, where they fly from April until July: quite scarce.

spiridiva.

30. Genus: **Amnosia** *Westw.*

This genus which is not found outside of the Macromalayan Region, agrees almost completely as to neuration, palpi and fore feet of the ♂♂ with *Hypolimnas*, differing but very slightly from that genus as well as from *Kallima*. Also in *Amnosia* we notice two subcostal nervules arising before the end of the cell; but

the third stands exactly in the middle between this and the fourth nervule, which latter diverges much farther from the apex than is the case with *Hypolimnas*, forming with the fifth a large fork. Moreover, the lower discocellular runs to the point of origin of the second median branch and not beyond it, and the precostal of the h. w. is single, straight and only at the extremity feebly turned inward. More striking are the differences in shape and colouring, chiefly in the shape of the hindwing which is at the third median nervule strongly produced so as to form a blunt tail, resembling in that respect the genus *Mynes*. The sexual organs are not unlike those of *Mynes* and *Kallima*, the uncus being cleft and presenting a gently curved, well-proportioned shape. The valve closely approaches that of Limenitis, being almost cubical in shape, flattened above, distally provided with a minute, membranous horn at each corner, with unusually short and scanty hair. The earlier stages are still unknown. The presence of complete ocelli on the under surface of the h. w. in the ♂, which in the ♀ appear also on the upper side, has been the reason why Nicéville classed Amnosia with the Satyridae, whereas Dr. Hagen, Shelford and myself connected them with the Amathusiidae. But judging from the neuration and the morphology of the sexual organs, it appears now that it belongs to the Diademes-group, with which Schatz unites the Vanessid Genera that are allied to *Hypolimnas*.

A. decora is represented by quite a number of local forms, several of which are so sharply defined that Nicéville accorded them the rights of distinct species. In all these forms the ♀♀ are dimorphic and, for the most part, also polychrome. The ♂ has on the f. w. always a light blue transverse band, more or less touched up with white and proximally margined by a straight line; in the ♀ this band is nearly always narrower, proximally sharply angled or notched. Moreover, whereas the ♀ shows on the upper surface invariably some ocelli of reddish colour, ringed with black and pupilled with blue, they are in the ♂ either altogether
perakana. wanting, or only appear as slightly translucent spots. — **perakana** *Fruhst.* resembles in the broader black-brown longitudinal band on the under surface of the h. w. much more the form from Borneo *(buluana Fruhst.)* than *eudamia Gr.-Sm.* from Sumatra. In the ♀ the ocelli on the h. w. are nearly as large as in the Bornean form, but more broadly ringed with black. From the Malay Peninsula. The types are in the Martin collection (Diessen). Although it is only within quite recent time that *decora* was discovered in Perak and the Malay Peninsula, its presence there had been suspected, as it was known to be peculiar and strictly confined to the
eudamia. Macromalayan Region. — Of **eudamia** *Sm.*, discovered by Forbes in western Sumatra. I possess 10 ♂♂, 16 ♀♀ from the volcano Singalang in western Sumatra, and Dr. Martin found a number of specimens also in the north-eastern part of the island, as well on the table-land of Battak as on the forest-covered foot-hills, but never below 2500 ft. above the level of the sea; it seems to fly throughout the year, but is always scarce. The ♂ resembles, aside from the somewhat broader band, *decorina* (115 e), but has on the under side of the f. w. the apical area still more obscured with violet, analogous to the Javanese form. The ♀ varies above through all shades of brown, from the lightest to the darkest coffee-brown or even golden-brown. The transverse band itself changes in breadth, being as a rule greatest anteriorly and hardly ever remaining the same. Of 16 ♀♀ contained in the Fruhstorfer coll. two resemble the ♂, having the band milky-white, 7 belong to the fa.
flavilla. **flavilla** *Fruhst.* in which the band is light yellowish, and 7 to fa. **ochracea** *Fruhst.* in which it is dark ochre-
ochracea. *decorina.* yellow. — **decorina** *Fruhst.* (115 e) is very much smaller than *A. decora Dbl.-Hew.*, with more rounded wings, especially in ♀. In addition it presents the following differences: In ♂ the transverse band on the upper surface of the f. w. is narrower, being broadest in the middle; the apex is not spotted with black, and of the ocelli on the h. w. only the last one is faintly translucent. On the under surface the f. w. has the apical spots and ocelli smaller and the bands very feebly coloured. The ocelli on the h. w. are elliptical and rather lighter; between the lower radial and the third median is placed a minute eye-spot. ♀, upper surface: The forewings lack the small blue spots at the apex, and the transverse band is neither bordered with blue nor has it any silky lustre. On the h. w. the marginal and submarginal bands are broader, the ocelli elongate, darker in colour and, with the exception of the anterior ones, almost of equal size; the median stripes are barely visible. Beneath the white transverse band is proximally more sharply dentate and broader at the anal angle. Whereas *decorina* has on either side of the hindwing five ocelli, *decora* shows five above and only four on the under
decora. surface. Expanse, ♂ 73 mm, ♀ 70 mm, Island of Nias, very scarce. — **decora** *Dbl. a. Hew.* has among all the known forms on the upper surface of ♂ the most uniform and the deepest blue band. In ♀ however the band always grows narrower towards the anal angle, and the milky-white zone is anteriorly and posteriorly bordered by rather broad, light blue, parallel stripes. The ♀ is above dull gray-brown, in the ♂ the under surface of the f. w. is shaded with violet at the apex. The ocelli on the f. w. are in both sexes arranged in pairs, but there is no intranerval eye-spot between the lower radial and the upper median, as in the forms from Nias and Borneo. *decora* is only found in the mountainous parts of western Java; even in the provinces of Preanger I only saw it on the wooded slopes of the Gede Mts, at elevations of more than 3800 ft; there indeed it is very common, especially during July and August, and can frequently be observed sitting on the under side of leaves, the wings expanded, remaining quite motionless for a long while. When frightened they fly but a short distance, displaying for a moment their azure band in the monotonous green of the steaming forest, before they seek a new hiding-place. Whereas I only know ♀♀ specimens with white bands, Martin reports having noticed
buluana. some in which the band was yellow. — **buluana** *Fruhst.* takes the place of *decora* in the mountainous regions of northern Borneo, where it was first discovered on Kina Balu by Waterstradt. The ♂ has the forewings more rounded, and at the anal angle on the upper surface of the h. w. a distinctly translucent ocellus, bordered with red.

The under surface of the f. w. is adorned in the apical area with two pretty large ocelli and a broad, pale violet oblique band, on the h. w. with a pale violet submarginal band and five large ocelli, the uppermost of which is red-brown. In ♀ the transverse band on the f. w. is much narrower, paler yellow, more deeply excavated and on the under surface white; the ocelli at the apex larger than in martini just as in ♂. Expanse, ♂ 80 mm, ♀ 72 mm. — **petronia** *Fruhst.* (115 e) takes the place of baluana in the low plains of northern Borneo. Much smaller than the preceding, with narrower yellowish bands on the f. w. The ocelli on h. w. are inferior in size to those found in specimens from Kina-Balu and south-eastern Borneo. The median band beneath is broader than in baluana. — Of **martini** *Honr.* I only have one ♀ from Banjermasin (low-lands), with a very narrow white band and on the under side of the h. w. five ocelli. It is a composite form based on specimens from south-eastern Borneo (type) and north-eastern Sumatra. The latter, although first described as *endamia Sm.*, always passes in collections for *martini*. *petronia.* *martini.*

Genus: **Stibochiona** *Btlr.*

Of this genus which comprises only three species, the earlier stages are no more known than of *Amnosia* from which *Stibochiona* considerably differs in structure. Doherty laid great stress upon the ciliated eyes, which however are found only in the continental but not in the two insular species. Besides possessing some minor marks of distinction, *Stibochiona* may be told from *Hypolimnas* by the fact that only one subcostal nervule branches off before the end of the cell, whereas the second arises immediately beyond it and the third leaves the main vein about half way between the 2. and 4. nervules. Only in *Euripus* and *Hestina* it also happens that the 2. subcostal branches off beyond the end of the cell; but the distance is greater and the cell open, whereas in *Stibochiona* it is closed by very fine tubular veins, analogous to *Amnosia*. The other characteristics of *Stibochiona* are the large curved middle discocellular and the nearly equally long, almost straight lower discocellular in the f. w. which joins the median at the origin of the 2. median nervule and thereby closes the relatively short cell. Also in the h. w. the cell is closed (as in *Amnosia*), the precostal single, ascending in a straight line, only slightly curved at the end towards the subcostal. In ♂ the fore feet are thickly covered with hair, tibia and tarsus of equal length, somewhat shorter than the femur. Bingham placed *Stibochiona* next to *Dichorragia* but removed it (in opposition to Moore) from the *Euthaliidi*. These butterflies inhabit the Submontane Region, being in the Macromalayan Islands always found together with *Amnosia decora*; but unlike the latter they are not limited to those islands, but range along the southern slope of the Himalayas as far as Kulu, Kashmere and western China.

S. nicea originally described from Nepal, is chiefly found in the eastern Himalayas, growing more scarce towards the west; from Cashmere I only know one ♂; in Sikkim, Assam and locally also in Tonkin it is quite abundant, though not at all common. In Massuri it ascends to 7000 ft., in Sikkim to about 5000 ft. In Tonkin I observed the imagines even on rainy days, flying close to the ground amidst the bushes that border the road-side. They fly rather rapidly but are easy to catch, as they frequently alight on the underside of the leaves. We know two local forms: **nicea** *Gray* (Vol. 1, p. 188, pl. 52 a) occurring from Cashmere to Tonkin and through western China (Leech), is represented in both sexes by two seasonal forms, a larger one with dark blue bands on the h. w. (Vol. I, pl. 52 a) and the smaller peculiar to the dry period. H. w. as well as the submarginal area of the f. w. traversed by light green bands (**viridicans** *form. nov.*). In Tenasserim, especially on the Karen-Hills, we find during March the form **subucula** *Fruhst.* (115 e), with enlarged white punctate spots on the f. w. and a compact, pure white distal border on the h. w. extending as far as the black dots; this border which is also on the under surface more than twice as broad as in specimens from Assam, is only interrupted by the black veins which divide it into square patches. Of the ♀ I have both the blue form and the one marked with green represented in our figure, which was taken in May, at the end of the dry-season, near Tandong in the Karen-Hills at an elevation of ca. 3800 ft. *nicca.* *viridicans.* *subucula.*

S. coresia breaks up into three insular varieties among which **rothschildi** *Fruhst.* (115 d) deviates most widely from the first described subspecies in having the outer half of the h. w. above violet instead of blue. The ♂ resembles that of *coresia* in the presence of an oblique subapical band which is however brownish, not white. As in *S. kannegieteri*, the marginal dots as well as the markings at the anal angle are obsolete. The two bands traversing the cell which are blue in *coresia* have a brownish lustre. On the h. w. the anal band lacks the white border, but the black submarginal lunules are much more distinct than in *coresia*. ♀: The brown ground-colour is much lighter; the anal band is not pale blue as in *coresia* but glossy reddish-violet and bordered by a distinct brown-black undulate marginal stripe enclosing 4—5 whitish lunular spots. *rothschildi.*

On the under surface the f. w. are plain gray-white, whereas in *coresia* they have a purplish irridescence; The bands in the cell are brownish-violet, not pale blue as in *coresia*. The under surface is further distinguished by the larger brown spots in the anal region of the f. w. and a very distinct row of dark brown submarginal spots on the h. w. which are in the Javan form violet and but faintly indicated. Expanse, ♂ 52—59 mm,
kannegieteri. ♀ 53 mm. Island of Nias, apparently very scarce. — **kannegieteri** *Fruhst.* has on the f. w. not even a trace of a white oblique band. In the ♀♀ the marginal area of the h. w. is light blue occasionally sprinkled with whitish near the black submarginal spots. When flying they resemble *Euthalia*; it is not easy to obtain specimens that are not mutilated. Western Sumatra, from the foot-hills to the table-land of Battak (Martin).
coresia. — **coresia** *Hbn.* is among all forms most richly adorned with white. In ♂ the three rows of white dots are still more distinct than in *rothschildi*; on the h. w. the anal border is broadly sprinkled with white, but not quite so much as in *subucula*, the black submarginal spots are more prominent than in the forms from Nias and Sumatra. In the ♀ the h. w. is pure white in the outer half which is proximally bordered by a light sky-blue band growing broader towards the anal angle. The under surface shows in both sexes a pure white conspicuous oblique band on the f. w., and on the h. w. a white terminal border which extends beyond the submarginal spots. *coresia* is always found together with *Amnosia* decora; like this it is confined to western Java, where I observed it only on the volcano Gede at elevations of from 4—5000 ft., in the forest-clad gorges whose quiet was only broken by the roar of the water rushing over the rocks. The butterflies sat with expanded wings on the clayey wet ground fully displaying their gorgeous azure-blue, feasting of the excrements of the Luak, and were so absorbed that I could stoop down and take them up with my fingers. All the species of *Stibochiona*, although not endowed with rapid flight, flutter wildly when in the net making it almost impossible to obtain any faultless specimens.

schoenbergi. **St. schoenbergi** *Honr.* (= persephone *Stgr.* 1892) (115 e). ♂ larger than *coresia*-♂, f. w. black with a white subapical spot and the fringe checkered white and black. The ♀ has on the upper surface the distal half flesh-coloured, bordered with reddish ochre-yellow and enclosing pale blue-violet ocelli. Under surface chiefly brown like the upper surface; ♂ with three minute white dots below the costal spot; in the ♀ the marginal border is uniform pale fulvous, on the h. w. the six intranerval ocelli of the upper surface reappear, but are smaller and darker. Kina-Balu district; rare. Although so far *Stibochiona* has not been found in the Malay Peninsula, it seems highly probable that some form allied to *S. nicea* occurs there in the higher mountains.

Tribus **Marpesiidae.**

Genus: **Cyrestis** *Bsd.* (recte Marpesia *Hbn.*).

The oldest name of this bicontinental genus is *Marpesia Hbn.* (1816), being based upon the same species (*thyonneus Cr.*) as the much younger but better known genus *Cyrestis Bsd.* (1832). Westwood was the first who in 1850 gave us an exact and scientific diagnosis of the genus, after Doubleday had in 1844 transferred the name *Marpesia* to a Neotropical species of the genus *Megalura Blanch.* established four years later. If I do not use here the name *Marpesia*, it is because it would conflict with Vol. I as well as with the headlines on the plates of Vol. IX. which had been printed a year before I had established the priority. Huebner wisely recognized the relationship of *Cyrestis* with the present genus *Megalura* uniting all species in question under the name of *Marpesia*; and indeed the two genera, although found in opposite parts of the globe, are so closely allied that one must assume that they belong together. In their chief characteristics they agree with *Limenitis*, but deviate from that group in the lack of the median spur and in that the fourth subcostal branch instead of the third runs to the apex of the wings; thus it was with some reserve, that Dr. Schatz placed them with that group. It was therefore a happy thought, when Aurivillius introduced the name *Marpesiidi* for the group in question, of which in Africa only the genus *Azania Mart.*, in the Neotropica Region the genus *Megalura Blanch.* are known, whereas in southern Asia two sharply separated genera exist (*Marpesia* and *Chersonesia*).

The striking external aspect of *Cyrestis* alone would suffice to characterize it as a distinct genus. Its entire appearance, the more broad than elongate forewings, the hindwings which are broadly produced at the inner angle, the short tail at the third median nervule (by which Huebner characterized this genus, analogous to the longer tail of *Megalura*) and the fine striated markings preclude the possibility of mistaking *Cyrestis* for any other Nymphalid genus. Moreover it is distinguished by the uncommonly long beak-shaped palpi, which are in front covered with short, closely appressed hair, whereas the middle joint is provided with a crest of stiff bristles; the upper joint which is larger in ♀ than in ♂ is almost $^2/_3$ as long as the middle one. An-

tennae delicate, gradually thickening to form an elongate club. F. w. with two subcostal branches before the end of the cell; the third nervule closer to the fourth, the latter running toward the apex, the fifth to the outer margin. The upper discocellular is very short, the middle one straight or gently curved, measuring ⅓ of the length of the delicate, straight lower discocellular which joins the median vein at the origin of the second nervule, though in a few species it is almost obsolete. H. w. with single, curved precostal vein branching off shortly beyond or at the origin of the subcostal. The cell is either apparently open (Apsithra) or closed by a fine lower discocellular. In ♂♂ the prothoracic legs are very delicate and thin, covered with silky hair; tarsus short. In ♀♀ the fore feet correspond to those of Megalura (Dr. Schatz).

The following characteristics apply to all the species of *Cyrestis*. They are very delicate and strikingly coloured with exceedingly tender and thin, but unusually large wings whose surface is out of all proportion with the slightly-built, slender and delicate body. The eyes are large, prominent and naked; palpi long, pointed, beak-like, slightly curved upwards, resembling those of the genus *Libythea*. The principal and most striking markings found on both wings in all the species consist in finer or coarser blackish bands running parallel to the body and at right angles to the longitudinal axis of the wings; of these bands always three unite on each wing to form a broader submarginal fascia. In the white-coloured species these bands or streaks are so fine that, in combination with the frequently black veins, they remind one of the meridian lines on a map, which has given rise in British India and the Straits to the popular and expressive name "the Map". Also in the following descriptions of the different species I shall frequently refer to the "meridional stripes" meaning thereby just those transverse stripes placed proximally to the triple submarginal band. Leaving aside a short stripe just at the base which is generally only visible on the f. w., we distinguish invariably three such stripes, which shall hereafter be termed, counting from the base toward the outer margin, "first or inner, second or middle and third or outer meridional stripe". On the h. w. and often also toward the anal angle of the f. w. the middle one of the three transverse streaks composing the submarginal band is cut up into sections which, frequently bordered with a lighter or different colour, resemble the links of a chain; I shall frequently have occasion to refer in the course of this treatise to this „chain-pattern".

The ♀ differs from the ♂ only in the lighter and less conspicuous colouring and the larger size, but never in having the markings or colours different; often a recognition of the sex is only possible by examining the anterior pair of feet, which are in ♂ thickly covered with very delicate, thin and short, silk-like, pectoral hair, whereas in ♀ they are scantily clothed with much longer hair and show distinctly a gradually thickening tarsus. The ♀♀ of the species which inhabit the main land and the larger islands in the west, are extraordinarily scarce, whereas those of the species found on the smaller islands are much more frequently met with and more easily captured; this unexplainable but nevertheless certain fact has also been observed in connection with other species and may have something to do with the size of the particular islands. Hagen reports that on the smaller islands (Banka, Bawean, Dampier) both sexes are found in about equal numbers, indeed it often happens, that the ♂♂ are superseded by the ♀♀, whereas on the larger islands and on the continent the latter are but rarely met with (Martin).

As regards the sexual organs, *Cyrestis* approximates to *Calinaga*, and on the whole more to the *Apaturidae* than the *Limenitidae*. Tegumen without scaphium and membranous appendage; uncus with a short sharp point, greatly distended at the base. Valve uniform saccate, anteriorly semispherical, provided with long bristles. Penis long, pencil-shaped. Saccus uncommonly slim, tubular. The larva resembles that of *Pseudergolis*; it is most phantastically marked, green with white lateral stripes, with two horns at the head and one each upon the 5. and 11. segments; in the brown-yellow pupa one can easily distinguish the two appendages at the head containing the long palpi of the future imago. The larva was found by Wahnes living gregariously on some species of shrub having very hard and rough leaves, determined by Hagen as *Delima sarmentosa L.* Moreover they feed on Ficus and Urostigma belonging to the Artocarpeae; possibly also on Covellia, those most curious tropical trees sending out long aerial roots, which on reaching the ground form a new tree; it was in one of these trees which are sacred to the Indians, called Banian or Waringin, that Vishnu was born and in whose shade, twenty-five centuries ago, Buddha sat meditating.

When undisturbed these lovely butterflies have a sailing, poised flight without perceptibly raising or lowering their wings. One often sees them, as they search for water, rapidly flying along some forest-path, when it is almost impossible to distinguish the white kinds from the accompanying *Pieridae*. Mostly one finds them sitting on moist spots in the road or on the wet sand at the edge of small water-courses or creeks, the wings widely expanded, greedily sipping the liquid. Fruhstorfer reports (Iris XV, vol. I, 1902 p. 170): "The white species of *Cyrestis* and also lutea are almost without exception found resting on moist spots or on the shore-sands of the rivers appearing, as they sit with expanded, slightly lowered wings, like specimens that have been stretched in the old English fashion". It seems that their delicate body needs an abundance of water in order to protect it from the desicc-

ating influence of the tropical sun, whereas the ♀♀ which never visit these watering places evidently find a sufficiency on the leaves of plants, standing less in need of it on account of living in the shade of the woods. Disturbed they rise rapidly, concealing themselves cleverly on the underside of the leaves with wings expanded. Hagen reports verbally of nivalis: "When flying it has for all the world the appearance of a bit of paper, which is suddenly seized by the wind and carried into the air, whence after being whirled about for a time it drops just as suddenly to the ground". About its hiding on the underside of leaves we hear from de Nicéville that this habit is only found in *Cyrestis* and is really a great protection against following enemies, as the butterfly disappears so suddenly that one might think of witchcraft, if one has not actually seen it settle on the underside of the leaf. The Rev. J. H. Hocking reports that thyodamas hibernates in the western Himalayas, which is not impossible for a Nymphalid species.

The range of *Cyrestis* embraces the entire southern part of Asia, from Bombay on the west-coast of India to Burmah, Siam, the Malay Peninsula, Tonkin, southern and western China, Hainan and Formosa, to the Loo-Choo Archipelago and southern Japan, including all the islands from the Andamans in the west to the farthest isles of the Solomon Archipelago and the Loyalty-Islands. In Ceylon, however, no Marpesiidi or *Symbrentia* are found and their occurrence in the Key Islands is questionable. Although for the most part inhabiting the submontane zone, several species are also found in the hot plains along the coast and quite close to the sea-shore. In Java two species occur at an elevation of about 3800 ft., and in the Himalayas the common *thyodamas* ascends to 6000 or even 8000 ft.

Subgenus: **Apsithra** *Moore*.

Displaying no structural differences it can only be separated from *Marpesia* by the somewhat longer fork formed by the fourth and fifth subcostals, the steeper direction of the third subcostal on the f. w. and the more rounded outline of the wings. *Apsithra* comprises a number of quite similar species, all very delicate, feebly-winged and fragile, having invariably the ground-colour white with blackish or sepia-brown markings. The meridional stripes of the white kinds, though rudimentary, can be still recognized or are broken up in the basal half into an indefinite number of short streaks; the median area is nearly always white, but varying in form and extent. The submarginal bands are very distinct, displaying the rows of ocelli peculiar to the *acilia*-group; likewise reappears the anal ocellus and the dot on the anal projection, and all the species, though not all their subspecies, have on the upper surface of the h. w. the anal area marked with blue and yellow. The inner margin of the f. w. forms nearly a straight line rendering the feeble but constant excavation near the base, which is always found in *Sykophages*, almost imperceptible. As throughout the entire genus Dimorphism is the rule, we can distinguish in every species two forms which, according to most authors, are depending on the different seasons in such a way, that the dark forms correspond to the rainy, the light ones to the dry-season. But we do neither possess sufficient material with authenticated dates nor exhaustive meteorological observations from those localities to be able to judge with absolute certainty. Neither do we know anything about the earlier stages or the food-plants. The imagines are nowhere abundant, in many localities very scarce, especially the ♀♀ of the continental species. *Apsithra* ranges through southern Asia, the Great Sunda Islands with their adjacent islets, the Philippines and Moluccas; in the Papuan Region it is not represented; its range of distribution is the same as that of the following genus *Chersonesia*.

periander. **C. periander** is a variable species represented by several well defined and constant subspecies. Their range embraces the southern continent of Asia, Burmah, the Malay Peninsula, Siam, Tonkin, Sumatra with Engano, Java and Sumbawa, whereas in India proper, Nias, Borneo, Bali, Lombok and Sumba *periander* has hitherto not been found. The members of this group are inferior in size to those of the following cocles-group and have the apex of the forewing obliquely cut off, in consequence of which the margin from the apex of the costa to the projecting apex of the upper radial vein forms an oblique line. The white ground-colour is interrupted by three yellowish stripes recalling the meridional stripes of *Sykophagus*, whereas the marginal area is always broadly shaded with blackish or black-brown. On the f. w. the rows of ocelli are reduced to black dots, on the h. w. however the round ocelli have assumed a heart-shaped form having in some subspecies an almost comical resemblance to the "hearts" seen on playing cards. All the subspecies of *periander* are true denizens of the woods. Near Paluaban on the southern coast of Java I caught once a great number in an

opening made through the primeval forest by a torrent breaking its way over the rocks. One could see the butterflies in the hot sultry morning, whenever the rain had stopped for a short while, hovering slowly from one bush to the other enjoying the sunshine; they were very easy to capture. The ♀♀ of this group are relatively not so scarce as ♀♀ of the white or yellow *Cyrestis*. — **periander** *F.* originally described from Siam, was rediscovered by me at Muok-Lek on the Bangkok-Korat railway, where they were quite rare, probably on account of the dry-season (January). The ground-colour is pure white with 3—5 gray or yellowish cross-stripes on both wings. The outer margin is almost black in colour marked with white lines and on the h. w. with crescent-shaped ocelli, accompanied toward the anal angle by a yellow semi-band. The under surface is white, marked with grey-yellow bands, the outer border very dark and conspicuous, especially on the f. w.; only in one specimen from Sumatra it is obsolete. The heart-shaped spots are not fully developped consisting of small crescents which are broadest in the middle. On the whole the continental forms of *periander* are distinguished from the insular races by the clearer white ground-colour and the deeper black outer border that shows through beneath. — **binghami** *Mart.* from Tavoy, sent to me from Tenasserim by Coll. Bingham. ♂ is smaller than *periander*, from which it is distinguished by the fact that on the upper surface of the f. w. the white ground-colour extends to the costa between the second (middle) meridional stripe and the black marginal border, whereas in *periander* the costa is throughout bordered with black-brown. — **vatinia** *Fruhst.* (122 e) is the lightest and largest form of the entire group, possessing all the characteristics of the continental forms, but distinguished from *periander* in the following way: The meridional stripes are narrower and darker, farther apart and appear more uniformly distributed over the wing; the dark marginal border is broader at the apex of the f. w. and irrorated with violet red-brown; on the h. w. the anal area is but slightly marked with yellow, and Staudinger's yellow semi-band is but faintly indicated. The purity of the ground-colour and the lack of any markings is still more evident on the under surface of both wings. The costa of the f. w. is bordered with black. The submarginal heart-shaped spots on the h. w., which are in *periander* and *binghami* represented by distinct lunules, are very much reduced in *vatinia*, appearing only as feebly curved minute streaks on the inner border of the black marginal area of the h. w. The ♀♀ exceed the ♂♂ in size, with more delicate and finer markings. Tonkin, Than-Moi in June and July, Chiem Hoa in August and September. On the islands of the Archipelago the following subspecies are known to occur: — **martinus** *Fruhst.*, easily distinguished from the other forms by the almost completely smoke-brown upper surface of both wings, on which the ground-colour appears only outside of the third meridional stripe in the shape of a dirty-white submarginal band which is rather broader and more pure white in the larger ♀♀. The very broad meridional stripes are dark yellow-brown; the three hindmost ocelli on the h. w. are clearly heart-shaped; the anal ocellus is round; on the underside neither wing has the dark marginal area show through, only the apex of the f. w. and the most extreme margin of both wings are slightly sprinkled with gray. Type from north-eastern Sumatra; found also in the western part of the island by Forbes and my collector. Forbes describes *martinus* as a butterfly of chaste behavior, moving in the dense jungle in short flights from the underside of one leaf to another, where it spreads its wings and is only found with great difficulty. — **enganicus** *Fruhst* (122 e) is the darkest form in this group, having the marginal area dark brown and very broad, especially at the apex of the f. w. whence it extends along the costa until it nearly reaches the base. Of the dark yellow, black-bordered meridional stripes especially the second (middle) one is very heavy; between this and the third and the marginal area the pure white ground-colour appears as a median band, which is divided by the third meridional stripe into two nearly equal halves. From the middle meridional stripe to the base the entire surface is laved with gray-brown; the heart-shaped spots take the shape of large, irregular, roundish black-brown wedges, three of which are clearly visible in the apical area of the f. w.; on the under surface the marginal border does not show through on either wing as in the continental forms, but the outer border is light brown shading into the median ground-colour. According to Doherty it is frequently found in the forest near Engano. — **horsfieldi** *Moore*. Judging from the good picture Horsfield gave of this form it very closely approaches *martinus*, but is lighter, having the space between the second and third meridional stripes not shaded with smoke-brown, but white as the ground-colour. Under surface as in *martinus*, but lighter. The three hindmost ocelli on h. w. are clearly heart-shaped, ♀♀ are larger and pure white. A great number was collected by me at Palabuan. — **dohertyi** *Moore* is lighter than *horsfieldi*, with narrower meridional stripes that are about as broad as in *periander*, having on both wings the marginal area very black, more so than any other form of this group; on h. w. the row of ocelli is complete being composed of of five well-developped black, heart-shaped spots; also on f. w. the row of ocelli is more conspicuous than in the remaining forms; the costal border of the f. w. displays on the upper surface a dull silvery

binghami. *vatinia.* *martinus.* *enganicus.* *horsfieldi.* *dohertyi.*

gray lustre such as is not seen in like intensity in the other subspecies. On the under surface the dark marginal area is very distinct as in *periander*, but not clearly separated from the ground-colour, and the rows of ocelli
siamensis. are unusually distinct on both wings. Sumbawa. — **siamensis**, habitat unknown, described from two specimens of which one is contained in the British Museum and the other in my own collection. The original description (Soc. Entom. Jahrg. XIII. 1898 No. 10) reads as follows: "Larger than *periander F.* from Malacca, Sumatra and Java, and with broader submarginal bands". From the specimen in the British Museum I made the following notes: "A very dark and large form, darker than specimens from Sumatra and Engano, probably the darkest of the whole group. H. w. dusted all over with gray-brown, a narrow stripe at the costa excepted. On the f. w. the white ground-colour appears only in a square spot located at the inner margin between the marginal border and the third meridional stripe. Heart-pattern distinct". When I mentioned this form in Berl. Ent. Ztg. 1899, p. 18 and Iris, 1902, p. 171, I supposed not unjustly that it might possibly be the continental form from Assam or Upper Burmah spoken of by Butler, which would be analogous to the very dark *cocles-natta* from Assam. However as I have since discovered the typical form of *periander* in Siam, *siamensis* appears to be a misnomer and will probably be corrected as soon as the true habitat of the subspecies is known.

C. cocles is larger than *periander*, having the apex of f. w. rounded; its range extends farther east through Farther India to Hainan, but does not reach in the south the Macromalayan Region. The type after which the species was named came, like that of *periander*, from Siam; it represented the small-sized form of the dry-season. In contradistinction to the very constant *periander*, of which one specimen exactly resembles the other, *cocles* is in an extraordinary degree subject to individual as well as sexual differentiation, whereas the local forms
cocles. appear less distinctly pronounced than in the preceding species. **cocles** *F.* (122 b) figured from a ♂ found by me in Siam during the dry-season (January) together with some ♀♀, which are likewise smaller and whose
natta. upper surface has the colour of mother-of-pearl. — In Assam we meet an entirely altered form: **natta** *Swinh.* (122 b ♀), of which the ♂♂ are very common, the ♀♀ very scarce. Probably it is an extreme rainy-season form.
cocleoides. — **cocleoides** *Fruhst.* (122 b); this large form, of which we figure a pale apple-green ♀, is based upon specimens found in southern Annam during January and February and in central Tonkin between June and August. — Some similar specimens captured by Pavie near Luang Prabang were recognized by Poujada as
earli. **earli** *Dist.* This not very distinct form stands as to size intermediate between *cocles* and *natta*-♂ (122 b), distinguished from the latter by the larger white patches in the submarginal area on the f. w. Malay Peninsula. — From Hainan and Assam I have some ♀♀-specimens which while displaying the colouring of *cocleoides*, have the broad, white, proximally dentate longitudinal bands characteristic of *natta*. Such specimens
formosa. are mostly found in the Andaman Islands and were described as **formosa** *Fldr.* (= horatius *Wood-Mas.* and andamanica *Wood-Mas.*). From Sikkim, where *cocles* is everywhere scarce, it extends southward as far as Orissa, but is not found in Deccan or Ceylon, but again observed from Assam to southern Tenasserim. Adamson reports having observed it at Moulmein and that when flying it most strikingly resembles Junonia atlites L. Whereas it does not occur in Sumatra, it is represented in the Macromalayan Archipelago
sericeus. by **sericeus** *Btlr.*, a very sharply differentiated and for Borneo very light form. The type in the British Museum, which is very light and not obscured at the apex, is very exactly described by Butler. All the markings are fine and delicate, the white median band is very broad and divided on both wings by a nearly straight, blackish line into two approximately equal halves. This line, which in all the other forms of *cocles* touches the dark markings of the outer margin, is in *sericeus* separated from it by a broad, intervening portion of the white ground-colour. The under surface is very pale, having the bands which above are quite irregular arranged in the order of the meridional stripes; moreover the ground-colour, wherever visible, has a faint pink lustre. Rare, only two ♂♂ from Amuntai (south-eastern Borneo) in my collection.

cassander. **C. cassander** which replaces *cocles* in the Philippines is in ♀ practically identical with it, but presents in ♂ considerable differences. One might be tempted to unite this species with the following *paulinus*, were it not for the fact, that *paulinus* has in all its forms on both wings quite distinct round oeelli, whereas *cassander* and its subspecies have in their place a numberof black, white-bordered streaks, which eannot even be eall-ed lunules being not at all curved. Moreover, *cassander* has, analogous to the *periander*-group, the apex of the f. w. obtusely cut off, whereas in *paulinus* it is more rounded. It is probably for this reason, that Felder who based his description upon a speeimen from Luzon emphasizes its close relationship with *periander*. Dr. C. Semper, a brother of the famous author of the work on the Philippine butterflies, discovered this species and

sent the first, greatly mutilated specimen to Europe; afterwards George Semper saw about 70 specimens of this species which is but rarely found in collections. It is represented by two forms, of which the darker belongs to the rainy-season, the lighter to the dry-season. In the latter the dark marginal area is not only of a black-gray shade, but also reduced in size and interrupted by two white crescents between the second and third median nervules. On the h. w. the delicate yellow anal area, adorned with a blue-gray anal ocellus and a similar spot on the anal projection, give it a strikingly dainty appearance. **cassander** *Fldr.* is still quite rarely met with in collections. Specimens from the northern Philippines are smaller and lighter than those from localities farther south. Semper had his specimens from Mindoro, but the other localities which he mentions in his Work (p. 112) refer to **dacebalus** *subsp. nov.*, distinguished from all the other insular forms by the broader brown distal border. Type from Leyte contained in the coll. of the Senckenberg-Museum. Probably occurs also in the Comotes, Guimaras and Bohol. — **orchomenus** *subsp. nov.* is the most southern race, from Bazilan and Mindanao (Semper and Staudinger collections). Especially the ♀♀ differ from *cassander* in their larger size, and from *thessa* in having chiefly on the f. w. the brown-gray distal border broader and darker; moreover the yellowish shade of the bands on the under surface is largely changed to brown-gray. According to Semper it flies between February and August; found in February by Doherty in Bazilan and apparently very scarce. — **thessa** *Fruhst.* (122 c as *tessa*) was collected in great numbers by Doherty in Palawan during the month of January. ♀ mainly yellow-brown with nacreous longitudinal bands, but without the blackish distal crescents seen in *cocles*. On the other hand the f. w. have on the upper surface the black elongate submarginal ocelli before the apex very distinct. Palawan. My coll. contains also ♂♂-specimens from Balabac with somewhat lighter brown border.

dacebalus. *orchomenus.* *thessa.*

C. paulinus forms the natural continuation of *cocles* in the Moluccas and the Celebian Subregion. Contrasting with *cocles* and *cassander* the two sexes are very much alike, the more so, the farther east one goes. — **kuehni** *Roeb.* from Celebes represents, due to its geographical position, a splendid transition from the Philippine to the more eastern forms. The ♂ recalls *thessa*-♂ in that the blackish outer border stands out more sharply from the gray-mottled basal area. The type came from Tombugo, eastern Celebes; other similar specimens from Tonkean and Balante in Fruhstorfer coll. According to Martin it is also found in Bangkai. — **mantilis** *Stgr.* (122 b as *kuehni*) refers to a darker and larger form from the Minnahassa. The figured ♀ deviates from Roeber's figure and my East-Celebian ♀♀ in the more highly developped melanotic colouring. Especially on the upper surface the longitudinal median band, which is in *kuehni* pure white, is in *mantilis* heavily obscured with gray-black. Tondano and Sawangan; scarce. — **seneca** *Wall.* (= latilimbata *Stgr.*) approaches *paulinus* in the greatly enlarged ocelli on h. w., but differs from the Celebian and Moluccan forms in having almost the whole distal half taken up by the black-brown outer border. On both wings the basal area is as in *kuehni* and *mantilis*, only on the upper surface displaying occasionally a faint reddish-violet reflection. ♀ lighter and larger than ♂. Sula-Mangoli and Sula-Besi, in October and November. — **paulinus** *Fldr.* described from a ♂ from Batjan, inhabits the northern and southern Moluccas without undergoing any perceptible local variation. But there exist ♂♂ as well as ♀♀ which have the distal half marked with white, and still others in which the broad blackish terminal band is not interrupted and almost completely absorbs the chain of black ocelli so distinctly seen in the lighter form. — **gilolensis** *Lathy* is the name of an extremely light ♂♂-form from Halmaheira. — **waigeuensis** *Fruhst.*, (122 b) the most eastern race, is in the light form distinguished by the fact that the colour of the greatly reduced black outer border changes to a faded gray-yellow, and by the unusually large, conspicuous eye-spots on both wings. Also the supposed rainy-season form may be discriminated from *paulinus* by having on the upper surface the black marginal border narrower and on the under surface of f. w. almost extinct. (Entom. 1904, p. 71).

kuehni. *mantilis.* *seneca.* *paulinus.* *gilolensis.* *waigeuensis.*

Subgenus: **Sykophages** *Mart.*

This group which is structurally not to be separated from the true *Marpesia*, comprises the better known white species.

C. nivea inhabits, roughly speaking, the central portion of the entire *Cyrestis*-range; its limits in the north-west coincide with the south-eastern limits of *thyodamas*, about in the latitude of Tavoy. It is found in the Macromalayan Archipelago, Siam and Tonkin with their adjacent islands, in the Philippines, Bali and Lombok, reaching in Sumbawa its farthest limits towards the east. The submarginal band on the h. w., as a rule (but not in all the species) adorned with blue only in the anal half, does not continue on the f. w., which displays only a continuous marginal band. The yellow patch at the anal angle of the f. w. stands quite close

to the margin. Although the typical form *nivea Zink.-Somm.* comes from Java, we will for geographical reasons
nivalis. enumerate the forms as they occur from west to east, from the mainland towards the Archipelago. — **nivalis** *Fldr.* The type which is in the Tring Museum was taken by Count de Castelnau in "Malacca interior". From *nivea* it is at a glance distinguished by the fact that on the f. w. the white ground-colour reaches, between the second meridional stripe and the apically broader marginal band, the costa itself, whereas in *nivea* and all its subspecies the entire costal margin of the f. w. is broadly bordered with black. The very fine meridional stripes form a convex curve toward the outer border, keeping the same distance from each other; the chain-pattern can hardly be recognized; the C which we find in the *thyodamas*-group above the yellow spot at the anal angle of the f. w., has in *nivea* and the entire *nivea*-group taken the form of a reniform patch concave toward the base. According to Felder it differs moreover from *nivea* in having the f. w. shorter, the h. w. more deeply excavated at the apex and the anal margin longer. The exceedingly rare ♀♀ (1 ♀ from Loeboe-Rajah, Sumatra, [Ericson] May 1897 in the Tring-Museum), are discriminated from ♂♂ by their larger size, the paler black markings and increased transparency of all the white portions of the wings. Specimens from Burmah, Tenasserim, from various localities on the Malay Peninsula and from Sumatra present no differences whatsoever among themselves; altogether *nivalis* is a rather constant species represented by but a few feebly differentiated subspecies. —
borneensis. **borneensis** *Mart.* Although very closely resembling the typical *nivalis*, it differs from it in having on the upper surface of the h. w. distally to the submarginal band between the anal projection and the tail a small recumbent triangle, which in *nivalis* is yellow and only marked at the outer margin with a fine white streak growing thinner towards the anal angle. In specimens from Borneo we find as rule in this triangle which is more white than yellow, a white upward dash between the second and third median nervules. Moreover the Bornean form is
bangkiva. somewhat larger and — curious enough — lighter in colour than those from Sumatra and the mainland. — **bangkiva** *Mart.* from the island of Bangka, is distinguished from *nivalis* by the larger size, the slightly yellowish tone of the white ground-colour and the greater extent of the orange-yellow tract in the anal half of the h. w. In the augmen-
tonkiniana. tation of the yellow colour it forms a transition to the form **tonkiniana** *Fruhst.*(122 a) from Tonkin (Chiem-Hoa). This differs from *nivalis* in the following way: On the f. w. the apex contains a very distinct orange-yellow subapical spot, whereas in *nivalis* it has but a minute white dot; on the h. w. the submarginal band is as far as the apex of the wing marked with yellow along the outer edge; the anal half of this band is marked with a very conspicuous blue line. That portion of the h. w. located between the outer margin and the inner, broader submarginal line is likewise laved with yellow, whereas in *nivalis* it is white. Beneath it resembles *nivalis*, only a little more yellow. *tonkiniana*, although larger than *nivalis*, does not approach the size of *borneensis*. According
fadorensis. to Fruhstorfer it is always found together with *thyodamas* (Martin). — **fadorensis** *Kheil.* On the upper surface of both wings the parts which in *nivalis* are black are irrorated with brown-yellow, but especially the apex of the f. w. and the submarginal band on the h. w. The yellow spot at the anal angle of the f. w. is very broad, the reniform patch above it laved with yellow; the meridional stripes are much heavier than in *nivalis*; the blue ornamental line in the submarginal band is lacking. The underside on which the yellow spots reappear is much lighter than in *nivalis*. Kheil's figure made from a photograph does not give a true picture of this form
superbus. as it does not show the yellow portions. Found in Nias, at the campong of Fadoro, whence the name. — **superbus** *Stgr.* from Palawan resembles *fadorensis*, but all the brown-yellow parts are in *superbus* brillant ochre-yellow, as also the basal half of the costal margin of the f. w. which in *fadorensis* is chiefly blackish; the meridional stripes are as fine as in *nivalis*; on h. w. the blue stripe in the anal half of the submarginal band is very distinct, but the chain-pattern is unrecognizeable. On the under surface the markings are almost throughout yellow. Some further still more detailed distinctions may be found in Staudinger's description who however treats *superbus* as a local form of *fadorensis*; but as Nias is separated from Palawan by Sumatra, the Malay Peninsula, Borneo and many other smaller islands, Staudinger meant undoubtedly to say that in Nias as in Palawan, both of which are satellites of some larger insular continent, similar climatic conditions have influenced in the same
nivea. direction the further development of the ancestral *Cyrestis*-form. — **nivea** *Zink.-Somm.* from eastern and western Java, also Madura, was the first form of this group which has been described; the western form *nivalis* from the mainland became known only 35 years later, which is easily understood, if one considers that at the time (1831), when Java was already being quite intensely cultivated by Europeans who of course also studied its Fauna and Flora, the home of *nivalis* was still haunted by pirates and, as regards its natural history, a terra incognita. It is surprising and quite contrary to what we could expect from our experience, that in Java the continental or some closely allied form does not occur. The excellent description given by Zinken-Sommer of *nivea* holds good to the present day, and it appears strange that on the hand of such a description so many mistakes have been made. As I have already said above, *nivea* is at a glance distinguished from *nivalis* by having on the upper surface of the f. w. the broad black costal border continue uninterrupted from the base to the apex;

moreover, nivea has on both wings the border shaded with yellow-brown and violet, which is not the case with *nivalis*. The meridional stripes are very fine, but are not equally far apart from one another, the second being closer to the third than to the first, particularly on the hindwing. The ground-colour which in *nivalis* is paper-white, is in *nivea* less clear, somewhat opalescent and displaying the lustre of mother-of-pearl; this difference is seen more clearly, if one compares two series of say 8—10 specimens of each with one another. On the hind-wing the blue ornamental line is quite distinct in the anal half of the submarginal band; the yellow markings of *nivalis* are in *nivea* much darker, orange-brown; the chain-pattern is not visible; the upper surface is irrorated with yellow and more broadly marked with a lighter colour. Also the under surface displays a touch of yellow, and very pale marginal markings. — **baliensis** *Mart.* from Bali, approaches most closely *nivea*, being *baliensis.* intermediate between this and the two subspecies from farther east, but differs in the following way: The inner bordering-line of the marginal band on the forewing, which in *nivea* is very feebly developed and invariably interrupted in the middle on the third median nervule, is in *baliensis* always complete; whereas *nivea* has between this line and the darker outer border three interspaces covered with the white ground-colour, there are in *baliensis* but two such interspaces, between the second median and the lower radial; the meridional stripes are heavier, but in the same way as in *nivea* unequally far apart; the violet and brown-red markings at the apex of the forewing are increased, the under surface is darker. Described from 5 ♂♂ in the Tring Museum, collected by Doherty in the "low country" of Bali in April 1896. — **fruhstorferi** *Roeb.* (122 a) from Kangean, *fruhstorferi.* Lombok (Sapit 2000′, Sumbalun 4000′. Sawela). The forewing displays on the very broad marginal band only a small roundish spot of the white ground-colour, located between the second and third medians; the inner bordering-line is heavy and broad, the violet and brown-red markings at the apex of the forewing are greatly increased, the blue ornamental line in the submarginal band on the hindwing is more distinct, the ♀ larger and lighter in colour. Found in moist places from the coast up to 4000 ft. — In **sambawana** *Mart.* from *sambawana.* Sumbawa the brown-red colour is most richly developed, especially at the apex of the forewing; the inner bordering-line of the marginal band on the forewing is as heavy as in *fruhstorferi*, the meridional stripes as broad as in *baliensis*. Quite unexpected is the increase of the white ground-colour in the marginal band on the forewing between the second and third median nervules, but it is less sharply defined, shading quite gradually into the black band. The difference in the distance between the various meridional stripes is in this subspecies greatest. Two ♀♀ in the Tring Museum are distinguished from the ♂♂ by having the marginal band on the forewing marked with just as much white as the ♂♂ of *baliensis*, from which they can be told by the greater amount of fulvous and violet. The difference between *fruhstorferi* and *sambawana* manifests itself most clearly, if one can compare greater numbers of either form, which reveals still another peculiarity of *sambawana* in that the submarginal band on the hindwing is in its costal half strongly convex toward the base, and greatly encroaches upon the white ground-colour.

C. maenalis is found throughout the Philippines and the Macromalayan Archipelago, excepting Java. As the extent of its range of distribution was not known until lately, the Malayan forms had been classed as another species (*irmae Forbes*), the separation of which cannot however be supported by any constant marks of distinction. Lately a new, very dark form has been discovered in Nias, most closely allied to *seminigra* that connects *irmae* with the Philippine forms. — **maenalis** *Erichs.* (122a), a robust form with white *maenalis.* ground-colour and broad wings, belongs without any doubt to the *nivea*-group and follows the type of *nivalis* in that on the forewing distally to the third meridional stripe the white ground-colour touches the costal margin, which is bordered with black in the basal half; the two inner meridional stripes are, especially on the forewing, very broad, tapering toward the inner margin; the yellow spots adorning the anal angle on both wings are strongly developed, the blue line in the submarginal band is on the hindwing very distinct and appears even on the forewing above the yellow spot; the chain-pattern is indistinct. ♀ larger, but hardly any lighter in colour than ♂. Luzon and Babuyanes, perhaps also on the other islands of the northern Philippines. Flies mostly from April until June, then again from September till January. — **rothschildi** *Mart.* from Mindoro, is a very dark, most *rothschildi.* probably Alpine form, closely allied to *seminigra*, and distinguished by the much heavier second meridional stripe, which on the hindwing always coalesces at a greater or smaller distance from the anal margin with the narrower, third stripe; on the forewing the latter is on the third median nervule connected with the submarginal band by a narrow, black cross-line; on the forewing all the veins are broadly sprinkled with black. Both wings have the yellow colour at the anal angle greatly reduced and, especially on the hindwing, covered with black and steel-blue spots, a peculiarity not found in any other white *Cyrestis*. The blue stripe in the submarginal band on the hindwings is very conspicuous, and continues also on the forewing beyond the yellow anal spot. — **negros** *Mart.* from the island of Negros, stands between *maenalis* and *rothschildi*, being more closely allied *negros.* to the first, from which it differs in that the two basal meridional stripes, which are on the forewing very heavy

and broad, on the hindwing quite suddenly contract to nearly one half their width, appearing as if they were broken off, in consequence of which the wings appear much lighter. The third meridional stripe, which is just as fine and sharply defined as in *maenalis*, whereas in *rothschildi* it is broader and more indistinctly delineated, is on the forewing connected with the submarginal band by a short, feebly blackened bridge on the third median nervule. In the yellow anal spots and the blue stripe in the submarginal band on the hindwing it resembles the typical *maenalis*. The second and third meridional stripes show on the hindwings no inclination to coalesce, as is invariably the case in *rothschildi*. The type, one ♂ captured by Whitehead in Negros in February 1896,

ocbasius. is in the Tring Museum. — **oebasius** *subsp. nov.*, which connects the forms of the central Philippines with those from Palawan, is closely allied to *obscurior*, which it even surpasses in the extent of the brown-black longitudinal bands on the upper surface of both wings. All the fulvous patches are deeper in colour, more reddish than yellow as in *obscurior*. Type was found in Bazilan by Doherty in February. The Semper collection in Frankfort

obscurior. o. M. contains some very large specimens from Mindanao. — **obscurior** *Stgr.* from Palawan and Babber is an unfortunate name for this form, which is decidedly lighter in colour than its allies *seminigra* and *rothschildi*, both of which have all bands and meridional stripes jet-black, whereas in *obscurior* they are smoky-gray; however the ground-colour is not clear white, but of a dull, dirty yellowish tone, which may possibly have given rise to the name *obscurior*; moreover it seems that Staudinger based the comparison of his specimens from Palawan on typical white *maenalis* of the *nivea* group. In the same way as *superbus Stgr.* differs from *borneensis* in the strong increase of the yellow markings, *obscurior* is much more yellow than *seminigra*, especially at the apex and anal angle of the forewing and in the outer half of the submarginal band on the hindwing; also the reniform patch above the yellow anal spot on the forewing is generally surrounded by a yellow ground. The third or outer meridional stripe is on the forewing above the third median nervule united with the submarginal band by means of a short bridge of smoky-gray colour. *obscurior* is practically devoid of all blue markings, and the chain pattern is limited to two links. The ♀♀ are larger and paler, have the apex still more yellow on the forewing, the tails very long and the outline of the wings more rounded. The Fruhstorfer collection

aicdius. contains one ♀, captured in 1898 by Doherty, which has the ground-colour nearly entirely yellow. — **aiedius** *subsp. nov.* differs from *obscurior* but slightly in the increased black striping, the diminution of all the red patches, especially at the anal angle of the hindwing, and the absence of the yellowish chains distally to the broad, black, submarginal band on the hindwing. Beneath it has a more intense lustre of mother-of-pearl. Bala-

seminigra. bac, 11 specimens in my collection. — **seminigra** *Sm.* is, like *irmae* and *martini*, an Alpine, and among the white *Cyrestis* the darkest form, representing the most extreme Melanism in the whole genus. The forewing has the costal margin broadly bordered with black, all veins sprinkled with black, the meridional stripes very broadly black, the outer one on the forewing always connected with the submarginal band by a heavy black band on the third median, all of which greatly reduces the white ground-colour. Whereas *irmae* and all the other species of this group display in the yellow anal spot on the forewing two black dots, *seminigra* has but one, but the second one stands higher up beyond the yellow area, is much larger and surrounded by a pale border, appearing like a small, imperfect link in the chain-pattern which on the hindwing resembles that of

martini. *irmae*. — **martini** *Hartert* (122a), but rarely found in collections, differs from the better known *irmae* from Sumatra in that on account of the greatly diminished black colouring the white ground-colour touches the costal margin of the forewing; the inner meridional stripe is much finer; distally to the reniform patch above the yellow anal spot on the forewing we notice a clear white, oval spot, represented in *irmae* only by a small streak; the hindwing has near the upper portion of the outer margin a much larger triangular area of white, and the two white lines in the submarginal band more distinct, heavier and less broken; toward the apex they increase in width and assume a pale, silvery-blue lustre, in consequence of which the submarginal band appears broader and lighter. Chain-pattern as in *irmae*, which on the average it exceeds in size. Perak, Malay Peninsula. ♀

irmae. not represented in my collection. — **irmae** *Forb.* is found in western Sumatra and in the Battak Mountains in the north-eastern part of the island. It is an Alpine form, limited to elevations of from 2000—4000 ft. and higher, whereas *nivalis* does not rise beyond 2000 ft. At those altitudes it is rather abundant, much more so than *nivalis* of the lower plains, with which it shares the habit of frequenting the edge of small watercourses or moist spots in the road, where together with other Cyrestis and numerous Pieridae it avidly sips the moisture from the wet sand. Martin possesses specimens of every month in the year, whence it would seem that one brood succeeds the other. As among hundreds of ♂♂ not a single ♀ has been found, the ♀♀, must have an entirely different mode of life. In the Tring Museum, however, there is among 26 ♂♂ one ♀ captured by Ericson at Loeboe-Radja, which is much larger and lighter in colour and has the meridional stripes, particularly the outer one, almost as fine as in *nivalis*. Staudinger gave *irmae* also the name of *sumatrensis*; from *nivalis* it is distinguished by having the median stripes, especially the inner one, much heavier, whereas the outer one shows at its commencement at the costa of the forewing a bulb-shaped enlargement. All the veins are black, which is only partly the case in *nivalis* and *nivea*. The forewing has moreover the costal margin all over bordered with black, a few insignificant interruptions excepted between the broader ends of the meridion-

al stripes; but this border is not so broad as in *nivea*. The yellow colouring of the anal angle of both wings is much deeper and richer, being almost a red-brown. From *rothschildi* it is discriminated by the much finer meridional stripes, the middle one of which leaves on the hindwing the fine black line that serves to close the cell, entirely free, whereas in *rothschildi* it completely covers it. The blue line adorning the submarginal band on the hindwing is only indicated in the anal third of this band, whereas in *rothschildi* it is very plain; on the other hand *irmae* has the yellow anal area of the hindwing very broad and intensely coloured, whereas in *rothschildi* it shows among all species of this group the weakest development. Of the chain-pattern only two well-developed links can be recognized at the anal end of the submarginal band on the hindwing. — **subob-scurus** *Swinh.* unknown to me in natura, appears from the diagnosis by its author which is given hereafter, to be a highly differentiated, melanotic, insular form having the ground-colour gray with purplish lustre. The upper surface is marked with 10 darker, purplish-brown, longitudinal stripes, placed so close together that the wings almost appear black. The forewings have between the fifth and sixth black band a white zone. Beneath all bands reappear as delicate streaks of a paler colour than above. Island of Nias, where it must be extremely scarce, as it was not represented in the tens of thousands of specimens collected by missionaries, which I had through the kindness of Prof. Thiemes the chance of examining. Swinhoe compares *subobscurus* with *maenalis* and *seminigra*, indicating thereby their relationship. *subobscurus.*

C. heracles *Stgr.* has but little of the white ground-colour left and was formerly placed by me into the *acilia*-group, whereas Staudinger compares it with *strigata Fldr.* from Celebes which likewise belongs to *acilia*. The two basal meridional stripes are very heavy, leaving room between them only for some narrow stripes of a dirty brown-gray; the third meridional stripe is completely wanting, and the remainder of the white ground-colour, which is entirely absent from the submarginal band on the forewing, appears as a rather narrow white median band. The hindwings, although lacking the blue ornamental line in the submarginal band, have the chain-pattern quite complete, consisting of 6 links; also on the forewing this pattern may be recognized; whereas all the other species of this and the preceding group have on the hindwing distally to the submarginal band in the upper part of the outer border a triangular spot of the same shade as the ground-colour, this species has in its place only a dirty-white line composed of a few broken streaks. The yellow colour of the anal angle is changed to a dull walnut-brown. But the under surface shows much more of the ground-colour, resembling that of the dark subspecies of *hylas* and particularly *obscuratus*. The ♀♀ greatly resemble the ♂♂, but are larger and of lighter colour, being not black-brown, but dark smoky-brown. One ♀ from Besi has the two median bands on both wings laved with yellow, which may also be observed on the hindwings of Mangoli-♀♀, although not so distinctly. In Staudinger's collection. The last species of the *maenalis*-group, *telamon* and *heracles*, have the yellow anal spot on the forewing placed no more precisely on the outer margin, but more inward, which is always the case in the *thyodamas*-group; but the entire nature of the submarginal band, particularly its continuity, place the two species here. *heracles.*

C. telamon is represented by a number of well-differentiated insular races found all over the Moluccas. The ground-colour is clear white; both wings have the basal half traversed by three, nearly equally broad, black-brown bands, extending from the costa of the forewing to the anal margin of the hindwing; on the interspaces between these bands the ground-colour is not clear, but shaded with gray; the first of these bands is entirely basal, the second one is at its starting point split into two darker branches, enclosing a patch heavily dusted with gray, and the third one encloses on the forewing the black lines which serve to close the cell. Beyond these the white ground-colour appears in the shape of a broad median band, decreasing in width toward the costa of the forewing and the anal margin of the hindwing. This white median band is encroached upon by a fine black line, which starts at the anal angle of the hindwing and ends in a sharp point at the middle median nervule, being probably the remainder of the third meridional stripe. The submarginal band on the hindwing, which consists of three lines and is adorned at the anal angle between the median nervules with a delicate violet line, continues distinct on the forewing, enclosing distally to the anal angle a yellow spot pupilled with two black and white dots, and above this a larger, round, black, ocellus-like patch proximally bordered by a pale blue crescent; in the middle of the band, between the second median nervule and the lower radial, the ground-colour appears, which surrounds distally also the yellow spot and the ocellus-like black patch; at the apex of the forewing the submarginal band becomes again distinct and complete; of the four white subapical elongate spots, the two larger, innermost are placed upon the submarginal band, the two outer, smaller ones between this and the inner of the two black submarginal lines. At the anal angle of the hindwing the submarginal band displays distinctly the chain-pattern, two perfect links being discernible. Distally the submarginal band is accompanied on either wing by two submarginal and one marginal black line, the interspaces of which display the ground-colour more or less plainly. On the hindwing the inner one of these two submarginal lines is very broad and diverges above the second link, from the submarginal band toward the outer

border, forming thereby an acute triangle of the ground-colour, the base of which is represented by the excavated apex of the hindwing. Both the anal projection and the lower half of the anal margin are broadly marked with brown-yellow and with a black dot on each, the upper one of which opposite to the black tail is bordered with white. The under surface is like the upper surface, only the ground-colour which is of a somewhat yellowish shade, predominates in consequence of all the black markings being reduced, with the exception of the two black dots in the anal area, which are more distinct and larger. Thorax and abdomen are above striped with brownish and blackish, beneath yellow-white. This species is distinctly subject to Melanism, which becomes more evident the farther north one goes, for which reason we must enumerate a few new subspecies, in order

telamon. to distinguish the forms of the northern Moluccas from the typical hylas. – **telamon** *L.* (= hylas *Clerk*, rudis *Fldr.*) is, although the earliest described, the rarest among all the species of *Cyrestis*, being found but in a few collections. The more we must wonder at the fact that it was the first one to become known to science. But Linné obtained most of his exotic specimens from Holland, and as Amboina was the earliest Dutch settlement in the East and the first to be scientifically explored, it happened that the rare *hylas* was known in Europe long before the other, nowadays much more common, species. My collection contains two ♂♂ from eastern Ceram found

buruensis. by H. Kuehn. The ♀ is much larger and paler (1 ♀ from Ceram in the Tring Museum). — **buruensis** *Mart.* is darker and smaller than *hylas*. The white median band is more conspicuous, and connected on the forewing with the small rest of the white ground-colour enclosed in the submarginal band between the second median and the lower radial, because the inner one of the three stripes composing the submarginal band has become obsolete throughout, excepting a faintly-indicated, black dot on the third median. At the anal angle of the hindwing we find, as in *hylas*, a short, black streak entering the white median band, representing a rest of the

obianus. obsolete third meridional stripe. Beneath it is much darker than *hylas*. Island of Buru. — **obianus** *Mart.* (122 a) is the smallest form of this species, closely allied to *buruensis*, but a shade darker; the white median band somewhat broader; the pale blue crescent proximally bordering the black ocellus in the submarginal band on the forewing is of a whitish shade; on the hindwings the rest of the third meridional stripe is at the anal end of the white median band very distinct and broader at the base; the inner of the two black submarginal lines on the hindwings is very broad, rendering the triangle of the ground-colour very narrow; also the remainder of the ground-colour in the submarginal band on the forewing is greatly reduced and divided into two white spots, in consequence of the black ocellus being united on the second median nervule with the outer edge of the submarginal band. All the yellow markings of *hylas* at the anal angles on either wing are dark brown. The under surface is very dark; the second meridional stripe, which in *hylas* is on the under surface of the hindwing at its lower extremity near the anal angle yellow, is in *obianus* black, connecting with the first by a distinct black

obscuratus. arch. Obi. — **obscuratus** *Mart.* from Batjan and Halmaheira, is still darker than *buruensis* and *obianus*; between the basal meridional stripes the white interspaces are on the upper surface no longer visible; the median band is very narrow, and separated from the remainder of the ground-colour left in the submarginal band on the forewings by a heavy, indistinctly defined, brownish-gray line, which is only above the third median slightly interrupted; on the hindwing the rest of the third meridional stripe visible at the anal extremity of the white median band closely borders the outer basal stripe, appearing only between the first and second medians as a short, brown spur, touching with its upper point the second median: On the under surface of either wing the white ground-colour appears between the basal stripes broad and distinct, although not so clear as in *obianus*; the yellow markings are darker than in *hylas*, but lighter than in *obianus*. In size it equals *hylas*, the ♀♀ are

obscurissimus. paler and still larger. — **obscurissimus** *Mart.* from Morotai, the most northern island in the entire range of *hylas*, is the darkest and largest subspecies. On the forewing the inner, very broad line of the submarginal band entirely borders the median band on the outside; the veins, especially both radials, are so heavily obscured with black, that the white median band begins to make the impression of a macular band. The hindwing has the remainder of the third meridional stripe at the anal end of the median band very fully developed and reaching the third median nervule. The pale blue crescent proximally bordering the ocellus in the submarginal band on the forewing is wanting. The type (1 ♂) in the Tring Museum was collected by Dumas at Mira in Morotai in November 1898.

adaemon. **C. adaemon** *Godm. a. Salv.* replaces telamon in the Bismarck Archipelago. According to Martin the wings are more rounded than in any other *Cyrestis*, the two basal stripes very heavy, the broadly white median area characterized by a delicate black line. The hindwing has on the under surface the anal angle more broadly laved with yellow than in the described forms of *telamon*. Rather scarce. My collection contains specimens from Neu-Lauenburg and Neu-Pommern, where according to Ribbe it is not found along watercourses, but only on shrubs which are fully exposed to the sun.

C. thyodamas is the best known species of a group found on the mainland of Asia and the Andamans, whereas it is not represented in the Macromalayan islands and the Moluccas; but — curiously enough —

it appears again farther east in the most remote of the Smaller Sunda Islands, Lombok, Sumba, and Sumbawa, and in New Guinea and Waigeu, finding its eastern limits in the Solomon Archipelago and the Loyalty Islands in the Paeific Ocean. The submarginal band on the hindwing which is adorned with a bluish centre-line, continues also on the forewing, until it reaches the second median, where it is interrnpted only to appear again near the apex a little distance above or below the lower radial. The forewing has in all the white species of the *Sykophages*-group at the anal angle proximally to the shortened and excavated corner a yellow spot, which in this group is placed so far inward, that its inner basal margin coincides with that of the outer third of the wing. — **thyodamas** *Bsd.* occurs throughout its entire range in two varietal forms, one of which is whitish *thyodamas.* and the other yellowish in colour, and which are connected by numerous intermediate forms. But in the southern part of India we do not meet with any yellow speeimens, which at first were looked upon as ♀♀; only in the western Himalayas the ♀♀ are according to de Nicéville usually yellow, and for them the name **ganesha** *Koll.* may be retained. That the yellow specimens represent a seasonal form, is precluded, as both *ganesha.* forms occur together; but we mnst assume that it is a sort of Dimorphism peculiar to *Cyrestis*, which we observe also in other species of this genus. *thyodamas* varies in two directions in as much as it is subject to seasonal Dimorphism as well as Melanism, which becomes more outspoken the farther east we go; as the rainy-season form is darker than that of the dry-season, it has a great deal in common with the dark forms of the far East, whereas the specimens from the most arid regions of India proper (Nilgiris, Musorie and Nepal) agree very well with the small, light-coloured, dry-season forms of Burmah, Siam, Annam, Tonkin and Yunnan, and on the other hand the rainy-season specimens of Sikkim closely approach the dark Chinese forms. The melanotic colouring is chiefly manifested in the meridional stripes, on the forewing in the apex and that portion of the discal area near the third median nervule, where the third (outer) meridional stripe comes closest to the inner line of the submarginal band, and in the submarginal band on the hindwing. The third meridional stripe and submarginal band on the forewing are connected by a nearly quadrate, sooty-black spot, which is invariably found in the specimens from China, Loo-Choo and Japan, but only occasionally in the rainy-season specimens from Sikkim. *thyodamas* has the chain-pattern but feebly developed and only indicated on the hindwing by two faint links at the anal end of the submarginal band, and on the forewing by an incomplete, outwardly open, C-shaped link placed immediately above the yellow spot at the anal angle. The slender body, striped with blackish and yellow-brown, with the long palpi and prominent eyes, has a certain resemblance to a shrimp. The yellow variety has the thorax and abdomen lighter yellow, displaying in reflected light a golden lustre. Southern Burmah and Tenasserim represent the south-eastern limits of the range of *thyodamas*, where it is found together with *nivalis Fldr.* But Staudinger's statement that it is not found outside of Continental India, has been disproved by Dr. Seitz and others. If I would consult my personal feelings, I should not give separate names to the various local forms of *thyodamas*, for the reason that there exist between the lightest dry-season form from the western Himalayas and the darkest summer form of southern Japan all possible intermediate forms; but as the differences between them are after all rather great and, especially in larger series, quite conspicuous and eonstant, and as I have in previous works laid the foundation for a subdivision of the species, I enumerate also here the hitherto published descriptions. — **formosana** *Fruhst.* is a *formosana.* most variable insular race, surpassing in the extent of the dark portions found in the rainy-season form all the other *Cyrestis*; at the same time the yellowish subanal portion of the hindwings is greatly reduced, whereas the blue striping on the forewing is distinctly augmented. The dry-season form approximates *mabella* of the Liukiu Islands, and some ♀♀-specimens approach even the dry-season-♂♂ found in Sikkim, from which they deviate by the clearer white ground-colour, which is laved with a delicate pink, and by the light yellow border on both wings. Not scarce in Formosa during June and July, near Lehiku Lake and Chip-Chip. — **mabella** *mabella.* *Fruhst.* from the island of Oshima comprises undoubtedly also the Japanese subspeeies described by Pryer (Rhop. Nihon. p. 23, pl. V, fig. 14), as it is identical with the few known speeimens from southern Japan. Next to *formosana* it is without any doubt the darkest form, having the meridional stripes and the brown-black apex of the forewing broader than any other subspecies; the third meridional stripe is at the third median connected with the inner line of the submarginal band by a more or less distinet sooty-black spot. The yellow markings are replaced by brown, which also fills the space between the inner and outer lines of the submarginal band on the hindwing surrounding the central line, whieh is broken up into single streaks. The blue ornamental line is uncommonly broad, and the only link of the chain visible on the forewing between the first and second median nervules forms an almost complete oval, and encloses a minute white triangle, presenting its base toward the base of the wing. The white specimens have the ground-colour clearer white, but we find also in this subspeeies the yellow variety. The average size of the individuals, which I formerly used as a means of distinction between the subspecies, is of no use, since the rainy-season forms are in this species invariably larger than those of the dry-season, whence it may happen that specimens from Continental India approaeh in size those from China and Japan, although the latter are in general the larger (Martin). — **afghana** *Mart.* Afghanistan. The 5 speci- *afghana.*

mens, 2 ♂♂ 3 ♀♀ in the Tring Museum, which were probably collected during one of the wars of England against Afghanistan, may belong to the form which according to the Rev. Hocking hibernates. The ground-colour is a pale, faded yellow, and all the markings are reduced to a minimum. From the yellow colour of all five specimens it appears, that *thyodamas* occurs at its northernmost limits in India only in the yellow variety, whereas de Nicéville reports, that in the south of the Peninsula of India only white specimens are found. It is moreover surprising that there are among the five specimens three ♀♀, a proportion not observed in any of the other continental species; it may be that the valleys in Afghanistan offer only in a few limited places the conditions necessary for the development of *Cyrestis*, in consequence of which the ♀♀ are unable to conceal themselves as thoroughly as elsewhere. — *nobilior.* **nobilior** *Mart.* from Rangoon, Burmah, of equal size as mabella, exceeding that of the largest *thyodamas* from Sikkim, has the ground-colour clear white, the apex of the forewing but slightly obscured; the marginal and submarginal lines accompanying the outer border of the forewing are, from the apex to about the middle of the cell between the first and second median nervules, surrounded by a gray-violet ground which, broadening toward the apex, encloses also the fork formed by the fourth and fifth subcostals. The smoky-gray, frequently quadrate, spot, connecting in the eastern forms the third meridional stripe with the inner line of the submarginal band, is placed nearer the base and more rounded; whereas it does not touch the submarginal band, it continues somewhat beyond the third meridional stripe toward the base. The type (♂) from Rangoon is in the Tring Museum. Although it is possible that the specimen described as *nobilior* is a mere "sport", it deviates so strikingly in its general appearance, that it cannot be overlooked until further material from Rangoon brings clearness in this matter. Specimens from the southern part of Tenasserim and from the Shan States and Tonkin do not differ from those taken by me in Annam; they mostly resemble the ♂♂ from Kulu, whereas all the ♂♂ of the dry-season (January) from Siam are closely allied to *nobilior*. — *chinensis.* **chinensis** *Mart.* occurs likewise in a yellow and white variety, but differs from the typical *thyodamas* in its larger size and the following details: The forewing has the apex darker and more broadly black; all the markings, particulary the meridional stripes, are likewise broader and darker; on the forewing the third meridional stripe is connected with the submarginal band by an angular, sooty-black spot. The only link in the chain has generally the shape of a 3, being much heavier than the C seen in the typical *thyodamas*. The markings are not brown as in *mabella*, but distinctly yellow and do not completely cover the submarginal band on the hindwing; the blue ornamental line is equally broad and distinct as in *mabella*. From the yellow variety, which is hardly to be distinguished from yellow *thyodamas*, there exist transitions to the white form. As regards the degree of Melanism, *chinensis* stands about midway between the dark rainy-season forms from Sikkim and *mabella* from Japan. In western China (the province of Yunnan), however, we find according to Martin the typical thyodamas (1 ♂ from Manhao), whereas the ♂♂ from Tonkin contained in the Fruhstorfer collection decidedly lean towards *chinensis Mart.* (Chiem-Hoa, August, September).

andamanica. **C. andamanica** *Wood-Mas.*, described as a variety of *thyodamas* which it closely resembles, but from which it is distinguished by the darker apex and outer margin of the forewings, the considerable increase of the yellow markings on either side of the hindwings, and the nearly continuous black outer bordering-line of the submarginal band which is adorned with blue, and finally by the greater development of the chain-pattern. Although these distinctions refer to the nearest typical *thyodamas* from Continental India, whence specimens taken in the Naga Hills display in their colouring a great resemblance to *andamanica*, there exists also a slight, but absolutely constant, difference between *andamanica* and every other local form of *thyodamas*. In the latter the position of the second meridional stripe on the hindwing is not the same above as beneath; above it looks as if it were dragged outward by the subcostal, forming a distally sharp-pointed spur, at the very end of which the subcostal emerges. On the under surface however the stripe is straight, in consequence of which both stripes, when seen in transmitted light, represent an irregular triangle. In *andamanica* this stripe forms on either side a line which is straight, although not exactly coinciding with one another. As in addition it has the outline of the wings more rounded, and moreover, as nearly all the Andaman forms also of other Rhopalocera are separated from their continental forms, I do not hesitate to accord to *andamanica* special rank, the more so as the differences are quite constant and not mitigated by any intermediate forms. Also here we observe, both as to the ground-colour of the wings and that of thorax and abdomen, yellowish and whitish specimens (Martin).

nais. **C. nais** *Wall.* from Timor. "Wallace compares nais with nivea, from which however it rather differs in its markings, which resemble those of the *thyodamas*-group. The submarginal band on the hindwing, which is as far as the costa adorned with a broad blue stripe, and distally accompanied in the costal half of the wing by a sharply-defined band of buff, continues distinct also on the forewing, being interrupted at the usual place and reappearing again beyond the lower radial. On the forewing the yellow spot at the anal angle is placed

somewhat closer to the base, being distally accompanied by some few rests of the white ground-colour. Moreover the very dark outer border of the forewing shows, from the costa to the excavation at the anal angle, two violet-blue submarginal lines; the forewing has at the apex a conspicuous, fulvous, oval, subapical spot, and below it between the radials a smaller, almost red, round spot; proximally these spots are accompanied, from the costal margin to the lower radial, by another violet-blue line; the meridional stripes are very thin and regular. The chain-pattern is represented on the hindwing by three distinct links, on the forewing by the C of *thyodamas*; the anal angles are on either wing marked with deep orange-brown, and on the forewing the ground-colour which extends from the second meridional stripe to the dark apical area, reaches the costal margin. Also on the under surface of the hindwings the blue ornamental line is quite distinct and displays a metallic lustre, which is not met with in like intensity in any other species of *Cyrestis*. Two local subspecies must be distinguished: **naisina** *Fruhst.*, from the Smaller Sunda Islands, Lombok, Flores, Adonara. It was Fruhstorfer, who first pointed out this subspecies, but unfortunately the original description is very meagre, possibly having regard to the safeguarding of his prior rights. It reads as follows: *Cyrestis nais* from Sumbawa and Lombok has on both wings the bands narrower, and the submarginal band on the hindwing more minutely dotted with violet, which distinguishes it from the much darker typical *nais Wall.* from Timor. I name this hitherto undescribed form *naisina*. It is somewhat subject to Melanism, which increases towards the East; the ♀♀ are rather larger, more pale yellow, and have the wings more rounded. All the blue and violet markings of *nais* are replaced by gray or a dull blue-gray; the forewing has the entire costa bordered with black, and the white ground-colour does in no case reach the costa. The two subapical spots are not so brillant fulvous, and the lower, smaller one is distally accompanied by an elongate oval spot, representing the remainder of the white ground-colour, not observed in *nais*. The meridional stripes, the chain-pattern and the outwardly open C at the anal angle of the forewing above the yellow spot are as in *nais*. The buff-coloured stripe which distally accompanies the submarginal band on the hindwing, is also present, but of a less clear shade and on the veins shaded with gray. Aceording to Fruhstorfer it is not scarce in Lombok at elevations of about 2000 ft., frequenting dried-up water-courses" (Martin). — **pallida** *Mart.* from Sumba. This island which lies somewhat to the south of the chain of the Smaller Sunda Islands, about under the same latitude as Timor, possesses a subspecies of its own, intermediate between *nais* and *naisina*; being still lighter than *naisina* it recalls the dwarfed dry-season forms of *thyodamas*, but resembles *nais* in that the white ground-colour reaches on the forewing, between the second meridional stripe and the black-gray apex, the costal margin. The two subapical spots are nearly obsolete or quite indistinct gray, without any yellow or red. The forewing has in the basal half of the eosta the portion surrounding the orange-yellow costal line shaded with brown-green, whereas in *nais* and *naisina* it is blue-gray. *pallida* seems to be very scarce, the available material consisting in one ♂ in the Tring Museum, 2 ♂♂ in the Fruhstorfer and two ♂♂ in my own collection (Martin).

naisina.

pallida.

C. achates is represented by two forms: **achates** *Btlr.*, a very constant form from New Guinea, of which no further subdivisions are known; only the intensity of the yellow and blue markings may slightly vary on either wing, which has however no connection with the locality. Judging from the nature of the submarginal band on the forewing one should place *achates* in the *thyodamas*-group, but it is surprising that so far away to the East we should find a form so closely resembling the continental forms of *thyodamas*, whilst the nearer *nais* and *naisina* differ so much in colouring and markings. The meridional stripes are eomplete and rather heavy, more so than in *thyodamas* and *nais*; the first and second consist, when they start at the costa of the forewings, of two branches having their interspaces delicately laved with pale blue; in no other *Cyrestis* form we find so much blue along the costa in the basal half; also the submarginal band is on either wing most profusely marked with blue. The chain-pattern is so indistinct, that we can barely recognize the two links at the anal extremity of the submarginal band on the hindwings. The innermost meridional stripe does not reach on the hindwing the anal margin, but ends shortly beyond the median vein; but the first median nervule being obscured with black appears like the continuation of the meridional stripe. The ♀♀ are larger and paler and have the tails longer. According to Hagen it loves to alight on the gravel of shady brooks in the woods; it flies in December, April, May and July, throughout New Guinea, Jobi, Mysore, Waigeu, Mysole, the Aru Islands and, according to Martin, also Goodenough Island. — **whitmei** *Btlr.* from Lifu, Loyalty Islands. This eminently beautiful species is the most eastern representative of the *thyodamas*-group and at the same time of the entire genus; its quite unexpected occurrence justifies our hope of discovering possibly some other species on the islands of the Paeific or on the east-coast of the continent of Australia. Its author compares it with achates, placing it between this and *nivea*, and in reality it is very closely allied to *achates*, showing at the same time all the characteristics of the *thyodamas*-group. The ♂♂ are smaller than those of *Achates*, the ♀♀ of about equal

achates.

whitmei.

size. The forewing has the apex more blunt, the outlines more straight and less excavated. The meridional stripes are very fine and straight; the first one splits near the costa into two branches enclosing a triangle of sky-blue colour. The line in the submarginal band is deeper blue than in *achates*. On the hindwing the first meridional stripe ends at the median vein, being apparently continued by the blackish first median nervule. On both wings the submarginal band is very straight and regular, its bordering line on the forewing interrupted between the second median and lower radial. The very dark apex which is less richly marked than in *achates*, is adorned by a small, clear white spot. Above the yellow spot at the anal angle of the forewing we find in the submarginal band the C of *thyodamas* and *nais*, which is absent in *achates*. The outer border of the hindwing displays more of the white ground-colour and is only marked with one very fine marginal line, whereas *achates* has two. Also the under surface greatly differs from that of *achates* in that the submarginal band is more black, the meridional stripes more faded, and the apex of the forewing nearly entirely black and almost devoid of lighter markings; on the hindwing the yellow markings are less profuse than in *achates*; the ♀♀ are much larger, varying from light yellow to pale brown-yellow.

bougainvillei. **C. bougainvillei** *Ribbe* from the Solomon Islands, Bougainville (west-coast), Guadalcanar and Ysabel. The type of this rare species is in the Tring Museum. Upper surface: Ground-colour white, both wings are traversed by three meridional stripes, the two inner of which are much heavier and toward the costa of the forewing bifurcate. The interspaces between the prongs formed by the inner meridional stripe, and between the latter and a short black basal stripe, are shaded with blue-grey down to the median vein. The costal margin displays at its basal end a short, brown-yellow streak. The middle meridional stripe encloses the black lines closing the cell, between it and the first meridional stripe there remains a conspicuous, wedge-shaped rest of the white ground-colour, clear white above the median, but below it shaded with white-gray down to the inner margin. This clear white, wedge-shaped spot above the median is characteristic of this species and not found in *adaemon*; in the uncoloured figure in "Iris" it does not appear very clearly. The outer, much finer, meridional stripe follows about the middle of the broad median band formed by the white ground-colour; presenting on the forewing a convex outward curve, it is quite straight on the hindwing, whereas in *adaemon* it is much thinner and on the forewing slightly undulate. The submarginal band displays on the hindwing 6 quite distinct links of the chain-pattern, on the forewing a yellow, basally eccentric, spot containing two white and black pupils; proximally it is margined by a broad, black, continuous line, and has between the first median and lower radial the ground-colour divided by the black veins into three separate patches. Above the yellow patch we observe a jet-black, ocellus-like spot, proximally bordered by a very narrow, blue-gray crescent and distally flanked by the lower of the three described patches of the ground-colour. Also in the apical portion the band is adorned with two ocelli-shaped spots which are proximally bordered by a broad, black, and a narrow, pale blue crescent and distally marked with white; the spot located nearest the costa is the larger and more distinct. Both wings have one marginal and two submarginal lines of black. On the hindwing the anal region and anal projection are marked with dark orange-brown and dotted with whitish, violet and black, not unlike *thyodamas*, whereas *adaemon* is marked like *irmae*. The under surface resembles the upper surface, only it lacks the pale blue markings, and has the broad, black spot on the anal projection more distinct.

The two following are rather isolated species of aberrative colouring, which can neither be subordinated to any group nor be placed in connection with one another. But as they represent an excellent transition from the white to the brown species, we enumerate them here.

tabula. **C. tabula** *Nicév.* (121 f) from the Nicobar Islands (Great Nicobar) is exceedingly rare, only a few specimens being found in European collections; I only saw 2 ♂♂ in Staudinger's collection, and another ♂ is in the Fruhstorfer collection, all three of which were personally labelled by de Nicéville. But neither the Tring Museum nor the British Museum possess it, and it is doubtful whether any other collections on the continent contain it. This great scarcity is easily understood, if one considers how little opportunity there exists for visiting the Nicobars, where the climate no less than the natives make a longer visit almost impossible. As there are no houses to be found where a collector might find shelter, it would be necessary to make use of the British government-steamers which from time to time, although rarely enough, come over from the Andaman Islands, and even these would, on account of the shortness of their stay at the various stations, afford but a poor chance for collecting. As the Nicobars belonged, during the 18th century and again from 1846—56, to Denmark which established there a few settlements, it might be possible that a few specimens of *tabula* be found in Danish collections. The various scientific expeditions that visited those islands, f. i. the Danish ship Galathea (1847) and the Austrian ship Novara (1858), have not observed the species, which was discovered in 1882 by Mr. von Roepstorff, a Dane, who discovered also *andamanica* of the *thyodamas*-group, and who was employed in the convict-settlements at Port Blair in the Andaman Islands, where he was finally murdered. De Nicéville gives an exact description which is found also in his handbook,

whereas DOHERTY describes the ♀ which on the under surface is white instead of "pale orange-ochreous"; also above the ♀ is lighter, resembling *thyodamas* for which DOHERTY took it at first. The abnormal colouring, the striking black outer border of both wings, on the f. w. the row of yellow spots in the orange-brown submarginal band and the breaking up of the meridional stripes into crescents are very characteristic of this species and give it a position entirely by itself. The under surface of the h. w., on which the chain-pattern is very distinct, reveals the greatest resemblance to *thyodamas* or *andamanica*. DE NICÉVILLE calls it "closely allied to *Cyrestis thyonneus Cramer*", and it seems that in the Nicobars the same transforming influences were at work as in the Moluccas, the home of *thyonneus*. At any rate it appears beyond doubt, that an almost inconceivable space of time has elapsed since the Nicobars have become isolated both from Sumatra which is but a few degrees further south, and from the Andamans which are equally far to the north, considering that a form of *Cyrestis* originated there which combines, as it were, the characteristics of *andamanica* (under surface) with those of the nearest brown form *theresae Nicév.* from Sumatra (upper surface). Immigration is out of the question, since *Cyrestis* is never found in the mangrove-forests growing along the shore in those countries, but is limited to certain elevations in which their food-plant thrives. *tabula* is a sure and living proof for the theory that the white and brown forms of *Cyrestis* have the same origin (MARTIN).

C. lutea *Zink.-Somm.* (121f) from eastern and western Java, Madura (?), Bali (DOHERTY). ZINKEN has *lutea.* also given of this species an exhaustive description and figure, adding that Dr. BLUME, a collector in Java, insisted on having observed a yellow and a white *Cyrestis* in copula. Possibly WESTWOOD had heard of this, when he said in 1850 that the ♀♀ of *lutea* must be white, as I assume that he never encountered the very rare whitish ♀♀ of that species. Either he saw the ♀♀ of *nivea* or he mistook *nivea*-♂♂ for *lutea*-♀♀, just as he claimed *nivea Zink.* to be the ♀ of his *Cyrestis recaranus* (synonymous with *lutea*, Gen. d. Lepid. p. 261 No. 3). *lutea* represents a distinct transition to the following *thyonneus*-group; but if it were not for its colour, the contour of its wings would place it with the *nivea*-group, whereas the design of the submarginal band on both wings brings it close to the *irmae*-group. Also with *thyodamas* it shows a close analogy in the existence of pale and dark yellow specimens corresponding to the white and yellow specimens of *thyodamas*. The meridional stripes are, as in the white species, very fine and equally far apart; on the h. w. the submarginal band lacks the blue ornamental line, but contains at its anal end two distinct links of the chain-pattern; the yellow markings at the anal angle of both wings, though very plain, are not very conspicuous upon the ground-colour. But the most striking characteristic of this species is the aberrative colouring of the ♀ which is white, a phenomenon not observed in any other species of *Cyrestis*. The white♀♀which are so scarce, that FRUHSTORFER captured in the course of many years only 2—3 specimens, are distinguished from ♂ and ♀ *nivea* by the less pure white colouring of both wings, the increased transparency of the apical portion of the f. w. which is light gray, not brown-black, and finally by the fact, that the white ground-colour touches on the f. w. the costal margin between the third or outer meridional stripe and the submarginal band. The position of the dark blue spots on the anal projections as well as the fact, that the middle line in the submarginal band on the h. w. is broken up into a few streaks, correspond to the markings of the ♂♂. *lutea* prefers the mountains and may be called alpine in comparison with *nivea*, although at the limits of its occurrence towards the coast it is found together with that species. This alpine character becomes still more evident, if we draw conclusions from Sumatra and Borneo, on each of which insular continents we find two species of *Cyrestis* belonging to the hitherto described groups, one in the low-lands and one in the mountains (MARTIN). – **doliones** *subsp. nov.* Two ♂♂ from Bali (2—4000ft, *doliones.* March 1896, DOHERTY) in the Tring Museum are throughout somewhat darker yellow, having all the black markings, also on the under surface, more pronounced and especially the apex of the f. w. deeply obscured with fuscous; the same is observed in the ♂♂ contained in the FRUHSTORFER collection.

The brown species of the subgenus *Marpesia Hbn.* are generally found in the eastern half of the extensive region over which *Cyrestis* is distributed, and may be separated into two well-defined groups: the first, still Malayan in character, occupies the centre of the entire range, whereas the other group inhabits the Papuan Region to its most eastern extremity, encroaching but in a few rare instances upon the Malayan Region. These groups differ not only in their colouring, but also in the altered outline of the wings. (MARTIN).

1. Thyonneus-group.

This sharply defined group comprises but a few species extending from Sumatra to Borneo, Celebes and the Sula Archipelago and as far as the Moluccas (Ceram and Amboina). They are of more robust and heavy build, with shorter wings of more irregular outline. On the f. w. the anal angle, although still somewhat excavated, does not project inward in the angular fashion of the white species, but is more bluntly rounded; the same may be said of the apex of the h. w.; on these the tails are shorter and sharper, and the anal projection being of the same shade as the ground-colour is less conspicuous. The meridional stripes, especially the

second and third, are closer together and the spaces between them are much darker than the rest of the wings appearing like dark, black-margined bands. On the h. w. the submarginal band lacks the chain-pattern as well as the blue line, but on the other hand the outer and inner of the three lines composing the submarginal band exhibit in nearly all the species (*theresae* excepted) the dull bluish-gray lustre of graphite. The type of this group as well as of the genus established by Huebner is *thyonneus* from Amboina, described in 1779, whose various local forms can only be regarded as subspecies, leaving only the western representative of the group in Sumatra and Borneo, which outside of *thyonneus* can rank as a species (Martin).

theresae. **C. theresae** *Nicév.* (= ncela *Swinh.*). From Borneo (Sandakan, Sarawak, Bandjermasin). Differs from the only other species of this group and its subspecies in its markings, the smaller size and the paler ground-colour, which is a rich deep yellow-brown resembling polished cherry-wood. On the f. w. the middle line in the submarginal band, which is vertical to the two black anal dots peculiar to most species of *Cyrestis*, is nearly straight and almost continuous, whereas in all the other forms of this group it is broken up into single streaks, curved inward or blurred; on the h. w. the inner and outer of the three lines composing the submarginal band are entirely black and not of a dull blue-gray lustre as in the other forms; on the upper surface of the h. w. the discocellular veins are distinctly bordered on both sides, whereas in the other forms they are marked only by one heavy black line. It appears almost unnecessary to enumerate these as well as any other marks of distinetion, for their general appearance is sufficient to enable any one, who is somewhat familiar with this genus, to pick out specimens of *theresae* from among a great number of mixed-up specimens belonging to the *thyonneus*-group. Also Staudinger recognized these differences when he gave the name *thyonneoides* to the specimens of *theresae* from Borneo contained in his collection. As in all these years, according to my knowledge, only one specimen of *theresae* has been taken in Sumatra, it must be exceedingly scarce; but sinee a comparison of 5 speeimens contained in Swinhoe's collection in Tring with the type of *theresae*, showed absolutely no difference between specimens from Sumatra and Borneo, we must consider *neela Swinh.* (which is 6 months younger) to be synonymous with *theresae*. Swinhoe's type came from Sandakan and is in the British Museum. Also Swinhoe mentions in his description of *neela* the distinet double bordering of the discocellular veins (Martin).

thyonneus. **C. thyonneus** *Cr.*, from Ceram, Amboina, Uliasser (Kueckenthal) and Batjan(?) has the ground-colour the richest deep orange-brown; *celebensis* and *sulaensis* are darker, *buruanus* is lighter. The f. w. is marked on the under surface with whitish-violet appearing first, on the outer margin just below the apex, in the shape of two indistinct crescents placed between the fifth subcostal and the two radials, the lower one of which is the larger and more distinct of the two; second, in the shape of two elongate spots at the anal angle along the outer margin between the inner margin and the second median, the upper one being the smaller; third, in the shape of a square spot at the inner margin bordered above by the first median, on the outside by the submarginal band, on the opposite side by the third meridional stripe and below by the inner margin; in specimens from Amboina this square spot continues on the under surface also of the hindwing as far as the subcostal. On the h. w. also the anal area and the anal projection are laved with whitish-violet. On the upper surface of the h. w. we find at the costal border between the first and second meridional stripes, and again between the third and the submarginal band, some square yellowish-white spots which in Amboina specimens are nearly white. One ♀ from Amboina (Staudinger coll.) is larger and very pale. *thyonneus* is not often met with in collections, although L. Kuhlmann of Frankfort reports having received considerable numbers from Ceram. A specimen I obtained from Ribbe labelled "*eudamia*" shows all the characteristics of typical Ceram speeimens; but I could not find any published report on *eudamia*. Pagenstecher's statement that *thyonneus* also occurs in Batjan, is doubted by Ribbe who during his three months' stay could not find it on that island,
buruanus. whieh is rather the home of *laelia* belonging to the *acilia*-group (Martin). — **buruanus** *Mart.* from Buru is mostly smaller than *thyonneus* and still more so than *celebensis*. The ground-colour is paler, less intense and more yellow-brown than orange-brown as in *thyonneus*; the meridional stripes are closer together and more black and conspieuous upon the paler ground-colour; also on the f. w. the two bordering lines of the submarginal band have the graphite-like lustre peculiar to the h. w. of *thyonneus* and the other subspecies; beneath it resembles *thyonneus*, but the lighter portions are less distinctly pronounced. The ♀ is the palest form of the
sulaensis. entire group (Martin). — **sulaensis** *Stgr.* (121 f) is darker than *thyonneus*, „dirty brown with violet irroration" to quote the words of its author. The meridional stripes are broader, the interspaces between the base and the first meridional stripe and between the second and third are obscured, those between first and second and third and submarginal band lighter on both wings. On the h. w. the middle one of the three lines making up the submarginal band is towards the apex much broader, almost band-shaped. Still greater are the differences on the under side, which lacks the lighter portions of *thyonneus* and is (if one does not count a square pale spot on the

inner margin of f. w. between the third meridional stripe and the submarginal band), uniform ochre-brown closely resembling the under surface of *theresae* (Martin). — **celebensis** *Stgr.* is much darker, and the specimens *celebensis.*
from southern Celebes are much larger than *thyonneus* and *suluensis*. Between the first and second meridional stripes, and on the f. w. between second and third above the second median nervule and again between the third meirdional stripe and the submarginal band below the second median, the colour is brown-gray, also on the h. w. in the spaces between the first and second and between the third meridional stripe and submarginal band. Below the second median nervule the f. w. shows again the clear, intense brown ground-colour which continues also on the h. w. as far as the anal margin. Also on the f. w. the two lines bordering the submarginal band show the graphite-like lustre, especially in the costal half. On the under surface the light markings of *thyonneus* reappear on a still lighter ground. Staudinger describes a ♀ with paler brown upper surface, from which the brown-gray bands stand forth very distinctly. (September, Doherty) in the Tring Museum; a ♂ (Dongala, August, Doherty) is much darker having on the upper surface the apex of the f. w. broadly obscured, likewise the costal half of the submarginal band on the h. w., in which the middle line appears like a heavy inky streak. The British Museum contains also a ♂ labelled „Ternate" closely allied to *celebensis* (Martin).

2. Acilia-group.

This group inhabits mainly the Papuan Region, whence it sends its off-shoots in a westerly direction to the Moluccas, the Sula Archipelago, Bangkai and as far as Celebes, eastward to the farthest islands of the Solomon Archipelago. In the central part of this Region (New Guinea and the adjacent islands), the white median band found on both wings of all the species belonging to this group is broadest, decreasing toward the east and west. The forewings are at the anal angle but slightly indented, more rounded, having the inner margin entirely straight. Also the apex of the h. w. is but slightly and obliquely shortened, on the whole more rounded. The small tails are short and broad, the anal projection represents an insignificant, feebly produced, circular segment. The meridional stripes have almost disappeared. The submarginal band continues on both wings in an almost straight, inwardly slightly concave line displaying very plainly the chain-pattern, the links of which are in many species strikingly round and, being surrounded by a yellow iris, have the appearance of eye-spots: for this reason Staudinger refers to it as an ocellate band. On the h. w. the anal area, which in most cases is adorned with the orange-coloured markings characteristic of the white species, possesses another peculiarity only found in this group. The anal projection is taken up by an oblonge, either oval or roundish, black spot displaying occasionally a yellow iris. Proximally to this spot we notice, close to the anal margin in the yellow area, a second ocellus approximately forming the continuation of the submarginal band, though widely separated from it. This anal ocellus has, in addition to the yellow iris, a fine white border, which represents the continuation of the pure white submarginal line seen between the anal projection and anal angle. This border gives the anal ocellus the appearance of being reversed from the under surface; therefore I shall in future refer to it as the "reversed ocellus". This group which from the earliest described species must be called *acilia*, presents among all the groups of *Cyrestis* the greatest difficulties as to classification and recognition of its species and subspecies. The western forms can impossibly be classed with *acilia* either as subspecies or varietal forms, they differ two greatly for that: on the other hand the fact that the eastern forms, which are much more closely related to *acilia*, suffer in the far east a quite similar transformation as we observe on certain islands farther west, gets us also here into difficulties: moreover there exist of the central form *acilia* itself a number of subspecies on the numerous islands adjoining the coast of New Guinea. In the farthest northern island however, in which *acilia* is at all found, an entirely aberrative species has developped to which no transitionary forms are known. For the rest we have in the shape of the wings a fairly good means of discrimination: The western species have both wings longer and less broad, approaching the shape of a recumbent rectangle; in the eastern species the wings are shorter and broader, presenting when stretched approximately the shape of an erect rectangle, whereas in the central form *acilia* and its subspecies it is almost a square. As in the other groups, so it appears also here the easiest to enumerate the species and subspecies in their order from west to east (Martin).

C. strigata *Fldr.* Found throughout Celebes: Minahassa, Gorontolo, Donggala, Bonthain. Much larger *strigata.*
than *acilia*. The white median band is very narrow but always sharply defined; its width varies in such a way that it is greatest in specimens from southern Celebes, smallest in specimens from the northern part. Sometimes this band may be entirely obsolete, and the Fruhstorfer collection contains a specimen in which not a trace of any band appears on the h. w. At any rate this species and its subspecies have among the entire group the narrowest median band; its continuation on the h. w., where it bends at a right angle toward the anal margin, is particularly distinct in the ♀♀ and peculiar to this species. The ocellate band, which is feebly bordered with yellow, is proximally accompanied by a yellowish cross-line, very faintly yellow at the anal angle (Staudinger). The rows of ocelli are quite complete; the tail is white at the end. The anal ocellus is in this and the succeeding subspecies not round, but elongate, kidney-shaped. The reversed ocellus is indistinct. The ♀♀ which are not scarce, are of very large size, probably the largest in the whole group, and of lighter and more dirty colour. Felder describes a "var. β" of his *strigata* from Menado; this specimen has the white median band extraordinarily broad, more so than specimens from southern Celebes; but the reniform anal ocellus renders it certain that it is an abnormal *strigata*. — **parthenia** *Roeb.* discovered by H. Kuehn at Bangkai; very scarce. The white *parthenia.*
median band is in ♂ light ochre-yellow, in ♀ yellow; the ground-colour is light chestnut-brown, not blackish as in *strigata*. The anal ocellus is distinctly reniform; the chain of ocelli is complete, the reversed ocellus indistinct. 1 ♂ 1 ♀ (types) in the Staudinger collection. — **bettina** *Fruhst.* (122 c) from the Sula Islands, Mangoli *bettina.*
and Besi. Equals in size *strigata*, from which it differs in the more intensely brown-red upper surface, the broader

bands on the under surface and larger ocelli in the submarginal band. On the h. w. the white median band is slightly laved with yellowish showing, as in *strigata*, at the anal angle a tendency to bend at a right angle toward the anal margin. The anal ocellus is round, not reniform as in *strigata* or *parthenia*. The tails are white at the tip. The reversed ocellus indistinct. Specimens from Besi are on either side more white than those from Mangoli, and the two ocelli in the middle of the submarginal band on the upper surface of the h. w. incline to run together, the yellowish streak which separates them being obliterated. In both islands the ♀♀ are larg-

laelia. er, paler and not scarce. Type in Fruhstorfer collection. — **laelia** *Fldr.* This form, although smaller than the preceding, is of very dark colour, being distinguished from its allies by the fact that on the h. w. the white median band tapers toward the anal angle to a sharp point; this is mentioned already in Felder's original description. In addition the median band is not sharply defined, especially at the outer border, but is hardly any broader than in *strigata* and its subspecies. Beneath it greatly resembles *bettina*, having the anal ocellus round, the reversed ocellus very distinct; the tails are tipped with black. The ♀ differs from ♂ in being much lighter brown and in that the narrower white median band, which in no case is distally sharply separated from the ground-colour, reveals a tendency to become obsolete, particularly on the h. w. The anal area, which in ♂ is orange-yellow and more brillant than in *strigata* and its subspecies, is but slightly marked with brown, the bordering of the ocelli in the submarginal band on h. w. is narrower and less conspicuous. Another peculiarity of *laelia* and the following subspecies consists in that on the under surface of the f. w. the two middle ocelli in the submarginal band are smaller and occasionally break up in consequence of the division of the black nucleus into two smaller ocelli. On the f. w. the fourth ocellus in the row counting from the costa is in all the

harterti. specimens I examined distinctly elongate and oval, not round. — **harterti** *Mart.* from Halmaheira (Gani, Patani, Gilolo) has the median band twice as broad as *laelia*, broadest at the costa of the f. w., whence it gradually grows narrower toward the anal angle of the h. w.; its outer margin is but indistinctly defined; the rows of *ocelli* are also on the f. w. distinctly bordered with yellow as in *laelia*; on the f. w. the fourth ocellus from the costa

latifascia. is elongate; the anal ocellus round, the reversed ocellus very distinct. — **latifascia** *Mart.* is a much smaller form from Ternate having the white median band very broad, more so than any other subspecies; the inner edge of this band is almost a straight line, whereas the exterior one is convex toward the outer margin and moreover very sharply defined; on the f. w. the row of ocelli is distinctly bordered with yellow, the fourth ocellus elongate; the brown ground-colour is lighter, more gray-brown than yellow-brown as in the other subspecies. The anal ocellus is round, the reversed ocellus always distinct. The ♀♀ are larger and lighter in colour. Specimens from Obi have the outer edge of the white median band not so strongly convex as the smaller specimens from Ternate. But as no other difference whatsoever exists, these two races must be united, notwithstanding the re-

abisa. latively great distance separating the two islands on which they are found. — **abisa** *Fruhst.* (122 e) has the ground-colour darker, rather black than brown. The submarginal chain-pattern on the f. w. is not brown-yellow but black-yellow, the black links are broader; also the black band on the f. w. separating the white discal area from the row of ocelli is broader. On the h. w. the yellowish anal portion is reduced being encroached upon by the white discal band; all the submarginal bands are more broadly black. On the under surface both wings are essentially darker, the submarginal bands particularly on the h. w. much broader. The gray-brown band forming the inner border of the ocelli is — oddly enough — on both wings narrower, whereas above it is

jordani. broader. From the island of Obi. — **jordani** *Mart.* from the island of Morotai, has in both sexes the white median band, which is broadest at the inner margin of the f. w. and gently concave towards the base, twice as broad as in *laelia* and tapering to a sharp point toward the anal angle of the h. w.; its outer edge is not sharply defined; on the f. w. the row of ocelli is not bordered with yellow as in *laelia*; the fourth ocellus is elongate; the remains of the meridional stripes or better their interspaces in the basal half are white-grey, whereas in *laelia* they are brown-yellow; the two whitish submarginal lines at the outer margin of the f. w. diverge towards the apex, whereas in *laelia* they are strictly parallel; the anal ocellus is round, reversed ocellus very distinct as in all the forms of *laelia*. On the whole it is larger and darker than typical specimens of *laelia*.

ceramensis. **C. ceramensis** *Mart.* Ceram. Distinguished from *laelia* in having the moderately broad median band sharply defined on both sides, running about parallel to the outer margin, inclining somewhat to converge towards the apex, whereas in *laelia* it curves inward near the costa of the f. w.; moreover it grows distinctly narrower towards the costa, whereas in *laelia* it tends to widen there. On the under surface of the f. w. the row of ocelli is complete and intact; on the h. w. the middle ocelli in the submarginal band clearly show on the upper surface a tendency to run together, particularly in ♀. Anal ocellus round; reversed ocellus distinct; the tails are pointing more outward, not backward as is the rule in the other forms of the *acilia* group. The ♀ is distinguished by the narrower median band and the more deeply yellow anal area. Although Ribbe states, that specimens from Ceram do not deviate from those from Batjan, it is not possible, considering the totally different character of the median band, to stamp ceramensis as a subspecies of *laelia*; it must be a spe-

cies by itself (Martin). — **biaka** *Gr. Sm.* from Biak, Korrido (islands in the Geelvink-Bay in northern New Guinea), although closely allied to *acilia*, possesses also certain characteristics of *laelia*, for which reason it cannot be treated as a subspecies of either, but should be given a place by itself until further data, especially regarding the earlier stages, may be obtained. A small-sized, uncommonly pale form having on the h. w. the median band running to a sharp point at the anal angle, just as in *laelia*. On both wings all the ocelli in the submarginal band are round, special importance attaching (according to the author), to the fourth ocellus counted from the costa of the f. w. which is round and equals in size those surrounding it, whereas in *laelia* and its subspecies it is elongate, kidney-shaped and varying in size. From *strigata biaka* is distinguished by having the median band much broader, broader indeed than in most forms of *laelia*, although never approaching *acilia*. ♀ is still paler than ♂. As regards the shape of the wings, it must be classed with *acilia*. On the whole it represents a distinct transition from *laelia* to *acilia*. — **acilia** *Godt.* from Waigeu. The type was taken at Rawak by the French captain Louis Claude Desaulse de Freycinet (1779—1842), who landed in the course of his circumnavigation also on Waigeu; no other specimens were known, until captain Dumont d'Urville brought some to Europe from his different journeys. *acilia* is found in the same localities as achates, but is much more variable and must for that reason be separated into several subspecies; only on the mainland of New Guinea it appears rather constant, as no differences worth speaking of can be discovered among the specimens derived from nearly every part of the island visited by Europeans. *acilia* is at a glance recognized by the very broad white median band tapering both towards the costa of the f. w. and the anal margin of the h. w., and by the uncommonly vivid and extensive orange colouring of the anal area on the h. w. It is the only species, in which the row of ocelli in the submarginal band on the f. w., which is but very faintly bordered with yellow, becomes obsolete in the middle, having of the six ocelli usually found in this group only 3—4 that are distinctly developped. At the apex of the h. w. moreover, the line which accompanies the inner border of the row of ocelli is, proximally to the uppermost ocellus, yellow instead of black-brown. On the h. w. the second and third ocelli (counting from the anal angle) are distinctly elongate and reniform, particularly on the under surface. The anal ocellus is round, reversed ocellus distinct, anal projection quite insignificant. The ♀♀ which are not at all scarce, are somewhat larger, of lighter and more faded colour, especially in the anal area of the h. w., where the orange colour appears quite faded and irrorated with brownish. The larva is according to Ribbe very lively, moving rapidly with a wriggling motion of the head. — **sicca** *Fruhst.* is very closely allied to *abisa* from Obi, having on both wings the white discal area equally broad as in *abisa*, and more than one third broader than in *laelia Fldr.* from Batjan, but considerably narrower than in *latifascia Mart.* from Ternate. From *abisa* it is discriminated by the prominent, very broad whitish submarginal bands on both wings. The black ocelli on the h. w. are larger, more broadly bordered with orange, the dark orange subanal spot is much smaller and shorter than in the three forms from the northern Moluccas. Under surface: All the bands, also the catenulate stripes and particularly the row of ocelli on the h. w., are much broader than in *latifascia*; the brown band bordering the ocelli proximally is at least twice as broad as in *abisa*. Buru, Miro (November). Must be very scarce, as neither Holland nor Martin ever saw it .— **aruana** *Mart.* from the Aru Islands, easily distinguished from *acilia* by the white median band, which is much broader and tapers on the f. w. almost imperceptibly towards the costa; on the same wing the row of ocelli is complete. 3 ♂♂ in Staudinger, 1 ♀ in Fruhstorfer collection. — **misolensis** *Mart.* from the island of Misol has the white median band much narrower, keeping the same width on both wings, quite straight and not convex towards the outer margin. The outer border of the band is somewhat indistinct as in *laelia*; on the h. w. the median band is shorter than in *acilia* ending at the middle median nervule, whereas in *acilia* it generally ends at the third median. The yellow anal area is uncommonly large and brillant; the middle ocelli (3 and 4) in the ocellate band on the h. w. show a tendency to drop the yellow border and flow together. 5 ♂♂ and 3 ♀♀ taken by Kuehn in January and February, in the Tring Museum. — **maforensis** *Mart.* (122 c) from Mafor, an island in the Geelvink-Bay, Dutch New Guinea, closely allied to *biaka* and distinguished from *acilia* in the following way: The white median band is narrower and rapidly decreases in width towards the costa of the f. w.; the anal area is but slightly marked with yellow, in fact only just around the anal ocellus; the rows of ocelli are on both wings complete and everywhere bordered with brown-yellow; the anal ocellus quite round, the reversed ocellus quite plain; on the h. w. the second and third ocelli (counting from the anal angle) are perfectly round on either surface; on the f. w. the fourth ocellus (from the costal margin) is neither round nor of the same size as the others (*biaka*), but elongate and larger than the ocelli above it. It is only this characteristic feature of the fourth ocellus that distinguishes this form from *biaka*, whereas in every other way it would have to be treated as a subspecies of *biaka*, especially in view of the close neighborhood of the islands upon which they are found.

biaka. *acilia.* *sicca.* *aruana.* *misolensis.* *maforensis.*

"The now following eastern forms differ from the central *acilia* not any less than the western representatives of this group in the Moluccas; and as this difference is not only evinced in the shape of the median band, but also in that of the wings themselves, I do not hesitate to accord to these forms the rank of distinct species (as it was intended by their authors), although they have been treated by Ribbe as varieties and by Fruhstorfer as subspecies of *acilia*. The white median band

grows again narrower, the rows of ocelli are prominent and complete and the yellow anal area is greatly reduced, all of which is characteristic of the western species, and still they are entirely different and cannot fail either singly or in greater numbers to make a wholly heterogeneous impression upon the specialist. The only great difficulty is presented by the northern subspecies of *laelia* and the species treated hereafter, which on first sight bear such a striking resemblance to each other, that we cannot dispel the thought of Nature employing the same methods in the islands to the west as well as to the east of the mainland of New-Guinea. But notwithstanding the great general resemblance, a closer examination of the median band reveals some wide and constant differences. The Bismarck and Solomon Archipelagoes have one species each, and in each of the two southernmost islands of the latter archipelago, in Ugi and Ulawa, one subspecies has been discovered". (Martin).

fratercula. **C. fratercula** *Godm. a. Salv.* The types are from Neu Lauenburg and are in the British Museum. It is distinguished from *acilia* in the relatively narrow white band tapering to a point both toward the costa of the f. w. and the anal angle of the h. w. The yellow anal area is limited to a narrow approach to the anal ocellus. Specimens from Neu Hannover, which exceed all others in the deep brown bordering of the anal area, have the ocelli but faintly margined with yellow, whereas in 3 specimens from Herbertshoehe the yellow border is quite distinct. Quite characteristic is the shape of the median band, which is broadest where it passes from the f. w. to the h. w. and displays at the costal margin of the f. w. a sharp spur pointing towards the apex, formed by a small white streak above the subcostal; the extremity of the costal margin above this terminal streak is distinctly brown. At the anal angle of the h. w. the median band is, below the third median nervule, marked with a white terminal eccentric spot, assuming thereby somewhat the shape of a spindle. On the upper surface of both wings the rows of ocelli are complete; on the f. w. the fourth ocellus is elongate, reniform. On the under surface the two middle ocelli especially in the ♀♀ are frequently reduced in size or disappear altogether. Anal ocellus roundish, reversed ocellus very distinct. The ♀♀ are lighter and generally larger. From Mr. Ribbe I received several very small specimens marked 'var. *minor*' from Neu Pommern and 'var. *obscura*' from Neu Hannover which, however, aside from their reduced size, do not deviate from *fratercula*; probably they are products of a long-protracted dry-season, which may in those regions last from 3—4 months (Martin). — **ribbei** *Mart.* This considerably smaller subspecies (Expanse 42 mm as against 48 mm in *fratercula*) has the white median band broader and more convex toward the outer margin, perhaps also somewhat purer white than fratercula. On the upper surface of the f. w. all the ocelli are round and about of equal size, similar to *biaka*; the whitish line accompanying them distally follows the curve of the ocelli, surrounding their outer half in such a way, that it forms a series of outwardly convex arches and crescents, the points of which are interposed between each pair of ocelli. In the majority of typical specimens of *fratercula* this line consists of six streaks which are either straight or may be on the veins a trifle concave towards the margin. The reversed ocellus is very plain. The types are in the possession of Mr. Ribbe. As we know specimens from Neu Pommern as well as from Neu Hannover, which in their small size and some other characteristics approach *ribbei*, it is difficult to decide, whether this new subspecies is a true local form or only a seasonal form. About Mioko I read that its lagoon is changed to a meadow and that with the exception of bananas and yams it supports but a scanty vegetation. Probably also the species of ficus, which serve as food to the larvae of *cyrestis*, are stunted, which together with a long protracted dry-period would, according to my experience, bring about a morphological change in the butterflies; for this reason I refer to what I mentioned under *fratercula* (Martin).

ribbei.

nitida. **C. nitida** *Math.* from the Solomon Islands, Guadalcanar, Ysabel, Kulambangra, Malaite, Florida, Alu, Shortland, Treasury New Georgia, Facaro. The author has based his most painstaking description on specimens from Treasury Island (type in the British Museum). The white median band is much narrower than in *acilia* and *fratercula*; commencing with a little white spot located between the brown costal margin and the subcostal vein it reaches its greatest breadth, where it passes from the f. w. to the h. w., grows on the latter gradually narrower and ends in a rounded point at the anal angle. But the increase in breadth is so gentle, that on the whole it appears fairly straight and almost equally broad, whereas in *acilia* and *fratercula* it bulges considerably and in the following form *salomonis* is broadest at the costa of the f. w. whence it tapers toward the anal angle. Whilst the outer edge of the band is sharp and fairly straight, the inner edge is interrupted, irregular on the veins and in the ♀♀ frequently blurred. The changes in the band observed in specimens from the different islands are hardly worth mentioning; it is narrowest and most uniform in breadth in specimens from Treasury and Florida Islands, whereas those from Kulambangra, especially the ♀♀, vary most. In specimens from Treasury Island the dark border of the costal margin is broadest above the starting point of the band, occasionally to the exclusion of the small terminal streak above the subcostal vein, whereas in specimens from Florida this border is narrowest. The ocellate chains are complete, the two middle ocelli are never reduced in size or obsolete; the anal ocellus is roundish, the reversed ocellus but moderately distinct. The white lines accompanying the rows of ocelli are on either side exceedingly variable; they may have given rise to the name *nitida*; being invariably lighter and broader in the ♀♀ and the outer always surpassing

the inner, these lines are but feebly developped in typical specimens from Treasury Island, but reach their highest development in those from Ysabel and New Georgia. On the upper surface of the h. w. the two middle ocelli often show a tendency to run together in consequence of the yellow border having disappeared. — **salomonis** *Math.* Ugi, most probably also in San Christobal. Distinguished from its allies by having *salomonis.* the median band broadest at the costa of the f. w., whence it gradually tapers to a rather sharp point at the anal angle of the h. w. Whereas in both types the median band is strongly laved with yellow, this colour is only just indicated in the specimens contained in the Tring Museum; thus it appears that also in this species yellowish and white specimens exist, just as we have seen in *thyodamas*, *lutea* and the subspecies of *strigata*. The ocellate chains are complete having on the h. w. an uncommonly broad yellow border distally nearly twice as broad as proximally. On the h. w. the pale line flanking the inner edge of the row of ocelli stops precisely at the 4. ocellus counted from the anal angle, whereas in *nitida* it reaches the 5. or 6. ocellus. The anal ocellus is round, reversed ocellus distinct. In his original description Mathews does not lay sufficient stress upon the nature of the median band, and all the specimens passing in Germany under the name of *salomonis* surely belong to *nitida*. The island of Ugi, on which the type of *salomonis* was found, belongs to the very large island of San Christobal at the eastern extremity of the entire Archipelago, on which undoubtedly also *salomonis* occurs. A prolonged stay on the island of San Christobal seems to be, just as in Bougainville and Choiseul, next to impossible on account of the hostile character of the natives (Martin). — **ulawana** *Mart.*, from the *ulawana.* island of Ulawa in the Solomon Archipelago, described from 2 ♂♂ (Woodford) in the British Museum. It occupies a position quite by itself, by virtue of its narrow white median band beginning in a sharp point below the subcostal vein on the f. w. and ending in the same manner at the anal angle of the h. w.; at the point of its greatest width it is not any broader than in *strigata*. Anal ocellus round, reversed ocellus distinct. Ground-colour lighter than in *nitida*. The ocelli in the middle of the chain on the h. w. have on the upper surface the tendency to flow together.

C. eximia *Oberth.* from the Sangir Islands, is a good name for this extraordinary and completely isolated *eximia.* species or form. The white median band is not parallel to the body or the outer margin of the wings, but turns on the f. w. from the brown-bordered costa obliquely toward the outer margin; at the point of intersection with the second median it turns in the direction of the inner margin as far as the third median, whence it continues in the shape of a yellow undulate line that reaches the margin. On the under surface the band is more fully developped continuing distinctly white, though very narrow, to the inner margin. At the apex of the f. w. is placed a striking white spot. The h. w. is, aside from a little whitish spot in the middle of the costa, entirely brown. Whereas on the h. w. the row of ocelli is complete, on the f. w. only the three anal ocelli are developped, those nearer the costa being quite indistinct. — **dola** *Fruhst.* from Fergusson, deviates from *acilia* *dola.* in the darker ground-colour, the white discal band which tapers towards costa and anal angle and the more rounded short-tailed wings. On both wings the black-brown basal region is much broader and distally more sharply defined. The colouring of the h. w. is not so faded as in *acilia*; on the under surface all the brown bands are more straight, much broader and darker brown and have on both wings the chain-pattern much larger, more uniform and complete. — **tervisia** *subsp. nov.* is a somewhat darker form from the main *tervisia.* island of New Guinea, distinguished from the form from Waigeu in having on the upper surface the white median band distinctly narrower, and on the h. w. the yellow anal area much wider, encroaching upon the white median area. Type from Dutch New Guinea, Sorong. ♀♀ from the German and British parts of the island have the longitudinal stripes on the upper surface not so close together. — **bassara** *Fruhst.* lately discovered *bassara.* in Matty Island to the north of Berlinhafen, is a small delicate form intermediate between *acilia*, *tervisia* and *ribbei Mart.* from Neu Mecklenburg; it has the markings and bands of *ribbei*, whereas in its dull brown-gray colouring it approaches *tervisia Fruhst.*

Genus: **Chersonesia** *Dist.*

All *Chersonesia* have a rich yellow or orange ground-colour, darkest in the eastern species; the markings are black, consisting in the three well-known meridional stripes of which the basal and middle one are always double, whereas the third one, which is nearest the margin, is generally single (only two species having it double), not clearly defined and often widening out to a band; the other markings are a submarginal band formed of three components and adorned on the h. w. either by a blue ornamental line or in the majority of cases with a distinct ocellate chain, and finally a delicate marginal line. Both the anal projection and the tail at the apex of the third median are always present, although in a few species greatly reduced or quite rudimentary. The anal ocellus is double, representing two links in the row of ocelli. The f. w. has in the western species the apex distinctly falcate, whereas the anal angle of the f. w. and the apex of the h. w. are shortened in the same manner as in *Cyrestis*. *Chersonnesia* inhabits the southern part of the continent of Asia ranging along the southern slope of the

eastern Himalayas to Burmah, Tenasserim, the Malay Peninsula, Siam, Tonkin, the Great Sunda Islands as far as the Philippines and the Sula Archipelago. In Sumatra, where we find within a narrow space five distinct species, the genus is most richly developped. The larva which was described by B. Hagen has the same pale green colour as the leaf of the food-plant, which it resembles the more, as it is marked with a pale reddish median stripe mimicking the midrib; thus one must look sharply in order to find it although it sits entirely free in the middle of the leaf. It is provided with 4 long, moderately stiff spines of which two are at the head, one which is feebly curved, at the fifth and a larger one curved in the shape of the letter S at the last but one segment. The spines are broadly black at the ends, reddish at the base, those at the head black down to the mandibles. On the sides the larva is marked with alternating pairs of lighter and darker stripes running obliquely in forward and downward direction. The slender and strikingly ornamented pupa is light green provided at the head with two long, antler-shaped, brown excrescences and a similar larger one at the back, all of which augmented by some further brown jags and lines gives it a most odd appearance. The food-plant is a low-growing shrub having large, thin, pale green leaves with reddish mid-rib, called by the Malays "Muda Selej" and frequently cultivated for the sake of its leaves, which when finely cut, are added to the opium used in smoking. Hagen supposes it to be some species of *Uvaria*, although he never saw it blossoming. The pupal state lasts only 6 days, this short duration being probably not rivalled by any other butterfly. Hagen found the larva once on a low ficus-shrub (whose rough leaves serve the Malays in the place of emery-paper), 20 together, whereas generally they live by themselves. Of its manner of living we know very little. The *chersonnesia* are easy to capture, as they have a weak flight and are mostly found on the umbellate blossoms of a *Sambucus*-like shrub in company with *Neptis hordonia Stoll* and various *Erycinidae*, particularly *Zemeros emesoides Fldr.*, for which they may often be mistaken. "The *chersonesia* are confined to the forest; being feeble they rest mostly with out-spread wings on the under surface of leaves, which habit may often protect them from their enemies. They are never seen to fly high up in the air nor to frequent wet spots in the road as their nearest allies, the *Cyrestis* love to do. Still I have occasionally observed *Chersonnesia*-♂♂ circling rapidly around some moist spot in the road; in the manner of their flight they strongly resembled dragon-flies hovering in the air without visibly moving their wide-spread wings, so that I thought of quite different game, until I had them in the net". This small genus had formerly been united with *Cyrestis*, but was justly separated by Distant. From *Cyrestis* it is distinguished by the shorter, less prominent palpi, whose last joint is at the most only one quarter as long as the middle joint; also the tuft of hair at the back is less prominent. But the chief difference consists in that only one subcostal nervule branches off before the end of the cell, and that the fifth subcostal runs to the apex of the wing, whereas in *Cyrestis* it terminates below it. Both cells are open and the precostal of the h. w. branches off far beyond the subcostal vein.

risa. **C. risa** *Dbd.* (121 e) found from the Kumaon Himalaya to Tonkin, shows a distinct seasonal Dimorphism, the light form corresponding to the dry winter-season and the dark one to the wet-season. Martin found during the months of January until April in Sikkim only the light form, upon which the original description was based, having the interspaces between the first pair of meridional stripes darker; the submarginal band which is marked with a very distinct blue-violet ornamental line is adorned on either side with a number of very distinct light yellow triangles, which are most conspicuous on the h. w. On the f. w. the submarginal band has, near the costal margin and between the second and third median nervule, a roundish pale yellow patch. Both wings have the anal area lilac-coloured, closely resembling *thyodamas* which is found in the same regions. There is no trace of an ocellate chain but a distinctly double anal ocellus. The ♀ is hardly any larger, but much paler than the ♂, having the outer margin of the f. w., which in ♂ is pretty straight, visibly convex. The dark summer-form displays but traces of the yellow triangles, the blue ornamental line has changed to black
transiens. and the anal angle is less richly coloured; moreover it is as a rule larger in size: **transiens** *Mart.* (121 f, from a ♂ from Tonkin (June), also occurring in Annam, where I collected it in November). Specimens of the dry-season from Siam are somewhat inferior in size to *risa*; the ground-colour is much lighter and more richly spotted with white than in the lightest Sikkim specimens of *risa*. On the h. w. the submarginal band is paler violet. On the under surface the whitish tracts are more heavily irrorated with violet than in Sikkim-♂♂.
cyanee. Occurs in January at elevations of about 1000 ft. — **cyanee** *Nicév.* from Sumatra and Borneo (Kina-Balu). Much smaller than risa, having the ground-colour darker and the interspace between the inner pair of meridional stripes covered with black; the third meridional stripe is much broader, but shows a tendency to become indistinct and to shade into the ground-colour, whereas in *transiens* it appears quite sharp. All violet shades are lacking and the submarginal band on the h. w. has a broad black middle line; two distinct anal ocelli. On the f. w. the second meridional stripe is marked with two fine black lines which apparently elose the cell, and between which the ground-colour is devoid of any black shading, a feature whieh is very charaeteristic

of this subspecies and the following species. The ♀♀ which are of a paler colour, do not exceed in size the ♂♂, but have the terminal margin of the forewing strongly convex and display in the submarginal band the two pale-coloured patches found also in *risa*. Of course *cyanee* approximates much more to *transiens* than to *risa*, since nearly all Rhopalocera occurring in Sumatra represent rainy-season forms.

C. excellens *Mart.*, a very dark-coloured, large species from Borneo (Kina-Balu), occupying an intermediate position. Ground-colour a brillant, dark brown-yellow; the two first meridional stripes are double, their intervening spaces very broad and heavily dusted with black all over excepting the small area confined between the two lines within the second stripe which apparently close the cell of the forewing, which area displays the ground-colour as it does in *cyanee*; the third meridional stripe likewise very broad, sharply defined proximally, but gradually shading into the ground-colour externally; on the forewing it confluesces by means of a square, black-dusted patch between the second and third median nervules with the submarginal band which appears here slightly convex toward the base and displays at the anal angle two distinct chain-links; the very dark outer margin is edged by a black submarginal line. The hindwing has two anal ocelli placed concavely toward the anal angle and forming an angle with the submarginal band; below these ocelli a very fine violet line forms the inner edge of the black marginal line. The middle line of the submarginal band is broken up into 6 heavy black streaks, the two hindmost of which resemble the links of a chain. Under surface very black, with darker markings than are found in any other species of Chersonesia. Shape of forewing not so rounded as in *rahria*, more like in *risa*; tail and anal projection smaller than in *risa* and its subspecies. Expanse of wings 36 mm. 4 ♂♂ in Tring Museum, 1 ♂ in Staudinger's Collection. Both in *risa* and subspecies as well as in *excellens* the submarginal band on the forewing is entirely straight and parallel to the terminal border; its two bordering lines are represented by almost rectilinear streaks; the black lines which apparently close the cell on the forewing are placed within the second meridional stripe, and neither wing displays any chain-pattern except in *excellens*. In all the following species the inner bordering line of the submarginal band on the forewing is not straight but undulate, being between the second and third median nervules convexely incurved and turning before the costa at the lower radial in a basal direction; the black lines marking the end of the cell on the forewing are not placed within but proximally to the second, double meridional stripe, intersecting the inner bordering line of this stripe at an acute angle; the chain-pattern is always evident on the hindwing, frequently also at the anal angle of the forewing. *excellens.*

C. rahrioides *Moore* from Burmah, Tenasserim and the Shan States is, like *excellens*, an intermediate form between *risa* and *rahria*, possessing of the former the contours, of the latter the markings; it is distinguished by the peculiar, dull buff ground-colour and by having all markings, particularly the third meridional stripe, exceedingly thin and faint. The lines marking the end of the cell on the forewing are placed proximally to the second meridional stripe; the inner bordering line of the submarginal band on the forewing curved as in *rahria*; between first and second meridional stripes a short black transverse streak reaching from costa almost to median vein and only again met with in *rahria*. The middle line of the submarginal band on the hindwing is broken up into single streaks, but displays no chain-pattern. Collected by me during August and September at Chiem-Hoa in Tonkin. *rahrioides.*

C. rahria *Moore* (121 e) is the most common and wide-spread species of the subgenus. Specimens from Perak, Deli, Sumatra, Nias, Java and Borneo found in my collection hardly differ at all from one another, excepting that those from Java and Mindanao are somewhat smaller than specimens from Sumatra and Borneo. Two distinct anal ocelli are placed in a line with the submarginal band on the hindwing which displays a very plain ocellate chain. The forewing shows between first and second meridional stripes, about midway between costa and median vein, a short, diffuse dash of fuscous pointing in distal direction. The ♀♀ are larger and lighter in colour, with more rounded wings. Several subspecies are known: — **apicusta** *Hag.* from the Mentawej Islands to the West of Sumatra. A rather weak subspecies „somewhat larger than *rahria*, from which it is distinguished in ♂ by having the apex of the forewing above broadly dusted with fuscous as far as the middle of the costa, and by the more brillant and deeper colouring. The hindwings have on the upper surface the transverse submarginal band rather more curved, its two bordering lines more undulate and the black streaks composing the middle line shorter and consequently farther apart. ♀ differs from *rahria*-♀ only in its larger size and in the nature of the submarginal band on the upper surface of the hindwings just described. Beneath both subspecies and sexes are practically alike". But few specimens contained in European collections. *rahria.* *apicusta.*
— **sanna** *Fruhst.* ♂ very slightly paler than *apicusta Hag.* from Mentawej, having all the longitudinal bands apically more strongly curved, the under surface lighter coloured, with more prominent bands. ♀ marked above with unusually rich pale yellow spots, which recur also beneath, but are here of a bluish-violet shade; all the longitudinal bands are considerably broader than in ♂; altogether they are much darker than ♀♀ from Java and Nias, approaching more closely those from Celebes. Scarce, only one pair in the Fruhstorfer collection. *sanna.*
— **celebensis** *Rothsch.* from Bangkai (Semper), must be classed much rather with *rahria* which it resembles in the submarginal band on the forewing as well as in the single third meridional stripe, than with *peraka* which has the third meridional stripe double. The forewing has the costa distinctly curved in the manner peculiar to *celebensis.*

all Celebian Rhopalocera. The two inner meridional stripes are filled in with a much darker colour than in *rahria*, the third meridional stripe broader, especially in ♀, and starting in ♂ at the costa of the hindwing above in the shape of a square patch of dull black which is not found in *rahria*; on the under surface of the forewing the same stripe is, close to the inner margin below the first median nervule, shaded with fuscous. The ♀ has the under surface very pale, and displays on the upper surface in reflected light a delicate pink lustre. Collected by me in North and South Celebes. ♀♀ captured in South Celebes during January are larger than
mangolina. those taken in December at Toli-Toli. Also from Bangkai. — **mangolina** *Fruhst.* (121 f) from Mangoli and Besi is smaller and, like all forms from Sula, of melanotic attire. Ground-colour darker fulvous, all borders and bands more broadly black. Types in the Fruhstorfer Collection. *excellens* excepted, *mangolina* has the darkest ground-colour; interspaces between the two inner meridional stripes dusted with fuscous, the third meridional stripe single, very broad, still more so than in *celebensis*; apex of forewing very dark, the inner line of the submarginal band on the hindwing very broad, interrupted into streaks; two anal ocelli; under surface darker than in *celebensis*; the ♀♀ are larger, slightly paler in colour, displaying likewise in a certain light a delicate pink lustre.

intermedia. **C. intermedia** *Mart.* from Sumatra (District of Gayu), Malay Peninsula and Borneo, derived its name from being an intermediate form between the preceding *rahria* and the following *peraka*. Much smaller than *rahria*, ground-colour more dusky and dull; the two inner, double meridional stripes are filled in with fuscous; the third meridional stripe displays on the forewing between the second and third median nervules a tendency to confluesce with the line bordering the inside of the submarginal band and presenting a curve as in *rahria*; the two anal ocelli do not continue in a straight line but at an angle with the submarginal band, presenting toward the anal angle a concave line. Under surface has the ground-colour more dull, with blacker markings than in *rahria*. Both tail and anal projection are greatly reduced.

The two following remaining species occupy a somewhat singular position, the hindwing being almost round and the tail and anal projection only indicated by a heavier marginal line; moreover, they have on either wing the third meridional stripe quite as distinctly double as the two basal ones.

peraka. **C. peraka** *Dist.* (121 f called *perakana*) from Tenasserim, Malay Peninsula (Perak, Penang), Nias, Sumatra, Java, Bali, Borneo. A very small species having the hindwing completely round and the ground-colour rather pale yellow; all three meridional stripes are double and filled in with blackish as in *intermedia*; on the forewing the lines marking the end of the cell are placed basally to the second meridional stripe; the inner bordering line of the submarginal band is curved as in *rahria*; the short black streak between first and second meridional stripes on the upper surface of the forewing between costa and median vein generally visible; two distinct anal ocelli form the continuation of the ocellate chain; tail and anal projection only indicated by the heavier marginal and submarginal lines. The ♂♂ of this species are very scarce; one specimen from Nias contained
aza. in my collection is greatly inferior in size to the much darker ♂♂ from Java. — **aza** *Streck.*, described from two specimens from Tring, Lower Siam, is perhaps synonymous with *peraka*.

nicévillei. **C. nicévillei** *Mart.* from the mountains in the Karo District to the south of Deli, Sumatra, is a very interesting species, larger than *peraka*, having the ground-colour brillant dark orange-yellow, all the meridional stripes double, the two basal ones dusted with fuscous; the black streaks marking the end of the cell on the forewing stand basally to the second meridional stripe; the first meridional stripe is of very irregular shape, broken up into 3—4 spots; the submarginal band on the forewing is likewise remarkable for being twice interrupted, once on the first median nervule where between the lowest link of the row and the next following very large one above it, a rather broad strip of the ground-colour intervenes, and again on the third median nervule which is surrounded as far as the terminal border by a strip of the ground-colour. The hindwing displays a very distinct ocellate chain and, continuing in a straight line, two anal ocelli. Tail barely visible, whereas the anal projection is indicated by the broadening of the inner marginal line. Under surface paler, but with very dark markings. A very rare species, the type of which is in the Tring Museum. 4 ♂♂ in the Martin Collection.

Tribus: **Neptididi.**

Genus: **Neptis** *F.*

From their nearest allies, the Limenitidi, Neptis may be separated 1. by the absence of the median spur on the forewing and 2. by the thinner, more rounded, sack or egg-shaped contour of the wings. In no case do the hindwings display any excavation or the pointed shape peculiar to the Athymidi. Still greater is the difference in the larva, those of Neptis being remarkable for the many hump-like dorsal excrescences and their curved shape, whereas those of the Limenitidi are more straight and cylindrical in shape. Their sexual organs differ greatly from those of the Limenitidi and Apaturidi and, although approaching somewhat the former in their general characteristics, may be easily distinguished from the Limenitidi as well as from all

other Nymphalidae by the fact that the valve is distally bifurcate and dorsally provided near the apex with a spine resembling the fang of a snake or the tusk of a boar. Valve proper ventrally and dorsally curved, thinly covered with fine hair and in a few species ventrally provided with a membranous or chitinous appendage, in shape not unlike a Phrygian cap; but this latter is in many species absent. Uncus as a rule quite delicate, not unusually short, but rather long and slender, either straight or slightly curved. Many species of Neptidi display on the upper surface of the hindwings some sexual distinction in the shape of highly specialized frictional surfaces, which are entirely lacking in the Limenitis Group. But whereas sexual Dimorphism is very common in the Genus *Athyma*, the Neptidi display it but in a few exceptional cases (*Phaedyma*, *Neptis vikasi* and *praslini*). Neither are they easily influenced by climatic conditions, horodimorphic forms being only met with in several continental and very few insular species; in these, however, onlythe colouring is subject to slight modifications, but we never notice a change in the shape of the wings or otherwise in their appearence. To the influences of locality the Neptidi offer but a slight resistance, inclining to a much higher degree than even the Limenitidi toward the development of geographical forms. Still we notice among all the Neptidi a certain monotony in their external features, not one single species displaying particularly brillant or beautiful colours, although in the Philippines there occur 2—3 moderately gay-coloured species.

We find representatives of this Genus in the warmer regions of the entire Old World and beyond, even in Australia. But their chief home is the mountainous portion of China south of the Yangtsekiang, and the Indian Region. Northward we find a few species advancing as far as the Amur and Yesso, two species having even entered Europe through Siberia and Southern Russia, being found in Roumania, the Austrian Monarchy and as far as southern Switzerland. In the Indo-Malayan Region we find this Genus everywhere from the Andamans as far as the Solomon Archipelago and Tropical Australia.

Altogether we are at the present time acquainted with about 30 African species, whereas in China there occur about 20, in India proper about 24, in Sikkim 15, Assam 14 species; from the Macromalayan Islands we know about 16, from the Micromalayan Islands 8—9 species; Celebes harbours about 5, the Philippines 15, the Moluccas 7, the Papuan Region about 12 species.

Surprisingly small appears the number of species in Celebes; among its 5 species two may be considered to be endemic, namely *Neptis neriphus Hew.* and *antara Moore*, whereas two others (*vikasi* Horsf. and *hylas* L.) may have immigrated from Java over the chain of islands, and its *Phaedyma* species may, judging from its close relationship to the Philippine forms, have immigrated from Mindanao.

Only few species are known to have a wide range of distribution, although the larvae are supposed to be polyphagous; some species are strictly local, others insular.

Most wonderful appears the great number of species found in the relatively small Philippine island of Palawan, whence 13 species are known, three of which are endemic (*tricolor*, *bella*, *illigerella*), whereas neither Borneo nor Java with 13 species each, nor Sumatra with 15 species have any endemic forms, and Celebes has among 5 known species 2, Mindanao among 10 species only one which are endemic.

Regarding their habits the Neptidi offer but little which is of interest to the observer, and the greater number of species count among the most common butterflies in the tropical and subtropical regions. Only a few species are found in the forests, the majority frequent open sunny places and are met with even in close proximity to human habitations. Among all Nymphalids the Neptidi are the first ones one meets in the early morning, and they neither mind heavy dews nor are they kept away by dull weather; notwithstanding their love for sunshine one finds them flying about even during heavy showers; this I often had occasion to observe in Tonkin, and I was assured by Mr. Max Korb that the same holds good in the case of the species of the Amur Region.

The species of the Genus *Rahinda* are solely confined to the plains; likewise the majority of Phaedyma which appear to prefer the sea-shore, although several forms of *columella* are found to ascend to an altitude of about 3000 ft. The Chinese species, especially the larger ones, are known to inhabit elevations of from 5—10 000 ft., *Neptis hylas L.* and *N. mahendra Moore* were observed in the western Himalayas at an altitude of 9000 ft., and De Nicéville has shown beyond doubt that *nyctens* is not at all uncommon in Native Sikkim at the enormous height of 12000 ft.

The more common species frequent the blossoms of the most various plants, especially of the Trifoliaceae, and *Rahinda hordonia* was taken by Hagen in Sumatra (Iris 1896, p. 170) together with *Chersonesia rahria* from the blossoms of a species of Sambucus.

About the early stages very little is known nothwithstanding the great abundance of most species. We only know ovum, larva and pupa of the two European species *hylas sappho Pall.* and *lucilla Schiff.*, as well as larva and pupa of *Neptis hylas matuta Hb.*, *hylas hylas L.*, *jumbah jumbah Moore*, *jumbah nalanda Fruhst.*, *nandina kallaura Moore*, *viraja Moore*, and *Rahinda hordonia Stoll* and *consimilis Bsd.*

According to Rühl the eggs are thimble-shaped, marked with regular hexagonal figures the outlines of which are covered with dense bristles; in each hexagon one remarks a spot of great brillancy, noticeable even with the naked eye. The eggs are fastened singly upon the under surface of Spiraea leaves, those of *sappho* near the apex of the leaf. Hagen observed a ♀ of *hylas papaja Moore* depositing its eggs upon a species of

Trifoliacea growing everywhere wild in the gardens; the eggs which were of pale green colour and covered with minute raised dots, were laid singly upon the farthest ends of the leaves and never in greater number than 2—3 on each plant; Hagen adds that owing to the comparatively small number of leaves those plants could not have supported any greater number of larvae; the latter Hagen was unable to find, as they had disappeared after three days, probably due to the attacks of hornet-flies or other rapacious insects.

According to Ruehl the larva of *lucilla* measures 41—43 mm; head brownish-black with yellow dots. Its groundcolour is brown-red, dorsal line darker, diffuse and more or less shading into the ground-colour. The 2. 3. 5. and 11. segments are each provided with two thick knob-like protuberances which are brown, dotted with yellow; each segment is laterally adorned with a dark, pale-margined transverse streak which stands out plainly from the much lighter coloured, delicately yellow-spotted, ventral portion. They are found in April and May upon Spiraea salicifolia. The pupa is short, stout, light brown in colour, head provided with two sharp points, hanging suspended. As a rule the colour of the chrysalis of the European as well as of the Indian Neptis species is yellowish, that of *Rahinda* greenish, of the *Bimbisara*-group grey. The pupa of *N. nandina kallaura Moore* displays a faint violet tint and is ornamented with golden-hued or silvery spots. All the pupae hang suspended from the under surface of the leaves to which they are attached.

The larvae of *Phaedyma* have, notwithstanding the great abundance of the imago of most species, hitherto never been observed, although one may reasonably suppose that they are not any more particular about their food than those of the other groups; for De Nicéville (Journ. As. Soc. Beng. 1900 p. 229) mentions no less than 13 species of plants from the families of Malvaceae, Sterculiaceae, Tiliaceae, Rhamnaceae, Leguminosae and Urticaceae upon which the larva of *N. jumbah* has been found.

Table of Genera.

The Neptidi of Indo-Australia may be grouped as follows:

I. The 2. subcostal nervule arises beyond the end of the cell:

Genus: **Rahinda** *Moore.*

A. The 2. subcostal arises at a considerable distance beyond the cell:

Group: **Rahinda** *Moore.*

B. The 2. subcostal arises at a short distance beyond the cell:

Group: **Acca** *Hbn.*

II. The 2. subcostal arises before the end of the cell:

Genus: **Neptis** *F.*

A. Costal vein inosculates in ♂ into the costal margin, in ♀ into distal margin:

a) Precostal of hindwing either straight, or bifurcate or in-curved:

Group: **Neptis** *F.*

b) Precostal invariably out-curved:

Group: **Bimbisara** *Moore*

B. Costal vein inosculates in both sexes into distal margin:

Group: **Phaedyma** *Fldr.*

The fact that the second subcostal nervule arises beyond the end of the cell is also observed in a number of African species as well as in a few species of the Moluccan Region classed by Moore with other Genera.

Genus: **Rahinda** *Moore.*

Group A: **Rahinda.**

R. hordonia is one of the most common Indian species, ranging from Mussoorie to Tonkin, from Tenasserim as far as the Malay Peninsula, Siam and Assam, and found also in the Mergui Archipelago. Of the larva two forms are known, one with short and the other with long spines, the imago resulting from the first being distinguished by dark-coloured scent-scale patches, that of the second by light-coloured ones. It is of interest that instead of fresh leaves they prefer those which are half dry and wilted. Principal food-plant is Acacia and Albizzia. The imago is only found in the alluvial plains, hardly ever ascending beyond an altitude

of 2000 ft.; neither does one meet them in the woods, but invariably among low shrubs near cultivated fields, where slowly and in unsteady flight they flutter about, frequently alighting, their wings extended. Two seasonal forms are known: a) fa. **hordonia** *Stoll*, peculiar to the rainy-season, with very broad black bands, found in Tonkin until the end of August: b) fa. **plagiosa** *Moore* (125 b) a form of the dry-season. In this the under surface of the hindwing lacks the black median band, but the distal portion displays a violet hue; the upper surface has the black bands greatly reduced and replaced by luxuriant bands of yellow. Specimens from the South of India vary considerably from those found in the North, approaching *sinuata Moore* from Ceylon. It is found throughout India as far as Tenasserim and Malabar; I collected it in Siam on the Karen Hills during May, at an elevation of 1000 ft. during January and February, in southern Annam in February and in Tonkin during August and September; Moore reports it also from the Mergui Archipelago. — **sinuata** *Moore*, found in the low-lands of Ceylon whence it ascends the wooded hills up to about 3000 ft; flying all the year round, it is most abundant during March and April. It differs from its Continental allies in the increased black spotting on the hindwings, upon which the yellow submarginal band remains greatly reduced; moreover, the wet-season form has on the forewing the contours of the yellow bands much more irregular. — **maligowa** *Fruhst.* was lately discovered by H. Sauter in Formosa. I have, however, only specimens of the Monsoon-period which differ from the Indian forms in the broader black and the greatly reduced yellow bands. — The very large form from Hainan was described as **rihodona** *Moore*. Judging from one ♀ in my collection, it may be distinguished from the Continental *hordonia* by having the bands more sharply defined, from the Formosan form by the nearly twice as broad, yellow submarginal band on the hindwing. — **cnacalis** *Hew.*, a lovely insular form hitherto treated by all authors as a separate species, has on the hindwing the median band white instead of yellow, the submarginal band grey. But the red spotting of the under surface indicates at once its close relationship with *hordonia*. From the Andamans and Nicobars. — **senthes** *Fruhst.* from Sumatra (and Borneo) displays, especially in specimens from the western part of the island, very plainly the character of the rainy-season, with much broader black bands than are found in *hordonia* from the Continent and Java. The hindwing has the submarginal band much narrower than in the Continental forms. The ♀♀, moreover, are larger than those from Java, and have the submarginal band on the forewing black instead of fulvous. A similar form occurs also in Banka. — **aigilipa** *Fruhst.* (125 c) from Nias where it is very scarce, being not mentioned by Kheil or Moore. I possess 2 ♂♀ representing a transition from the rainy to the wet-season form. The ♀ is relatively large (26 mm), surpassing in size my largest ♀ specimen from Assam which measures only 24 mm. In ♂ the black subapical spot which partly surrounds the cell of the forewing in the shape of a semicircular arc is obsolete, as is also the black streak extending from the submarginal band along the upper radial toward the base. Unusually broad appears on the other hand the terminal border and the black median band on the hindwing, whereby the yellow submarginal band is greatly reduced. ♀ has the black distal margin of the hindwing still broader than the ♂, 6 mm in width against 4 mm in my darkest Assam specimen. The under surface has the submarginal band, especially on the forewing, broadly black, the ground-colour reddish-brown, rather lighter than in *alceste* from Lombok, though much darker than in Javanese specimens. — **pardus** *Fruhst.*, described from a number of specimens taken in East and West Java at altitudes of up to 2000 ft., differing throughout from the Continental forms in having all the yellow markings broader; also the distal border, particularly of the forewing is invariably more broadly black and does not vary in colour in the dry-season form, whereas in the Continental dry season form *plagiosa* it is reddish instead of black. Also from Bawean (July—Sept.), Kangean, Bali. — **alceste** *Fruhst.* is one of the most peculiar local forms of *hordonia* from the arid island of Lombok, being darker than any other form so far known. The black bands on the upper surface of the forewing are very broad and at the same time deeply excavated, in consequence of which the yellow bands and patches appear quite broken. On the forewing the apical spot is nearly as large as in the dry-season form from the Continent of India. The under surface exhibits over a great portion a peculiar dark fulvous hue, in consequence of which the yellowish ground-colour appears greatly reduced. The black submarginal bands are very broad, the median band on the hindwing externally bordered with jet-black instead of fulvous. Lombok, Sapit 2000 ft., April—June. Sumbawa. — **doronia** *Stgr.* refers to a distinct local form having the wings narrower and beneath the median bands more sharply defined and much narrower. From Palawan, flies in January.

hordonia. *plagiosa.* *sinuata* *maligowa.* *rihodona.* *cnacalis.* *senthes.* *aigilipa.* *pardus.* *alceste.* *doronia.*

R. epira is one of the rarest species of the Genus, only a few specimens having reached Europe. Ground-colour chiefly black, forewing with a narrow, brown stripe in the cell, hindwing with whitish median fascia. Under surface blackish, apex as well as median area of hindwing violet. Two insular forms are known: **epira** *Fldr.* of which Semper obtained only 1 ♂ which, like Felders ♀ type, shows on the forewing two white, egg-shaped, submedian spots. From Leyte. — **heliobole** *Semp.* from Mindanao differs from *epira* in the absence of the white patches on the forewing and in having the whitish median band on hindwing reduced to a faint line; the under surface lacks the white dots still feebly indicated in *epira*.

epira. *heliobole.*

R. bieti *Oberth.*, a delicate species having the bands on the under surface quite indistinct; already described in Vol. I. p. 180. (Vol. I. pl. 55 d). Szetchuan, Ta-Tsien-Lu.

bieti.

R. consimilis inhabits the Papuan Region and North Australia, where it has developed into a number
stenopa. of forms among which **stenopa** *Fruhst.* (125b) most frequently finds its way to Europe. My 5 specimens from all parts of New Guinea have the yellow bands, compared with specimens from Waigiu and especially also from Key, much narrower and more vertical; this applies also to the yellow subapical patch on the forewing. Type from New Guinea, where according to Hagen *stenopa* is quite common, and from Dorey in my Collection.
continua. — **continua** *Stgr.* refers to specimens with confluent yellow markings on the forewing, probably belonging to a dry-season form. Staudinger's type came from Jobi; Grose-Smith reports it from the islands in Geelvink Bay. —
curygrapha. **eurygrapha** *Fruhst.* of which I possess 5 specimens from Waigiu, is an intermediate form between *stenopa* and *affinis*, with broader bands than the former, with narrower yellow bands than *affinis* from Key. The submarginal bands on hindwing more delicate and finely undulate than in *stenopa* and darker in colour than those
affinis. of *affinis*. Waigiu. — **affinis** *Fldr.* Specimens from the Key Islands have the broadest and at the same time palest median bands among all the forms of *consimilis*; they probably do not differ much from the true *affinis* found in Aru with which, however, I am not acquainted in natura. All ante- and submarginal bands on the under surface of the hindwing are reddish-brown instead of black. Kuehn discovered the gray-green larva upon a species of Papilionacea. Egg according to De Nicéville currant-shaped, pale yellow, covered with fine hair and provided with 7 rows of tubercles. Larva feeds on a species of Acacia; it always sits on the under side of the stem of a leaf which it gnawes through after fastening it with a thread, and which drying up rapidly soon assu-
consimilis. mes the colour of the larva. When touched the larva shakes the dried-up leaves. — **consimilis** *Bsd.* differs from *stenopa* in having the submarginal lines straight, not undulate, being, moreover, as a rule larger than specimens from Neu-Guinea. Type came from Neu-Mecklenburg; also found in Neu-Pommern and Neu-Hannover.
pedia. — **pedia** *Fruhst.* approaches most closely *affinis Fldr.* from Key, with somewhat narrower, although much paler, yellow bands which in ♀ are toward the anal angle more deeply constricted. Beneath it resembles *stenopa*, having all bands and spots grey-fuscous instead of reddish as in *affinis*. From *stenopa* and *eurygrapha* it may be distinguished by the much more abundant yellow markings. Australia, Queensland.

R. paraka appears notwithstanding its great range of distribution rather constant, which renders it almost impossible to divide this delicate species into local forms. But to climatic influences it is highly susceptible, occurring even in Sumatra and Borneo in several horodimorphic forms. Specimens from Java differ from the other Macromalayan forms of *paraka* in that all the seasonal forms have the antemarginal lines on the upper surface more delicate and in that ♂ and ♀ of the dry-season form have the yellow bands broader.
paraka. — **paraka** *Btlr.* resembles above *aigilipa*, but has on the forewings always two yellowish submarginal lines, and the under surface lacks the violet and reddish-brown marmoration. Occurs from Tenasserim through
sandaka. Macromalayana, Palawan, Banka and the Batu Islands. — **sandaka** *Btlr.* refers to an individual aberrative
assamica. form having the yellow patches on the forewings confluent. — **assamica** *Moore* should according to my judgment comprise all the forms of *paraka* occurring north of Tenasserim, the differences among which are exceedingly slight. Like *paraka*, also *assamica* is subject to climatic variation, two quite distinct seasonal forms being known: a) that of the dry-season, having the black median bands on the forewings nearly as much reduced as in *dahana Kheil* and *confluens Hagen*, in consequence of which the ochreous colouring prevails; found by me in Siam. b) that of the wet-season differing from *paraka* only in the somewhat broader yellow bands and the more prominent antemarginal line on both wings. Assam, Burmah, Tenasserim, Siam (Hinlap in January
dahana at an altitude of about 1000 ft.), Tonkin (collected by me at Chiem-Hoa in August and September). — **dahana** *Kheil* resembles the dry-season form of *assamica*, but has as a rule the black stripe beyond the cell of the fore-
confluens. wing obsolete, and the blackish transverse stripes on the under surface paler. Nias, Batu Islands. — **confluens** *Hag.* is an insular form from Mentawej, in which the black markings on the forewing are rather reduced and the under surface is of a monotonous pale tint.

R. dindinga approaches so closely *paraka* that if the species did not occur in Tenasserim in two distinct horodimorphic forms, I should, like Bingham, treat it as a pronounced rainy season form of *paraka*; but besides
dindinga. the differences enumerated below, its wide range of distribution gives it specific rights. — **dindinga** *Btlr.*, distinguished from *paraka* by its larger size, the grey instead of yellow antemarginal lines and the broader black bands on the under surface which latter has the median area marked with grey instead of yellowish.
elea. Upper Burmah as far as the Malay Peninsula, Borneo. — **elea** *Fruhst.* ♀ equalling in size the largest ♀♀ of *dinginga* from Borne, but with greatly reduced ochreous bands and patches on both wings. Forewing with relatively broad, fulvous, submarginal band, sharply elbowed proximally in the median region, and with a thread-like, rather indistinct, reddish antemarginal line. The hindwing has the outer submarginal band fulvous instead of grey, somewhat sembling *paraka Btlr.* The subanal spots on the forewing are isolated, not confluescent as in *paraka* which, however, it slightly resembles in the yellowish submarginal band on the forewing, although the latter is more than thrice as wide. Beneath like *dindinga*, but with all the black bands on the forewing narrower, on hindwing more uniformly black. West Sumatra, Padang Bovenland; a similar form also in the island of Banka.

R. aurelia *Stgr.*, originally described from Malacca, advances northward as far as Assam, and is found as a great rarity in Tenasserim. Waterstradt discovered it on Kina-Balu, and in 1908 I established its occurrence in Sumatra. Beneath the forewing resembles that of *paraka*, the hindwing with its delicate violet irroration in the postdiscal area that of *hordonia*. *aurelia.*

R. tricolor *Stgr.* (125 d wrongly named *bella*) approaches above more the forms of *cyrilla*, but plainly betrays in the fine red dotting of the under surface its relationship with the *Rahinda* group, and in particular with *hordonia*. Palawan, January. *tricolor.*

R. cyrilla is found throughout the Philippines, where it breaks up into a number of sharply separated, insular forms. — **cyrilla** *Fldr.* (125 d ♀ instead of ♂) closely approximates *R. dama*, as already Semper has showed, but differs not only in that the bands are yellow instead of white, but also in that the subanal patches on the forewing are larger and placed farther distally. The hindwing has the bands more oblique and the submarginal band also on the upper surface quite distinct. So far only known to exist in Luzon and Polillo. — **phrygia** *Fldr.* is remarkable for the fact that the patches on forewing are yellow throughout instead of partially white, which places it between *commixta* and *athene Stgr.* of the Southern Philippines and *cyrilla Fldr.* Its home is Mindoro. — **athenaïs** *Fldr.* is related to *cyrilla* in the same way as *R. heliobole Semp.* to *R. epira Fldr.*; it is a very dark southern form, in which not only the black markings are greatly increased at the cost of the yellow areas, but the latter are rather more fulvous than in the northern forms. I possess specimens from Bazilan, and Semper reports it from all over Mindanao with the exception of the eastern portion, where a highly specialized seasonal or local form has developed: — **commixta** *Fruhst.*, described from Semper's figure, from Dugang, Eastern Mindanao, is not identical with *athene Stgr.* from Palawan, from which it is separated by the smaller white spots and bands on both wings as well as the much narrower streak in the cell of the forewing; these differences appear much more evident on the under surface, where *athene Stgr.* has the median band on the hindwing more than twice as broad, the streak in the cell of the forewing extending beyond the limits of the cell, and the subapical patches nearly to its apex. Eastern Mindanao. — **attica** *Semp.* stands midway between *cyrilla* and *athenaïs*; judging from Semper's figure it has narrower bands than the forms from Bazilan and Mindanao and displays, especially underneath, the melanotic colouring of an insular form. Camiguin de Mindanao. — **athene** *Stgr.* (125 d) shows throughout a close resemblance to *commixta* and on the under surface also to *cyrilla*, from which it differs beneath only in having the median area of both wings somewhat paler, whereas the upper surface deviates widely from the Luzon form. Palawan, not very abundant, according to Semper also in the islands of the Jolo Archipelago. — **camotesiana** *subsp. nov.* appears, from the specimens contained in Semper's collection, to be a very distinct insular form, inferior in size to Mindanao specimens, unlike which it shows not a trace of any white irroration on the transverse bands above; an albino form with chiefly white stripes. From the Camotes. *cyrilla.* *phrygia.* *athenaïs.* *commixta.* *attica.* *athene.* *camotesiana.*

R. dama *Moore*, a rare, small-sized species, so far only found in Luzon, where it flies from March until May. Its chief characteristics are the broad white patch at the apex of the cell on the forewing and the sharply defined, broad, white median band on the hindwing. *dama.*

R. antara takes the place of *cyrilla* in the Celebian Subregion, whence so far two local forms have become known, altough we may expect several others from its satellite islands. — **antara** *Moore* (125 c) is smaller than *Neptis tawayana Fruhst* (125 c) from which it moreover differs in that the red streak in the cell of the forewing is above not dentate, that the subapical patch consists of 4 coherent spots which are not separated by the veins, and that the 3 small yellowish costal spots above the apex of the cell are absent. The reddish submarginal band is on forewing coherent, on hindwing much narrower. On the under surface the black markings are diffuse, and besides a very fine white band there appears another violet one, which is continuous, margined on both sides with black and sharply elbowed in the middle and on the submedian. Hindwing with whitish instead of yellowish median band and 2 violet, slightly opalescent, postmedian fasciae. Northern Celebes. — **pytheas** *subsp. nov.* refers to specimens from southern Celebes, differing from *antara* in having the bands on the upper surface broader and of a lighter shade of yellow, and the general colouring of the under surface paler yellow. Flies in May; collected by Dr. L. Martin. *antara.* *pytheas.*

R. mysia is an interesting melanotic species replacing *R. cyrilla* and *antara* in the Moluccas. Above it greatly resembles *Neptis miah disopa Swinh.* and *miah digitia Fruhst.*, underneath it is distinguished by a peculiar, delicate design of diffuse, rich black and grey markings. 4 subspecies deserve being mentioned: **mysia** *Fldr.* (*zenica* Sw.) resembles *sannians* (125 c), but has on both wings the transverse stripes essentially narrower and on the under surface the marginal borders the richest black. Batjan, quite common. — **serpentina** *Fruhst.* has the yellow bands much broader than *mysia*, underneath the black spots reduced and the yellow markings correspondingly broader. The hindwing has the submedian band very much broader, straight instead of elbowed, and yellowish instead of gray. Halmaheira, August—September. — In **sannians** *Fruhst.* (125 c) the fulvous markings are paler, rather yellow instead of brown, the median band on hindwing transparent. Under surface *mysia.* *serpentina.* *sannians.*

still lighter than in *serpentina*, the yellow markings being more prominent, the black reduced. The grey median band on hindwing more uniformly broad, the submarginal bands somewhat paler and more pronounced. Ternate.

neriphoides. — **neriphoides** *Holl.* was compared by its author with *Neptis neriphus Hew.* from which it differs, aside from its inferior size, in that on forewing the submarginal line is not divided and the streak in the cell not serrate. Under surface is paler than in *tawayana*. Island of Buru, must be very scarce, not contained in my collection.

Group B: **Acca** *Hbn.*

2. Subcostal arises at a shorter distance beyond the cell.

R. venilia, one of the oldest and commonest species ranging over the Moluccas, the Papuan Region and North Australia, is represented by about 16 different forms, the variability of which is shown in our figures 126 d.

venilia. — **venilia** *L.* which has given the collective species its name, is found in the Southern Moluccas, where it appears to vary but little, judging from the specimens before me. Forewing with 3 oblong, whitish median spots which are broadly margined with pale blue and of which in ♂ the two upper ones are coherent, whereas the much smaller, lower one stands isolated. ♀ has all median spots united, the blue bordering of the white band on hindwing

godelewa. rather narrower than in ♂. Submarginal dots roundish, very large, blue-white. — **godelewa** *Fruhst.* has the bordering of the white median bands, especially in ♀♀, much narrower than in *venilia*, darker blue in ♂♂, violet in ♀♀. Subapical and submarginal spots rather larger, inclining more towards violet than blue. Buru:

obiana. Miro (November), Bara (August). — **obiana** *Swinh.* ♀ has the white median band on forewing very broad and rounded, on hindwing at least one third wider than in *godelewa*. Subapical spots on forewing roundish, smaller than in a and b, submarginal dots quite minute. By the side of these broad-banded ♀♀ we find in Obi also ♀♀ having the median bands on hindwing considerably narrower, distally more broadly margined with violet and deeply notched, recalling *evanescens Stgr.* from Batjan, in which latter, however, the bands are

pseudevanescens. still broader and less steep. (= ♀ fa. **pseudevanescens** *Fruhst.*) Obi. — **evanescens** *Stgr.*, a most distinct subspecies

evanescens. with ground-colour chiefly black and much narrower median band. Submarginal spots more feebly developed

contunda. than in the hitherto enumerated forms. Batjan, August—September. — In **contunda** *Fruhst.* (126 d) (from contundere, to crush, break) the median band is still more reduced, the median spots on forewing have nearly disappeared, the lower ones are almost violet instead of white. Halmahcira, August—September, and Batjan,

leucoion. August. — **leucoion** *Fruhst.* (= the actress, on account of its resemblance to *obiana*), holding about the middle between *obiana* and *evanescens*, has the submarginal and subapical spots larger than in the latter, the median band slightly narrower, but more distinct than in *obiana*, on forewings not rounded but sharply cut off at a right angle. Ternate. From Batjan I possess one specimen intermediate between *evanescens* and *leucoion*. —

holargyrea. **holargyrea** *Fruhst.* (from ὁλάργυρος, of massive silver) is distinguished among all the other forms by the more prominent submarginal spots on both wings, but has the white median bands less broad than in *obiana* and *leucoion*, although distally more broadly margined with pale violet on the hindwing. Underneath it most re-

tadema. sembles *leucoion*, but with heavier submarginal spots. Aru, Key, Tenimber, Letti. — **tadema** *Fruhst.* (of which only 2 ♂♂ are known, although this species is otherwise so very common), closely approximates the New Guinea type, with median bands about as broad as in *venilia*, the subapical patches larger, the blue bordering of the median band reduced; but its chief characteristic is the complete absence from hindwings of the submarginal

cyanifera. dots which, however, reappear to some extent on the under surface. Waigiu. — **cyanifera** *Btlr.* In New-Guinea we find as usually three local forms of *venilia* two of which have been previously described. As *cyanifera* Butler described ♂♂ with very narrow, blue-margined median band on hindwing. The specimen figured by Smith shows on forewing in the place of the median band only a roundish, white discal patch. The under-surface has the bands blue instead of white and very narrow, the submarginal spots relatively small and likewise blue instead of white. The ♀♀ incline towards the general *venilia* type, particularly the form from Dorey, having the bands still broader, the submarginal spots smaller. On hindwing the band is distally notched. Port Mores-

anceps. by, British New Guinea. — **anceps** *Sm.* 2 pair from Dorey contained in my collection appear to be an intermediate form between *cyanifera* and *tadema*; the median band on forewing is composed of two narrow and high upper spots and, widely separated therefrom, a lower one white in colour and bordered with blue. The hindwing has the band distally strongly undulate, relatively narrow. Submarginal dots much less prominent than in *venilia* and *holargyrea*, although more distinct than in the other New Guinea forms. Underneath the median band on hindwing still narrower than in *tadema*. Grose-Smith figured an aberrative ♂ showing no trace of

pseudovenilia. a white discal band on hindwing, leaving for specimens possessing this band the name **pseudovenilia** *Fruhst.* which may be reserved for the form from Dorey, if it should prove to deviate from that of Humboldt Bay.

grimberta. Humboldt Bay, Sept.-Oct., Dorey. — **grimberta** *Fruhst.* (126 d). ♂ has among all hitherto mentioned local forms on forewing the most complete and broad white median band, the components of which are not isolated, but coherent. The blue periphery of both median bands is nearly as broad as in *holargyrea* and invariably pale blue instead of violet or dark blue. On forewing the subapical spots are large, likewise margined with

a riche pale blue, the submarginal dots white and more prominent than in *cyanifera*. Median band on under surface of hindwing sharply defined distally. Hagen reports this subspecies to be the commonest among the 6 Neptididi occurring on Astrolabe Bay, German New Guinea. — **glyceria** *Fruhst.* (126 d) has both median bands very much broader than *grimberta*, almost as broad as in *obiana Sw.*, but distally only faintly bordered with blue. Subapical and all other spots greatly reduced. Subbasal band on under surface of hindwing considerably broader anally, more so than in the New Guinean form of *venilia*. Fergusson, d'Entrecasteaux Islands. — **moorei** *Macl.* (126 d), a very distinct local form distinguished by the fact that the median band on forewing is reduced to a large, roundish discal spot, by the almost completely diffuse dash on the submedian, and the short median band on hindwing which strongly tapers costally. On the hindwing the submarginal spots are greatly reduced as is also the dark violet distal irroration along the median bands. Cape York, North Australia. — **glaucia** *Fruhst.* In size as well as in the rounded shape of wings approaching *moorei*, but subapical spots and especially also the median patches on forewing considerably larger, the latter much broader anally, margined with pale blue. Discal spot on hindwing resembling that of *glyceria*, but shorter, costally very broad, well rounded, tapering towards the back, the blue distal bordering just as heavy as in *grimberta*. Submarginal spots elongate and narrow on both wings, above united into a delicate, lovely pale blue band not again met with in any other subspecies of *venilia*. Underneath all the white spots are most sharply defined, clear white with a lovely, delicate blue iridescence. Not a trace of white scaling on distal border. Cellular dots on forewing as well as submarginal spots on hindwing of a darker blue than in any other form of *venilia*. Neu-Mecklenburg. — **neohannoverana** *Pagenst.* Very much like *glaucia*, but the bordering of median bands violet instead of blue, the submarginal spots not united into a band. Neu-Hannover, types in the Tring Museum.

glyceria. *moorei.* *glaucia.* *neohannoverana.*

Genus: **Neptis** *F.*

Costal vein inosculates in ♂ into costal margin, in ♀ into distal margin. The second subcostal nervule arises before the end of the cell. Comprising about 60 species, it is one of the largest genera of Southern Asia.

Group A: **Neptis.**

N. hylas is the oldest name of the species well known under the name of *aceris*, *leucothoë* and *eurynome*, and at the same time the first name given any Neptis. Nevertheless it was neglected until in 1907 and 1908 I reestablished its priority, and in my treatise on Neptidi (Stettiner Entomologische Zeitung 1908) referred also the other until then partly misplaced subspecies to this species. Being represented by about 30 described subspecies, local or insular forms, *N. hylas* appears as one of the most variable species found in the Tropics and Subtropics of the East; being represented, although as a great rarity, even in the Palaearctic Region, its range of distribution is enormous, comprising the entire Palaearctic-Asiatic and Indo-Malayan Regions, from Germany as far as Japan and southward to the Smaller Sunda Islands. Characteristic of the entire species is the black border of the main band on the under surface of the hindwing, which surrounds both the costal and anal margins and not infrequently also accompanies the submarginal band; its greatest development is found in a few Indian forms and that from Sumatra, whereas in specimens of the extreme dry-season or in the forms found on islands with predominating arid character (islands of the Timor Group), as well as in the northern races (f. i. the Japanese *N. hylas intermedia* and its local or seasonal varieties), this black border is partially obsolete. Going from North to South we encounter the following forms: **yessonensis** *subsp. nov.*, recently sent to me by Prof. Matsumura, differs from *intermedia Pryer* from the main island of Hondo in the more rounded outline of wings; in size it stands midway between the fall-brood **passerculus** *Fruhst.* and **intermedia** *Pryer* (Vol. I, p. 176, pl. 53 d). The white markings are of much greater extent than in the Hondo form, especially the subapical and intramedian spots are much more developed. The submarginal band on the hindwing is, corresponding to the more rounded contour of the wings, more strongly curved, the under surface darker red-brown than in *intermedia*, and the second (subbasal) white curved band is on account of its greater length more prominent. Sapporo, Yesso. — **luculenta** *Fruhst.* (126e) is the largest among all known forms. Specimens from Ishigaki and Formosa differ somewhat from Chinese and Tonkinese specimens in having on both wings the white bands rather narrower, and on the under surface of hindwing the submedian band nearly always black, hardly ever white. Quite abundant in Okinawa, Ishigaki (type) and the low-lands of Formosa. — **hylas** *L.* (Vol. I, p. 174, pl. 53 d) occurring throughout Southern and Indo-China in the following forms described already in Vol. I, p. 174: **sangaica** *Moore*, probably the spring-brood, of very small size, flying from December until May, most abundant in March and April. Hongkong. — fa. **acerides** *Fruhst.* from South and West China, collected by me in November at Hongkong. In Tonkin, Annam and Siam *acerides* is very common, the majority of specimens differing nowise from Chinese ones, although we meet occasionally specimens leading over to the Indian forms. The sexual organs of the hitherto mentioned and also of the European forms of *hylas* completely agree in every detail. Tegumen delicate, uncus slender and sharp pointed, somewhat broader in the

yessonensis. *passerculus.* *intermedia.* *luculenta.* *hylas.* *sangaica.* *acerides.*

middle, valve unproportionately large, exceeding in size and completely surrounding all the remaining parts; consisting of elongate, egg-shaped organs densely covered with hair and bristles and distally divided into two short lobes which are dorsally provided with a sharply curved, hook-shaped spur and ventrally end in a long reversed fold. Penis short and broad, constricted near the end and terminating in a very fine, curved spur. Saccus short. — **hainana** *Moore* differs from the specimens from Western China and Hongkong in the more prominent and clearer white bands. Hainan. — **astola** *Moore* is the oldest name given the form found in Continental India. Although as a rule its size is inferior to that of the Chinese forms, there occur also very small specimens in China and Tonkin, and vize versa in India very large ones approaching *hylas*. Altogether it is not possible to draw a sharp line between *hylas* and *astola*, especially since *hylas* from Siam and Annam is an intermediate form, and it is a mere matter of sentiment whether one should consider them as identical. However, since in Assam and Sikkim the majority of specimens have the ground-colour of the under surface fuscous brown-red, and since such specimens are very scarce in Farther India, a separation into two forms seems justified, the more so as the names have been in use for some time, and certain forms are known to occur only in Sikkim and Assam. *astola Moore* is a dry-season form described and figured already in Vol. I, p. 176, pl. 53 d). — **adara** *Moore* is an intermediate form, larger than *astola*; the unusually broad black border of the white median band on the under surface of hindwing gives it a great resemblance to the insular form *varmona Moore*. Under surface fulvous. — **emodes** *Moore*, an Alpine form of the wet-season (Vol. I, p. 176, pl. 53 e erroneously named *hylas*), ranges from Cashmere, where it ascends to an altitude of 9000 ft., to Tenasserim, being one of the commonest butterflies. One may truly say that every specimen differs from the other, representing a transition between the three mentioned forms. — **swinhoei** *Btlr.* refers to the form from southern India. In colour the under surface comes close to that of *varmona Moore*, but is a trifle lighter, with black transcellular stripes on forewing. Nilgiris. Malabar and Coromandel. Larva feeds on a variety of Lathyrus. — **varmona** *Moore* from Ceylon, easily recognized by the clear white patches on upper surface standing ont boldly from the jet-black ground-colour, and by the sharply black-margined stripes appearing upon the pale coffee-brown ground-colour of the under surface. Seasonal forms are also existing, that of the extreme wet-season being called **disrupta** *Moore*, of the dry-season **kamarupa** *Moore* (= eurymene *Btlr.*). Very common in the low-lands of Ceylon. — **andamana** *Moore* resembles somewhat fa. *adara Moore*, from which it differs in the whitish submarginal band on hindwing being nearly obsolete above. Andamans, very abundant. — **nicobarica** *Moore* is remarkable for having the white markings above greatly reduced and slightly clouded with grey, and the submarginal spots more rounded than elongate. Beneath very much like *varmona*, but with greatly reduced white bands. Moore figures also a form of the dry-season in which the much broader white bands render the similarity with *varmona* still more

hainana. *astola.* *adara.* *emodes.* *swinhoei.* *varmona.* *disrupta.* *kamarupa.* *andamana.* *nicobarica.*

striking. Nicobars. — **mamaja** *Btlr.*, an insignificant looking local form, leading over to *papaja Moore* from Sumatra and difficult to separate from *astola Moore* fa. *adara Moore*. Malay Peninsula. — **papaja** *Moore*. ♀ exceeding in size that of *matuta Hbn.* (126 e), but the subapical spots on forewing smaller and therefore farther apart, and also the median band on hindwing reduced in width, with a correspondingly broader black border. The eggs are corned, and are deposited near the apex of the leaves. North-eastern and western Sumatra. — **bangkiva** *subsp. nov.* has the white bands extraordinarily narrow; in size greatly inferior to specimens from Sumatra and Java. Island of Banka. — **symada** *Fruhst.* holds in the extent of its white markings about the middle between Borneo and Perak specimens, with all the bands considerably narrower than in *papaja Moore*. Submarginal band on hindwing placed unusually far toward base, strongly convex. Under surface as pale as in *mamaja Btlr.*, more so than in *papaja Moore*. Riouw Archipelago. — **engano** *Doh.*, a distinct melanotic race of very small size, with very narrow submarginal band on forewing, deep red-brown under surface and exceedingly narrow transverse bands. Engano, not very abundant. — **ombalata** *Kheil*, with more prominent white markings than the preceding form, ground-colour underneath deep ochreous. — In **hageni** *Fruhst.* the white band on hindwing begins to separate into isolated spots, under surface yellowish. Mentawej. — **hatra** *subsp. nov.*, intermediate between *ombalata* and *engano*, white markings more prominent than in either of the two, ground-colour beneath darker than in form from Nias, paler than in *engano*. Batu Islands. — **sopatra** *Fruhst.* from Borneo differs from the other Macromalayan forms of *hylas* (those of the adjacent islands excepted) in the reduced white markings and particularly in the almost completely obscured submarginal band on the hindwing. The white cellular streak and subapical spots on forewing are barely half as broad as in *matuta* and *papaja*. The deep ochreous under surface resembles that of *mamaja Btlr.* and *adara Moore*, differing from *matuta* in the shortness of the white basal and submedian bands. North Borneo, Pontianak and South-East Borneo. — **terentia** *Fruhst.* is the only form of hylas found in the Philippines, occurring on all the islands of the Jolo Archipelago, but not in Bazilan. Beneath like *sopatra*, but the white markings more delicate, rounded and isolated, wings more rounded, size smaller. It resembles somewhat also *symada*, from which it can be told by the still narrower median band on hindwing which shows towards the costa signs of breaking up, and by the

mamaja. *papaja.* *bangkiva.* *symada.* *engano.* *ombalata.* *hageni.* *hatra.* *sopatra.* *terentia.*

more regular, oblong patches on forewing. Jolo, Sulu Archipelago. — **matuta** *Hbn.* (126 e) shows among all known *hylas* forms the most extensive white markings, recalling thereby *Athyma perius perinus Fruhst.* East and West Java, very common up to elevations of 3000 ft. Bawean, July—September. — **satellitica** *subsp. nov.*, inferior in size to *matuta*, with the white spots on forewings more rounded, the submarginal stripe on hindwing narrower. Underneath the darker colouring betrays the insular character. From Bali in my collection, presumably also in Kangean. — **licinia** *Fruhst.* (126 e), above resembling *sopatra Fruhst.* from Borneo, but differing in having the white spots one third smaller. On forewing the subapical spots are reduced and far apart. Under surface shows the same pale chestnut-brown ground-colour as in *engano Doh.* and *emodes Moore*. Lombok, very common at altitudes of about 2000 ft., from April—June. — **flaminia** *Fruhst.* Somewhat larger than *licinia*, white markings more prominent and submarginal band on hindwing more pronounced. Beneath much darker chestnut-brown. Sumbawa. — **cosama** *Fruhst.*, much smaller than *flaminia*, white markings, although reduced, more brillant and prominent. Under surface, especially in distal area, more richly adorned with white. Ground-colour intermediate between specimens from Lombok and Sumba, predominantly ochreous, recalling the form from Borneo. Flores. — The hereafter following insular forms all possess a dull, dark chestnut-brown under surface: **alorica** *Fruhst.*, somewhat smaller than the preceding, with white markings obscured and on under snrface more reduced than in *cosama*, otherwise, aside from the chestnut-brown under surface, identical with it. Alor, March. — **sophaina** *Fruhst.* (126 e), much smaller than the preceding ones, with increasing and more prominent clear white markings. Occasionally the subanal spots on forewing are united, the submarginal band on hindwing always broader than in the Lombok form. Island of Sumba. — **serapia** *Fruhst.* is very much like *sophaina*, also in size, but with wings more strongly undulate. On forewing subapical spots coherent, subanal spots deeply notched distally, not rounded as in the other forms of *hylas*; cellular spot more rounded and basal streak on forewing shorter than in the remaining Micromalayan insular forms. Under surface has the brown submedian band on hindwing very broad, the white submarginal band closer to the distal margin than in *cosama* or *licinia*, and as a result the brown antemarginal zone greatly reduced in width. The relatively large subanal spots on forewing flow together, forming a very broad, distally deeply notched band. Kalao, December. Tana-Djampea. — **timorensis** *Roeb.* of medium size, with very broad and uncommonly clear white spots and bands in extent about midway between *sophaina* from Sumba and *jaculatrix*. Beneath darker brown than Sumba specimens, hindwing with narrower white submedian band than in the preceding forms. Limited to the islands of the Timor group, Letti, Kisser, Wetter, Timor (type, Roeber). — In **jaculatrix** *Fruhst.* (126 e) from Dammer and Babber the white markings reach their greatest development. On hindwing the median band reaches a width of 6—7 mm, which in comparison with the expanse of 48 mm in ♀♀ greatly exceeds in proportion that of *matuta*, the palest Macromalayan form in which the greatest width of the band is likewise 6—7 mm against an expanse of 55 mm. Under surface slightly darker than in *timorensis*. Dammer (type), Babber. — *jaculatrix* is the last in the series of Micromalayan forms of *hylas*. In the neighbouring islands of the Timor-Laut Group and in New Guinea we find a form of *Neptis* which, although representing the natural continuation of the *hylas* Series, displays such a greatly changed character that it must be accorded specific rank (= *gracilis* Kirsch). In the Celebian Subregion we meet with an unusually small Neptis: **saleyra** *Fruhst.* (126 d), approaching in its colouring *celebensis* (126 f) and exhibiting the same dusky appearance of the white bands above as we notice in the latter. But beneath it differs essentially in that the white median band is reduced to a mere thread, in the absence of the second, inner, submarginal row of white lunules, the predominance of the red ground-colour and the corresponding reduction of the white bands. Saleyer, May 1906, collected by Dr. L. Martin. — **ida** *Moore* is the oldest name for the large form from Celebes, better known under the name of *celebensis Hopff. ida* is represented by 3 different forms: a) fa. **ida** *Moore*, of rather large size, underneath with chiefly white and narrower brown bands; it is peculiar to the mountainous region of North Celebes, Tondana, Minahassa. — b) **sphaerica** *Fruhst.* (126 d) likewise large, with rounded wings, beneath with broader and more red-brown bands, is the mountain and rainy- season form found in the southern part of the island. — c) fa. **celebensis** *Hopff.* (126 f) much smaller than either a) or b), with elongate wings, the white markings dusted with dull grey scales; beneath the bands are pale ochreous. Confined to the low-lands, collected by me in great numbers during November and December near Toli-Toli in North Celebes. *celebensis* might almost be classed as a separate species.

matuta. *satellitica.* *licinia.* *flaminia.* *cosama.* *alorica.* *sophaina.* *serapia.* *limorensis.* *jaculatrix.* *saleyra.* *ida.* *sphaerica.* *celebensis.*

N. gracilis *Kirsch* (= *dohertyi Grose-Smith*). The white streak in the cell on the upper surface of the forewing and the submarginal band on the hindwing are either absent or barely recognizeable. On hindwing the band is still broader and steeper than in *jaculatrix*, the subanal spots on forewing run together to form a compact band. Beneath it retains its resemblance to *hylas*, the cellular streak and submarginal band reappearing quite distinct and rendering its relationship with *jaculatrix* (126 e) evident. Type from the Tenimber Islands. Doherty found the species also on Humboldt Bay, September—October.

gracilis.

N. magadha *Fldr.* circumscribes a most dainty, distinct species, the priority of which might be open
magadha. to discussion, since Butler has figured and described it in the same year under the name of *charon.* — **magadha** *Fldr.* (= cinerarea *Smith*) is exceedingly rare and not represented in my collection. From *charon* it differs in the shorter and more isolated white spots on the upper surface. Occasionally stray specimens have been found
khasiana. in various parts of Burmah between December and April. — **khasiana** *Moore* is an extreme melanotic form in which the white submarginal spots are nearly obsolete and the cellular stripes on both wings represented by mere bluish streaks. Quite common in Assam, occasionally found also in Bhotan, being replaced in northern
annamitica. Burmah by *magadha.* — **annamitica** *Fruhst.* (126 b), resembling *charon Btlr.*, has the white spots on the upper surface of both wings somewhat reduced in size, rounded, more richly margined with black; the submarginal line on hindwing obsolete as in *khasiana Moore*, but the submarginal spots on forewing rather larger than in that form, although smaller than in *charon Btlr.* The under surface has all the light patches clearer white, more sharply contrasting with the ground-colour, the violet bands, especially on hindwing, more prominent than even in *charon.* This distinct, new form whose characteristics are less easy to describe than they appear to the eye, stands midway between *charon Btlr.* from the Malay Peninsula and *khasiana Moore*; beneath it displays a stronger opalescence than any other Macromalayan form of *magadha*, but is herein surpassed by *khasiana.*
pasiphaë. Southern Annam, collected by me near Nha-Trang in February. — **pasiphaë** *Fruhst.* closely approaches *charon Btlr.* in the character of its markings which are, however, greatly reduced in extent. On the forewing the sagittate white spot before the apex of the cell is, like in the Bornean form, separated from the longer basal streak by a very broad black band; underneath the basal spot on hindwing is narrower than in *charon*, and the brown-black bordering surrounding all white patches more diffuse than in the other forms all of which surpass it in size. East and West-Java, at elevations of from 2—4000 ft., apparently very scarce, since besides my own specimens only one other ♀ is known in Swinhoe's collection, reported by Moore, Lep. Indica p. 224, as
phlyasia. coming from the Volcano Ardjuna. — **phlyasia** *Fruhst.* surpasses in size all other subspecies of *magadha.* The white markings are much clearer and more brillant, and on both sides more prominent than either in *charon*
plautia. or *plautia*, especially the submarginal bands on under surface. North-eastern Sumatra. — **plautia** *Fruhst.* appears to be a darker form of *charon* having the white median bands on hindwing narrower and more curved. The under surface resembles somewhat *annamitica* in that the ground-colour is more brillant red-brown and
charon. the submarginal bands rather violet than clear white. North Borneo, Kina-Balu District. — **charon** *Btlr.*, originally described from Singapore, inhabits the Malay Peninsula. The white markings on upper surface are more prominent than in *annamitica*, the under surface paler gray-brown than in the preceding forms. —
banuta. **banuta** *subsp. nov.* refers to the very scarce southernmost insular form, of which I possess 2 ♂♂ 2 ♀♀ which approach much more closely to the Javanese *pasiphaë* than to the larger Sumatran *phlyasia Fruhst.* Analogous to *khasiana Moore* the submarginal lines are obsolete, and the postdiscal median band on hindwing barely reaches half the width of that of *charon Btlr.*; the white markings of forewing are like those of *annamitica Fruhst.*, although rather more obsolete; the submedian spots are even completely wanting or reduced to mere dots. Beneath it resembles *plautia.* ♀ as in all the forms of *magadha* larger than ♂, having the wings more rounded and the under surface devoid of the violet iridescence distinguishing the median area of the hindwing of the ♂. Island of Nias.

N. duryodana resembles the preceding species to such an extent that it is frequently confounded with it by collectors; but all its subspecies are inferior in size to those of *magadha* and have the white triangular spot at the apex of forewing invariably drawn out into a long sharp point and, especially underneath, distinctly separated from the basal stripe. Moreover, *duryodana* is exclusively limited to the Macromalayan Islands,
duryodana. being never met with in India. — **duryodana** *Moore* (126 b) from Borneo, is also distinguished from *magadha* and the following *Neptis nata* by the dainty white distal border accompanying the spots on forewing; this is clearly shown in our figure of the ♀ which is invariably larger than ♂, with proportionately larger white
emesa. markings. North Borneo, not very scarce. — **emesa** *Fruhst.* differing from *duryodana* in having the white markings greatly reduced, the submarginal lines on both wings obsolete and the median band on hindwing somewhat broader. Beneath it differs in the groundcolour being bright reddish instead of grey-brown, and in the more prominent submedian band. Specimens from Palawan in my collection; also reported from Paragua by
nesia. Semper. — **nesia** *Fruhst.* has on both wings the submarginal and median bands wider, clearer and richer white than in the other forms; this is the case also on the under surface of the dry-season form from Deli. From
dike. North-East and West Sumatra in Fruhstorfers collection; Malay Peninsula. — **dike** *Fruhst.* has, in contra-distinction to the preceding form, all markings reduced, the under surface paler brown, the hindwing with more prominent and strongly undulate submedian band; also inferior in size. Eastern Java, at an elevation
tullia. of 1500 ft, very scarce. Also Bawean (Hagen). — **tullia** *Fruhst.* represents the most extreme melanotic form, having all white markings reduced to a minimum and the bands as delicate as in *magadha khasiana Moore.* The submarginal line on hindwing obscured so as to reach hardly one third of the width of that of *duryodana*
paucalba. *nesia* from Sumatra. Island of Nias whence during many years only one ♂ was obtained. — **paucalba** *Hag.*

from the Mentawej Islands is smaller than *tullia*, having the white markings greatly obscured and reduced.

N. nata has likewise its chief home in the Macromalayan Region, although I have taken some few specimens as a great rarity in Tonkin. Moore was the first who called attention to the fact that it is subject to seasonal Dimorphism which finds its expression in the confluence of the white stripes in the cell of the forewing. — **leucoporos** *Fruhst.* appears to be the plainest of all the known forms, having the white bands greatly reduced *leucoporos.* in width, and the subapical and submedian spots represented by mere dots. The white triangle before the apex of the cell on forewing is separated from the basal streak by a much broader black transverse spot than is seen in any other of the remaining forms. Under surface darker brown with jet-black submedian bands. Tonkin, Chiem-Hoa, August and September, collected by H. Fruhstorfer. — **cresina** *Fruhst.* (126 b as *'charon'*) from the *cresina.* Malay Peninsula is not identical with **nata** *Moore* from Borneo, but differs from it in the more rounded contours *nata.* and in that the ground-colour underneath is rather black than red-brown. All white markings are of a clearer tint, more sharply defined and rather milky-blue instead of greyish or yellowish. Moreover the white spots are on forewing more delicate, on hindwing, especially beneath, more pronounced. Type from the Malay Peninsula where it occurs as far as Tenasserim, and in North-East Sumatra. — **agathyllis** *Fruhst.* corresponds to the *agathyllis.* dry-season form (in Moore's sense), contrasting with *cresina* ♂♂ and especially also with *nata nata* ♂♂ with their sharp pointed wings, by its larger size and the more rounded contour of wings. The apical spot and basal streak in cell on forewing are either completely united or only separated by a faint line which underneath disappears completely. Under surface: Basal streak at costa of hindwing as well as the subbasal stripe which in *nata* is occasionally obsolete, longer, much broader and clearer white, which, together with the more prominent submedian and submarginal bands on forewing, characterize *agathyllis* as a distinct form; apparently it is limited to the Mountain Region, since similar specimens appear also on Kina Balu to be by far the most common *Neptis*. All the specimens at my disposal come from the Mountains of West Sumatra. In Borneo *nata* appears to be closely resembling *cresina*, forewings with more prominent white subapical spots on either side; under surface paler grey. Much more common than *nata*, however, we find on Kina Balu the fa. **ra-** *rasilis.* **silis** *Fruhst.* which replaces *agathyllis* in Borneo and differs from it in the slightly narrower white bands on hindwings. A much greater difference is presented by **egestas** *Fruhst.* which in either sex resembles *leucoporos*, *egestas.* from which it deviates in the somewhat broader white submarginal band on hindwing. Otherwise all spots and bands are greatly reduced in extent as compared with *nata nata* and, particularly on forewing, much shorter, more rounded and farther apart. Ground-colour underneath red and not blackish-brown. South-East Borneo. — **aletophone** *Fruhst.* recalls *nata* from Borneo, in the elongate, narrow outline of the wings *aletophone.* and in the markings of the upper surface, which only differs in the clear white and slightly blue-opalescent spotting. Beneath it deviates more essentially in having the ground-colour reddish instead of grey or brown-black, the submarginal line on forewing more strongly undulate, and in the nearly red-violet, more prominent, submedian and submarginal bands on hindwing. From Java, where it is very scarce; at present I possess only 2 ♀♀ taken on the Vulcano Gede at an altitude of 4000 ft., and 1 ♀ from eastern Java taken at 2000 ft. — **natana** *Fruhst.* (126 c), distinguished by the much smaller subanal spots on forewing and the dark, nearly *natana.* black-brown colouring of under surface. Not scarce in Nias.

N. cymela *Fldr.* seems to replace *nata* in the Philippines, differing from it in the greater breadth of the *cymela.* white basal area and the very indistinct white submarginal line on hindwing; beneath it resembles *nata* fa. *rasilis* in the cellular stripes on forewings being united. Apparently very scarce, since Semper only knew, besides 3 specimens from the mountains of Luzon, a few others from Polillo.

N. nandina is represented by a great number of subspecies, inhabiting the entire Indian Region and *nandina.* the archipelagoes from Formosa and the Philippines to the Andamans and the Macro- and Micromalayan Islands. In the West, especially in northern India, the species is highly susceptible to climatic influences, which renders a recognition of the various forms a matter of great difficulty. On account of the existence of intermediate forms between this and the following species *soma Moore*, their markings afford us no sure means of distinction between the two. But the sexual organs are highly specialized, those of *nandina* differing from *soma* in the absence of a subbasal prominence terminating in a sharp pointed spur. Uncus smaller, more pointed, valve with distal spur placed farther inwards, much larger and curved upwards like a boar's tusk. Going from North to South we meet the following subspecies: **formosana** *Fruhst.* (126 g) has according to the *formosana.* season the cellular streak on forewing either clear white as shewn in our figure, or quite narrow and dusted with grey. The latter specimens presumably belong to the rainy-season form. The under surface is remarkable for the deep cocoa-brown ground-colour, from which the relatively broad white bands stand forth very plainly. Formosa, ascending from the low-lands to an elevation of about 4000 ft. Apparently rather scarce. — **pampanga** *pampanga.*

Fldr. from Luzon closely resembles above the figured *soma* (126 f, g) (recte *susruta Moore*), but with much broader basal band on upper surface of hindwing. Not contained in my collection; Felder knew only 3 speci-
lizana. mens from the mountains of north-western Luzon. — **lizana** *Fruhst.* refers to a remarkably large insular race with unusually narrow bands and spots. Beneath light grey-brown, contrasting with the other forms
parthica. from the Philippines and the Malay Archipelago. Bazilan, February, March. — **parthica** *Fruhst.*, quite common in Palawan, occurring in 2 seasonal forms: The larger one of the rainy season = fa. *parthica* has the cellular stripe clear white, not shaded with grey as in *lizana* or *solygeia*, which it otherwise resembles in the white
somula. markings; submedian band on hindwing beneath more strongly undulate than in *lizana*. — **somula** *Fruhst.* (126 f), of smaller size, with narrower wings than *parthica*, in general appearance resembling *gononata Btlr.* (Distant, pl. 18 fig. 2), but with submarginal band on hindwing and cellular streak on forewing narrower than they appear in Distant's figure. Under surface darker than in *parthica*, more smoky-brown, and in my specimens
solygeia. with but one white antemarginal band instead of two as found in *parthica* and the neighbouring races. — **solygeia** *Fruhst.* is the darkest of all Philippine forms and at once recognizeable by the long, narrow wings. Forewing has the cellular spots confluent, the white markings covered with grey-brown scales. Under surface has the white stripe which runs parallel to the costa on forewing twice as long as in *lizana* and *pseudonoma*, and all the
tibetana. bands narrower. Jolo Archipelago. — **tibetana** *Moore* is the first in the series of Continental forms of *nandina*, surpassing, as is usual in Chinese species, all the others in expanse of wings and in the width of the white bands, which render it not unlike *N. ilocana* (126 g). Beneath the cellular spots are, according to Moore, united as in *rasilis* and *agathyllis*. The white subbasal band on hindwing shows the same width over its entire extent.
acalina. West China, eastern Tibet (Moore), from Omishan in my collection. — **acalina** *Fruhst.* (126 f as pseudadipala) is separated into two seasonal forms: the figure represents the smaller one of the dry-season, with much narrower bands than *tibetana* and with cellular streak as a rule shaded with grey; the rainy season form is about one third larger, and resembles in general *nandina formosana Fruhst.*, differing from it in the somewhat less broad and slightly yellowish striation. The dry-season form I took during August and September in Central Tonkin, the rainy season form in June and July in Northern Tonkin at elevations of from 1000—2000 ft. —
gonatina. — **gonatina** *Fruhst.* was collected by me in Siam during the dry-season; it is much smaller, but the white spots
susrutina. are essentially more prominent than in *acalina*, and the under surface brillant red-brown. — **susrutina** *Fruhst.*
susruta. approximates to *susruta Moore* from Sikkim in the brown-yellow ground-colour of the under surface. — **susruta** *Moore* (126 f, g, erroneously called soma) is one of the commonest butterflies in Sikkim, occurring still at elevations of 5000 ft., and ranging from the Kumaon Himalayas to Upper Burmah and the Mergui Archipelago. Its variability, both individual and climatic, reaches in this form a maximum, no two specimens being alike, but differing either in size or in the clearer white or more dull colour of the bands above. Still we do not find such dark specimens as are represented by *soma Moore*. Beneath the ground-colour varies from pale ochreous (typical *susruta*) which is characteristic of the dry-season, to a rich chocolate or red-brown in the wet-season.
hampsoni. The summer form has not been named as yet. — **hampsoni** *Moore* takes the place of *susruta* in the South of India, where it flies from January until November in the Nilgiris and near Mysore. Also of this form two seasonal varieties exist, although they do not differ essentially. According to Bingham it differs from the North Indian *susruta* in the clearer and more profuse white markings which rather resemble *nandina clinia Moore* from
clinia. the Andamans. In Ceylon *nandina* is not represented, but in the Andamans we find **clinia** *Moore* (126 f) which has the cellular streak on forewing very narrow and the white band on hindwing as a rule much wider than
mananda. it appears in our figure; such specimens belong to the rainy-season form and are named **mananda** *Moore*. — **leuconota**
leuconota. *Btlr.* heads the series of Macromalayan forms. It resembles an under-sized *susruta*, with deep red-brown ground-colour of under surface and generally more sharply defined, white bands. Perak. Rare in collections, unknown
apharea. to me in natura. — **apharea** *Fruhst.* is found in North-East and West Sumatra; it approaches *leuconota Btlr.* from Malay Peninsula, differing in having the ground-colour beneath almost black instead of red-brown. The dusky under surface renders its appearance so different from that of the Javanese form that De. Nicéville doubted altogether the existence of *nandina* in Sumatra. From the Javanese and Bornean forms it differs moreover in the more delicate and roundish shape of the white spots on forewing, particularly of the two sub-
ila. apical patches. Not very abundant. — **ila** *Fruhst.*, closely allied to *apharea*, white spotting more profuse, heavier and more irregular. Ground-colour underneath a still deeper black-brown. Kina-Balu, North Borneo. —
nandina. **nandina** *Moore* (126 e) from Java, the type from which the species received its name. Notwithstanding the different character of East and West Java, there seem to be no different local forms existing, and not even the specimens of the dry-season deviate sufficiently from those of the wet-season so as to deserve a special name. The latter which were figured by Moore, are but slightly larger and darker underneath than the dry-season form. From *apharea* and *nandina ila* the Javanese form differs especially in the larger subapical spots on the forewings and the broader white bands on the under surface; in Bali *nandina* is likewise represented by a form which ac-

cording to De Nicéville is like that of Sumatra. — **jucundiora** *Fruhst.* is remarkable for the broad white post- *jucundiora.*
discal band on hindwing and the very prominent white stripes, also on the under surface; but the subapical spots on forewing are much smaller than in the Javanese *nandina*. Found in Lombok at elevations of from 2000 to 3800 ft. above the level of the sea. Sumbawa. — **sumba** *Doh.* is a small-sized, rare, insular form, unknown *sumba.*
to me in natura. — **florensis** *Snell.* which is not represented in my collection surpasses, according to the des- *florensis.*
cription by its author, in size the Indian *susrata* and *leuconota* from Perak. Under surface cinnamon-brown. Flores.

N. soma is less susceptible of climatic influences than *N. nandina*, and ranges over a much smaller area, being largely confined to the Continent and nowhere found in the Northern Philippines or in the Macromalayan Islands, Engano and Perak excepted. Its occurrence in Formosa together with a true *nandina* form caused me to compare the genital organs, which rendered a separation of the two advisable, although formerly they had been united by Butler, Nicéville, Bingham and myself. *soma* has also more rounded wings and, even in the dry-season form, the white spots on the upper surface unusually much obscured and reduced. In morphological respects the more robust Uncus and the Valve which is provided distally with a minute, sharp spine and subbasally with a sharp prominence, are additional proof of the difference between these species which holds good in the Continental as well as the insular forms of the collective species. — **lutatia** *Fruhst.* *lutatia.*
(126f) circumscribes a relatively large form, of a lovely, uniform chocolate-brown colour beneath. ♀ larger than ♂, with somewhat broader white bands. Formosa, from the low-lands to about 3800 ft. of alt. Not very scarce. — **boholica** *Fruhst.*, a small form from Bohol and Cebu, differing from Perak specimens of *soma gononata Btlr.* *boholica.*
in the paler, greyish under surface. Above the markings are pure white, narrower than in specimens from Mindanao. — **pseudosoma** *Fruhst.* inhabits Mindanao and Camiguin de Mindanao. The bands on the upper *pseudosoma.*
surface are dusted with ashy-grey, and the ♂♂ are, judging from Semper's figures, smaller than those from Bohol, but according to my own notes and contrary to Semper's reports the types in his collection have the stripes much broader than specimens from Bohol, shaded with brown-yellow, and the bands underneath narrower than in *N. mindorana Fldr.* — **palibothra** *subsp. nov.* of which I possess 5 specimens from the Philippine *palibothra.*
island of Bazilan, is in ♂ hardly any larger than *somula* (126 f); ♀ approaching the figured *nandina* ♂ (126 e). Both sexes differ from *lutatia* in having above the white submarginal dots more marked and the cellular stripes on forewing somewhat broader. Under surface paler brown than in *lutatia*, the subterminal spotting in contradistinction to the Continental forms purer white and more pronounced. February and March. — **capnodes** *capnodes.*
Fruhst. refers to the rainy-season form found in western China and figured by Leech on pl. 19 as *susruta* (fig. 9) and *adipala* (fig. 10), which figures were copied by Stichel in producing the same forms on pl. 53 in Vol. I of this work. A comparison with the new figures of *susruta* (126f, g, wrongly named *soma*) shows at once the difference, viz. the greatly reduced patches and the separated cellular spots on the under surface of the forewing. Western China, especially in the Province of Szetchuan. — **acala** *Fruhst.* (126 g) is the darkest of all hitherto *aca'a.*
known forms of *soma*; the white bands are, especially in ♀♀, very indistinct and shaded with grey. I only know the dry-season form which I took in Central Tonkin near Chiem-Hoa during August and September. — As **pseudadipala** *Fruhst.* I have described a dry-season or local form from southern Annam in which all the *pseudadi-*
white markings above are, unlike *acala*, enlarged, somewhat like in *adipala Moore*; beneath the ground-colour *pala.*
is pale red-brown, the submarginal band on hindwing narrower than in *adipala* and *soma*. Flies in February. — **tushita** *Fruhst.* is a rather small form from Siam in which the exceedingly narrow, in the cell occasionally *tushita.*
obsolete markings on the forewings greatly contrast with the brillant, broadly white bands on the hindwing. Under surface a deep chocolate-brown. — **gononata** *Btlr.*, not represented in my collection, in size like *tushita*, *gononata.*
but according to Distant's figure with more prominent white bands throughout. Malay Peninsula. — **soma** *soma.*
Moore occurs together with *nandina susruta Moore*, but not farther West than Sikkim; particularly abundant in Assam and near Darjeeling. The rainy-season form has the markings of the upper surface generally clouded with grey. — **adipala** *Moore* refers to the dry-season form, with clear white and broader bands above and *adipala.*
occasionally yellow-brown instead of red-brown under surface. — **kallaura** *Moore* replaces *soma* in the South *kallaura.*
of India where it has so far only been found near Travancore and in Kanara. Larva feeds on Malvaceae, Leguminosae and Urticaceae, and has the same characteristics as that of *N. jumbah*; also the pupa resembles that of *jumbah*. The imago is closely allied to *soma*, and the few specimens contained in the British Museum are described by Bingham as having the same narrow and small white spots. However, the subbasal band on the hindwing appears still more elongate and irregularly broad; the under surface paler ochreous and the discal spots nearer together. — **meridiei** *Doh.* from the island of Engano is so far the only known subspecies of *soma* found in the *meridiei.*
Malayan Insular Region. It is a very distinct form, resembling *lutatia Fruhst.* from Formosa in the markings of the upper surface which, however, are purer white without any grey or blackish clouding, and show a very

fine, but distinct, white antemarginal line on the hindwing, which reminds us of the much smaller *palibothra Fruhst.* from Palawan. Beneath it resembles the North Indian *soma Moore*, although evincing its insular character in the narrower white bands. Rather scarce; I obtained only 4 ♂♂ which were collected in April.

N. mindorana is not found outside of the Philippines; it seems to incline toward insular variation; but as there are only 4 subspecies known so far, a considerable number of new forms remains to be discovered. *mindorana* comes closest to *N. nandina Moore*, from which it is easily distinguished by the delicate distal border accompanying the submarginal spots on the forewing in which it resembles *N. duryodana Moore*. Beneath it approaches *N. nandina jucundiora Fruhst.* from Lombok in the vivid red-brown colouring, and *N. soma* fa. *adipala Moore* in the conspicuous white spotting of the anteterminal area on both wings. The most northern
ilocana. form is **ilocana** *Fldr.* (126 g) with the purest white and largest bands and uniformly pale red-brown under surface.
nivescens. — **nivescens** *Fruhst.* refers to an extreme dry-season form found in Luzon during April and figured by Semper (Pl. 29, fig. 4 of his Work on Philippine Rhopalocera), in which the white median band on hindwing is enlarged into a broad patch. Presumably we should refer to *ilocana* also the specimens mentioned by Semper as being
mindorana. taken in the Babuyanes and Polillo. — In **mindorana** *Fldr.* we notice on the forewing, besides the submarginal band distinguishing *ilocana*, two distinct delicate lines running parallel with it; but the median bands are considerably narrower than in the Luzon form, and the colouring of the under surface on the whole darker. Mindoro
negrosiana. and Ylin, not very abundant. — **negrosiana** *Fruhst.*, closely allied to *ilocana*, but with somewhat narrower bands and the subapical spots on forewing more elongate and pointed than in either of the two preceding forms, between which it stands intermediate as to colouring and markings, especially of the under surface. Island of Negros
nosba. and, without varying much, also in Cebu, Guimarao. — **nosba** *subsp. nov.* is another intermediate form connecting *negrosiana* with the form from Palawan, with narrower white bands than in *negrosiana*, but considerably larger in size than ♂♂ from the southernmost Philippines. Type came from the Camotes, contained in Semper's collection in the Senckenberg Museum at Frankfort. I subordinate to this form also the specimens from Leyte
harpasa. and Samar mentioned by Semper. — **harpasa** *subsp. nov.*, not scarce in Palawan during January, shows among all forms the plainest markings, resembling *mindorana* in the arrangement of the white bands, but with longitudinal lines traversing the anteterminal area very faint, and subapical as well as discal spots smaller; under surface darker brown than in the northern forms. Semper reports it also from Cuyo and Domoran.

mahendra. **N. mahendra** has been described in Vol. I, p. 176. Its Indian representative, **mahendra** *Moore* is limited to the north-western Himalayas, occurring from Cashmere to Simla at elevations of from 2000—9000 ft, between April and August. It is somewhat subject to seasonal Dimorphism, specimens of the dry-season being smaller, less deep black than the summer form, with narrower bands. *mahendra* is easily recognized by the three large confluent subapical patches on forewing and the white subbasal band on hindwing considerably widening costally.
extensa. — **extensa** *Leech* (Vol. I, pl. 53 f) was erroneousiy united with *N. yerburyi* by Stichel, but is undoubtedly a form of *mahendra*, differing from specimens from the North-West Province only in the somewhat narrower white submarginal band on the hindwing. Found in West China, particularly on Omishan, at altitudes of up to 9000 ft.
reducta. — **reducta** *Fruhst.*, a highly specialized, melanotic insular form which might almost be treated as a distinct species, differs from *mahendra* and *extensa* in having all the white markings greatly reduced; the submarginal band on hindwing is often nearly completely obsolete, and the costal subapical spot as a rule absent. The under surface is deeper brown than in Continental specimens, but in the increased white markings it comes closer to *extensa* than one should expect from the upper surface. Found as a great rarity during July in the mountain-
nisaea. ous parts of Formosa, at altitudes of about 3800 ft. — **nisaea** *Nicév.* described from specimens discovered by me in Java, has the wings more rounded than *mahendra*, the ground-colour more fuscous brown, the submarginal spots reduced and all spots rather roundish than square; the under surface is deep chocolate-brown and approaches *mahendra* in the more conspicuous spotting. West Java, on the Vulcano Gede, only above elevations of 3800 ft., very scarce.

N. yerburyi (Vol. I, p. 176, pl. 53 e), distinguished by the more elongate forewings which are at the apex drawn out to a distinct point. The spot at the apex of the cell is always elongate and on the under surface of the forewing either completely fused together with the basal streak or only separated from it by a feeble in-
yerburyi. cision. Median band on hindwing wider than in *mahendra*, especially near costa. — **yerburyi** *Btlr.* (I, 53 e) ranges, without undergoing any perceptible change, from Afghanistan to Tenasserim where I encountered it
ominicola. in May at 3800 ft. of altitude. — **ominicola** *Fruhst.* (Vol. I, p. 177, pl. 54 a, erroneously named *tibetana*) found in western China. The specimens before me are from Omishan and are larger than from India, having the white spots on upper surface reduced in size and laved with dull yellow, which fact misled Leech to mistake *ominicola* for *soma Moore*; however, its relationship with *yerburyi* is proved by the subcostal band widening out
clinioides. costally on hindwing. Not very scarce in western China during June and July up to 9000 ft. — **clinioides** *Nicév.*, a small-sized form, has also above the cellular spots on forewing united, differing moreover from its Indian ally in the jet-black ground-colour and the reduced white submarginal bands on hindwing. Beneath

it resembles *yerburyi*, but with median band strongly tapering behind. North-East and West Sumatra, not below altitudes of 3800 ft., and very scarce.

N. jumbah. Great uncertainty prevailed until lately about the various forms of this interesting species, since all English authors considered specimens from Ceylon identical with those from the South of India and the Andamans. But a close study of the material contained in the British Museum and in my own collection lead me to the conviction that *jumbah* should be separated at least into 4 local forms. This view could indeed be no more strongly supported than by the figures Moore himself gave us of the larvae, of which those bred at Kanara (Lep. Ind. Pl. 272, fig. 1) greatly differ in colouring from those found in Ceylon (fig. 1 a), the former having the head red and the dorsal stripes green upon a yellowish ground, whereas *nalanda* from Ceylon has the head and the dorsal stripes unicolorous brown. I do therefore not hesitate in establishing the following subspecies: **jumbah** *Moore*, distinguished by the extensive white spotting on forewing and the broader mesial bands on hindwing from the much darker Ceylon form *nalanda*, which has the bands not only greatly reduced in width but generally also dusted with fuscous. In all subspecies of *jumbah* we notice one common characteristic distinguishing them from all the other *Neptis* species, namely a brown subbasal dot on the under surface of the hindwing, which latter moreover is of a peculiar pale coffee-brown shade, while the forewing displays the same black streaks as we find in *Phaedyma*. *jumbah* is very common at Calcutta, whence it ranges over the whole of eastern and southern India, being found even near Cachar, Rangun, in Upper Tenasserim and even in the Mergui Archipelago. In the Nilgiris it ascends to an altitude of 5000 ft. Nicéville reports its flight to be stronger and swifter than that of any other *Neptis* species found near Calcutta. The larva has been found upon 13 different plants belonging to the Malvaceae, Sterculiaceae, Tiliaceae, Rhamneae, Leguminosae and Urticaceae. — **nalanda** *Fruhst.* (125 e) differs from *jumbah* in having the white spots on forewing greatly reduced in size, on hindwing the white subbasal band one third narrower and the under surface dark brown. Its flight is slow and it always alights with expanded wings. Like *jumbah* it is subject to seasonal Dimorphism, the dry-season form being recognized by the broader white bands and the paler colouring of the under surface. Found in the wooded districts of Ceylon, from the low-lands up to about 4000 ft., most abundant in February and March. — **amorosca** *Fruhst.* deviates from the other forms of *jumbah* in having all spots and bands, particularly the median band on hindwings, very much broader; the under surface is of a paler and more uniform colour than in *jumbah*, but darker than in *nilgirica* from the South of India. Hindwings have the postdiscal spots below the white median band dark red-brown instead of black; the white submarginal bands are narrower than in the other forms, the strigae beyond the cell of forewing red-brown and not black. Andaman Islands. — *jumbah.* *nalanda.* *amorosca.*

binghami *Fruhst.* from the Nicobars where it is very scarce, is described by Bingham as follows: 'Upper surface shows on forewing in the discal row only 5 spots instead of 6 as in *ophiana Moore*, the small dot in the intervening space being absent. Under surface dark chocolate-brown, the postdiscal markings on forewings very broad and diffuse, upon a ground of fuscous. Hindwing: Terminal margin beyond the postdiscal row completely and heavily laved with bluish-white and traversed by an outer, postdiscal and a subanal series of black lunules'. *binghami* is the form of the rainy-season, approaching in its markings, in contradistinction to the other South Indian subspecies, the North Indian *ophiana*, but still maintaining its melanotic insular character in the chocolate-brown colouring of the under surface. Nicobars, only 1 ♀ known. Type in British Museum. *binghami.*

N. pryeri (Vol. I, p. 175) is separated into 4 local forms: **pryeri** *Btlr.* (Vol. I, pl. 53 b), type from Shanghai, found throughout Japan, Korea and part of the Coast Provinces. — **andetria** *Fruhst.* (126 c), occurring in a few places of the Amur-Region whence it was sent to me by Dr. Moltrecht of Wladiwostok, is of smaller size and characterized by the almost complete absence of the submarginal band on hindwing. — **arboretorum** *Oberth.*, from Szetchuan differs from the Japanese *pryeri* in the diminished white markings; on the other hand the under surface has the anteterminal region more richly dusted with white. Found between Ningpo and Mupin. — **jucundita** *Fruhst.*, discovered by H. Sauter, approaches in size *andetria* and is characterized by the more delicate and roundish instead of oblong components of the white bands and macular rows. The under surface displays its melanotic character in the heavier subbasal spots of black and the deeper brown ground-colour. Found in Formosa at altitudes of 4000 ft., very rare, only 1 ♂ known. *pryeri.* *andetria.* *arboretorum.* *jucundita.*

N. divisa *Oberth.*, a delicate and interesting species, resembling the European *N. lucilla*, but differing in having the entire cell filled with white, divided by four lines. Also underneath it is very much like *lucilla*, but without the short white subbasal stripe. From Tseku, at an altitude of about 6000 ft., Yunnan. *divisa.*

N. zaida, an interesting species, has the forewings distinctly rounded, ground-colour black-brown with pale yellow or ochreous bands. Cellular streak not divided by an incision before the apex; subapical spot large, outwardly convex, notched on inside; intramedian spot nearly circular. Hindwing with oblique subbasal,

and strongly curved, very broad submarginal band. Cilia white. Beneath it is easily distinguished from all other *Neptis* by the monotonous, faded, pale ochreous colouring from which stand out the pale yellowish markings. The hindwing has the submarginal band lilac, the costal margin red-brown; forewing with a jet-
paliens. black, square spot close to the extremity of the cell between the submedian and lower median. — **paliens** *Fruhst.*
zaida. was founded upon the dry-season form, with yellow, occasionally also white spots, and **zaida** *Westw.* is the rainy-season form with dark ochreous markings on the upper surface. It is rather scarce, and only found from Masuri to Sikkim, at altitudes of up to 7000 ft., between May and July. Grose-Smith is said to possess a specimen from the Siamese Shan States. Elwes observed it during the rare intervals of sunshine in the rainy-season circling around the highest tops of oak-trees, alighting on the leaves, but rarely descending to the ground.

sylvana. **N. sylvana** *Oberth.*, described from Tsekou in Yunnan, differs on the under surface from *zaida* in the purer yellow ground-colour, the prolonged black median portion of forewing and the narrower, clear yellow bands on hindwings.

thisbe. **N. thisbe** *Men.* (Vol. I, p. 178) of which a small specimen from the Amur is figured (125 d) under the erroneous name of *ilos Fruhst.*, occurs in the Amur Region in two forms which greatly differ in size: a) from the Upper Amur near the mouth of the Schilka with an expanse of 53—60 mm; with this must be classed also the specimens from the Ussuri; b) from the Coast Province near Chabarofska with an expanse of 68—76 mm. —
dilutior. **dilutior** *Oberth.* from Yunnan, already described in Vol. I, p. 179. — **obscurior** *Oberth.* from Szetchuan.
obscurior.

nycteus. **N. nycteus** is the older name for the species better known under the name of *themis Leech.* — **nycteus** *Nicév.* is distinguished from *themis* (I, 54 f) by the much broader transverse bands which are white instead of ochreous. The intramedian spots on forewing seem to be twice the size of those of *themis*. The collective species has its home in China, *nycteus* representing the most southern branch in Sikkim and Southern Tibet, where it is exceedingly scarce, a fact to be observed in nearly every species with regard to the forms found on the outer limits of its range of distribution. Descriptions are published of 5 specimens which were taken in June and July at altitudes of between 6—16 000 ft. Oberthür has received specimens of *nycteus* from Lachin-
themis. Lachoong varying above from white to yellowish. — **themis** *Leech* a great number of which from Siau Lu is
theodora. contained in my collection, has been described in Vol. I, p. 179. — **theodora** *Oberth.* from Tseku in Yunnan is
thetis. a dark local form of the preceding. — **thetis** *Leech* (Vol. I, p. 179, pl. 54 f), according to Oberthür a separate
ilos. species, is presumably only a form of *nycteus* with white instead of yellow median band on hindwing. — **ilos** *Fruhst.* was sent to me by Dr. Moltrecht from the Amur. The description is based on a very small specimen remarkable for the greatly obscured and reduced markings of the upper surface. Cellular streak on forewing and median band on hindwing hardly one half as wide as in *themis*, but the colouring of the under surface agrees with that of Chinese specimens. Having heard meanwhile from Dr. Moltrecht that he received in exchange from Mr. Charles Oberthür a number of butterflies in papers from West China, I fear that the above described *ilos* ♂ did not come at all from the Amur, but was accidentally mixed up with specimens
yunnana. from there. In this place must also be mentioned **N. yunnana** *Oberth.* and **N. nemorum** *Oberth.*, both from Tseku,
nemorum. which were already described in Vol. I, p. 179. *nemorum* I consider, in accordance with Oberthür, to be a
sylvarum. distinct species, on account of the violet median band on the under surface of the hindwings. But **sylvarum** *Oberth.* is also by its author taken to be only a darker form of *nemorum*. Tseku.

manasa. **N. manasa** *Moore* was united with *nycteus* by Bingham in his 'Fauna of British India'. Although I have never seen it in natura, I find on comparison of the two figures given by Moore a considerable difference, in as much as *manasa* has the median band on the hindwing proximally essentially narrower and accompanied distally by three sharply separated parallel bands, whereas *nycteus* and *themis-thetis-ilos* only display one, violet or greyish-yellow band. As the upper surface, however, is hardly to be distinguished from that of *nycteus*, it is possible that *manasa* only represents an individual aberration, especially as only one specimen was taken at the time of its discovery in 1857 the real home of which is unknown; its colouring would point towards the north-western Himalaya as its place of origin. According to reports Oberthür received in 1906 three specimens from near Darjeeling which were taken together with *zaida*.

antilope. **N. antilope** *Leech* (Vol. I, p. 178, pl. 54 d, e) appears from the two specimens collected by Leech at Hongkong in March 1886 to be smaller than specimens from Central and Western China. Walker does not mention it in his List of Lepidoptera of Hongkong, which only names *N. hylas L.* and *Phaedyma columella Cr.*

N. heliodore approaches in its delicate external appearance much more the yellow *Rahinda* and the hereafter mentioned *Bimbisara* than the heretofore described larger species, but its structure refers it to
heliodore. the true *Neptis*. **heliodore** *F.*, originally described from Siam, may be recognized by the more or less conspicuous, strongly undulate anteterminal band of pale fulvous distally accompanying the subapical and intramedian spots. Specimens of the wet-season and insular forms have the median spots separated, those of the dry

season confluent. The name type refers to the latter of which specimens with completely faded under surface have been described under the names of **cambodja** *Moore* and **sattanga** *Moore*. — **kuhasa** *Nicév.* represents an extreme wet-season form collected by me in Tonkin during August and September, in which the cellular spots on forewing are united. — *heliodore* is not scarce in Central Siam, at an elevation of about 1000 ft. (January); Moore and Bingham report it also from Tenasserim, Assam and Burmah. — **dorelia** *Btlr.* is found in the Malay Peninsula; specimens from Borneo do not differ greatly from it. *dorelia* deviates from the figured *niasana* (125 c) in the brown-yellow spots being more sharply defined. — **siaka** *Moore* from North and West Sumatra has somewhat narrower transverse bands than specimens from Borneo. An allied form is mentioned by Hagen from Banka as *tiga* and *dorelia*. — **niasana** *Fruhst.* (125 c) differs from the other forms of *heliodore* in having the submarginal band on upper surface of hindwings much narrower, on the forewing more conspicuous strongly undulate and compact. Also the yellow antemarginal line on forewing is more distinct than in *tiga*, the black bands and the distal border on the under surface of hindwing more diffuse than in *tiga*, but more intense than in *dorelia* and *siaka*. Nias. — **tiga** *Moore* found in Eastern and Western Java up to 2000 ft. of altitude, has among all the forms of *heliodore* the broadest and most sharply defined black bands, and the yellow markings less diffuse.

cambodja. *sattanga.* *kuhasa.* *dorelia.* *siaka.* *niasana.* *tiga.*

N. bella *Stgr.* from Palawan may prove to be a mere subspecies of *heliodore*; this supposition can only be decided, after a close examination of the Fauna of the Jolo Archipelago should bring out some intermediate forms. Beneath it has all the blackish portions of the upper surface of a pale, faded grey-brown cast. The white markings are surrounded by a delicate, deep brown undulate band. Palawan, January, very scarce.

bella.

N. nitetis, an insignificant looking species limited to the Philippines, where it has developed a number of rather similar insular forms. The general pattern which recalls *N. vicasi*, is shown in our figure of *gatanga* (125 a), but in the majority of forms the wedge-shaped subapical spots are clear white. — **nitetis** *Hew.* from Mindanao has the transverse bands pale coffee-brown, the subapical spots dusted with grey, the under surface much paler than in *gatanga*, with greyish-yellow stripes irrorated on the forewing with violet. Flies the whole year round, particularly from April until June. — **carvinus** *Fruhst.* Subapical spots on forewing brown-yellow, under surface fuscous brown-grey with prominent bands of violet, especially on hindwings. Camiguin de Mindanao. — **ormiscus** *Fruhst.* ♀: Under surface with conspicuous transverse bands and subapical spots of a clear white instead of yellowish colour and much broader than in the preceding forms. Bohol (Panaon, Cebu, Samar ?). — **samiola** *Fruhst.* has the wings more pointed and narrower than *nitetis*, the subapical spots greyish-white, the brown bands on hindwing less wide, more diffuse and yellowish instead of grey. ♀ has the forewing beneath adorned with small, clear white, subapical, subanal and submarginal spots and bands; hindwing with prominent white transverse bands peripherically slightly irrorated with violet. Ground-colour dark brown. Mindoro. — **prodymus** *Fruhst.* is one of the prettiest *Neptis* known, forewing with clear white subapical spots standing out boldly from the dark ground; submarginal bands clear white, all other bands broadly pale greyish-brown. Median spots on forewings roundish, distally not convex. Beneath the ground-colour is darker with all bands sharper and clearer white than in ♂♂ and ♀♀ from Mindanao. Hindwings without violet irroration. Bazilan, February and March. — **gatanga** *Fruhst.* (125 a) distinguished from the heretofore described forms by the more rounded wings; subapical spots dull grey-brown, all yellowish-brown bands very narrow; ground-colour of under surface darker but more vivid brown than in Mindanao specimens, all yellowish-white markings reduced, bands on hindwing much steeper, the brown bands more prominent. Jolo. — **arachroa** *subsp. nov.* from the Sula Archipelago is closely allied to a form from Celebes contained in the Staudinger collection, larger and darker than Celebes ♂♂, with broader median bands on both wings. Under surface with a large and nearly clear white apical spot on forewing, rather violet than whitish bands and broader red-brown longitudinal stripes. — **anemoreia** *subsp. nov.*, discovered lately by Dr. Platen in Celebes, has on both wings the median bands and subapical spots yellow-brown, under surface red-brown, in places irrorated with violet.

nitetis. *carvinus.* *ormiscus.* *samiola.* *prodymus.* *gatanga.* *arachroa.* *anemoreia.*

N. vikasi is closely allied to *nitetis* and very susceptible to geographical influences, (fig. 125 a) representing several extreme forms. From *nitetis* it deviates in the more pointed wings and the more oblique subbasal band on hindwing. — **harita** *Moore* from North India is the most common *Neptis* form found in Lower Sikkim. The bands above are grey-white, beneath yellowish-white, excepting the submarginal band which is violet. The rainy-season form = **pseudovikasi** *Moore* is larger than *harita*, with larger yellowish-white bands, especially in ♀. Ground-colour darker blackish-brown, beneath richly irrorated with violet. — **suavior** *Fruhst.* is the larger form from Assam, distinguished by the deeper brown colour, the rather yellowish than grey stripes and the richer violet lustre of the under surface. According to Doherty (J. As. Soc. Ben. 1886, p. 125) and Moore *vikasi* is also found in the Kumaon Himalaya, being observed by Doherty at an elevation of 4000 ft., but rather

harita. *pseudo-vikasi.* *suavior.*

scarce in the Sarju Valley. Considering the great variability of *vikasi* even within comparatively small distances, I feel justified in the belief that specimens from Kumaon deviate from those found in the Eastern Himalayas.

sakala. — Another quite characteristic form is met with in Tonkin: **sakala** *Fruhst.*, ♂ in size equalling the rainy-season form of *suavior*, but with the upper surface, analogous to other Tonkinese forms, rather darker and all the yellowish-grey bands and spots reduced. Beneath the black spotting more profuse and consequently the whitish spots, especially in the median area of forewing, reduced. Hindwing has the white median band narrower basally, but the black-brown submedian band nearly twice as wide as in *suavior*. Tonkin, Chiem-Hoa, August till

omeroda. September. — **omeroda** *Moore*. Ground-colour darker black-brown than in Javanese specimens, apical spots and bands much smaller; white bands underneath more reduced, the brown median band on hindwing more conspicuous. Distant's figure of ♀ from Perak shows beneath more white than my Sumatra ♀♀. Malakka,

salpona. Sumatra, Deli and Padang Bovenlanden, Penang (type) Singapore. — **salpona** *Fruhst.* (125 a). Ground-colour rather lighter than in *omeroda*, all markings broader and somewhat paler, more yellow than grey-brown. Under surface more uniform brown, all median bands on hindwing dull yellowish and not white. ♀♀: Submarginal band on hindwing suffused with violet; the inner brown antemarginal band obsolete, partially completely

vikasi. fusing with ground-colour. Both sexes of smaller size than in *omeroda*. North Borneo. — **vikasi** *Horsf.* ♂ resembles in size and colouring much more the Indian *harita Moore* than *omeroda Moore* from Sumatra and the remaining Macromalayan forms, a curious fact which may be explained by a Tertiary land-connection existing between the continent of India and Java, and the prevalence of similar climatic conditions. *vikasi* ♂ has on the upper surface the bands paler brown than *harita* ♂; under surface paler, with white median band on hindwing more sharply defined, the black submedian band narrower and the submarginal lines somewhat darker. The ♀ from western Java has been excellently figured by Horsfield, only the white markings appear

taimiri. a trifle too bright. Western Java, at an altitude of 2000 ft. above the level of the Sea. — **taimiri** *Fruhst.* (125 a): Both sexes smaller, bands more whitish, median spots on forewing more reduced and farther apart, distally convex. Beneath the subapical spots on forewing larger and united to a more compact band; bands on hindwing suffused with violet. Eastern Java, from near Lawang, Tengger Mountains up to 3000 ft. of alti-

infuscata. tude. — **infuscata** *Hag.* Beneath somewhat paler than *vikasi*, in size smaller than *ilira Kheil*, apex of forewing

ilira. more blunt than in Nias ♀. Mentawej, one pair in Tring Museum. — **ilira** *Kheil* (125 a) differs in ♂ from *vikasi* in the pure white subapical spots on forewing; under surface darker, hindwing with violet subbasal

kheili. band, forewing with similar streak in cell. — **kheili** *Moore* (= *lasara Fruhst.* [125 b] both described in 1899) represents the form of the rainy-season. ♂ has the ground-colour darker, rather black than brown, subapical spots smaller, but purer white and more roundish, occasionally dusted with grey. Hindwing with narrower, clear white subbasal band. ♀ with shorter white subapical and median spots, and with more distinct white submarginal bands on both wings. Under surface darker brown, hindwing without a trace of violet lustre;

batunensis. specimens of the wet-season larger than those of the dry-season. Nias, not abundant. — **batunensis** *subsp. nov.* approximates again more to the Javanese *vikasi*; above with much paler stripes than *ormeroda Moore* from Sumatra. Under surface paler, traversed by broader yellow-brown bands than in *vikasi* and *ormeroda*. Pulo

pallantia. Tello, Batu Islands. — **pallantia** *subsp. nov.* is remarkable for the whitish-yellow bands (also in ♂) on the upper

celebica. surface of the hindwing in which it recalls *lasara Fruhst.* from Nias. Island of Banka. — **celebica** *Moore*. ♀ according to Moore larger than the Javanese *vikasi*, with broader median bands on hindwing and darker

oresta. under surface which is more brown than white. ♂ unknown. South Celebes. — **oresta** *subsp. nov.*, described from a ♂ taken by Dr. Platen in the Minahassa (type in the Staudinger Collection in the Berlin Museum), is above darker, beneath paler than *vikasi Horsf.* from Java, more profusely suffused with violet and with narrower transverse bands on the under surface of hindwing. Forewings more rounded than in *taimiri Fruhst.*

palawanica. Minahassa, North Celebes. — **palawanica** *Stgr.* is darker than *vikasi*, which it also surpasses in size; paler than *ormeroda*; transverse bands essentially broader than in *salpona*. ♀ not unlike *ilira* ♀ from Nias, with still larger, wedge-shaped, white subapical spots, 3 median spots on forewings and a white median band on hindwing, widening out costally, strongly tapering basally. Submarginal band on hindwing is, as in *salpona*, yellowish

vibusa. brown. Palawan. — **vibusa** *Semp.* appears from Semper's figure to be a local form of *vikasi*; under surface characterized by two violet transverse bands on hindwing. Sibulan, Mindanao, Southern Philippines.

kahoga. **N. kahoga** *Fruhst.* differs from *ilira Kheil* and *kheili Moore* in the paler yellow-brown colouring of the upper surface and the more pointed, wedge-shaped spots on forewing which are placed farther from the costal margin. ♀♀ have the basal band on hindwing narrower, widening in front, thinning out towards the anal margin; its costal portion is white, the anal portion yellowish-grey, whereas in *kheili* this band is broader, of equal width and clear white throughout. On hindwing we find in addition a second, yellowish-grey median band lacking in the forms of *vikasi*, and a rather curved submarginal stripe as well as an anteterminal line distinguishing also *vikasi-ilira Kheil*. Forewing of ♂ with four, that of ♀ with five, white wedge-shaped spots; ♀ shows in addition just below the submedian a blurred patch of white. The under surface is at once distinguished by the faded grey-brown ground-colour, richly adorned with white. Island of Nias.

N. cartica displays above the ordinary *Neptis* character, agreeing in its design so closely with *nandina* etc. that it is frequently mistaken for it. But the markings of the under surface of the hindwing are so characteristic that I am surprised that Moore subordinated it to his Genus '*Bimbisara*' rather than founding a new Genus on it. For *cartica* is the only white *Neptis* lacking on the under surface of hindwing the whitish subbasal band, a characteristic shared by *anjana Moore* and *ananta Moore* belonging to the yellow *Neptis*. Moreover, the hindwing has the white basal spot broader and more conspicuous than in any other species. This fundamental characteristic which unites *cartica* with *anjana-autara*, has hitherto not been mentioned by any of the authorities on Indian Lepidoptera. *cartica* may be subdivided into three subspecies: **cartica** *Moore* (125 e), representing the form of the dry-season, only slightly differing from the rainy-season form **carticoides** *Moore*, which is somewhat larger, with narrower, slightly diffuse white bands, and the brown bands on under surface more prominent. Sikkim, Nepal. — **nashona** *Swinh.* has the white markings greatly obscured, reduced and richly suffused with violet beneath. Assam, hitherto only known from the Khasi Hills. — **burmana** *De Nicév.* the very reverse of the preceding form, with luxuriant white markings. Burmah, Tenasserim. *cartica.* *carticoides.* *nashona.* *burmana.*

We now bring a group of *Neptidi* which is strictly confined to the Papuan Region; its species have always, on account of their great similarity to *Tellervo* (*Hamadryas*), kept awake the interest of collectors of Lepidoptera; they were until lately very scarce and, being greatly subject to local variation, have often been mistaken for others and given wrong names.

Before describing the different species, a general table will be found useful to assist in the determination of the Papuan *Neptis*, since neither De Nicéville nor Moore recognized or defined their fundamental differential characteristics.

Group I: Apex of forewing acuminate.

A. Submarginal spots beneath white: *brebissoni Bsd.*

B. Submarginal spots beneath violet: *satina Sm.*

Group II: Apex of forewing rounded.

A. Hindwing beneath with only one white basal spot: *nausicaa* de *Nicév.*

B. Hindwing beneath with three white basal spots: *praslini Bsd.*

Of **N. brebissoni** four forms have been described: **brebissoni** *Bsd.* resembles above *damarete* and *satina*, but has the white spots before the apex of forewings smaller. Dutch New Guinea, very scarce. — **simbanga** *Hag.* replaces *brebissoni* in German New Guinea. According to Hagen the upper surface resembles that of *satina* (125 g), but the under surface offers the following differences: On the forewing the cell does not have a bluish longitudinal dash, divided by two fine lines which may occasionally be absent, but three sharply defined, steel-blue spots separated from each other by broad interspaces, the inner, basal one being a mere streak, the middle one quadrate, the outer one acute triangular; on the hindwing the white median band does not reach the costa as in *satina*; the two bluish antemarginal bands are composed of rather small spots separated from one another by larger interspaces. Hagen knew only of two ♂♂ from Simbang; I possess two ♂♂, one from Stephansort and another from Friedrich-Wilhelmshafen, differing from *satina Sm.* in their inferior size; moreover the hindwing has the lower white median spot placed somewhat nearer the outer margin and the subanal spots smaller; the forewing the subapical dots more delicate. Under surface has on forewing the cellular streak always divided, the median spot greatly enlarged, the antemarginal dots etc. clear white instead of violet; on hindwing the median band much broader, oblong and shorter, the submarginal dots smaller and white instead of violet. — **metioche** *Fruhst.* differs from *brebissoni* in the larger white spots on forewing, the broader clear white band on hindwing and especially in the greatly enlarged white spots on the under surface of both wings. Island of Waigiu, very scarce. — **dulcinea** *Sm.* displays its pronounced insular character in the reduction of the white band on hindwing which strongly tapers anally. Island of Mafor, in Geelvink Bay, discovered by W. Doherty in May or June 1897. *brebissoni.* *simbanga.* *metioche.* *dulcinea.*

N. satina shows among all members of this group the plainest and at the same time most characteristic markings. The upper surface is very well shown in our figures (125 g); the under surface is distinguished on forewing by the undivided cellular streak of blue or greenish bronze-colour, the broadly diffuse intramedian spots and two nearly complete rows of white antemarginal dots; hindwing with two conspicuous subbasal stripes and a sharply defined median band. Before the terminal margin two series of whitish spots united into a sort of band and suffused with blue or violet. — **satina** *Sm.* (125 g) discovered by Doherty on Humboldt Bay, Dutch New Guinea, is the larger of the two known forms, distinguished by the large white band on hindwing. — **damarete** *Fruhst.* (125 g) has all white markings greatly reduced, the white bands being as a rule considerably narrower than shown in our figure. German New-Guinea, according to Hagen not scarce from June till December. *satina.* *damarete.*

N. nausicaa is a distinct species, easily distinguished from *praslini* and *praslini papua* by the presence on the under surface of hindwing of only one basal spot, whereas *praslini* and its allies have invariably three. Moreover the white median band on hindwing almost touches, especially on under surface, the submarginal dots, being always longer and, in the forms from Dutch and German New Guinea, uniformly broad. Of *nausicaa*

nausicaa. I know four distinct forms: **nausicaa** *Nicév.* (125 f), according to Hagen very common in Kaiser-Wilhelmsland and greatly subject to variation. Within the limits of the German Colony two local varieties appear to exist, namely the typical *nausicaa*, with very small submarginal dots on the hindwings, as it was figured by Nicéville (Stephansort) and the other one with larger spots (Friedrich-Wilhelmshafen). From the Schoenberg Collection I have received in addition some specimens in which the white distal band on hindwing reaches the costa and is on either side suffused with greenish instead of blue. Dr. Strand reports that *nausicaa* has been discovered

syxosa. by Prof. L. Schultze also on the Upper Kaiserin-Augusta River. — **syxosa** *Fruhst.*, a dwarfed form of the preceding subspecies, from Dorey, north-western Dutch New Guinea, forewing measuring 28 mm against 32 in *nausicaa*. Wings more rounded, white markings reduced, median band on hindwing broken up anally, being deeply invaded by the black ground-colour. The submarginal spots, altough individually smaller, are arranged in more complete rows. Median spot on under surface of hindwing costally and distally narrower, rather

sparagmata. more oval than in *nausicaa*. — **sparagmata** *Fruhst.* ♀ somewhat smaller than ♀ of *nausicaa*, approaching *symbiosa* and *syxosa*. *sparagmata* differs from all the other forms in having the white spots greatly reduced on either wing and the whitish-blue median band on hindwing finger-shaped and distally much narrower. The reduction of the white markings is evident also on under surface. Submarginal dots on forewing and median band on hindwing at their periphery richly suffused with blue. South-western Dutch New-Guinea, Tanah-Merah,

symbiosa. July 1905, type 1 ♀ in Roeber's Collection. — **symbiosa** *Fruhst.* has the wings still rounder than *syxosa*, recalling *praslini*. Forewing with clearer white and more sharply defined spots, those within and particularly at the apex of the cell much shorter. Hindwing with discal spot nearly as round as in *praslini*, broader than in *nausicaa*, but considerably shorter. Under surface: Median spots on forewing larger than in *nausicaa*; at the costal margin of hindwing a very long white streak, only very rarely met with in *nausicaa* in the shape of an obsolete dash. I presume that *symbiosa* has, on account of the round shape of the median spot on hindwing, been frequently mistaken by previous authors with *praslini* from British New-Guinea. Milne Bay, British

lyria. New Guinea. — **lyria** *Fruhst.* has the band on hindwing still more completely rounded and, at the same time, all white spots enlarged, partieularly the triangular patch at the apex of the cell on forewing, whereas on hindwing the submarginal dots have almost disappeared. In the luxuriant white markings of the upper surface *lyria* approaches *Phaedyma eleuthera Sm.* from Stephansort, *praslini terentia* from Wetter and *praslini connexa Sm.* from Key. Island of Waigiu.

N. praslini. This much disputed species has developed the greatest number of forms in the entire Group. Above it differs from *nausicaa* in the shorter, nearly circular median area on hindwing. Beneath the hindwing is adorned with three white basal dots, and the white median area is, in contradistinction to the preceding species, invariably of an oval or oblong shape, not shawl or band-like as in *nausicaa*, *brebissoni* and

praslini. *satina*, even when on the upper surface in appears long-stretched. — *praslini Bsd.* (125 f) is found exclusively in Neu-Mecklenburg (called New-Ireland by the English), or rather, Boisduval's type came from that island.

nemeus. — **nemeus** *de Nicév.* shows, although larger than *praslini*, in its markings much less white; the median spots on forewing smaller, distally diffuse; distal spot on hindwing at a greater distance from the base, more rounded;

saloë. the submarginal streaks thinner, more delicate, but longer. Neu-Pommern. — **saloë** *Fruhst.* is distinguished

maionia. beneath by the submarginal spots being bluish instead of white. Neu-Hannover. — **maionia** *Fruhst.* represents a local form from German New Guinea, differing from that found in the Dutch part of the island in the greatly reduced white median spots on forewing, from *staudingeriana* in its superior size and the narrower discal spot on hindwing. The ♂ found in my collection has the median spots on forewing smaller and more roundish than

papua. they appear in De Nicéville's figure of ♀. German New-Guinea. — **papua** *Oberth.* closely allied to *messogis Fruhst.* (125 f), but with diminished white spots. So far only known from Dorey and Rubi in the North-

messogis. West of Dutch New Guinea and from Mt. Epa in the south-western part of the Dutch colony. — **messogis** *Fruhst.* (125 f) differs from *papua Oberth.* in the larger white spots, from *lactaria Btlr.* in the reduction of all

dorcas. white markings. For the rest I refer the reader to the figure. Waigiu. — **dorcas** *Sm.* an excellent insular form; hindwing with greatly divided white discal spot and uncommonly large submarginal dots. Island of Biak, Mysore, Korrido and from Ansus in Jobi, in which latter localities it differs according to Kirsch in the

ronensis. increase of the white markings. — **ronensis** *Sm.* characterized by having the white band on hindwing strongly

lactaria. contracted basally. Island of Ron, in German New Guinea, collected by Meek. — **lactaria** *Btlr.* from the Aru Islands, a very rare form of which no figure exists so far. It resembles *connexa Sm.*, but with larger white

connexa. spots. — **connexa** *Sm.* is a relatively small-sized form with exceedingly narrow discal spot on hindwing and

terentia. uncommonly large white spot at apex of cell on forewing. Key Islands, scarce. — **terentia** *Fruhst.* deviates

from *connexa* in the still greater development of the white spotting on both wings. Hindwing has the discal area distally broader than in specimens from Waigiu, slightly tapering basally; Island of Wetter in the Timor Group. — **staudingeriana** *Nicév.* from Cape York, North Australia approaches in size *connexa* from Key, in the markings *maionia Fruhst.* from New-Guinea. *staudingeriana.*

Group II: **Phaedyma.**

The species belonging to *Phaedyma* are characterized by their larger size, the greatly developed scent-scale spot on the hindwing above and the significant position of the costal veins on the hindwing. Costal and subcostal are always very close and parallel to one another, running into the distal margin, whereas in *Neptis* (in the strict sense) the costal inosculates into the costal margin. *Phaedyma* may be separated into two Subgroups:

A. Hindwing with precostal arising vertically (Indo-Malay races).

B. Hindwing with precostal in-curved proximally (Austro-Malay races).

Sub-Group A.

N. columella is represented by a long series of local and insular forms ranging over the entire Oriental Region as well as a number of Macro and Micromalayan Islands. On the Continent *columella* is subject to seasonal Dimorphism which finds expression in the specimens of the dry-season in an increase of the white markings of the upper surface and the paler colouring of the under surface, whereas in specimens of the extreme wet-season the whitish bands above are very narrow and clouded, and the colouring varies from ochreous to chocolate-brown. — **columella** *Cr.* described by its author from a ♀ of the rainy-season, surpasses in size all the other forms, even specimens taken in Tonkin during the wet-season. On forewing intramedian spots unusually long, on hindwing the stripes extraordinarily broad. South China (Hongkong, March-May, rare), Hainan. — **tonkiniana** *Fruhst.* is considerably smaller than *columella Cr.* from China, measuring only 67 mm in expanse. My specimens differ above from Cramer's figure in the shorter white spots on the forewing and in the absence of the white submarginal spots on the hindwing. The under surface has all spots on forewing smaller, the discal band on hindwing obsolete as also the outer of the two submarginal bands, which in Cramer's figure are placed close to one another and more prominent. Tonkin, Than Moi, June-July, 2 ♀♀. — **martabana** *Moore* is represented in Farther India by two forms: a) fa. **martabana** *Moore*, type from Rangoon. My rainy-season specimens from Lower Burmah and Siam are at once distinguished from their allies from India proper and Tonkin by the great prevalence of the black ground-colour and the consequent reduction of all white markings, whereas the dry-season form is much more richly adorned with white than any of the other known subspecies. For that reason I adopt the name given by Moore for *columella* from Tenasserim, Malay Peninsula, Siam and Annam. — b) fa. **alesia** *Fruhst.* (125 e wrongly named *siamensis*) represents the form of the dry-season, differing from that of India proper in the much broader and shorter longitudinal stripe in the cell, the more roundish spot at the apex of the cell, and the broader median bands on the hindwing. Being moreover of smaller size than *ophiana*, the increase of the white markings is even more conspicuous. Malay Peninsula, Siam (Bangkok and Hinlap [January], Kanbury), South Annam (Xom-Gom, February). — **ophiana** *Moore* was wrongly declared by Moore (Lep. Ind.) synonymous with *columella Cr.* Chinese specimens are always larger and have narrower white bands than those from India. The difference between the forms of the rainy and dry seasons is less marked than in *martabana* and *alesia*, appearing rather in the darker, more chestnut-brown than ochreous colouring of the under surface of the wings than in a reduction of the white markings so evident in the rainy-season forms of *martabana*, *tonkiniana* and *columella*. Sikkim, Assam, Mussoorie (De Nicéville). — **nilgirica** *Moore* from the South of India differs from the North Indian form in having the white discal spots on forewing larger and the bands on hindwing broader. Nilgiris. — Of **singa** *Fruhst.* we know a very characteristic rainy-season form of unusually small size and with uncommonly elongate, pointed wings. The white markings are somewhat broader than in *martabana Moore* and much narrower than in *alesia Fruhst.* But on the under surface it differs from all its allies in the nearly black-brown ground-colour of both wings. Its home is Singapore, but I presume that it also occurs in Borneo and Sumatra. In the latter island *columella* is so scarce that Dr. Martin received during the course of 13 years only 1 specimen, and in Borneo it has not been discovered as yet, although there is reasonable certainty of its existence there, since it is not at all rare in Palawan. — **bataviana** *Moore* displays among all the forms of *columella* by far the richest white markings. East and West Java, up to about 2000 ft. of altitude. According to De Nicéville also in Bali. — **baweana** *Fruhst.* (125 f ♂ and ♀). ♂: The white spot before the apex of cell on forewing

columella. *tonkiniana.* *martabana.* *alesia.* *ophiana.* *nilgirica.* *singa.* *bataviana.* *baweana.*

considerably larger than in Javanese ♂♂ the remaining spots and white bands on hindwing somewhat smaller and narrower. Under-surface: Ground-colour, especially of the distal and anal portions of hindwing, much darker chocolate-brown than in *bataviana Moore*. ♀ has the white discal band on hindwing hardly one half as wide as in Javanese specimens, the postdiscal band much broader and nearly entirely black; the inner submarginal band is composed of more regular spots, and the white marginal spots have almost completely disappeared, being replaced by broad spots of blackish-brown. Bawean, July—September. — In **kangeana** *Fruhst.* we notice a still more highly developed insular Melanism, the cellular streaks and the spots at apex of cell on forewing being greatly reduced. In ♂♂ the under surface of the hindwing is of a still darker colour than in *baweana*, and the postdiscal bands are nearly wholly black. Kangean. Both sexes represented in the Fruhstorfer Collection. — **lombokiana** *Fruhst.*, has still narrower bands than *kangeana*, differing from this as well as from *bataviana Moore* in the uniformly deep red-brown colouring of the under surface, which appears but slightly paler than in *singa Fruhst.* Lombok, from Ekas on the coast and Sapit (2000 ft.) as far as Sambalun, an elevation of 4000 ft., from April until June. — **sumbana** *Fruhst.* (125 e), an insular form differing from the preceding dark forms in its unusually light colouring and showing—curious enough—hardly any resemblance to the neighbouring *lombokiana Fruhst.* ♀♀ of smaller size than Javanese specimens, with delicate white markings; the submarginal spots on forewing much more conspicuous than in *bataviana*, the submarginal band on hindwing at least twice as broad. ♂ has on the under surface the ground-colour much lighter red-brown, all white bands daintier, although more prominent than in the Javanese form, the white costal margin and the subbasal band on hindwing twice as broad, but the discal band a great deal narrower. ♀ likewise more richly adorned with white than Javanese ♀♀; particularly the subbasal band on hindwing is of remarkable width; but the antemarginal bands greatly reduced, almost to one half the width of those of *bataviana Moore*. Island of Sumba, presumably also on Sumbawa and Flores. — **ophianella** *Stgr.* resembles much rather *jumbah Moore* from Ceylon than *columella* from the Sunda Islands, in the black subapical rings on under surface of forewing and in the feeble submarginal dots on hindwing. Palawan. — **angara** *Semp.*, an interesting, dusky local form leading over to *daria Fldr.* from Celebes. It might almost be taken for an extreme rainy-season form of *Ph. columella*, but the bands are still narrower, in ♀ the intramedian spots are either completely wanting or only the middle one is visible in the shape of a mere dot. Beneath it resembles *claira Fldr.*, but is somewhat darker brown, with reduced white markings. Flies in July. Camiguin de Mindanao. — In **mesogaia** *subsp. nov.* from Mindanao the white transverse bands are still narrower than in *angara* and, in addition, shaded with yellowish. Rather scarce. Type in the Semper Collection. — **soror** *Semp.*, of much smaller size, resembles *baweana Fruhst.* (125 f) and *singa Fruhst.* in the increased white markings. Under surface, however, more yellowish-brown than in *baweana*, and much lighter than in *angara Semp.* and *mesogaia Fruhst.* Type from the Camotes. — **eumeneia** *subsp. nov.* from Mindoro was united by Semper with *soror*; but a study of the beautiful specimens contained in Semper's and Staudinger's collections shows that *eumeneia* has the white spots much larger than *soror*, and clearer white than *angara* and *mesogaia Fruhst.* (the latter is erroneously marked *soror* in Staudinger's collection). Under surface with narrow stripes of pale red-brown. Calapan, Mindoro, collected by Dr. Platen. — **guimarensis** *subsp. nov.* from the island of Guimaras which was already mentioned in our Chapter on the Satyridae (*Culapa*) and Amathusiidae (*Faunis*), on account of the peculiar development of remarkable local forms upon that island. *guimarensis* represents a transition to *eremita* from Luzon, but has the spot at the apex of the cell on forewing as well as the intramedian spots still larger, and also the submarginal band on hindwing broader. Type in Semper's collection in the Senckenberg Museum. — **eremita** *Fldr.*, the most northern of the insular forms, represents the most extreme albino form of the entire species. In the extent of the white markings it surpasses even *bataviana Moore* and *alesia Fruhst.*, and the under surface of the dry-season form is not infrequently pale yellow. Often the white markings of the upper surface have a greenish cast, which is the rule in fresh specimens of all the forms of *columella*. Luzon, April til December. — **sarabaita** *Fldr.*, origin unknown, appears from the description to be a dry-season form, probably from the Philippines.

kangeana. *lombokiana.* *sumbana.* *ophianella.* *angara.* *mesogaia.* *soror.* *eumeneia.* *guimarensis.* *eremita.* *sarabaita.*

N. daria, a distinct form replacing *N. columella* in the Celebian Subregion of the Malay Archipelago. Measuring 70 mm in expanse, it is one of the largest forms, approaching *N. columella tonkiniana Fruhst.* and *columella Cr.*, but has, like all Celebian Rhopalocera, the wings more elongate and pointed. Ground-colour chiefly brown and not black, markings more uniformly broad, in ♀ as a rule shaded with dull grey or brown. Forewing with two rows of submarginal spots. Under surface of ♂♂ light chocolate brown, of ♀♀ dark, varying according to locality. The second subbasal band on under surface of hindwing longer than the first, anterior one, and nearly twice as wide as in *columella*. — **daria** *Fldr.* is found in the Minahassa and probably extends throughout North Celebes as far as Donggala. I collected great numbers of it near Toli-Toli in November and December. The bands above very narrow, dusted with dull brownish-grey. — **albescens** *Rothsch.*, originally based upon an aberrative specimen remarkable for the greatly shortened white subcostal band on hindwing, is the oldest name of the form from South Celebes,

daria. *albescens.*

although the name of **variabilis** *Rothsch.* designates the main form. *daria* from the southern part of the island deviates from northern specimens in having all the white bands broader; probably they originate from an extreme dry-season form such as we frequently find in the more arid South of Celebes, in contradistinction to the moister northern portion. From near Maros and Pare Pare. — **hiereia** *subsp. nov.* is essentially darker than *daria* from the Minahassa; ground-colour deep chocolate-brown, the patches above dusted with brown, the bands on under surface narrower. East Celebes; type in the Staudinger collection. — **osima** *subsp. nov.*, a melanotic insular race, having the under surface nearly black-brown and above the white bands still further reduced than in the form from East Celebes. Sula Islands, Bangkai. Type in the Berlin Museum. *variabilis.* *hiereia.* *osima.*

N. aspasia *Leech* (v. Vol. I, p. 180, pl. 55 c). shows in the large scent-area on hindwing and in the vertically erect, blunt precostal its close relationship with *Phaedyma*, although *Moore* classed it, probably on account of the yellow bands, with his promiscuous Genus *Stabrobates*. From the large-sized *Neptis radha* (125 f) which was Moore's type of his "Genus" *Stabrobates*, *aspasia* is easily distinguished by the short and blunt precostal which is not lengthened distally. It is one of the most common Chinese *Neptis* species. Szetchuan, Omeishan Siao Lu, Tien Tsuen, Kweitschou (Leech). *aspasia.*

Sub-Group B.

Base of forewing beneath without reddish scent-scale spot.

N. amphion (= heliodora *Cr.*, pellucidus *Goeze*, heliodorus *Hrbst.*, heliocopis *Godt.*, melaleuca *Bsd.*, cerne *Btlr.*) has received no less than seven specific names and was classed among an equal number of Genera, which proves the deep and never-ceasing interest this species has met with on the part of the authors. It is confined to the Southern Moluccas, occurring in two forms. — **amphion** *L.* (126 a ♂, b ♀). Beneath the markings of the upper surface are repeated, but with two additional rows of white anteterminal dots. Ground-colour uniformly dark coffee-brown, occasionally with a purplish lustre. Amboina, Ceram. — **nerio** *Nicév.* (= polion *Sm.*) of which but a few specimens are known, only differs in the smaller white spots in the cell of the forewing and the somewhat broader median fascia on the hindwing. Buru. *amphion* *nerio.*

N. ampliata *Btlr.*, a rare species from the Bismarck Archipelago, above resembling somewhat *N. pisias* (126 b), but with uncommonly broad, hyaline, white spots of a slightly greenish lustre, on the forewing united into a band ♂ which towards the middle is concavely curved outward. Beneath it closely resembles *amphion*, but the hyaline spots display a faint lustre of mother of pearl. Neu Lauenburg (Fruhstorfer collection), Neu Pommern (Pagenstecher). — **eleuthera** *Sm.* is a beautiful form which might possibly be united with *ampliata Btlr.* Beneath the hindwing lacks the white subbasal dot, otherwise with markings like *ampliata*; forewing has the apex somewhat more rounded. Stephansort, German New Guinea; only 1 specimen known. *ampliata.* *eleuthera.*

N. fissizonata *Btlr.* is found in the Bismarck Archipelago and a few of the Solomon Islands, where three insular forms have developed: **pisias** *Godm.* and *Salv.* (126 b) with medium sized, greenish-white hyaline spots. Under surface like that of *amphion* dark brown, but with very large, sharply marked, cellular and submarginal spots and a row of antemarginal spots which are, especially in ♀, quite conspicuous and united into a broad band on the hindwing. Solomon and Shortland Islands. — **fissizonata** *Btlr.*, a melanotic form, forewing with greatly reduced bands and spots; on hindwing distinguished from *pisias* by having also above a series of roundish spots of the size of a pin-head, united into a sort of incoherent band. — **lydda** *Fruhst.* inhabits the Bismarck Archipelago and even surpasses *pisias* in the extent of the greenish-white patches. Neu Pommern, Neu Lauenburg. *pisias.* *fissizonata.* *lydda.*

N. eblis, the darkest *Neptis* species, uniformly fuscous brown, without any markings besides a submarginal row of white dots on both wings and a few nearly obsolete white submedian dots on the hindwing. Two insular forms: **eblis** *Btlr.* (126 c) has on the under surface the macular rows a trifle larger and faintly irrorated with purplish, with a round white spot before the middle of the cell of the forewing and near the base of the hindwing. Neu-Lauenburg, Neu Pommern. — **ganina** *Sm.*, a rare form, unknown to me in natura, named after the port of Gani on Halmaheira. *eblis.* *ganina.*

N. mimetica *Sm.* is above not unlike the white-bordered Euploeas (*kuehniana Fruhst.* 85 d, *leaina Fruhst.* 85 d and *fabricia Fruhst.* 86 a). Its author compares it with *E. orope Bsd.* Ground-colour brown, both wings bordered by a broad white area, which is on the forewing interrupted by the veins into separate patches and accompanied distally by two delicate anteterminal lines, on the hindwing divided by brown bands into three patches. Hindwing with the yellow basal spot characteristic of *Phaedyma*. Ground-colour beneath *mimetica.*

paler brown, the white border traversed by faded and obsolete brown undulate lines. Island of Timor, discovered by Doherty. Very scarce. Costal margin of forewing beneath with an elongate, reddish or yellowish scent-scale spot. Band on hindwing very narrow.

heliopolis. **N. heliopolis** *Fldr.* (126 a) is sufficiently differentiated from its nearest ally *amphion L.* of the Southern Moluccas to be granted specific rights. The white markings are reduced, the under surface of the hindwing has some white costal and subbasal bands which are absent in *amphion*, and the forewing is adorned by a yellow spot; this latter is not found in *amphion* either, but recurs in the *Phaedyma* species of Obi and Waigiu which indeed betray a much closer relationship with the Australian types than with their allies from the Moluccas. *heliopolis* adds another proof to the theory that the Northern Moluccas have, geologically speaking, been for a long time separated and remained isolated from the Southern Moluccas, since they could produce indigenous species of a genus whose representatives otherwise inhabit almost the whole of Southern Asia without undergoing specific variation; for even *daria* from Celebes does not deviate from its Philippine and Malayan allies as much as *heliopolis* does from its geographical neighbour *amphion*. In itself *heliopolis* is only subject to slight local variation; the Batjan form appearing somewhat darker than that from Halmaheira. My collection contains a ♀ which has on the hindwing the white transverse band completely obscured, two rudimentary remains excepted; since Smith figures from the same island another similarly obscured, although less distinctly
amydra. marked, specimen, I give these melanotic ♀♀ a separate name: ♀ fa. **amydra** *Fruhst.* Halmaheira, Morotai, Ternate.

N. shepherdi is remarkable on account of its peculiar geographical distribution, occurring, besides in Australia and a few Papuan islands, also within the zone of the Molnccan *Phaedyma amphion L.* and *heliopolis Fldr.*; starting from Dutch New Guinea, it has spread to Salawati somewhat to the South of the Equator and, following this, to Obi. Meanwhile my theory pronounced in 1908 regarding the probable occurrence also on the Sula Islands of some form of *shepherdi*, was confirmed by my discovering in the Staudinger collection a new and hitherto unobserved form. *shepherdi* unites the characteristics of *amphion* and *heliopolis*. The markings of the upper surface, and its variability are shown in our figures of *graziella* and *damia* (126 g). The under surface is characterized by a brillant fulvous basal patch. Hindwing and costa on forewing with two subbasal stripes as in *heliopolis*, wherein both species deviate from *amphion*. Groundcolour varies, according to locality, from black-
shepherdi. brown to grey-brown, likewise does the intensity of the white markings. — **shepherdi** *Moore*, the smallest and most plainly coloured form; white spots somewhat narrower than in *damia* (125 g), under surface pale
damia. coffee-brown. Queensland, from Cape York to the Richmond River. — **damia** *Fruhst.* (125 g), larger than *shepherdi*, with the spots on forewing more roundish and prominent. The white discal band on hindwing much broader, more rectilinear. Under surface: Both wings have the submarginal area more richly adorned with violet-white, like *donata*. The ♀♀ vary somewhat in the extent of the white median band on the hindwing, which in one ♀ from Friedrich-Wilhelmshafen is exceedingly narrow, ♀♀ from Finschhafen occasionally lack completely the white cellular streak on forewing. According to Hagen abundant in Kaiser Wilhelmsland
mastusia. from April till November. — **mastusia** *Fruhst.* Forewing: the white stripes in the cell as well as the dot at apex of cell obsolete, the submarginal dot more distinct than in *shepherdi* and *damia*, subapical and discal spots considerably smaller; median band on hindwing above narrower, more regular and sharply defined, beneath much broader than in *damia*. Both wings have on the under surface the submarginal dots more regular and closer together. Dorey, Dutch New Guinea. According to Grose-Smith common on Humboldt Bay, according to Kirsch also in Rubi, North-western Dutch New Guinea and, with a slight variation, on Geelvink
astraea. Bay. — **astraea** *Btlr.* approaches *shepherdi* in the reduction of the white markings. Cell of forewing without white stripes in ♀. The hindwing has the median band very narrow and lacks the submarginal dots. Aru
nectens. Islands, very scarce. — **nectens** *Nicév.* approaches in the large spots on the forewing and the uncommonly broad bands on the hindwing *donata Fruhst.* from Waigiu and *graziella Fruhst.* from Obi. Very scarce in the Key
donata. Islands, ♀♀ apparently more abundant than ♂♂. — **donata** *Fruhst.* ♂ has on the upper surface all the white markings somewhat broader than in *shepherdi Moore*; the under surface darker, the submarginal bands on both wings more distinct, the white discal band on hindwing very much broader, more rectilinear, the subbasal
graziella. streak more prominently white. ♀ has all bands still more broadly white than ♂. — **graziella** *Fruhst.* (125 g), closely allied to *nectens Nicév.* from Key, differing from 3 *nectens* ♀♀ of my collection in the following way: On forewing all the white spots, with the exception of the two subanal ones which are separated by the submedian, are somewhat smaller; on hindwing the black ground-colour is reduced, the white discal band being larger and more prominent than even in *donata Fruhst.* Under surface darker, with all white markings, particularly in the submarginal area, essentially narrower than in *nectens*, narrower even, although more sharply
expectata. defined, than in *donata*. Obi. — **expectata** *subsp. nov.* is about intermediate between *nectens Nicév.* from Key and *graziella Fruhst.* from Obi, with broader white bands and spots than the former. Sula Islands, type in the Staudinger collection.

Group III: Bimbisara *) *Moore.*

The second subcostal arises before the end of the cell, on hindwing the precostal is invariably curved outward.

N. sankara (Vol. I, p. 177), an Indian-Chinese species, of which we know a number of distinct local forms that are moreover subject to seasonal variation. Characteristic of this species are the oblong subapical stripes and four elongate intramedian spots on the forewing, either white or yellow in colour. — **antonia** *Oberth.* (Vol. I, p. 177,pl. 54 a) surpasses in size the Indian subspecies, with pale ochreous patches above. — **sinica** *Moore* is the corresponding light form from Omei-shan, and **ambina** *Fruhst.* another pale subspecies from Chang-yang in Central China. — **genulfa** *Oberth.* appears to replace *sankara* in Yunnan, differing from it above in the prominent white submarginal band on both wings, and in the smaller and more isolated white intramedian spots, the upper one of which is placed more inwards. Under surface with more strongly undulate white submarginal band and darker brown median stripe. Tseku, at about 6000 ft. of altitude. — **quilta** *Swinh.* (125 e) is found in Assam and, according to Bingham, also in Sikkim and Bhotan where it ascends to about 3000 ft. Beneath the ground-colour is pale grey-brown, with clear white, outwardly rather faded stripes on both wings and a dark brown median band on hindwing. Moore reports it also from Burma. In the northwestern Himalayas we find the name-type **sankara** *Koll.* (= amba *Moore*), which is very rare in continental collections. I have only one ♂ from the Naini Valley. Moore distinguishes between two seasonal forms, that of the wet-season (= **amboides** *Moore*) being smaller than the rainy-season form, but with broader white bands. From Cashmere to Nepal; found by Doherty in the Kumaon Himalaya at elevations of from 2—5000 ft. — **nar** *Nicév.* refers to an interesting insular race with yellow instead of white streaks in the cell of forewing and with yellow-margined median fascia on under surface of hindwing, which latter are, moreover, traversed by grey-blue anteterminal bands. Andaman Islands, scarce, only 3 ♀♀ known. — **yamari** *Fruhst.*, much smaller than *sankara Koll.* and, as has already been observed by De Nicéville, much deeper black. The chief difference lies in the discal band on the hindwing beneath, distinguished by its broad black bordering. Sumatra, Battak Mountains, 1 ♂, type in Martin collection.

antonia. *sinica.* *ambina.* *genulfa.* *quilta.* *sankara.* *amboides.* *nar.* *yamari.*

N. narayana is a rare species from the Himalayas occurring in two forms: **narayana** *Moore*, above resembling *quilta*, but with broader transverse bands and spots of white colour. Under surface characterized by two broad, white bands on hindwing surrounding another, narrower and less distinctly white middle space. Western Himalayas; type from Naini Valley in Kumaon District; also from Kulu, Kunawur and Chini, at altitudes of from 5500—6500 ft. — **nana** *Nicév.*, extraordinarily scarce in Bhotan and Sikkim, has the bands above suffused with yellowish, and on the hindwing only a submarginal line instead of a broad stripe as in *narayana*; beneath the white areas larger than in the West Himalayan form. According to Oberthür it flies also at Tseku, Yunnan. — **sylvia** *Oberth.* (Vol. I, p. 177, pl. 54 a) with yellow spots above; Siao Lu, West China.

narayana. *nana.* *sylvia.*

N. manasa occurs together with *narayana*; already mentioned in connection with some species of the *Neptis* Group. In Tibet we find a local form **narcissina** *Oberth.* (Vol. I, p. 178, pl. 54 e).

manasa. *narcissina.*

N. radha is one of the largest *Neptis* species, surpassing in size all other Indian species. Three local forms are known: **radha** *Moore* (Vol. I, p. 177) (IX, pl. 125 f) is found from Nepal to Assam, but hardly below altitudes of 3000 ft. It is very scarce, especially in Sikkim, where it is found between April and December, occasionally even at altitudes of 7—8000 ft. — **asteratilis** *Oberth.* is a smaller, paler yellow form, with narrow bands and with yellowish under surface slightly suffused with purplish. From near Bhamo and Bernardmyo in Upper Burma, and a few localities in Western China. — **sinensis** *Oberth.*, described from Siao Lu and Mupin, has likewise the yellow spots reduced.

radha. *asteratilis.* *sinensis.*

N. armandia, an exclusively Chinese species, is divided into 3 local forms: **mothone** *Fruhst* (Vol. I, p. 244) has all bands and spots above paler and rather broader than *armandia*, also the violet and brown bands more faded. China, presumably from Chang Yang, since Leech reported from thence paler specimens than from Mupin. — **armandia** *Oberth.* (Vol. I, p. 178, pl. 54 d) from Mupin, with which Stichel unites also *hesione Leech* (54 d). — **taphos** *Fruhst.*, larger than *mothone*, with darker and more prominent ochreous bands than either of the two other forms. Underneath the yellowish spots as well as the violet median ziczag band on hindwing much broader. Western China, locality not mentioned, probably from Omei-Shan.

mothone. *armandia.* *taphos.*

N. ananta, au Indo-Chinese species, lately discovered also in Formosa. — **chinensis** *Leech* (Vol. I, p. 178, pl. 54 b) appears on Omei-Shan in two forms, one of which approaches *ananta* from Sikkim and the North-Western Himalayas. In ♂♂ we observe three different shades of colour, some having the bands dark ochreous, others chocolate-brown, and still others reddish-brown. Of the latter form I possess 5 ♂♀ from Tien Tsuen, Szetchuan, whereas my specimens from other parts of Szetchuan have the bands much broader and pale ochreous and the under surface pale throughout; this I name fa. **areus** *Fruhst.* Western China, Yunnan.

chinensis. *areus.*

*) A mythical king, who wished to divide his kingdom with Budha.

ananta. — **ananta** *Moore* (125 g ♂, 126 a ♀) ranges from Cashmere to Sikkim and Upper Burma. Moore also mentions it from the Upper Mekong in the Shan States and 1 ♂ from Perak. According to De Nicéville *ananta* frequents the wooded hills at altitudes of 4000 ft. and upwards, especially in June; Doherty reports it also from the Naga and Karen Hills between 3800 and 7500 ft. of altitude. — Besides the figured wet-season form, we also know *sitis.* a paler dry-season form (= **sitis** *Fruhst.*) with pale instead of dark ochreous bands on upper surface. Beneath *ananta* differs from our figure of *chinensis* (54 a) in the richer red-brown colouring which is interrupted by bands *taiwana.* of violet and a broad, white median fascia. It is probable that *ananta* is also found in Tonkin. — **taiwana** *Fruhst.* (= *horishana Mats., moltrechti Oberth.*) (125 b), an eminent insular form having the whitish bands and spots somewhat reduced in size and consequently farther apart. Not scarce in the mountainous Interior of Formosa, particularly at Polisha, Chip-Chip and on Lehiku Lake, from June till August. Discovered by Mr. H. Sauter.

N. anjana seems to take the place of *anănta* in the Macromalayan Region, both forms existing side by side in the Malay Peninsula. *anjana* is still rarer than *ananta*, especially on the islands, only a few specimens having been found on any single one of them, and it was only within recent times that I proved its existence *anjana.* in Java and Nias. **anjana** *Moore* resembles above the figured *discerna* (125 b), underneath rather *ananta*, but is deep brown with dark steel-blue bands of a purplish lustre. Described from a specimen from Moulmain. *hyria.* It seems to be most abundant in Pegu, where Doherty captured quite a number in March and April. — **hyria** *subsp. nov.* from Perak, occurs probably also in Sumatra without undergoing any perceptible change. The submarginal bands on the upper surface of the hindwing are less distinct than in *anjana*, the under surface more vivid red-brown, the steel-blue bands narrower and darker. Martin received 3 specimens of *hyria* taken by the natives on the Battak Plateau (Sumatra) at an altitude of about 3200 ft., and Hagen mentioned in *discerna.* 1892 a brownish-orange coloured species occurring in Banka. — **discerna** *Fruhst.* (125 b) is distinguished by *elegantia.* very narrow grey-brown stripes on the upper surface. South-East Borneo. — **elegantia** *Fruhst.* has the bands broader, more yellowish, and on the under surface more intensely violet. North Borneo, Kina Balu District. *zena.* — **zena** *Fruhst.* is a paler form having the discoidal streak as well as the subapical and subanal bands on forewing pale yellowish-brown instead of dark-brown, and the transverse bands rather lighter on hindwing. Still more striking is the pale colouring of the under surface, the ground-colour being light red instead of dark blue. All spots and other markings are broader and paler than they appear in Distant's figure, and of a more yellowish-white tone. Even the blue-violet bands on the hindwing are less dark and more brillant. Western Java *saskia.* at altitudes of from 2—4000 ft., Eastern Java, near Lawang, at about 2000 ft. — **saskia** *Fruhst.* (= thiemei *Fruhst.*) has on the forewing the subapical spots much larger than in *zena*, and clear white instead of yellowish; moreover, the upper one of the three spots composing the subanal transverse band assumes a whitish tinge. On the hindwing the subbasal band is somewhat narrower and paler than in *zena*, and the inner (postdiscal) submarginal band is made up of broader, rather helmet-shaped than oblong spots, between which we notice along the veins rays extending from the broad, jet-black discal spot. Beneath it even surpasses *zena* in the extent of the white patches and bands on the forewing. On the hindwing the under surface is characterized by the white subbasal band (which in *zena* and *anjana* remains of equal width) strongly tapering anally and being succeeded by a deeply dentate violet band; the inner, pale submarginal band is more conspicuous, broader and more strongly undulate than in *zena*, and is margined below by a much broader red-brown band than in *vidua.* any other form of *anjana*, Island of Nias, type 1 ♀, in the Fruhstorfer collection. — **vidua** *Stgr.* is an exceedingly rare subspecies, only 1 ♂ being known. Above black with a broad white band on hindwing and a similar but much broken macular band on forewing. The latter moreover with an obsolete, brownish transverse line before the terminal margin, contrasting with the very distinct, altough narrow band on hindwing. Under surface of hindwing with three narrow, nearly parallel, violet-grey bands. Palawan, collected by Dr. Platen.

viraja. **N. viraja** Moore (125 c) inhabits the Empire of India with the exception of the islands. ♀ somewhat larger than the figured ♂, paler yellow, the black bands more uniformly broad. Specimens from Tenasserim, presumably representing some subspecies, are reported to have the yellow submarginal band on the hindwing of the same width as the discal band. The dry-season produces a somewhat paler under surface, with more diffuse and faded red-brown fasciae. Larva on leguminous plants, also on the Blackwood Tree (Dalbergia latifolia and racemosa), resembling that of *Rahinda hordonia*. Like the latter it has the habit of gnawing through the twigs, weaving the leaves with silk-threads into a sort of nest and feeding on the wilted leaves. Its colour is green, laterally pale grey, paler behind the head. Pupa greenish with purplish lustre.

N. miah resembles above *viraja*, although the black predominate over the fulvous bands. Under surface chiefly fulvous, with pale yellow bands accompanied by grey-violet stripes. The dry-season form of the Indo-Chinese local races differs but slightly in size from the form of the wet-season, having on the upper sur-

face the bands more distinctly yellow, and a paler colouring beneath. — **disopa** *Swinh.* (Vol. I, p. 178, pl. 54 c, d) is the largest and also darkest of the Continental forms. Western China. — **nolana** *Druce* (125 c), originally described from Siam, occurring in an identical form also in Tonkin and Annam, with nearly twice as broad fulvous spots as in *disopa*, and a richer violet irroration on the under surface. Abundant in January and February in Siam and Annam up to about 1000 ft., the rainy-season form very common in Northern Tonkin during June and July. According to Moore also in Upper Burma and Tenasserim. — **miah** *Moore* with broader, diffuse black bands on upper surface than in *nolana*, beneath characterized by the narrower whitish-violet median band. In Sikkim, Bhotan and Assam up to about 3200 ft.; often on the moist sand in the beds of mountain-streams. The dry-season form deviates but imperceptibly from that of the wet-season by the paler colouring. — **sarochoa** *Fruhst.* represents a transition from *nolana* to *digitia*, with considerably narrower bands than in *batara Moore* from Sumatra and *nolana Druce*, but with somewhat paler and broader bands than *digitia Fruhst.* (125 d). On hindwing the bands are beneath much paler than in *batara* and *digitia*. Elwes mentions a ♂ from Perak which has much less purple on the under surface than we see in specimens from the Naga-Hills and might therefore belong to a separate species (better subspecies). Perak. — **digitia** *Fruhst.* (125 d) approaches above *disopa Swinh.* from China and *batara Moore* from Sumatra, but with still narrower red-brown bands. This reduction of the light-coloured bands is repeated also on the under surface, which in its rich reddish-brown tinge comes closest to *miah Moore* from Sikkim, although differing in the much narrower width of the yellowish median and of the grey-violet submarginal bands. Kina-Balu. — **javanica** *Moore* is distinguished by having the broadest ochreous and narrowest brown bands. It is very scarce, occurring in Java at altitudes of from 2000—4000 ft. — **batara** *Moore* is recognized by the sharply defined, broad bands of black and the relatively narrow fulvous bands. Forewing has the submarginal stripe as in *disopa*, but more curved than in *digitia*. Under surface paler than in the latter, more profusely shaded with fuscous than in *nolana*. North-Eastern and Western Sumatra, at about 3000 ft.

disopa. *nolana.* *miah.* *sarochoa.* *digitia.* *javanica.* *batara.*

N. pata resembles beneath *N. viraja Moore*, but was on account of the shape of its wings and the markings of the upper surface placed by Semper close to *miah* which it presumably replaces in the Philippines. Since I have never seen *pata*, I can only judge the three described forms from the figures and descriptions Semper gave us: **pata** *Moore* (= isabellina *Fldr.*) is distinguished by displaying in ♂ as a tertiary sexual mark a strong silky gloss on the costal margin which is also slightly dusted with grey. The arrangement of the yellow bands is about the same as in *nolana Druce* (125 c). Very scarce, Semper knowing only of three specimens, taken in April, November. — **patalina** *Semp.* has the markings of the upper surface narrower than in *pata*, but broader than in the South-Philippine forms. Along the edges the bands shade into white. The longitudinal streak in the cell on forewing more deeply notched than in *pata* and *semperi*. Mindoro, March. — **semperi** *Fruhst.* (= isabellina *Semper* nec *Fldr.*) differs from *patalina* in having the bands yellow instead of partially white, and narrower than in *pata*. Mindanao, Bohol.

pata. *patalina.* *semperi.*

N. illigera is, like *N. pata*, confined to the Philippines, but is one of the commonest species, being found everywhere and all the year round. Characteristic of this species are the grey-yellow, occasionally whitish, cellular stripe, the clear white oblong intramedian spots on the forewing and a broad, oblique median band on hindwing. Ground-colour black-brown with paler anteterminal stripes. In addition on the forewing a number of small white subapical dots which are not visible in our figure of *pia* (126 c). — **calayana** *Fruhst.* from the island of Calayan of the Babuyanes Group is the most northern form. ♀ beneath with bands shaded with grey instead of clear white, and much narrower than in the typical form. — **illigera** *Esch.* has on the forewing also above the cellular streak almost pure white, and on the hindwing the median band nearly double the width as in *illigera pia* (126 c). — On the small island of Alabat near the east-coast of Luzon we find an insular subform (**alabatana** *Fruhst.*) with narrower white bands on the underside of both wings. — **hegesias** *subsp. nov.* from Guimaras, an island which is known to produce many distinct local forms, is smaller in size, with more rounded wings and still broader white markings than in *illigera*. — **pia** *Fruhst.* (126 c) differs from *illigera* of Luzon in that the streak in the cell of the primaries is yellowish-grey instead of white, the submarginal bands on the hindwing dark grey instead of yellowish-white, further that on both wings the white bands and spots are greatly reduced and in the subapical area of the forewing dusted with dark grey. Beneath it has on the hindwing the black subbasal band much narrower than in *illigera* and *calayana*. Bazilan, February-March.

calayana. *illigera.* *alabatana.* *hegesias.* *pia.*

N. eschholtzia *Semp.* has the wings more pointed than *illigera*, the ground-colour jet black, the grey anteterminal lines darker and narrower. On the forewing the white spot which is dissected by the second median nervule, is nearly circular and smaller than in *illigera*. The white median band on the forewing closer to the anal angle. Unknown to me in natura; possibly it is only a seasonal or other form of *illigera*. From Majaijay, Luzon, February.

eschholtzia.

N. illigerella *Stgr.* (= calliplocama *Fruhst.*) (126 c). ♂ above black, with cellular streak drawn out toward

illigerella.

apex; submarginal bands on forewing light brown. The hindwing is traversed by a thin postmedian and a similar antemarginal line, between which there is a broader, somewhat paler submarginal band. Forewing with 3 white subapical spots, the upper one like a very thin streak, the two lower ones wedge-shaped. Between the medians two oblong, egg-shaped, white patches, the upper one smaller than the lower; the lower median and the submedian enclose a nearly square spot, and in addition we notice at the inner margin another longish white spot slightly shaded with grey. On the hindwing a broad, oblique, clear white subbasal band, rounded toward the costa and tapering anally. Under surface has the ground-colour black, all markings which are light brown above, much more prominent and broader, the submarginal bands on the forewing white, on hindwing pale brown-yellow. On the forewing we notice, moreover, two transcellular brown dots, on the hindwing a narrow and short basal, and a broader and longer subbasal band, which latter is proximally whitish, distally fulvous. Body and abdomen ventrally reddish, laterally grey, dorsally black. ♀ larger than ♂, with more conspicuous white spots and broader yellowish bands beneath than in ♂. Palawan.

tawayana. **N. nirvana** inhabits exclusively the Celebian Subregion. Our figures of **tawayana** (125 c, d) illustrate well the curiously notched bands. The several insular forms differ only in the greater or smaller width and the *sangira.* colour of the transverse stripes. — **sangira** *Fruhst.* is a form I noticed in the British Museum (Godman *nirvana.* collection) with much paler bands than *nirvana* and *neriphus*. Sangir. — **nirvana** *Fldr.*, from Lorquin's collection, was presumably found in North Celebes. Westwood reports an allied form from Talisse or Talisin Island north of Minahassa. — **tawayana** *Fruhst.* (125 c, d) from South Celebes is distinguished from the northern form by the narrower bands, the smaller orange-red spots and the more profuse black colouring of the *neriphus.* upper surface. South Celebes, Patunang, January. — **neriphus** *Hew.*, a melanotic insular form of *nirvana*, with broader red markings; the black bands beneath more prominent and sharply defined. Sula Mangoli and Besi.

fuliginosa. **N. fuliginosa** bears a superficial resemblance to *N. nitetis gatanga Fruhst.* (125 a); in size it approaches rather *N. ebusa-laetitia Fruhst.* (126 b), whereas the markings, especially of the Nias form, recall *gatanga*. Although ranging all over the Macromalayan Region, *fuliginosa* and its allies count among the rarest Neptidi, and only very few specimens have so far found their way into European collections. Of the Continental subspecies we know two sharply differentiated seasonal forms: *fuliginosa Moore*, a small form of the dry-season, above banded with grey-yellow, beneath black-brown with yellow stripes. Found at Moulmain and in South Tenasse-*thamala.* rim, October. — **thamala** *Moore* from the Mergui Archipelago; ♀ above with brown-yellow, beneath with beautiful ochreous bands on a pale red-brown ground. It is pretty certain that *fuliginosa* will be discovered *monata.* also in Perak. — **monata** *Weyenbergh* from Banka was figured by Snellen in Tijdschrift voor Entomologie *serapica.* 1897 t. 6, f 3. — **serapica** *Fruhst.* differs from *fuliginosa Moore* in the larger subapical spots on the forewing and the narrower submedian band on the hindwing, from *arnoldi* in the more delicate grey markings on both wings. Of *serapica* (the precious, on account of its scarcity) Martin has only captured 3—4 specimens *arnoldi.* in 13 years. North-Eastern Sumatra, March 1894, 1 ♂ in Fruhstorfer collection. — **arnoldi** *Fruhst.* is larger than *serapica*, smaller than *thamala Moore* ♀, with all grey markings, especially the apical spots, much larger *cura.* than in the latter. Samarinda, South-East Borneo (A. Kueckenthal), Borneo (Shelford). — **cura** *Weym.* has all the bands narrower than in the preceding forms; on forewing the subapical spots are clear white and not yellowish or grey. Nias, 2 ♂♂ 1 ♀ in Fruhstorfer collection.

N. ebusa, originally described from Mindoro, has so far only been found in the Central and Southern *laetitia.* Philippines. — **laetitia** *Fruhst.* (126 b) differs from the name-type in that the subapical and median spots on the forewing are roundish instead of oblong, the transverse bands on the hindwings narrower and darker. My specimens have the ground-colour more grey. Bazilan, collected in February and March by W. Doherty. *euphemia.* — **euphemia** *Fruhst.* is smaller than the preceding form, ground-colour darker, median spots on forewing paler *hegesandira.* and more regular. Beneath the black bands obsolete, the brown and yellow bands broader. Jolo. — **hegesandira** *subsp. nov.* circumscribes a dark form which, although generally larger than *laetitia*, has the subapical spots much smaller, white, dusted with grey; also the transverse stripes are deeper grey-brown. ♀♀ have the *ebusa.* under surface more red-brown, the bands of a yellowish shade. Mindanao. — **ebusa** *Fldr.*, the palest of the known insular forms, with broader, whitish transverse bands above; submarginal band on hindwing double. Forewing with more prominent intramedian spots. Mindoro; flies all the year round. I consider it highly probable that *fuliginosa Moore* represents only the Indo-Malayan branch of *ebusa*; but I lack sufficient material to be able to decide this question. Should my supposition be confirmed, all the insular forms enumerated under *fuliginosa* will have to be classed with *ebusa*.

Tribus **Limenitidi.**

Genus: **Pantoporia** *Hbn.*

Distinguished from the following genus *Limenitis* only by very slight structural differences; the two first subcostal nervules are the same, only the third arises much farther from the end of the cell, almost at the apex of the wing and quite close to the fourth, whereas in *Limenitis* it arises midway between this and the end of the cell. Both the 2. and 3. nervules are at their point of origin bent downwards, as in *Limenitis*. On the forewing the cell may be open, or closed by a very fine lower discocellular, on hindwing invariably open; costal vein on hindwing going to the outer margin (difference from *Neptis*). Precostal very stout, forming a large outward curve, arising precisely at the origin of subcostal. In ♂♂ forefeet with very small tarsus, varying in length. Palpi and antennae as in *Limenitis*. Sexual organs entirely limenitoid, greatly deviating from those of the preceding genus by the absence of the distal spur of valve, but hardly to be distinguished from those of the Neotropical genus *Adelpha*. Uncus simple, rather long, contrasting with the Apaturidi (which are provided with an extremely short, rudimentary uncus), distally pointed, bent slightly downwards, scaphium composed of a very delicate membrane, hardly to be recognized in a photograph. Valve long, medially thicker, with a ventral protuberance, interiorly trough-shaped and, as in *Adelpha*, dorsally provided with a feeble tusk-shaped organ, varying in position according to the species and protruding either near the base or nearer the middle. Larva entirely different from that of the Neptidi, either short, stout, green with lateral red dots and red prolegs, covered on 1. 2. 4. 8. 10. and 12. segments with long, on the remaining segments with short spines (*Athyma*), or elongate, worm-shaped, green with red dorsal spot, all segments armed with long spines. Pupa with horns diverging, hammer-shaped (*Pantoporia*), or parallel and sharp-pointed (*Athyma*).

In view of this difference in the appearance of the head of the pupa, one might be tempted to use it as a means of distinguishing between the specific groups. But if we examine the shape of the pupa of certain Indian Limenitidi, f. i. *Limenitis procris Cr.* and *L. calidasa Moore*, we notice that whereas *procris* has the horns hammer-shaped and blunt, they are in *calidasa* strongly curved and extremely sharp-pointed; and this notwithstanding the fact that both species are so closely allied that one almost could treat them as subspecies, the more so since *calidasa Moore* takes the place in Ceylon of the Continental, common and widely distributed *procris*. This proves beyond dispute the impractibility of using the horns on the head of the pupa as a distinguishing mark between the Genera. Of still less use appears the presence or absence of the peculiar wreath of hair adorning the first abdominal segment in many species. This ring-shaped tuft of hair which in some Athymidi is very luxuriant and occasionally even extends over the second segment, is in *Athyma pravara* much smaller, and in *perius* almost unrecognizeable. In *Pantoporia* proper it is either completely absent, or at least lacking in ♂, even if it is found in ♀. Thus we have to acknowledge the fact that there exists not a single practicable characteristic, in as much as neither the markings of the wings, nor neuration or secundary sexual features, not even the shape of larva or pupa offer any reliable help; and we are forced also in regard to this Nymphalid Group to acknowledge that nothing is constant save the inconstancy and transitoriness of appearance. Doherty was led by his observations to the same result, when he stated (in Proc. Zool. Soc., 1891, p. 271) with classical brevity: 'Characteristic of all Nymphalids proper (namely the *Neptis-Euthalia-Limenitis* groups) is the entire lack of true genera. Their structure is inconstant, and the different types merge imperceptibly into one another'.

It is of course among the purely tropical species that we observe the maximum of differentiation, their Polymorphism and Polychroism rivalling the most extreme cases of variability known among the Nymphalids, whereas the species of the more temperate regions are much more constant. The following enumeration of the known species is headed by those which deviate farthest from *Limenitis*, and ends with those which retain most constantly the character of that group. Both extremes, however, meet in one point, in as much as in the Athymidi (in a strict sense) as well as in the more northern species of *Pantoporia* the sexes are approximately monomorphic, whereas in the remaining species a tendency towards sexual differentiation is evident. And also these extremes are connected by intermediate forms, in which the ♂♂ preserve the *Limenitis* type, while the ♀♀ imitate in their attire the markings of *Neptis*, a convergency which has misled previous authors to consider them as cases of Mimicry.

The range of the Athymidi and Pantoporidi comprises the whole of South-Eastern Asia, the Continent as well as the tropical and subtropical Insular region. In Continental India they are found from the hot alluvial plains to the Himalayas, without, however, crossing this mountan-chain, whereas in China they have advanced as far as the Yangtse-Valley; the southern-most Liu Kiu Island Ishigaki as well as Formosa boast of one species each. Particularly favourable conditions for their development offer the Philippines, especially

the island of Palawan, with their adjacent islets, whence we know 9 species, several of which are endemic, although this region is but insufficiently explored.

But the greatest number we find in the Macromalayan Region, whereas towards the East, in the Micromalayan Region, we observe a rapid decrease, only two species being known to occur on Sumba and Sumbawa. Surprising is the entire absence of the Pantoporidi in Ceylon, especially since we know three species in the South of India, one on the Andamans, and five in the small island of Nias, and still more wonderful is their reappearance in the Salomon Archipelago (which they must have reached from the Philippines), as they have so far never been observed either in New Guinea or in Australia.

The following table illustrates the respective numbers of species found in the various localities:

Sumatra and Borneo	10 species each,		Nias 5 species,
China and the Philippines	9 ,,	,,	Bali, Lombok, Sumbawa and Sumba 2 species each,
Sikkim, Assam and Java	8 ,,	,,	Solomon Islands 1 species
Tonkin and Annam	7 ,,	,,	

Remarkable appears also the abundance of the ♀♀ of *Athyma* upon the smaller islands, a fact to be observed also in connection with the Papilionidae, Euthalidi, Charaxidi e. a. Thus whereas of the far-ranging Continental *Athyma kresna Moore* the ♀ is not yet known, the ♀ of the local *reta syma Fruhst.* is not at all scarce in Nias; and of *alcamene Fldr.* from the Philippines the collections contain almost exclusively ♀♀.

With the exception of *Athyma perius L.* which is everywhere met with near human habitations, the Athymidi inhabit the forests; still they do not prefer the dense shade, but rather frequent sunlit openings, and clearings, and visit the blossoms growing along the edges of the woods. The majority of species prefer altitudes of from 2—5000 ft., but a few ascend to the Alpine Region. Thus we know *jina Moore* from an elevation of 6000 ft., and *opalina Koll.* was even taken at an altitude of 10000 ft., its larva having been found in the Himalayas at 6500 ft. All the species of *Athyma* are good fliers, moving rapidly with jerky strokes. Still they do not as a rule fly great distances, but alight frequently, the wings extended, on trees and shrubs. *P. perius* visits occasionally moist places on the roads. It is not to be expected that many new species of Athymidi will be discovered, if we may judge from the very few discoveries made during the past decades. Thus whereas Moore could in 1857 and 1858 describe 10 new species, Martin, Waterstradt and myself were able in the course of 10—15 years to bring to light only one new species each; still we may count upon the discovery of new and good local forms in the satellite islands of Sumatra and in some of the smaller Philippine Islands.

Group A: **Athyma.**

Discoidal cell of forewing either entirely open, or closed by a very fine discocellular.

I. Sexes monomorphic.

α) Eyes naked.

pravara. **P. pravara** is the plainest species of the Genus, easy to recognise by the undivided streak in the discoidal cell of the forewing which is only shared by *P. jina Moore* and *P. fortuna Leech* (Vol. I, pl. 59 d). The spots on the upper surface are in all the forms arranged as in *esra* (123 d), varying according to the locality. Beneath it varies from pale grey to coffee-brown. Hindwing with more or less distinctly brown median spots, arranged in a sort of band, and with greenish basal irroration. Found from Northern and Indo China all over the
acutipennis. Macromalayan Region. — **acutipennis** *Fruhst.* from Assam, Burma and Tenasserim, is distinguished from its insular allies by the yellowish hue of all markings. Beneath considerably darker, brown instead of grey, with more prominent black spots standing out more boldly from the ground-colour. ♀ characterized by the elongate, acuminate apex of wing which appears in the remaining forms of *pravara* much shorter and more rounded. —
indosinica. **indosinica** *Fruhst.* shares with the preceding form the dark bands on the upper surface and the dark colouring beneath, but represents a still more extreme case of Melanism in the reduction of the whitish-yellow subapical spots and of all longitudinal bands. In ♀ the shape of wings stands about midway between *acutipennis* and the insular *pravana.* Tonkin, Chiem-Hoa, August—September, at an altitude of 1000 ft., Siam
salvini. January, at about the same elevation. — **salvini** *subsp. nov.* refers to an excellent local form found

in STAUDINGER's collection, but not mentioned in his List of Butterflies of Palawan (Iris 1889). The ♂ has the cellular stripe reduced to a minute, comma-like streak, but the median band on hindwing much broader than in the other forms. Palawan, very scarce. — **pravara** *Moore* from North Borneo has the white markings of the upper surface much narrower than in *esra* (123 d), the brown median spots beneath only slightly developed. From North and South-East Borneo in my collection. — **helma** *Fruhst.* (= pravara *Dist.* Rhop. Malay. p. 160, Pl. 16, fig. 11). Sumatra specimens differ from those from Borneo in the greater extent and brillancy of all white markings, especially beneath. Padang, West Sumatra, Deli, North-East Sumatra, Banka? Malay Peninsula. — **varina** *Fruhst.* has all the white spots greatly reduced, also the streak in the cell of forewing very much narrower. In the subapical row of white spots on the forewing the upper and lower of the three spots are greatly diminished in size; but the brown-black postdiscal row on hindwing is larger, almost as conspicuous as in *indosinica Fruhst.* — **esra** *Fruhst.*, the palest form, as is usual for Java; my specimens differ from MOORE's figure, which is otherwise pretty exact, only in the presence of three subapical whitish spots on the forewing against two in the figure. *esra* has all the bands and spots larger and more conspicuous than in any of the remaining forms, the greatest contrast appearing with regard to *indosinica*. Beneath it differs from *pravara* and *helma* etc. in the paler ground-colour. East and West Java, at altitudes of from 1500—4000 ft. DOHERTY described a species from Sumba, which he places near *amhara*, but which, judging from his description, rather belongs to *pravara*, and may therefore be described in connection with it.

pravara.

helma.

varina.

esra.

P. karita *Doh.* ♂ above deep brown, median bands greenish-white, cell without a vestige of a white streak. Hindwing with two greenish-yellow bands, the second being composed of 6 isolated spots. Under surface dull brown, on hindwing the abdominal margin broadly suffused with blue. Island of Sumba at an altitude of about 1600 ft. Also in the Philippines we meet with a well-differentiated form of the *pravara* group, which must be exceedingly scarce, since it has not been found these past 30 years. It was discovered by Dr. JAGOR who travelled in the Philippines early in the seventies of the last century. In his honour it was given the name **P. jagori** *Fruhst.* Above resembling *pravara*, but all white markings, with the sole exception of the submarginal band, considerably broader. The discoidal streak in cell of forewing is suffused with fulvous from base to middle of wing, not clear white in its upper half as in *pravara*, but dusted with blackish-grey, which gives it a peculiar appearance. Under surface dark coffee-brown, costal fold dusted with yellowish basally, discoidal streak clear white, of uniform width, not broadening out distally. White discoidal streak interrupted shortly beyond the branching off of spot 1 by a brown, irregularly curved, transverse line which on superficial examination with the naked eye gives the impression of closing the cell; the same effect is produced in *pravara* by a streak of black or brown. The white submarginal spot between upper and middle median veins is not placed nearer the base as in *pravara*, but in a straight, vertical line with the others. Subapical spots elongate and narrow, the middle one only a trifle longer than the upper and lower. Subanal spots rather of uniform size, close together. Basal spot between third median nervule and submedian red-brown. The hindwing is along the precostal more broadly scaled with white; the white median and red-brown postdiscal bands very broad, the submarginal band more rectilinear, narrower, somewhat diffuse. Antennae as in *pravara*, tipped with red-brown. ♀, Luzon, collected by Dr. JAGOR, tye in Berlin Museum.

karita.

jagori.

Beside *jagori* we meet in the Philippines a second species of the *pravara* group already described by FELDER in 1863: *P. alcamene*, with yellowish instead of white macular bands on both wings; thus we notice in the Philippines also the *pravara* group represented by a species with white and an other with dark bands, the former inhabiting Luzon, the melanotic form Mindanao, in like manner as we have seen in *gutama* and *kasa Moore*. *alcamene* has developed two local forms: **alcamene** *Fldr.* (124 a ♀), beneath grey-brown, striped and shaded with dark brown. Hindwing has the submedian area suffused with greenish-blue, as in *pravara*. From the latter *alcamene* is at once distinguished by the reduced size of the spots and bands; the under surface has a cast of brownish, and all markings paler than above. It seems to prefer mountainous regions; very scarce; flies according to SEMPER from January until November, in East and South-East Mindanao. From Bazilan, February, March (DOHERTY) in my collection. — **generosior** *Fruhst.* ♀ with all spots and bands still narrower than in *alcamene Fldr.*, of a brillant yellowish-brown tone. The yellowish postdiscal band on hindwing more strongly curved anally and moved farther up. Beneath ground-colour pale coffee-brown instead of grey-brown, spotted with dark red-brown. Subapical spots on forewing more roundish. The whitish-grey subbasal band on hindwing essentially narrower; Mindoro, presumably similar forms also in Cebu, Bohol, Panaon.

alcamene.

generosior.

jina. **P. jina** (Vol. I, p. 186) resembling *P. perius* (124 f) in size and arrangement of markings, but like *pravara* with an undivided, distally broader, clear white cellular streak. Under surface reddish-brown, banded with white, remarkable for the complete absence of blackish or brown spots. Three local forms must be mentioned: **jina** *Moore*, one of the rarest *Athyma* species, since in the course of many years I have only found one specimen among at least 50—60 000 butterflies sent to me from Sikkim. Elwes states that it is only found in the dense forests at elevations of from 6—8000 ft., where it was taken in July. According to De Nicéville it occurs *jinoides.* also in April, which I can confirm. — The Chinese form is **jinoides** *Moore* (Vol. I, p. 186) which unlike *jina* is very abundant on Omeishan, up to 6000 ft. of altitude, during June and July. Thus the real home of the *sauteri.* species is China, whence it has spread also to Formosa. — Here we find as a great rarity **sauteri** *subsp. nov.* which has the white median band on hindwing almost twice as broad as in *jina* and *jinoides*, but, true to its insular character, the white submarginal spots smaller, not arranged so as to form a continuous band, but widely separated. Formosa, only 1 ♂; type in the German Entomological Museum at Berlin-Dahlem to which Mr. Sauter presented a pretty large collection.

fortuna. **P. fortuna** *Leech* (Vol. I, p. 186, pl. 59 d) shares with *jina* the undivided cellular streak, but differs beneath in having on the hindwing the basal area irrorated with blue, like *P. nefte.* — *diffusa Leech* seems to represent an extreme dry-season form, on account of the broadly diffuse white spotting on both wings. According to Leech it is found exclusively in Central China, in Chang-Yang and Ichang on the Yangtse, June and July, pretty abundant.

P. perius is not only the oldest known species which is most frequently seen in collections, but has among all species the widest range, without, however, inclining towards the development of local varieties, Java alone being excepted. This would seem to prove *perius* to be a highly developed and resistent, phylogeneti-*perius.* cally very old species. **perius** *L.* (Vol. I, p. 186, pl. 59 a ♂♀; IX 124 f ♀ instead of ♂) found throughout Southern Asia, from Formosa through South China, Tonkin, Annam, Siam, the eastern and western Himalayas as far as the South of India; Hainan; also on the Sunda Islands from Sumatra to Sumbawa and Sumba, Kangean. In Ceylon *perius* is not found. In Formosa, China and Tonkin the rainy-season form has the white spotting reduced, corresponding to our figure in Vol. I, and Nicéville reports in addition from Darjeeling and Bhotan an uncommonly dark form with brownish under surface. Specimens from Sumatra are remarkable for the broader, clear white bands, indicating a transition to *perinus.* In the Kumaon Himalayas *perius* ascends to *perinus.* altitudes of 6000 ft., but generally prefers the lower plains and open places instead of the woods. — **perinus** *Fruhst.* is, analogous to all the *Athyma* forms of Java, distinguished by the broader white bands; one might take it for a dry-season form, if I had not encountered it in Java at all seasons and from the coast up to an elevation of 4000 ft., without displaying any change in its external appearance. From *perius* it differs in the broader white markings on both wings, especially in the subbasal band on the hindwing which is clear white and nearly twice as wide; only the submarginal band has a tendency to grow narrower. On the under surface of the forewing the white subapical and submarginal spots which in *perius* are widely separated, flow together into a continuous band. East and West Java. As above said, *perius* prefers, unlike all the other *Athyma* species which inhabit the woods, the open fields, being very common everywhere along roads and paths, and flying even during heavy rainshowers. Larva in India on Glochidion, in Java also on a species of Phyllanthus called by the natives Dempul-Lolot.

P. asura ranges over the South Chinese-Indian Region and Macromalayana. It is easily distinguished from the other Athymidi by the black centre of the white submarginal spots on the hindwings, both above and beneath. The under surface (cf. Vol. I, pl. 59 a) varies from pale to dark red-brown, the white submarginal spots, especially on the hindwings, being often suffused with a lovely violet lustre. The ♀ is much larger than the ♂, with yellowish-white bands above, which recur beneath in the shape of clear white patches proxi-*elwesi.* mally suffused with greenish-blue. **elwesi** *Leech* (Vol. I, p. 186, pl. 59 a) has the narrowest white bands. From Changyang to the farthest Setchuan-Tibet border, at elevations of about 6000 ft., in June and July; every-*baelia.* where scarce. — **baelia** *Fruhst.* is inferior in size to *elwesi*, but has the white median bands on both wings broader. Under surface somewhat darker, otherwise, aside from the broader median bands, only differing in the white subapical spots on forewing being more prominent. Mountains of Formosa, near Chip-Chip and on *asura.* Lehiku Lake, at elevations of about 3800 ft., in June and July. Discovered by H. Sauter. — **asura** *Moore* has on the upper surface the bands still broader and of a yellowish tone. ♀ almost as large as *P. larymna* ♂ (124 d), under surface paler red-brown than the other forms. Moore figured also the form of the dry-season, with clear white, very broad bands, resembling specimens taken by me in Annam during January. From Kulu to

Upper Burma, June till October, everywhere scarce, so far not found in Sikkim. — **idita** *Moore* succeeds the preceding form in South Tenasserim, the Mergui Archipelago and Malay Peninsula. Differs from the Continental and more northerly forms in having above the median band suffused with blue-green at the periphery, and on the hindwing the chain of black spots almost obliterated and only slightly indicated beneath by mere dots. — **pusilla** *subsp. nov.* from the island of Banka, is greatly inferior in size to Perak and Sumatra specimens, with brillant white bands and much paler under surface. Type in the Munich Museum. — **anaka** *Fruhst.*, distinguished in ♂ by the narrowest median bands on forewing, which occasionally are obscured anally to such an extent that the white colour is nearly entirely replaced by blue-green. Beneath it resembles *idita*, dark coffee or chocolate-brown, especially pronounced in ♀♀, which are larger than those of any other Malayan *asura* form, with much broader subapical spots and median bands. North and South-East Borneo, Pontianak. — **battakana** *Fruhst.* (124 c) differs from *latecincta* in having the white median bands narrower and more conspicuously bordered with blue-green, but somewhat broader than in typical *idita* from the Malay Peninsula, from which they also deviate by the red-brown instead of dark coffee-brown colouring of the under surface. The forewing has the subapical strigae longer than in *latecincta*. Deli, Sumatra. The figured light form does not seem to occur in the Padang Bovenland of West Sumatra, specimens from thence having the bands much narrower. — **latecincta** *Fruhst.* has in contradistinction to the other Macromalayan forms of *asura* the white submarginal spots of the hindwings centred with black, recalling *asura Moore* of India proper. Moreover, the under surface deviates from that of all other forms by the light red-brown ground-colour. Western Java, Vulcano Gede, 4000 ft. of altitude. This beautiful species is rather scarce, and I have never observed it in the eastern part of the island.

idita. *pusilla.* *anaka.* *battakana.* *latecincta.*

P. larymna and the two following species are the giants among the Pantoporidi. Markings illustrated in our figures of *larymna* (124 d) and *elisa* (123 b). According to the locality, the white or yellowish transverse bands vary in extent, and the ground-colour of the under surface from grey to coffee-brown. ♀ always larger than ♂, with clearer white and larger bands above, more rounded wings, and paler under surface. All the forms of *larymna* are scarce, especially on the outer limits of its range of distribution. Although endowed with strong flight, it never flies very far; is always met with singly on moist spots or on faeces in forest roads. — **siamensis** *Fruhst.* is the smallest of the hitherto known forms, possibly on account of the type belonging to the dry-season form. Wings delicate, especially hindwings narrower; white spotting reduced. Beneath resembling *laryma* in the brillant coffee-brown colouring, although easily distinguished from it by the reduced white bands. Siam, Hinlap, Muok-Lek, January and February, at about 3300 ft. Malay Peninsula to Upper Tenasserim, (February till August). — *siamensis* I found on the wet rocks along the railway line from Bangkok to Korat in the Interior. When frightened, they fly away rapidly, but re-alight after a short time on the leaves with extended wings. — **agina** *Fruhst.* ♂♂ smaller than ♀♀ from Java, wings more delicately curved. Cellular streak bluish-white, divided in 3 parts, much narrower than in the other forms, the spot above the cell not triangular, but quadrate, the bands on hindwing, especially the lower, second one, much narrower than in *larymna* and *elisa*. The under surface has on the forewing the cell more broadly filled with brown, on the hindwing the brown median band narrower and more sharply defined than in the allied forms. Forewing of ♂ measures 44 mm. Palawan, very scarce. — **elisa** *Fruhst.* (123 b) is the form most frequently seen in Europe. White spots above hardly one half as large as in *larymna* from Java, ♀♀ very large, all bands and spots margined with blue. Under surface of ♂♂ slightly paler grey-brown than in Continental specimens. North and South Borneo, Pontianak. — **larymna** *Dbd.* from which the species was named, comes from Java, and displays therefore, as all Neptidi and Pantoporidi found in that island, the most conspicuous white markings, especially in the subapical and intramedian areas on the forewing. The proximal band of ♂♂ is as large as that of the ♀♀ of the allied races. Very scarce, only found by me in the woods around Wijnkoops Bay and near Sukabumi, but never in the eastern part of the Island, at an altitude of about 2000 ft. — **selessana** *Fruhst.* resembles in ♂ *elisa*, but wings more rounded; under surface more richly bordered with white, bands much narrower than in *larymna*, ground-colour darker, more uniformly brown, more profusely adorned with violet. Bands broader than in *siamensis*; under surface darker brown, and more richly spotted with violet and white. ♀ very much like *elisa* ♀, but with broader white markings above; the under surface has on the hindwing the bands rather narrower, more rectilinear; ground-colour deeper brown; white spots more reduced than in *larymna*, broader than in *siamensis*; under surface lighter than in *siamensis*, like *larymna*. North-Eastern and Western Sumatra. — **bangkanensis** *subsp. nov.*, smaller than *selessana*, median bands uncommonly narrow, under surface much paler. Banka, type in Munich Museum. — **subcurvata** *Fruhst.* unites in both sexes the characteristics of *elisa* from Borneo in the narrow, yellowish bands of ♂, and of *larymna Dbd.* from Java in the uncommonly broad transverse bands of ♀. The ♂ is easily distinguished from that of the allied forms by the strongly curved subbasal band on the hindwing, which in *elisa* and still more in *siamensis* forms almost a straight line. Under surface

siamensis. *agina.* *elisa.* *larymna.* *selessana.* *bangkanensis.* *subcurvata.*

of a peculiar pale brown colour, with a very long, conspicuous discal band of deep brown. ♀ has the subapical and subanal spots on forewing farther separated than in *larymna*, the subbasal band on hindwing narrower, the outer band wider, darker than in *elisa*, *siamensis* and *larymna*, yellowish instead of white. Island of Nias.

P. magindana above resembles *larymna* in the shape of its pattern, although all markings are greatly reduced in size; in its fulvous colouring it recalls *alcamene* (124 a). Beneath it is quite like *larymna*, and it is only necessary to discover some intermediate form to enable us to regard it as the Philippine form of
magindana. *larymna*. The colouring of the under surface varies from grey to red-brown, with darker discal bands. — **ma-**
zilana. **gindana** *Semp.* January till November, Mindanao, very scarce. — **zilana** *Fruhst.*, differing in ♂ from *magindana* in having the bands reddish instead of yellowish, and on hindwing broader, more regular and less steep. Ground-colour beneath rather red than grey-brown, more richly suffused with violet; all white spots more pronounced; antennae darker. Bazilan, February, March, collected by W. Doherty. In Bohol we find an allied form, mentioned by Semper, but unknown to me.

In the Celebian Subregion and the Southern Moluccas we find the largest species of the Pantoporidi, *P.* **eulimene**, remarkable for the reddish colouring of the upper surface. Also here we find the design of *larymna*, but al the spots and the submarginal band on hindwing larger, whereas the median band on the same wing is reduced. Under surface distinguished by the whitish-yellow transverse bands which only rarely are faintly
badoura. bordered with red, and the broad black shades and fasciae. — **badoura** *Btlr.* differs from the figured *eulimene* (123 b) in the small, indistinctly fulvous, subapical spots on forewing and the diminished bands on both wings. Under surface has the yellow markings broader, the black bands correspondingly diminished. North Celebes, scarce. Collected by me at Toli-Toli, November-December, also from the Minahassa in my collection. Specimens from the southern part of the island are smaller and, especially above, paler, bands rather yello-
hegelochus. wish than reddish. — **hegelochus** *subsp. nov.* from Bangkai in the Staudinger collection. Especially the ♀♀ form a sharp contrast with the allied forms by the broader and more brown-yellow bands above. Beneath
symphelus. still paler than South Celebian specimens, paler brown-yellow and but slightly spotted with black. — **symphelus** *subsp. nov.* represents the most extreme case of Melanism in the collective species. ♂ differs above but slightly from *badoura*, ♀ with narrower fulvous bands. The under surface has a rather different appearance, being much darker and nearly brown-black. Sula Islands, type in the Berlin Museum, found by Dr. Platen.
eulimene. — **eulimene** *Godt.* (= jocaste *Fldr.*) (123 b) of which we figure a ♀ from Buru, occurs also in Amboina. ♂ has the wings more acuminate than ♀, with more delicate red spots. Under surface, aside from the pale bands, nearly black, in ♀ black-brown. Very scarce, only a few specimens known.

Group B: **Pantoporia.**

On forewing discoidal cell invariably closed.

Larva long, worm-shaped, green with red dorsal spot; all segments armed with long spines. Pupa with diverging horns. Only in a few species the ♀♀ are like the ♂♂, otherwise highly sexually dimorphic and polychrome.

P. kanwa, a rare and plainly marked species, ranging from Assam and Burma to the Macromalayan Region, but hitherto not observed in Perak or Java. Above like *napoleonis* (124 d); under surface smoky-brown, on hindwing the inner area bordered with greenish. ♀ only differing in the slightly more rounded wings and
phorkys. larger size. — **phorkys** *subsp. nov.* is the form from the continent, figured by Moore; easily distinguished from the Macromalayan forms by the reduced yellowish-white spotting on the forewing and the much narrower, beneath shorter, white streak in the discoidal cell. Subbasal band on hindwing somewhat broader than in *napoleonis*. Very scarce in Assam and Upper Burma; also from Tavoy. Doherty collected it on the Karen-
zynara. Hills at elevations of from 3000—4800 ft. — **zynara** *subsp. nov.* differs from the name type from Borneo and from *napoleonis* in having on the upper surface the bands clear white and broader. Under surface darker, more broadly shaded with brown-grey than in *kanwa*. Sumatra, very scarce. — A similar race occurs
kanwa. also in Banka. — **kanwa** *Moore* closely resembles *napoleonis*, but with more prominent white markings. North
napoleonis. and South-East Borneo; an almost identical specimen from Singapore in my collection. — **napoleonis** *Fruhst.* (124 d). ♀ has the bands more yellowish and diffuse than ♂. Beneath more richly shaded with greyish-brown than *kanwa Moore*. Island of Nias.

P. reta is a Macromalayan species which, like *P. kanwa*, has spread northward as far as Assam. Great

uncertainty prevailed formerly about this species; first, because Moore described as distinct species to insular forms which were constantly confounded with one another, and then, because the ♀ remained for a long time unknown, being figured here for the first time, whereas Moore took the grey-brown dimorphic ♀ of a *P. nefte* form to be the ♀ of *reta*. The upper surface has, as in all Pantoporidi, the bands varying according to the locality; the under surface is as a rule darker than in the figured ♀ from Nias (124 d). The ♀♀ of the remaining local and insular forms are not yet known. — **moorei** *Fruhst.* is the Continental form, characterized by the broad, brillant white bands and large subapical spots which unite on the forewing with the submarginal spots to form a nearly continuous band. Under surface with brown-yellow bands. Very scarce. Assam, Upper Burma, Mergui Archipelago, Malay Peninsula, Singapore (type). — **mendica** *subsp. nov.* is, in contradistinction to the preceding, a small form with extremely narrow transverse stripes on the upper surface of both wings, of a clear white colour like *moorei*. Under surface paler than in Singapore specimens. Banka, type in Munich Museum. — **reta** *Moore*, described from Sumatra, specimens from the North-East and South-West of the island in my collection. According to Martin it is quite common, and is met with on every road leading through high forest. The pupa is richly decorated with gold as usual in the Pantoporidi. The white bands and spots somewhat narrower than in *moorei*. Under surface darker, the white submarginal band occasionally margined with pale blue. — **syma** *subsp. nov.* (124 d as *reta*), a remarkable insular race, characterized by the reduction of the white spots on forewing, especially of the subapical and subanal series. ♂ has the subbasal band on the hindwing tapering both in front and behind, leaving the middle part broader. Also the submarginal spots on hindwing are diminished and farther apart. ♀ very much like ♂, bands slightly broader, approaching the ♂ of *moorei*, but the colouring yellowish instead of white. Under surface of a rich, dull golden brown, only slightly darker in ♂. Island of Nias, scarce. Described from 6 ♂♂, 5 ♀♀ contained in Fruhstorfer's collection. — **euryleuca** *Hag.*, contrasting with *syma* in the unusually broad white bands of the under surface, and the sharply defined, likewise enlarged, white spots above. The subbasal band on hindwing placed somewhat nearer the costa. Mentawej, only 1 ♂ known. — **kresna** *Moore*; although one of the commonest Pantoporidi in Borneo, a great number from Kina-Balu, Pontianak and South-Eastern Borneo being in my collection, the ♀ is not yet known. Submarginal markings considerably narrower than in *moorei* and *reta*. Under surface darker brown.

moorei. *mendica.* *reta.* *syma.* *euryleuca.* *kresna.*

β. Eyes ciliated.

P. ranga, a continental species, particularly interesting on account of its great sensitiveness towards geographical and climatic influences, and easily recognizeable by the very rich white markings of the under surface which has the square, dull yellowish-white patches cut up by broad black veins. — **serica** *Leech* (Vol. I, p. 186, pl. 59 a) is the northern-most form, very scarce, in West China, June-July on Omeishan up to about 4000 ft. — **obsolescens** *Fruhst.* from Tonkin, closely related to *serica*, although inferior in size, of still stronger tendency toward melanotic colouring than *karwara*. The third subapical spot on forewing entirely absent, all other spots much smaller than in Moore's figure 1 (Lep. Ind.), and of bluish-white instead of yellowish tone. The two uppermost spots in the subbasal band on hindwing are violet and not white. But it shares with Moore's fig. 1 the grey-white, half translucent, submarginal band on the hindwing which is not found in *karwara*. On the under surface the black ground-colour extends much farther than in the Indian *ranga*, the green basal irroration is darker, the veins are more broadly dusted with black and the antemarginal as well as submarginal white spots greatly diminished. Tonkin (type) Chiem-Hoa (August, September), ca. 3000 ft.; Siam, February. — **ranga** *Moore* (124 c) is the oldest name for the North Indian form; it refers to the dry-season form, extremes of which have also the outer band on the hindwing dull yellowish-white. Under surface white with black bands and spots. — **mahesa** *Moore* refers to the larger specimens of the wet-season; ♀♀ also on upper surface of hindwing with yellowish, grey-dusted, elongate spots, which in ♂♂ tend to become obsolete, even more so than appears in our figure. Larva with brown head armed with spines; segments green, with a yellowish-white ring at the ninth segment. Each segment with a subdorsal and a lateral row of finely-branching spines which are longest in front. Feeds on Olea dioica and Lonicera malabarica. In its mode of living it resembles the larva of *Limenitis procris*; after gnawing off from the leaves all the softer parts, until nothing is left but the bare midrib, it barricades the access to the main stalk with excrements and silk-threads, in order to prevent ants and spiders from approaching and disturbing it when it rests motionless on the top of the rib. After the last moult it changes its habits, and is found on the upper side of the leaves, conspicuous enough on account of its colour. Pupa brown, the sides adorned with brillant silvery markings. Head with two long, sharp horns, thorax and first abdominal segment provided with lateral appendages. Oc-

serica. *obsoleseens.* *ranga.* *mahesa.*

curs from Nepal to Burma and Tenasserim, common in Sikkim, from March till December, up to about 3000 ft.
karwara. Doherty found it in March in the Karen Hills. — **karwara** *Fruhst.* (124 c) completely lacks, in contradistinction to North Indian specimens, all white submarginal spots; forewings with only 7 greatly diminished, clear white instead of yellowish white spots, standing out boldly from the black ground. Under surface has all the spots greenish basally, clear white in the discal area, the submarginal spots larger and more conspicuous than in *ranga mahesa*. On the hindwing the green basal irroration in the anal region is darker, broader and extending farther toward the middle of the wing. From Karwar. Quite common; larva in August on the above mentioned plants. Regarding South Indian specimens Moores tates that the rainy-season form has on both wings the submarginal and marginal lunules above broader and of dark grey hue; on the under surface all the markings are broader and dark greenish-grey. ♀ of the dry-season form has likewise all the spots above larger than in specimens from North India; also beneath the spots are more conspicuous, the discal and submarginal bands on hindwing confluent anally. Nilgiris, up to 3800 ft. Scarce.

arayata. **P. arayata** *Semp.* takes the place of *ranga* in the Philippines, where it has so far been found only in Luzon. I only know it from Semper's figure, which has on the forewing the subapical spots very small, the median and subanal spots very large; hindwing with very broad anterior band and very small submarginal spots; all markings of clear white colour. Hindwing more broadly suffused with pale blue beneath, and in the place of the white submarginal spots some black-brown sagittate streaks along the veins. Mount Arayat, at an elevation of about 3000 ft., April. Only 6 ♂♂ known.

P. abiasa forms the continuation of the continental *P. ranga* in the Macromalayan Region, where
clerica. together with other allies it has advanced as far as Southern Tenasserim. — **clerica** *Btlr.* shares with *ranga* the white markings and the blue-green spots in the discoidal cell of the forewing; but has the bands narrower, uniformly broad, and also the outer band on hindwing very distinct, never obsolete as in *ranga*. Beneath resembling *reta Moore*, but more broadly suffused with blue. Mergui Archipelago, Malay Peninsula, North
lingana. Eastern and Western Sumatra. — **lingana** *Fruhst.* has in ♀ the white subapical band on the forewing and all the bands on the hindwing broader and clearer white than in *clerica Btlr.* from Malay Peninsula, and much larger than in *abiasa* or *matanga*. The submarginal band on the under surface of the hindwing uniformly broad from costa to anal angle, the single spots being not separated but confluent. Linga, type in Berlin Museum.
pedanias. — **pedanias** *subsp. nov.* from the island of Banka differs from *P. abiasa clerica* in the narrower white median
abiasa. bands and paler under surface. Type in the Munich Museum. — **abiasa** *Moore* from Java was not recognized until 1906, when I reinstated it into its rights. It is above distinguished by the large intramedian and submedian spots which give it a certain resemblance to *P. arayana Semp.* Very scarce. I found during 3 years only 1 ♂ on the Vulcano Gede and 1 ♀ in the Tengger Mountains in East Java, at an elevation of about
matanga. 3800 ft. — **matanga** *Fruhst.* (124 d), has all the white spots on both wings smaller than in *abiasa* and, especially in ♀, than *clerica*. The white submarginal band on the hindwing of ♀ is composed of helmet-shaped instead of square or roundish spots. It is much larger than *abiasa*, ♀ measuring 35 mm against 28 mm
adunora. in the latter. Mount Matang, 3000 ft., Pontianak, Kina Balu, Borneo. — **adunora** *Kheil* resembles above *P. reta syma Fruhst.* (124 d) in the diminished white spotting. The cellular streak on forewing is still more reduced than in *abiasa Moore* from Java, being a mere thread, the blue-green basal irroration obsolete, contrasting with *clerica* and *matanga*. Beneath like *reta kresna*, with pale brown ground-colour and darker median spots. Island of Nias, very scarce, only a few specimens known. ♂♀ in my collection.

urvasi. **P. urvasi** *Fldr.*, one of the most interesting species, confined to the Malay Archipelago whence only 3—4 specimens have come to Europe. *urvasi* may be called white with a deep black border, black base and submarginal band on forewing and median band on hindwing. All the rest clear white, the large median area deeply notched on the median vein. Under surface brown.

opalina. **P. opalina** *Koll.* a purely Indo-Chinese species which is not found outside of the Continent. **constricta**
constricta. *Alph.* (Vol. I, p. 187, pl. 59 b), the darkest form in the collective species, with the narrowest bands. Near
orientalis. Changyang on the Yangtse, and on Omeishan at elevations of from 6—9000 ft. — **orientalis** *Elw.* (124 c) from Assam and Sikkim, is by some authors looked upon as the rainy-season form of *opalina Koll.* from the Western Himalayas. But my palest specimens from Sikkim of the most extreme dry-season are still darker than the darkest specimens from the Western Himalayas, and from Assam I have never yet seen a dry-season form at all. In the Himalayas *opalina* is very common at altitudes of from 3800—9500 ft., from Cashmere to Assam, between March and November, one brood following the other. Specimens from Burma, China and the Karen Hills are of a slightly lighter shade than those from Assam, approaching rather those from the Western Himalayas. In Tonkin *opalina* must also occur. My specimens from Mardan in the North-West Province have the broadest bands. From Annam I possess specimens of a local form resembling *Athyma jina Moore* =

parajina *Fruhst.*, distinguished by the short forewings and the peculiar shape of the hindwings which are at the anal angle considerably contracted and narrower. On both wings the white markings are without a vestige of yellow irroration, and the bands are steeper than in *opalina*. The white spots in the submarginal band on the hindwing are widely separated by the broadly black veins, whereas in *opalina* they form a continuous chain. The colouring of the under surface holds about the middle between *opalina* and *orientalis Elw.* All the white spots are shorter, but more conspicuous, regular, and closer together. On the forewing the white antemarginal band broader. The red-brown discal band of spots on hindwing is likewise more pronounced, reaching the anal angle, where it is broadest, whereas in *opalina* it breaks off at the median vein. South Annam, Plateau of Lang-Bian, 5000 ft., collected by Fruhstorfer in February. *parajina.*

II. Sexes dimorphic. Eyes always naked.

P. selenophora ranges over the entire Indian Region, being found even in the southernmost Liu-Kiu Islands and all over the Macromalayan Region. It is one of the least resistent species of *Pantoporia*; the dry- and wet-season forms deviating considerably from each other, not only in colouring, but also in the outline of their wings which, rounded in the rainy-season form, grow distinctly acuminate in the dry-season form. It is natural that also local varieties have developed, and we observe here again the fact that the Javanese form much more approximates to that from North India than to its immediate neighbours in the Macromalayan Region. This is especially remarkable in the ♀♀; thus *jadava Fldr.* (which replaces *selenophora Koll.* in Java) is beneath hardly to be distinguished from the dry-season form of the ♀ of *selenophora* in India. But Sumatra ♀♀ differ in colouring and design both from *selenophora* and *jadava*. — **ishiana** *Fruhst.* surpasses in size specimens from the Continent. ♂ distinguished by the large median band on both wings which are still more heavily dusted with pale violet-blue than in *laela* (123 d). ♀ almost by one half larger than *epibaris* ♀ (123 d), with more rounded wings, but with unusually contracted and almost yellowish-white bands. Under surface of ♀♀ very brillantly coloured. Forewing dark brown, shaded with black, hindwing beautifully yellow or red-brown, occasionally with slightly diffuse submarginal bands. Originally described from a ♀ taken in June; the ♂♂ were first discovered by Mr. Sauter, who sent me two specimens taken in September. — **laela** *Fruhst.* (123 d) is another of the many discoveries of Sauter's, who, following my proposal, started exploring Formosa and has for years sent his beautiful material to me. In ♂ the white submarginal line on the hindwing is beneath either absent or exceedingly fine. Ground-colour beneath rather darker than in Indian specimens, with more prominent red-brown median spots. The very scarce ♀ of which so far only 1 specimen is known, has the yellowish-white bands above greatly reduced; beneath it resembles in the lovely dark red-brown markings the ♀ of *ishiana*, differing from this and *selenophora* ♀ in the more sharply defined, narrow, white stripes. Found in the mountainous Interior of Formosa, on Lehiku Lake and at Polisha, from January onwards, especially in July. — **leucophryne** *subsp. nov.* is distinguished from *laela* by having on the forewing three large white subapical spots, resembling *bahula Moore*. Median band on hindwing sharply-defined, anally broader, clear white without any blue border. Beneath it differs from *laela* in the broader white stripes, and especially the very conspicuous submarginal band; type from Hainan, where it was only lately discovered. Hongkong ♂♂ resemble *leucophryne*, but have the under surface paler, more richly banded with white. Flies in April and May. Walker speaks of *leucophryne* as one of the prettiest sights when on the wing. — **batilda** *Fruhst.* represents a transition from the insular to the Indian forms. Median band above only faintly margined with blue, narrower than in *bahula* or *selenophora*, subapical spots on forewing more conspicuous than in *laelia*. Under surface darker, red or coffee-brown, than the forms from farther West. ♀ unknown. ♂ collected by me in August, September, in Central Tonkin. — **bahula** *Moore* bears the same relation to the name type as *orientalis Elw.* to *opalina Koll.* Both sexes larger, ground-colour deeper black-brown. White bands narrower, dull yellowish, occasionally suffused or scaled with grey. ♂ almost devoid of basal red spotting above. ♀ deeper red-brown beneath. Assam, ♂♂ very common, ♀ scarce. Specimens from Burma, the Karen Hills and the Shan States, as well as a ♂ taken by me in Siam during January, are probably allied to the Tonkin form. According to Elwes the ♀♀ of *bahula* are considerably smaller than those from India proper. — **selenophora** *Koll.* (Vol. I, p. 187, pl. 59 b) is distinguished in ♂ by the rich red spotting of the base and the large white apical patches, in ♀ by the broad yellowish-white markings. Under surface pale fulvous. ♀ nearly without any dark median markings. From the western Himalayas to Sikkim, in two seasonal forms, a paler one of the dry-season and a darker one of the wet-season. Specimens from the South of India undoubtedly represent a form of their own. Moore names as its home the Kanara District and the Nilgiris, from 3000 ft. up. — **amharina** *subsp. nov.* (*Moore nom. nud.*) (124 f as *amhara*) differs from Assam and Sikkim ♂♂ in the brighter blue border of the white median band above and the paler grey under surface. A very small form. Malay Peninsula. ♀ according to Elwes banded with dark grey above. — **amhara** *Druce*, a common species from the Kina-Balu Distriet (North Borneo), differing from the preceding form in having on both wings the median band much

ishiana. *laela.* *leucophryne.* *batilda.* *bahula.* *selenophora.* *amharina.* *amhara.*

narrower, the submarginal band more prominent. ♀ differs from that of *epibaris* (123 d) in the narrower white stripes. Under surface of ♂♂ a peculiar grey, of ♀♀ nearly greenish-brown. — **baris** *Fruhst.* (123 d) deviates from the two preceding forms in the greater width and irregularity of the white median band on the forewing and the more prominent submarginal band on the hindwing. Under surface paler red-brown than in *amharina*, with all white markings increased. — **epibaris** *Fruhst.* (123 d) has the white markings somewhat reduced, although less so than in *amhara amhara*. Under surface dark slaty-grey, somewhat like the Borneo form. ♀♀ easily distinguished by the broader median bands, which are rather of a yellowish than bluish-white tone. Both forms are found side by side in North-East and West Sumatra at elevations of 3000 ft. and above, nearly all the year round. Martin states that *baris* is in the higher mountains the commonest *Pantoporia* species, especially abundant in December and January. — **jadava** *Fldr.* is almost exclusively confined to the higher mountains. On Gede it was pretty abundant at an elevation of 4000 ft., also in the Tengger Mountains (Eastern Java) it is occasionally found. ♂ differs from the dry-season form of Sikkim in the entire lack of the red basal streak and of the third subapical spot on the forewing. ♀ is smaller, with more sharply defined, clearer white bands. Beneath it recalls *bahula Moore* from Assam in the darker ground-colour. Eastern and western Java.

baris. *epibaris.* *jadava.*

P. zeroca is an insignificant looking species, distinctly subject to seasonal Dimorphism. ♂ like *galaesus* (123 e), occasionally with red-brown basal streak in the discoidal cell of forewing. ♀ recalls *gandara* (124 b) and *Neptis cartica Moore* in the grey-brown colouring. It nowhere leaves the Indo-Chinese Region, being found from Kumaon to Upper Tenasserim, Siam and Tonkin. The dry-season form is smaller in size marked with broader longitudinal bands; ground-colour paler. — **zeroca** *Moore.* ♂♂ of dry-season form have the bands on under surface white, those of the rainy-season suffused with violet, on a pale or dark red-brown ground. ♀ resembling that of *selenophora*, yellowish to grey-brown, occasionally with a gold-like lustre. Doherty found *zeroca* in the Kumaon Himalayas at 2—3000 ft., greatly subject to variation; in Sikkim from March till December, at 3800 ft.; also in Bhotan, Assam, Karen Hills. — Specimens from the last named locality are probably identical with **galaesus** *subsp. nov.* (123 e), a rather small form, with narrower white median, but larger apical spots on the forewing than are found in the dry-season form of *zeroca*. Beneath with more prominent median spots. ♀ has the bands pale yellow margined with reddish-ochreous, sharply contrasting with the smoky-grey bands of *zeroca*. Under surface red-brown in costal area, otherwise grey-brown. Collected by me in Siam during the dry-season in January at about 1000 ft. — **meinippus** *subsp. nov.* resembles in colouring and markings the rainy-season form of *zeroca*, although it was taken in the dry-season. Apical spots on forewing absent or obsolete, white median area rather broader than in ♂♂ from Assam. Under surface dark red-brown. ♀ of the rainy-season form is so much like that of *nefte matthiola* (124 b) and so different from that of *zeroca*, that in 1896 I took it for a ♀ form of *nefte*, calling it **tenuifasciata** *Fruhst.* (124 b). Its larger size and the reddish-ochreous bands remove it from *galaesus* ♀. Under surface pale coffee-brown, with a faint golden lustre. Tonkin, Chiem Hoa, August-September.

zeroca. *galaesus.* *meinippus.* *tenuifasciata.*

P. cama, the largest *Pantoporia* species in North India, at once distinguished from all the other bright coloured species by the fulvous subapical spot on the forewing which varies in size according to the locality. Both wings with a clear white median band margined by a lovely pale blue or violet. Under surface chiefly pale reddish-ochreous, hindwing with sharply-defined whitish submarginal band, intensely suffused with violet, purple or flesh colour. ♀ above black with broad, light or dark ochreous bands. Beneath like ♂. The two known Continental forms are subject to seasonal Dimorphism. — **cama** *Moore* is the rainy-season form, with red basal streak in cell of forewing. Under surface brown-yellow with darker median shading. ♀ (123 c) with narrow bands of fulvous above. — **camida** *Fruhst.* represents the form of the dry-season, smaller in size, reddish cellular streak absent or obsolete, under surface more faded pale yellow without any dark median spots on the hindwings. ♀ above with broader, paler yellow bands (123 c). From the Kumaon Himalaya to Assam, at altitudes of from 2—5000 ft. ♂ exceedingly abundant, especially in Assam, ♀ more scarce. — **camasa** *Fruhst.* (123 c), a local form distinguished by its large size, the uncommonly broad apical spots on the forewing and the broader white bands on both wings, which are more profusely margined with pale instead of dark violet. In colouring the under surface stands about midway between *cama* and *camida*. Tonkin, Than-Moi, June, at about 1000 ft. — **zoroastes** *Btlr.*, an eminent insular race, was lately received in pretty large numbers from Mr. Sauter who also discovered the ♀. ♂ differs from that of *cama* and *camasa* in the much smaller size of the fulvous subapical spot and in the absence of the red cellular streak on the forewing. Median band narrower, bordered with darker blue. The under surface has, according to its insular character, the ground-colour darker, nearly brown-yellow. Hindwing with submarginal band narrower than in *cama*, suffused with purplish. ♀ above rather approaching *camida*, having the bands pale ochreous, lighter in the middle, slightly contracted, but considerably narrower beneath than in

cama. *camida.* *camasa.* *zoroastes.*

♀♀ from the Continent. Common in the mountainous parts of Formosa, at Polisha, Chip-Chip and on Lehiku Lake, in July.

P. ambra inhabits the Macromalayan Region with the exclusion of Java; undoubtedly it is a variety of the preceeding species. ♂ has above the red subapical spot obsolete, the narrow median area on both wings quite faintly bordered with blue, on the hindwing the submarginal band distinct and white instead of translucent dull smoky-grey. Under surface darker than in *cama*, with all the white bands narrower. Also the ♀ has the bands very narrow. Three distinct local forms, one of which from Sumatra might almost pass as a separate species. — **ambra** *Stgr.* (124 a) is beneath dark grey with greenish lustre and an intense purplish suffusion over the white bands. ♀ distinguished by the sharp pointed wings and by the uncommonly narrow fulvous subapical and median bands which are arranged somewhat like in *cama*, but are smaller than in ♀♀ of the other *Athyma* and *Pantoporia* species, resembling in colouring those of *Neptis ananta Moore*, in shape *Neptis anjana Moore*. Under surface coffee-brown, banded with dark red-brown and whitish-violet. North Borneo; ♂ rather scarce, on Kina-Balu at an altitude of about 3800 ft.; of ♀ only one specimen known, contained in FRUHSTORFER's collection. — **assa** *Nicév.* (124 c) differs from *ambra* in the distinct white cellular streak, the more pronounced red spotting on the forewing, and the nearly twice as broad terminal band on the hindwing. Beneath paler brown with increased white markings. ♀ of which only 1 specimen is known in GROSE-SMITH's collection, resembles *ambra* ♀. On the mountains of Sumatra from 3000 ft. up, pretty scarce; also from the Battak-Plateau and the Padang Bovenlanden. — **gynea** *Swinh.* of which only 3 specimens came to us from Perak, resembles beneath *assa*, only with a more prominent subapical spot of red-orange than in *cama*.

ambra. *assa.* *gynea.*

P. nefte is the most gaudily coloured species of the Genus, exhibiting at the same time a tendency toward sexual differentiation, both in colouring and shape of wings. Showing, moreover, considerable inclination toward individual variation and, in some subspecies, toward the development of climatic (seasonally dimorphic) forms, their identification frequently meets with great difficulties; and it is easy to understand why the heteromorphic ♀♀ have almost without exception been described as distinct species, and why even within recent times some English authors failed to recognize the relationship of the sexes. All forms of *nefte* have as a common characteristic a small whitish or reddish subapical spot, a prominent transcellular transverse band and a white streak in the discoidal cell on the forewing of the ♂♂. Hindwing traversed by two white bands, the upper one of which invariably broader than the submarginal one. ♀♀ resembling those of *cama*, but differing underneath in the steeper position of the white bands. The Continental subspecies have developed seasonal forms, whereas in the Macromalayan Region the ♀♀ are polychrome, one form having the upper surface banded with grey-brown, resembling *Neptis*, the other with red-brown. Only of the Indian form the larva is known; it feeds on several species of Glochidion (Euphorbiaceae) and Mussaenda frondosa, a species of Rubiacea well known for the fact that in New Guinea it attracts *Ornithoptera paradisea*. Larva cylindrical, with 6 rows of finely-branching spines, those on the back longer than on the sides, and again those on the third and fourth segments longer than all the others; but the second segment without any whatever. Legs armed at base with single short spines. Colour green, with a large brown spot on the ninth segment. Head dark brown, covered with short, single brown spines and white tubercles. Pupa like that of *P. ranga Moore*, but with the posterior dorsal appendages longer and more strongly bent outwards (DAVIDSON and AITKEN). — **inara** *Dbd.* (124 e) differs from *cama* in that the ♂♂ have the upper surface of both wings traversed by a reddish submarginal band; it is without any doubt the showiest form of the collective species. The dry-season form varies more in ♀♀ than in ♂♂, the former with very broad bands of pale yellow (123 d), beneath differing from the otherwise identical *cama* ♀ in the pale, incomplete semi-band on the hindwing which does not traverse the entire wing, but stops at the upper median. The ♀ of the rainy-season form, **inarina** *Btlr.* (123 c) is beneath darker brown-yellow, with prominent red-brown median spots which, being generally wanting in *cama* ♀, are also in ♂ of the rainy-season form more distinct than in *cama* ♂, but are hardly ever noticed in the form *inara* of the dry-season. Common from Nepal to Assam, at lower altitudes. It is probable that the specimens from the South of India represent a local form of their own; in Burma *inara* is replaced by **asita** *Moore* (123 e) of which we likewise know two seasonal forms: **asita** *Moore*, most likely peculiar to the dry-season, has the submarginal band on the hindwing white and all white bands narrower; under surface darker brown than in *inara* and *inarina*. The summer-form **asitina** *Fruhst.* has the submarginal band on the hindwing narrow and fulvous instead of white. ♀ above reddish ochreous, darker than *asita*, with narrower light bands, especially of the under surface. From Burma, Tenasserim and the Shan States, collected by me in Tonkin during August and September (the dry-season). *asita* connects *inara* with the Macromalayan forms of *nefte*. — **seitzi** *Fruhst.* (124 e) approaches in ♂ *asita Moore* from Tenasserim and Tonkin in the white submarginal band on the upper surface of the hindwing, but differs in having the white median band on the forewing broader and margined with pale instead of dark violet. The ♀ is intermediate between that of *inarina Btlr.* from Sikkim, and *tenuifasciata Fruhst.* from Tonkin,

inara. *inarina.* *asita.* *asitina.* *seitzi.*

both in the depth of orange colouring and in the shape and extent of the brown-yellow bands on the forewing. These bands are neither quite as light as in Sikkim ♂♂ nor as dark as in Tonkin ♂♂, moreover somewhat narrower than in *inarina* and essentially broader than in *tenuifasciata*. Beneath the ♀ differs from the pale yellow *inara* and the dark cocoa-brown *tenuifasciata* in its faded coffee-brown colouring. Hongkong, collected by Dr. Seitz. Not at all scarce from December until May, the second broad appearing towards the end of March. Visits
nivifera. the blossoms of Poinsettia. — **nivifera** *Btlr.* represents, according to Bingham, the form from the Malay Peninsula, ranging northward as far as the Mergui Archipelago where it gradually passes into *asita Moore*. *nivifera*
subrata. was based upon ♂♂ from Perak; but this name is superseded by the older **subrata** *Moore* although Moore's description referred to the scarce grey-brown ♀ from the Malay Peninsula which resembles that of *gandara*
neftina. (124 b). Another, commoner ♀ form occurring together with *subrata*, was described by me in 1906 as **neftina** *Fruhst.*; its colour is more orange-red. It resembles the ♀♀ of *cama*, *seitzi* and even more closely *matthiola*
matthiola. (124 b), but is easily distinguished from the latter by having the fulvous bands nearly twice as wide. — **matthiola** *subsp. nov.* (124 b) differs from *nivifera* in the much narrower white bands of the ♂♂, and the brown and fulvous bands of both ♀ forms. Type from North Borneo, abundant also in South-East Borneo and Pon-
subratina. tianak. — **subratina** *subsp. nov.* stands midway between *nivifera Btlr.* ♂ and *matthiola Fruhst.* ♂, having the white bands narrower than *nivifera*, but wider than *matthiola*. The same relative difference we notice also in the two ♀ forms, the red one being throughout the Macromalayan Region by far the more abundant. Also here we find, as in *P. nefte asita Moore*, paler and deeper ochreous specimens. Common in Sumatra, where according to Martin it prefers the alluvial plains, although I have also received specimens from the higher
nefte. altitudes of the Padang Bovenlanden. — A similar form, connecting with *nivifera*, also in Banka. — **nefte** *Cr.* (124 b), a typical Java butterfly, is distinguished from all the other forms of the collective species by the very broad, white median bands which are suffused with a faint blue or violet tinge. Also the ♀ which was already
gandara. known to Cramer, has the ochreous bands unusually broad; the other, grey-brown ♀ form is **gandara** *Fldr.* (124 b). Both kinds of ♀♀ occur together throughout Java, but are in the East paler and generally also smaller
cordigera. than in the western part of the island; everywhere up to about 2200 ft. — **cordigera** *Fruhst.* (124 c) closely approaches *nefte*, but has the white bands, although not quite so broad, more richly bordered with blue. Of the ♀ we only are acquainted so far with the ochreous form, which above resembles that of *subratina* from Sumatra, but has the median band on hindwing narrower; under surface of a more intense reddish shade, with darker brown bands than in the other forms. Batu Islands.

rufula. **P. rufula** *Nicév.* represents *nefte* in the Andaman Islands, but differs sufficiently from the other insular and continental forms to be granted specific rights. Both sexes are more or less alike, the ♀ approaching
glora. **P. glora** *Kheil* (124 b) (which in the orange-coloured submarginal band on the hindwing recalls *asitina Fruhst.* and *inara Dbd.*), whereas the ♂♂ closely resemble above those of *nefte Cr.* from Java, but beneath rather approximate *subrata Moore*. *glora* ♂ not unlike *cordigera* ♂, but the median bands above more profusely suffused with blue, often as far as the discoidal cell. Very common on the island of Nias.

P. marguritha represents a highly developed side-branch of *nefte*, uniting the characteristics of two *Pantoporia* species. ♂ still retains the type of *nefte*, whereas the ♀ both in the shape of the wings and in colouring rather approaches *jadava Fldr.* of the *selenophora Koll.* Group. *marguritha* is an excellent illustration of the great influence wrought by apparently insignificant causes, the difference of a few degrees of Latitude and the peculiar climate of the satellite islands producing, by gradual mutation, a new species. Two forms are hitherto
marguritha. known, both contained in my collection: **marguritha** *Fruhst.* (124 a) has the under surface more faded than in the other forms of *nefte*, ♀ but slightly paler grey-brown than ♂. Lombok, April, June, 2000 ft. Very scarce. —
glorifica. **glorifica** *Fruhst.* differs from the Lombok form in having the white median bands on both wings considerably broader, paler and more richly adorned with blue. Also the white subapical spots are larger, and the hindwing displays on the upper surface, above the submedian nervure, a large round spot, which is barely indicated in *marguritha*. Under surface has the ground-colour darker, the white markings broader and more conspicuous: Very scarce in Sumba; Doherty captured only 1 ♂ at an altitude of about 3200 ft. In Fruhstorfer's collection 2 ♂♂ from Sumba, 2 ♂♂ and 1 ♀ from Sumbawa. The latter differs from *marguritha* ♀ in having the white submarginal band on the hindwing about ⅔ broader, a characteristic which is even more conspicuous on the under surface. I expect that *marguritha* will eventually also be discovered in Flores and Timor. In the other Smaller Sunda Islands and Celebes *nefte* is not represented, but reappears in the Philippines as

maenas. **P. maenas**, of which 3 forms are known: **maenas** *Fldr.*; upper surface marked somewhat like *asita Moore*, but the submarginal band on hindwing yellowish or whitish; under surface characterized by the ochreous median bands on both wings. ♀ remarkable for the unusually narrow bands. Type from Burias, an island
semperi. adjacent to Luzon. — **semperi** *Moore* (*nom. nud.*) circumscribes the more southern form from Mindanao, figured

by Semper. ♂ with very broad ochreous submarginal band on the hindwing; ♀ with extremely narrow ochreous bands, resembling those of *P. magindana Semp.*, and in colouring about intermediate between those of *nefte Cr.* ♀ and of ♀ fa. *gandara Fldr.* and ♀ fa. *subrata Moore*. Flies from March till December. From Bohol and the Central Philippines we may expect some additional insular forms. — **maenides** *Fruhst.* (124 a) ♂ has on the forewing the subapical spots narrower and separated by broader black veins than in *maenas* from Mindanao. Subbasal band on hindwing more broadly white, submarginal band white instead of yellow. The under surface reveals its melanotic character in having the ground-colour black instead of brown-yellow, the white markings reduced, and all black spots and bands proportionately increased. Island of Bazilan, collected by Doherty in February and March. *maenides.*

In Palawan we find **P. speciosa** *Stgr.* Ground-colour pale brown with gold-like lustre, median band uncommonly broad, upper portion of cell dusted with violet. ♀ has the white bands narrower, without the shading of violet in the cell. Under surface brown-yellow, marked with dull white bands, accompanied distally by a brown-yellow band which faintly shows through on the upper surface. Hindwing has the basal area suffused with pale blue as in all the forms of *nefte*. Island of Palawan, very scarce. — **preciosa** *subsp. nov.*, marked somewhat like *speciosa*, but has the violet and white portions of the forewing of ♂♂, as well as the more yellowish-white band on the hindwing of ♀♀ broader above. Ground-colour beneath darker, spotted with deeper brown in the basal area on both wings. Island of Balabac, type in the Staudinger Collection, Berlin. *speciosa.* *preciosa.*

P. kasa is one of the most variable Philippine species, Luzon producing two seasonal forms, and the southern islands a number of local varieties. **kasa** *Moore* (124 f) represents the rainy-season form. ♀ larger, having all bands broader and clearer white, cellular streak and submarginal band on hindwing smoky-brown. Under surface brillant yellow, reminding us of *Athyma perius L.*, but darker brown at the apex. Both wings pale blue at base. Median area of hindwing adorned with two rows of black dots. — **kasina** *Fruhst.* has all the white markings broader, the median bands on both wings more rectilinear, submarginal band on hindwing beneath broader than in *kasa*, somewhat like in *parakasa Semp.* Larva which was discovered by Dr. Koch and figured by Semper, is emerald green with pale green tubercles; under side and eighth segment brown-red. Head black with white tubercles. Feeds on a species of Euphorbiacea with the Tagal name "Bignay", probably of the Genus Antidesma. Common in Luzon from January until October, also in the Babuyanes. — **bignayana** *Fruhst.* is distinguished from *kasa* by the much broader cellular stripe, subapical strigae and median bands as well as ultracellular spots on the forewing. Also the submarginal band on the hindwing is more distinct. Type from the island of Guimaras, known for the peculiarity of its Fauna. Also from Pollilo similar specimens in the Semper Collection. — **parakasa** *Semp.* from Cebu and the Camotes contrasts with *bignayana* in the narrower white spots and median bands, and the more prominent, clear white submarginal band on the hindwing. February. — **privata** *Fruhst.* has the white markings of the upper surface as in *parakasa Semp.*, but much narrower than in *kasa Moore*; differs from *parakasa* in having the submarginal band on the upper surface of the hindwing brown-yellow instead of white, and on the under surface much narrower than in either *parakasa* or *kasa*. Type in the Berlin Museum, labelled "Philippines", locality unknown. *kasa.* *kasina.* *bignayana.* *parakasa.* *privata.*

P. tarpa *Stgr.* is an other species peculiar to Palawan; perhaps it should be drawn to *kasa*. Staudinger only received one ♀. Upper surface black, marked as in *kasa*. Under surface brown with conspicuous white submarginal band, accompanied proximally by larger black spots. The black basal band on hindwing not dotted with black as in *kasa*. *tarpa.*

P. godmani reminds us somewhat of *maenas Fldr.* and *subrata* ♂ of the *nefte* Group, from which it is easily distinguished by the monomorphic, male-like ♀♀. Only two forms are known: **godmani** *Stgr.*, marked above like *reducta* (123 e), beneath pale-brown, with black-brown submarginal spots and violet anteterminal band. Median zone with large, deep brown spots. Confined to Palawan and the small island of Balabac. Upon the latter we meet also the form **reducta** *Fruhst.* (123 e). ♂ above darker than *godmani*, almost jet black; but all white bands broader. Under surface with more prominent black spots and sharply defined bands. ♀ is smaller in size, wings narrower and more rounded. Forewing with narrower white markings, especially of the median band. Subbasal band on hindwing suffused with a violet lustre. The blackish-brown postdiscal band more curved and pronounced, succeeded by a paler submarginal band; the marginal and antemarginal bands broader and darker. Balabac, December. ♀ in Fruhstorfer's, ♂ type in Staudinger's Collection. *godmani.* *reducta.*

P. venata *Stgr.* comes nearest to *godmani*, but has the brown colouring limited to the cell and a few rays along the veins beyond. The white macular row of the forewing lacks the middle spot. Under surface dirty greenish-grey, like in *nefte* ♂♂. Discoidal cell of forewing not streaked with white, but only irrorated with greenish basally. Palawan, only one pair known. *venata.*

P. separata *Stgr.* is likewise known only from Palawan, where it is one of the most characteristic *separata.*

butterflies. Above black, with a white band made up of eight spots. Hindwing with a similar band. Under surface dirty brown, with brownish submarginal band enclosing two rows of small spots, one sharp pointed and black, the other whitish.

gutama. **P. gutama** is quite common in Palawan, but seems very scarce in the other Philippine Islands, since I never received it either from Luzon or Bazilan; presumably it will be discovered also in the Central and Eastern Philippines. So far we know only two forms: **gutama** *Moore*, above much darker than the form from the Southern Philippines. Subapical spots smaller, cell partly streaked with white instead of only with grey-brown. Under surface with broader black and reduced brown-yellow bands. Luzon (June) Mindoro, *teldeniya.* Guimaras. — **teldeniya** *subsp. nov.* (123 e as *gutama*), a distinct insular form of paler colour, with intense brown-yellow streaks in the discoidal cell of the forewing, and a similar submarginal band on the hindwing. Under surface with broader and paler brown bands than in specimens from Luzon and Mindoro. Palawan, January, not scarce.

P. epimethis is a rare species, Semper obtaining only two ♂♂; ♀ being unknown to him. The latter greatly resembles the ♂, but is, as usually, larger, with more rounded wings; all spots and bands larger and somewhat paler than in ♂, also beneath. Judging from the material at my disposal, I do not hesitate in treating *gordia Fldr.* which hitherto was considered to be a species by itself, as a local form of *epimethis*. Its markings are the same, only *epimethis* from Mindoro has the bands broader and on the hindwing the inner submarginal band marked with a series of seven black intranerval spots recalling *Athyma idita Moore* and *asura Moore*, *epimethis.* whereas in *gordia* ♂♂ these spots are obsolete, in ♀♀ completely absent. — **epimethis** *Fldr.* resembles above the figured *bazilana* (123 e), but has the stripes above broader and in ♀ more reddish-brown. Under surface pale coffee-brown, in ♂ the whitish submarginal band on hindwing suffused with purplish, base and median area *paragordia.* of both wings dotted with black as in *kasa*. Mindoro, flies in December and January. — **paragordia** *Semp.*, *gordia.* intermediate between *kasa Moore* and *gordia Fldr.* Bohol, January till November. — **gordia** *Fldr.*, type based upon the rainy-season form from Mindanao; upper surface with narrower bands than in *epimethis*. Under surface dark yellow basally, grey-brown distally. The dry-season form differs sufficiently in the whitish subapical *gordina.* spot on the forewing and the white bands on the hindwing to deserve a special name: **gordina** *Fruhst.* From *bazilana.* Mindanao, according to Semper also from Camiguin de Mindanao and Leyte. — **bazilana** *Fruhst.* (123g) has all bands and spots smaller, narrower and paler than *gordia* from Mindanao. — Under surface more sharply marked. Bazilan, February and March, collected by W. Doherty.

P. brujini resembles above *epimethis* and *gordia*, beneath *gutama*, which it seems to replace on some islands, f. i. Bazilan. With *gutama* it shares the confluent brownish-yellow discoidal streak which is not constricted or reaching beyond the cell. In its markings it approaches certain forms of *Limenitis* from Celebes, which *cosmia.* misled Oberthür to describe a local form of *bruijni* as "*Limenitis*" *bruijni*. — **cosmia** *Semp.*, above very similar to *epimethis bazilana Fruhst.* (123 e), but bands rather greenish-brown, steeper. Subapical spots on forewing whitish. Under surface pretty gaudy, basal area greenish-blue, bands clear white, median area traversed by a yellow, brown bordered stripe. Type from Bohol. Similar forms in the Camotes, North and East Mindanao *pindola.* and Jolo. — **pindola** *Fruhst.* has all the bands narrower and more heavily obscured with fuscous, giving it a much *bruijni.* darker appearance, particularly beneath. Bazilan, February, March, collected by W. Doherty. — **bruijni** *Oberth.* has the bands, both above and beneath, considerably narrower. Island of Sangir, whence only a few specimens have come to Europe. Semper calls attention to the peculiar intermittent occurrence in the Philippines and Sangir Islands of white-banded species of *Athyma*, *Limenitis* and *Neptis*. In Luzon and again in Palawan far to the South we find species with chiefly white markings, whereas in the intervening islands of Mindanao and Mindoro the same species are represented by forms with yellow or brown bands. This intermittent colouring may possibly mean that in the Philippines the Athymidi are still undergoing evolutionary changes, representing phylogenetically a younger branch of the family which in the Indian and Insular Malayan Regions has in part at least reached the final stage of development.

P. sulpitia (Vol. I, p. 187, pl. 61 c). This remarkable species forms a transition from the *Athyma-Pantoporia* groups to *Limenitis*; greatly resembling our *Limenitis sibylla*, it gives altogether the impression of being a Palaearctic species; it is confined to the subtropical portions of Asia, being, as far as known, never found north of the twentieth degree of Latitude. It is a distant ally of *Limenitis homeyeri Tancré* and *venata Leech*, *ningpoana.* with which Moore united it in his Genus "*Parathyma*". — **ningpoana** *Fldr.* (Vol. I, p. 187, pl. 59 b) from Ningpo, *sulpitia.* Central and Western China. — **sulpitia** *Cr.* (Vol. I, p. 187, pl. 61 c) inhabits Southern China and was discovered by me also in Tonkin. Here I found it in the open woods covering the rocky slopes of the Manson Mountains, and on the limestone hills near Than Moi, from April till July, at altitudes of from 2000—3000 ft. Its mode

of living is that of our *Limenitis sibilla L.* which was in the first volume (p. 181) wrongly changed to *L. camilla.* In Hongkong during March and April on Lantana-blossoms. — **adamsoni** *Moore* is according to Moore's figure remarkable on account of the narrow submarginal band on the hindwing. Burma, Bhamo, common in October and November. — **tricula** *Fruhst.* (124 e as sulpitia) has likewise all the white markings reduced, the cellular streak on the forewing dusted with fuscous, the under surface still darker than in *ningpoana*, the white apical spots on forewing smaller. Formosa, rare; only one pair in the Fruhstorfer Collection. *adamsoni.* *tricula.*

P. socia *Swinh.* described by its author as follows: Upper surface black, markings clear white; discoidal streak on forewing divided into three equal parts, the last somewhat broader distally, connecting with a long, spear-shaped transcellular spot. In addition a broad subapical band, composed of three subquadrate patches separated by the veins; a small dot before the apex, and 3 discoidal, intramedian, oval spots. Forewing moreover with two pale anteterminal lines; hindwing with a broader subbasal, and a discal row of spots arranged as in *selenophora* ♀♀, and a pale submarginal line. Under surface pale grey, suffused with reddish, base dusted with greenish-blue, bands very broad, also the submarginal line heavier, some white marginal spots. From the Solomon Islands, described from a ♀ said to belong to the *selenophora* group. This locality seems quite extraordinary, in view of the fact that *Pantoporia* is not found throughout the entire Papuan and Australian Regions, and it must therefore be assumed that this species has reached the Solomon Islands from the Philippines. *socia.*

Genus: **Limenitis** *F.*

This Genus differs only in Habitus, but not in Structure, from *Pantoporia* which it even surpasses in the inconstancy of its neuration. Nor do the sexual organs, as far as they have been examined, offer any practicable and reliable means of differentiation. Uncus as in *Pantoporia*, slightly curved, scaphium but feebly developed, valve in many species with a dorsal hump which in *Lim.* (*Moduza*) *procris* is either lacking or only indicated. Valve as a rule chitinized at the end, in *procris* armed with a series of teeth. Its range of distribution comprises the entire Palaearctic and Oriental as well as the Macro- and Micromalayan Regions, an unusually large number of species being found in Celebes. Also China is with its 13 species superior to India where only 9 species are found. Being in general found in the higher mountains, but few species inhabit the lower plains; in the Himalayas and the adjacent districts it ascends from 3800 to nearly 8000 ft. Its tendency towards the development of seasonal forms is but moderate, and sexual Dimorphism is much less apparent than in the Pantoporidi. The earlier stages are but insufficiently known, indeed of only one species. We distinguish between three groups, all of which are connected with each other by intermediate forms, none of the characteristics used by other authors to circumscribe the Genus being constant.

A. Lower discocellular of forewing normal: *Limenitis F.*
B. Lower discocellular of forewing normal, cell of hindwing occasionally closed*): *Auzakia Moore.*
C. Lower discocellular placed far out distally, resulting in the discoidal cell being longer: *Moduza.*

Group A. Limenitis *F.*

Of **L. sibilla** which in Vol. I, p. 181 was wrongly changed to *camilla L.*, the following forms are known in the Palaearctic Region: **angustata** *Stgr.*, is not synonymous with *japonica*, as stated in I, p. 181, but represents a smaller local form from the Amur District, with still narrower bands. — **japonica** *Mén.* is limited to the Japanese Islands, but never found on the Continent. Of ♂ as well as of ♀ a very luxuriant local form is known (**glorifica** *form. nov.*), having the white band on the forewing continuous, in as much as the empty space between the upper and middle medians is filled in with a good-sized oval spot, similar to that found in normal specimens in the lower median space. Japan; the specimens contained in my collection do not give the exact locality. — **puellula** *Fruhst.* is a small-sized local Alpine form found in Southern Switzerland and Savoy; in size and extent of the white band inferior to German specimens, about midway between these and *angustefasciata Streckf.* Type from Salève in Savoy. *sibilla.* *angustata.* *japonica.* *glorifica.* *puellula.*

L. camilla was in Vol. I, p. 182 introduced as *rivularis Scopoli*, without any justification, however, since Scopoli has figured under the name of *rivularis* the well known *Neptis lucilla Denis.* It is found in the mountains of Southern Switzerland as the form **prodiga** *Fruhst.* which has the row of spots likewise more or less complete; especially the ♀♀ have on the forewing a large intramedian spot, which is in ♂♂ at least indicated by a dot. Type from Salève; found also in other localities around Geneva; likewise at Pralognan in Savoy. Specimens from Southern France and Corsica have in the upper median space as a rule only a dot instead of a larger spot. *camilla.* *prodiga.*

*) That the closing of the cell in the hindwing is only of questionable value in characterizing a Genus, is plainly seen in the Euthaliidi, in which we find within one and the same group species with and without discocellular of the hindwing.

L. trivena (Vol. I, p. 183) ranges in the Indian Region over the Northern and Western Himalayas and Cashmere; I possess a number of specimens from Mardan in the North-West Province, and according to Nicéville it is quite abundant at Simla. Several forms have been described in Vol. I: **trivena** *Moore* (122 f) figured from a ♀ with unusually broad bands. Under surface pale yellow, shaded on forewing with darker. This form advances farthest to the South and is found also on the foothills of the Himalayas. — **ligyes** *Hew.* (Vol. I, p. 183) from Cashmere and Kunawur, with narrower bands. — **hydaspes** *Moore* is the darkest of the three mentioned forms, advancing, according to De Nicéville, farthest to the North, to regions with most scanty vegetation. Larva on Lonicera tartarica. Flies from June till September. Bingham reports it also from Chitral.

trivena. *ligyes.* *hydaspes.*

L. daraxa inhabits Northern India and the Macromalayan Region with the exception of Java. — **daraxa** *Moore* (122 f) is at once distinguished by the pale emerald bands and spots above; under surface red-brown, marked with pale blue at the inner margin of the hindwing, and with black submarginal dots on both wings. From Sikkim we know specimens of the dry-season which, although inferior in size to the figured ♂ of the rainy-season, have the green band broader and the under surface paler red-brown. From the Kumaon Himalayas to Assam, the Naga and Chin Hills. Oberthür has received *daraxa* also from Tonkin, and I observed it in February on the Plateau of Lang Bian in Southern Annam, at about 3800 ft. The butterflies are a beautiful sight when they come out of the forest into the bright sunshine, settling with half open wings on low shrubs, barely one yard above the ground, ready to take to the wing upon the slightest disturbance. According to Elwes they alight also on moist spots in roads, always returning to the same place, even when chased and missed with the net. In Sikkim *daraxa* ascends to almost 7500 ft., being quite common in clearings in the woods, especially from April till November. — **viridicans** *Fruhst.* from Kina-Balu, very scarce. Smaller in size than *daraxa*, lacking almost completely the red-brown anal spot on the hindwing above. The green median band somewhat narrower, particularly beneath. — **theoda** *Fruhst.* resembles the preceding form, but still smaller and with still narrower, green median bands on both wings. On the forewing the median band consists of only three green spots, in *daraxa* and *viridicans* of four, the others being quite isolated. The red-brown spot at the anal angle of the hindwing above is longer and narrower than in *daraxa Dbd.*, and much larger than in *viridicans*. Beneath it deviates from all the other forms of *daraxa* by the marginal and submarginal areas being dull ashy-grey instead of shining grey-violet. Moreover, all the black submarginal spots are narrower and more sharply defined. The brown-red submarginal band on the hindwing, accompanying in *daraxa* and *viridicans* the grey area proximally, is absent in *theoda*. ♂: Forewing measures 26 mm, in *viridicans* 28, in *daraxa* 30—32 mm. Sumatra, Battak Mountains. Most likely *theoda* comprises also the form of the Malay Peninsula, of which Doherty reports having taken a number of ♂♂ on Larut Hill in Perak, at an altitude of about 4800 ft.

daraxa. *viridicans.* *theoda.*

L. agneyana *Doh.*, a rare species of which only 2 or 3 specimens are known. It differs from *daraxa* in having the green median band on the forewing bifurcate or double. Uncus, according to Doherty, long, distally curved, without scaphium; valve simple, gradually tapering anteriorly. In *daraxa* it terminates more bluntly, with a distinct dorsal appendage like in *Athyma* and *Limenitis dudu*; uncus shorter, scaphium well developed, strongly curved both downwards and outwards, its extremity pointing toward the uncus with which it may by muscular movements be brought in contact. Found on Larut Hill, Perak, about 3000 ft. lower down than *L. daraxa*. Since Dr. Martin has in his collection a ♂ from the Battak Mountains, we may reasonably expect *daraxa* also in West Sumatra and possibly in North Borneo.

agneyana.

L. zulema *Dbd.* (122 f). Under surface has the basal area pale blue, shaded with black, limnal area red-brown. Moore figured (Lep. Ind. 111, pl. 251) a rainy-season form, with much narrower median band, but larger in size. Very scarce in Bhotan and Sikkim, it is comparatively common at Cherapunji in Assam. May and June, at altitudes of from 1600—4800 ft. ♀ does not differ much from ♂. Several ♂♂ were also taken in Burma and in Upper Tenasserim (March).

zulema.

L. dudu which had hitherto only been found in India, Burma and Sumatra, was lately discovered in Formosa by H. Sauter. Three forms may be distinguished: **jinamitra** *Fruhst.* (123 a), beneath pale lilac, hindwing at anal angle dusted with white, forewing has the apex rich red-brown, the cell traversed by red-brown, black-margined bands. Scarce in the mountains of Formosa. ♀ almost identical with ♂. Uncus rather more sharply curved than in *Moduza procris Cr.* and *M. lymire Hew.* Valve shorter, sharply angled ventrally, the dorsal tooth broader at base, sharper at apex than in *M. lymire*. Valve contracted at the end, distinctly bent, slightly chitinized. — **dudu** *Westw.*, superior in size to *jinamitra*, has the bands narrower and rather yellowish than clear white, and the red-brown streaks in the cell of the forewing more distinct. According to De Nicéville it was found in the dense forests on the highest peaks, circling around the tops of the trees, between June and August. Very rare in Sikkim and Bhotan, it is quite common in Assam, like *zulema*. Occurs also, though sparsely,

jinamitra. *dudu.*

on the Chin Hills (May) and in the Shan States in October. — **bocki** *Moore* is as a rule smaller than *dudu*, but has the bands above more than twice as wide, and the anteterminal area of hindwing whitish-grey. Exceedingly scarce on the Battak Plateau in Sumatra. ♀ presumably unknown. Other forms may be expected from Perak, Borneo, Tonkin and Yunnan. *bocki.*

L. zayla *Dbd.* (123 b) is the largest and most brillant species of the Genus. Under surface very gaudily coloured, forewing resembling some species of the Neotropical *Adelpha* in the ochreous median and red-brown terminal area. Hindwing pale bluish-green basally, as in *zulema*. The very scarce ♀ has the median band on forewing longer, on hindwing narrower. Found in Sikkim from June till August, in open woods, most abundant on Birch Hill above Darjeeling. Although a strong flier, it occasionally alights on the ground like *L. daraxa*. Specimens from Bhotan in my collection; according to Swinhoe common in Assam, where Doherty took quite a number in the Naga Hills. *zayla.*

L. hollandi resembles above *Pantoporia selenophora*, especially the Javanese *jadava Fldr.* with which it has often been confounded. Occurs in a number of forms from Bali to Flores and from Sumba to Timor. ♂ above deep black with paler antemarginal lines. ♀ differs from ♂ in the more rounded wings and the paler grey-brown (instead of black) ground-colour, on which the design of the under surface shows plainly through. The subapical spots are larger and, like the broader median bands, yellowish instead of clear white. Also the under surface has all white markings increased. — **lombokiana** *subsp. nov.* differs from the typical form in having the white subapical spots smaller and the bands narrower above. Beneath the white, fungoid spot at apex of cell is considerably smaller than in *hollandi*. Found in Lombok at altitudes of from 2—4000 ft. Flies from April till June, in full sunshine along the borders of the woods, resembling in its indefatigable flight our *Limenitis camilla*. A similar form also in Bali. — **hollandi** *Doh.* resembles the figured *fylgia* (122 f). Discovered in Sumbawa, by Doherty in the Donggo Region, at about 2000 ft. — **fylgia** *subsp. nov.* (122 f as *chilo*), is a smaller, paler form, ♀ still more like ♂ than in *lombokiana*. Subapical spots beneath steeper, marginal bands paler Island of Flores, November. — **timorica** *subsp. nov.* has the subapical spots on forewing more than twice as large and the median band much wider than in *hollandi*. Timor, type in the Staudinger Collection. *hollandi.* *lombokiana.* *fylgia.* *timorica.*

L. chilo *Sm.* Of this quite isolated species only one ♀ is known. Upper surface dark chocolate brown, with large ochreous subapical spot and a broadly white transcellular band on forewing. Hindwing with broad pale ochreous distal area and, separated from it by a narrow black stripe, an ochreous anteterminal line. Under surface brown, with the same white band as above, but in the place of the yellow an area of pale lilac Island of Sumba, discovered by Doherty. *chilo.*

Group B: **Auzakia** *Moore.*

L. danava is, although in Vol. I, p. 189 described under the Euthaliidi, a true *Limenitis*. Whereas the ♂ hardly differs from *L. dudu*, not even in the shape of wings, the ♀ has the latter rather more acuminate. Three local forms: **danava** *Moore*. Upper surface black-brown at base, pale grey-brown in the distal area, the costal vein of the forewing, as well as all the veins and the anal angle of the hindwing irrorated with dark green. ♀ very scarce, larger than ♂, above more broadly and intensely dusted with olive green, with yellowish-white median band on both wings; forewing with yellowish-grey, tongue-shaped transcellular spots. Submarginal stripes grey-yellow. Under surface with narrow, yellowish-white discal area, broadly bordered with pale olive green distally; otherwise like ♂. The only ♀ contained in Staudinger's collection in Berlin is rather smaller than my ♀ (rainy-season form ?) from Assam, as is also the type from Sikkim figured by Moore. Ranges from Cashmere to the Naga Hills and the Shan States, Upper Burma. According to Moore it is common in Nepal and Assam; rare in Sikkim, at altitudes of from 1600—6000 ft., between April and October. — **leechi** *Moore* (Vol. I, p. 189, pl. 57 c) is smaller and on both sides darker than *danava*. Changyang and Upper Szetchuan. ♀ unknown. — **albomarginata** *Weym.* (= *hageni Stgr.*), a good local form, very scarce, although less so than *L. dudu bocki Moore*, in the mountains of North-East Sumatra; several specimens were sent to me by my collectors also from Padang Bovenlanden in Western Sumatra. Forewing almost black, with brillant green spots in the cell. Hindwing yellowish or white over the entire distal area, anal angle irrorated with olive or bluish-green. Under surface has the terminal area broadly white, suffused with lilac. ♀ discovered and described by Dr. Martin. *danava.* *leechi.* *albomarginata.*

L. austenia *Moore* is exclusively found in Assam, where Doherty discovered it in May near Margharita in the low-lands; otherwise but few specimens are known. Upper surface umber-brown, with a pale brown band composed of crescents, and a series of submarginal spots of liver or horse-shoe shape, very much like those *austenia.*

found in *Cethosia*, especially *biblis*. Under surface as above, only with grey instead of brown-yellow markings. ♀ almost like ♂.

Group C: **Moduza.**

Valve differing from that of the other Limenitidi in being armed with a series of 4 distal spines, of which the ventral one is longest and sharpest.

L. procris has among all South Asiatic Limenitidi the greatest range, appearing at the same time among all the species of the entire Genus most susceptible to local and climatic influences. As, moreover, the subspecies of *procris* often undergo mutation, quite a number of varietal forms have developed which are peculiar and limited to certain islands. Thus the little island of Nias has one species of its own, likewise also Ceylon, Palawan and the Philippines. The extent of variability is illustrated in our figures 122 e and 123 a. The under surface remains, however, extremely constant, displaying hardly any differences whatsoever, even in the Philippines forms. Both wings have the base pale or blue-green, the discal area white, margined first with black, distally with red-brown, the limnal area red or brown-yellow, traversed by lines and dashes of violet. ♀ always like ♂, only larger and with more rounded wings. Larva on Mussaenda frondosa, Wendlandia and Nauclea cadamba (Rubiaceae). Head armed with spines, as in the Pantoporidi, colour in all stages of development dark brown. According to Davidson and Aitken the larva is, when young, thinly covered with short, bristly tubercles. In this stage it begins eating the leaf from the top down, leaving only the midrib standing, and filling the gnawed-off places with excrements which it weaves together with threads of silk, when it is almost impossible to distinguish the larva from its surroundings. After the final moult it abandons this habit, generally sitting on the upper side of the leaf. Its head in this stage is uncommonly large, thickly covered with short, single bristles. On the back the larva is provided with two rows of strong, diverging spines and tubercles, longest and placed rather sideways on the third and fourth segments. Pupa has the abdomen slender, the covering of the wings distented. Head provided with two hammer-shaped horns, which meet above, leaving a circular opening in the middle. Colour brown; altogether not unlike a wilted leaf. Pupal state lasts 10 days. Imago as a rule quite common, preferring the low-lands, although ascending to about 3800 ft. It frequents the edge of the woods, settling with spread wings on leaves at no great distance above the ground and often remaining for a long time in the same place. If disturbed or pursued, it retires with a few rapid strokes, alighting a few yards further on some other bush. According to Martin it is fond of wet places and faeces on forest-roads. — **procris** *Cr.*, described from Southern China, newly discovered by me in Tonkin, is found, without undergoing any perceptible change, also in Burma, Siam, the Mergui Archipelago and in Northern India as far as the Kumaon Himalayas. It is very common in districts with abundant rainfall, from the lowlands up to about 3800 ft. In Sikkim there occurs a distinct form of the dry-season: **chlaena** *Fruhst.*, figured by Moore, easily recognized by the broadly white median bands, especially of ♀, and the larger subapical spots on the forewing. Under surface paler blue, in distal area paler red-brown, but with larger grey-violet crescents. In the South of India we meet with the form **undifragus** *Fruhst.* of which we have above described the earlier stages. It is also found in the Nilgiris up to 4000 ft. The white median band is, especially on the hindwing, much narrower, as is also the red-brown submarginal band on the forewing. Under surface darker than in North Indian specimens, deeper blue-green and red-brown, only very faintly irrorated with violet. — **anarta** *Moore* is distinguished by the increased black markings, especially on the forewing, and by the minute size of the white cellular spot, which may even be absent. Under surface darker green, the black median spots more prominent than in Continental specimens. Andaman Islands. — **batuna** *Fruhst.* (123 a) has, in contrast to the preceding form, on the forewing the white cellular spot pretty large and the median area very broad. ♀ differs from all its Macromalayan allies by having in addition a white anteterminal line on both wings. It is most interesting to observe the contrast between this form and *L. aemonia Weym.* (123 a) from the island of Nias but a few miles distant. Only 1 ♀ known; type from Pulo Tello of the Batu Islands in the Fruhstorfer Collection. — **minoë** *Fruhst.* from North-East and West Sumatra approaches *agnata* (122 e), but with more prominent and broader red-brown band on the forewing. Under surface paler blue, all black bands reduced. — **bankana** *subsp. nov.* has, although inferior in size, the white bands broader. Under surface paler than in *minoë*. Island of Banka. — **milonia** *Fruhst.*, found in Singapore and the Malay Peninsula, is just as small as *bankana*, with the red-brown and white bands considerably reduced above. — **agnata** *Fruhst.* (122 e) from North and South-East Borneo has, like *milonea*, the forewings nearly entirely black, but with increased white markings. — With **neutra** *Fruhst.* (122 e) we commence a series of paler forms; it differs from the Indian *procris* in the reduced subapical and discoidal spots and the somewhat narrower white band on the forewing; moreover, the terminal area is above and beneath darker red-brown. East and West Java, up to about 2000 ft. Horsfield published as early as 1829 some excellent figures of the earlier stages. Although I have not seen any specimens from Bali, I observed it in Lombok from April until

procris. *chlaena.* *undifragus.* *anarta.* *batuna.* *minoë.* *bankana.* *milonia.* *agnata.* *neutra.*

June up to 2000 ft. — **sumbawana** *subsp. nov.* differs from *neutra* in having on the forewing the white spot at the apex of the cell nearly twice as large, and on the under surface of the hindwings the black median spots more prominent. Sumbawa, collected at Tambora by Doherty. — **sumbana** *subsp. nov.*, an excellent form, considerably lighter than specimens from Sumbawa and Lombok, although the white area on the upper surface is much narrower. Under surface pale blue, forewing traversed by a white undulate discal band. Island of Sumba, apparently rather scarce. — **florensis** *subsp. nov.* has among all hitherto known forms of *procris* the largest white spots and bands, showing, moreover, before the apex of the forewing the beginnings of a second white spot. The forewings have the white subapical spots almost twice as large as in *neutra*, and are traversed by a broad submarginal band of bright fulvous. On the hindwings the black bands are almost obsolete, the fulvous ground-colour being interrupted only by two rows of roundish black submarginal dots. Also the basal area as well as the under surfaec of both wings are lighter than in any of the other *procris* forms; Flores, November. — **arnoldi** *Fruhst.* (122 e), one of the characteristic butterflies of the island of Bawean, is, notwithstanding its close proximity to Java, one of the darkest forms. Forewings above with broad black discal area, hindwings with equally broad, black median spots. On the forewing the spots appear isolated, the white band on the hindwing is barely half as wide as in *neutra* (122 e). ♀ remarkable on account of its size and the gorgeous dentate submarginal band on the hindwings. Bawean, not scarce, especially from July until September. Presumably it occurs also in Kangean without undergoing any perceptible change.

sumbawana. *sumbana.* *florensis.* *arnoldi.*

Whether the form found in Mindanao **L. thespias** *Semp.* deserves to rank as a separate species, ist still undecided. It seems very scarce, only a few specimens having been received from Camiguin de Mindanao and Mindanao. The following description is based upon Semper's figure and a ♂ of my collection. Upper surface of decided *procris* type, with a large, coherent, white median band and a very conspicuous spot at the cell of the forewings, which are velvety black. The hindwings have the median area distinctly bordered with black distally, and are ornamented by a submarginal row of black dots. Under surface as in *procris*, the white median band on the hindwing far drawn out distally between the upper and lower radials.

thespias.

L. aemonia is easily recognized by the short white band on the forewing. Two forms exist on the islands adjacent to the South-West of Sumatra: **aemonia** *Weym.* (123 a), rather abundant in Nias, and **L. laubenheimeri** *Hag.* from the Mentawej group; forewings with almost completely black apical area and broad white markings, hindwings beneath with a complete white median band. — On the Batu Islands situated exactly midway between Nias and Mentawej we find **batuna** *Fruhst.* (123 a), which follows the normal *procris* type known from Java and Sumatra, a most surprising, although by no means uncommon, phenomenon in the Malay Archipelago. We may still expect quite a number of peculiar *procris* forms from the islands and islets situated between Engano, Pulo-Wej and Pulo Brass.

aemonia. *laubenheimeri.* *batuna.*

L. calidasa *Moore* (122 e), one of the best known Ceylon butterflies, differs from *procris* in the absence of the white spot near the cell of the forewing. Ground-colour dark olive green, not fulvous as in *procris*. Under surface hardly differing, closely resembling that of *procris arnoldi* from Bawean in all but the absence of the white cellular spot. Larva differs somewhat from that of *procris undifraga*; its colour is greenish-yellow or reddish; feeds on Mussaenda and on Cinchona. Pupa purplish-brown, head provided with horns that are not hammer-shaped, but distally pointed.

calidasa.

L. pausanias *Stgr.* combines the characteristics of *L. calidasa* and *procris*, lacking, like the Ceylon form, the discal spot, and sharing with *procris* the fulvous ground-colour. The design of the white markings of the upper surface corresponds to that of *procris fa. chlaena Fruhst.* Under surface rather pale yellow instead of fulvous. Island of Palawan, rather scarce.

pausanias.

L. mata inhabits together with *L. thespias* the Philippines, where it has developed several well defined insular forms: **mata** *Moore* from Luzon, above resembling *L. pausanias*, but with a rather large white spot at the cell. On the forewing the white band is broken up into three distinct, well separated portions. Flies from July until October; very scarce. — **amida** *subsp. nov.* from the island of Cebu, is distinguished from the Luzon and Mindanao forms by the richer blue-green suffusion of the upper surface and the larger white spots. Type in Semper's collection. — **avalokita** *subsp. nov.* is the reverse of the preceding, with upper surface darker and all white spots greatly reduced, especially those before the apex and at the discal cell; under surface with a conspicuous black median band. Mindanao, discovered in February and March by the well-known orchid hunter Micholitz. Type in the Fruhstorfer collection.

mata. *amida.* *avalokita.*

Of **L. urdaneta** we know three distinct insular forms, which may be increased by new discoveries from the Central Philippines. The differences between the northern and southern forms are so great that Semper regarded them as separate species. However, the similarity of the under surface seems to me sufficient reason for uniting the hitherto separated species with *urdaneta*. **urdaneta** *Fldr.*, only known to me through Semper's figure; his collection contains two ♂♂ from Luzon and one from Mindoro. Upper surface, aside from the white discal spots and a narrow fulvous submarginal band, dark brown. Under surface of both wings with deep

urdaneta.

pintuyana. green basal, and broadly white, uninterrupted, discal area. — **pintuyana** *Semp.* resembles above our figure (123 a), but the colouring is darker brown and on the hindwings the outer band of fulvous narrower. From
mahastha. Pintuyan de Panaon. — **mahastha** *subsp. nov.* (123 a as *pintuyana*) differs from the preceding form in the lighter general colouring of the upper surface and the smaller size of the white spots, the second (costal) one of which is moreover absent. Both wings with more reddish, but the white spotting on the under surface greatly diminished. Island of Bazilan, February, March, Doherty. Type in Fruhstorfer's collection. Only one ♀ available.

L. lyncides comes, among the five now following species of the Celebian Subregion, nearest to the type of *L. procris*. Both sexes are nearly alike in colouring, the ♀ of a slightly duller shade of red-brown, and with more rounded wings. On the forewings the white transverse band differs in width according to the
lyncides. locality, being broadest in the form from Southern Celebes, narrowest in that from Bangkai. **lyncides** *Hew.*, type from the Minahassa, was observed by me also at Toli-Toli in North Celebes, during November and December; specimens from the low-lands in the southern part of the island do not seem to differ appreciably from the
eutenia. northern form. — But **eutenia** *subsp. nov.* (122 f as *lyncides*) has both in ♂ and ♀ the transverse band on the forewing unusually broad and clearer white. Collected on the Peak of Bonthain at an altitude of about 3200 ft.,
amarapta. in March. — **amarapta** *subsp. nov.*, the type of which is contained in the Staudinger collection, has, in contradistinction to the preceding, the white bands on the forewing greatly reduced. Island of Bangkai.

lycone. Of **L. lycone** we distinguish in Celebes two but slightly differing forms: **lycone** *Hew.* from Minahassa,
lyconides. above with darker brown yellow markings and smaller white spots than are found in **lyconides** *subsp. nov.* (122 f), which latter has, moreover, the under surface paler, whitish and blue. Falls of Maros, January.

lymire. **L. lymire** *Hew.* (123 a) is the largest and showiest among the sexually non-dimorphic Celebean species. ♀ slightly larger than ♂, forewings with more brillant and brighter green irroration. The southern form does not differ perceptibly from the northern type. I found this species at Toli-Toli during November and December, and at the Falls of Maros in January. Valve more elongate and slender than in *L. dudu jinamitra Fruhst.* from Formosa, with sharp chitinous point distally, but without the spines found in *Moduza procris*; the dorsal spur
neolymira. more blunt and stout than in *L. dudu*. — **neolymira** *subsp. nov.*, a melanotic form, with greatly reduced white bands, and on the under surface very prominent black spots. Sula Mangoli, type in the British Museum. 1 ♂ also in the Tring Museum.

libnites. **L. libnites** *Hew.* (122 d). The difference between the sexes is well shown in our figures. So far only known to occur in Celebes, but an appreciable difference between the specimens found at Toli-Toli and those at the Falls of Maros does not seem to exist. Under surface marked with alternate bands of lighter and darker brown and whitish stripes. ♀ has on the hindwing the black median spots less distinct and the area around them brown-yellow.

L. lysanias was by Moore separated from *Limenitis* and placed into a Genus "Tarattia", because the lower discocellular joins the median vein at the origin of the second median nervule, and the discocellular curves outward only in its upper portion. This, however, appears to me to be only a case of aberration, and rather confirms me in my belief that in the Limenitidi the course of the discocellular is of small or no value for their
lysanias. distinction. **lysanias** *Hew.* (122 e) represents a transition from the *Moduza* group to the true *Limenitis*. The specimens in my collection from Minahassa and Toli-Toli show a great similarity between the sexes. The southern form which Hewitson had received from Wallace, and which I collected in March on the Peak of Bonthain at about 3000 ft. of altitude, has on the hindwing the brown-yellow median band somewhat paler and the co-
karschi. louring of the under surface more faded and chiefly whitish. — **karschi** *Fruhst.* ♂ distinguished from that of *lysanias Hew.* of Celebes by having on the forewing the median band broken up into separate white spots, on the hindwing the white median band greatly reduced, and on both wings the red-brown postmedian bands correspondingly broader and very pronounced. Under surface darker with more prominent and extensive brown areas, clearly displaying the melanotic character of a satellite insular form. Sula Mangoli; type in Staudinger's collection.

staudingeri. **L. staudingeri** *Ribbe*, hitherto only found in Ceram, of unusually large size, distinguished from all the other species of the *Moduza* group by having the white median band continuing to the costa, as in *Euthalia dudu* (130 d). Beneath greenish-blue, hindwing with the white median band bordered with brown, and with large, roundish, black patches surrounded by whitish-blue.

39. Genus: **Pandita** *Moore.*

This group which comprises only two species, differs in morphological respect but slightly from *Limenitis*. The third subcostal nervule has its origin quite close to the fourth, almost at the apex of the wing; on the forewing the discal cell is closed by a fine undulate discocellular, which joins the median vein precisely at the origin of the second nervule; its upper portion is, as in *L. lysanias*, slightly pushed outward, differing thereby

but slightly from *Moduza*; on the hindwing, however, the cell is open. Palpi very characteristic, the middle segment being but slightly curved, the end-segment forming a right angle with it, as a result of which the palpi do not protrude so far as in the preceding Genus. The close proximity of the third and fourth subcostal branches has its parallel only in the African Genus *Hamanumida* and certain species of *Aterica*; however, it must be remembered that also in the typical *Athyma* we frequently find the third subcostal nearer the fourth than to the apex of the cell, and in *Parthenos* they even arise practically at the same point. Sexual organs more delicate than in *Moduza* and *Limenitis*, on the whole shorter; valve in proportion to the small size of the imago (*P. imitans*) uncommonly broad, its dorsal spur placed nearer the base, indicating thereby its relationship with the Pantoporidi and *Adelpha*. Valve distally without the chitinous point characteristic of *Moduza procris*. The genus is found throughout the Macro-Malayan region, both known species inhabiting the low-lands.

P. sinope. ♀♀ but a trifle larger than ♂♂, underneath with paler median area. Two forms are known: *sinope*.
sinope *Moore* (124 f), originally described from a ♂ from Java, type contained in Horsfield's collection; whereas I never found it in Java, it occurs, although not very abundantly, in Sumatra, Singapore and the Malay Peninsula; according to Hagen it flies in fruit-orchards, visits the blossoms growing on sunny slopes, and even comes to flowering plants placed in open windows. — **sinoria** *Fldr.*, a darker form, with broader black bands on the *sinoria*.
under and upper surface of both wings. North and South-East Borneo, also in the Natuna Islands and Palawan.

P. imitans *Btlr.* (124 f), a lovely small form, easily recognized by the white median band on the forewing. *imitans*.
On the under surface the black-bands are rather more close together than in *sinope Moore*, otherwise there is no great difference. Island of Nias, very scarce. I expect that on the islands between Nias and Pulo-Wej some forms will be found which may be a transition to *sinoria* and *sinope*.

40. Genus: **Lebadea** *Fldr.*

Formerly the species of *Lebadea* were united with *Limenitis*, but were justly separated by Felder into a genus of their own, being easily distinguished by the fact that the precostal arises beyond the origin of the subcostal, and that the cells are closed on both wings. We repeat here the original diagnosis of the author, which will make clear the further characteristics of this genus: "Antennae with thin, very elongate clubs; palpi squamate. Eyes naked. Cells closed in both wings. On the forewing the first subcostal arises beyond the middle of the cell, the second before the apex, curving downward; the third originating far beyond the middle of the wing, likewise, curving downward; the fourth arising shortly beyond near the apex. On forewing the discocellular in-curved, 2. and 3. median nervules arising a slight distance beyond. On hindwing precostal out-curved, single, arising rather far beyond the origin of the subcostal". — We may still add, that on the hindwing the discocellular joins the median vein exactly midway between the origin of the first and second median nervules (Dr. Schatz).

Both known species are closely related and easily recognized by the long falcate forewings and the dull yellowish-brown ground-colour, which on the upper surface is interrupted by wavy markings, alternating pale and dark, and generally also by a white band traversing both wings. They are mainly found in the Macromalayan Region. Sexual organs quite different from those of *Pandita* and *Moduza*; valve with the dorsal appendage peculiar to all the Limenitidi, but more rounded, without the sharp edges found in the true *Limenitis*. Uncus exceedingly fine and delicate. They inhabit the low-lands, and are hardly ever found at elevations of above 2000 ft. They prefer sunny woods interspersed with shrubbery, and are in some places not at all scarce. Their flight is very feeble, in contrast with our *Limenitis*, but still they are shy; taking refuge in low shrubs, on whose leaves they rest with expanded wings; only rarely they leave the proximity of the ground.

L. martha is the oldest name *) of the species better known as *ismene*. — **ismene** *Dbd.* (122 d) occurs *ismene*.
exclusively in Bhotan, Sikkim and Assam, discovered in the Naga Hills by Doherty. Of the two seasonal forms which we know, our figure represents that of the rainy season. The winterform is smaller in size, the colouring more pale fulvous, the black median spots on the hindwings less pronounced, the under surface rather grey than brown-red and the white spotting more faded. The ♀♀ have in either form the apical spots on the forewing diminished. Flies from March till November; quite abundant in woods of low elevation above the sea. Flight feeble; it frequently alights on leaves, always with wings expanded. — **martha** *F.* is the *martha*.
form from Farther India, inferior in size to *ismene*, with narrower white band on both wings. *martha* refers to the form of the wet season, **attenuata** *Moore* (122 d) to that of the dry season. The specimen represented *attenuata*.
in the figure came from Southern Annam; distinguished by the unusually heavy black discal spots on hindwings; flies in February. I also collected it in Tonkin, in August and September, likewise near the ruins of Angkor and in Central Siam, from December until January. *attenuata* I took in May at Petichaung near Toungo in Tenasserim. Moore mentions also the Mergui Archipelago, where he found it between December and March.

*) Among Fabricius' types which I had occasion to look over in Copenhagen, I found besides *L. martha* also the Javanese *L. alankara* which were by Fabricius held to be identical.

L. alankara replaces *martha* in the Macromalayan Region, differing from it in having the ground-colour rather grey than brown-red, and the black submarginal wavy line on the hindwing pushed farther out-

malayana. ward. — **malayana** *Fruhst.* from the Malay Peninsula represents a transition from the typical Siamese *martha* to the forms of the Greater Sunda Islands, belonging neither to *martha* nor to *alankara* (as Distant assumed), but being a local form of its own. The hindwings still retain the brown-red ground-colour of *martha*, but in their markings approach much more *alankara Horsf.* from Java than *sumatrensis Stgr.*, its closest geographical neighbor. *Malayana* lacks the second, narrower discal band on the hindwings and the inner white border of the black submarginal band, in the place of which the discal row of black spots becomes much more pro-

bankana. minent than either in *alankara* or *sumatrensis*. Perak. — **bankana** subsp. nov. is darker brown than *sumatrana*; hindwings with violet median and submarginal bands and, separating these, two rows of black spots. On the forewings the white markings are narrower, but still more distinct than in ♀♀ from Sumatra. Des-

sumatrensis. cribed from several ♀♀ from the island of Banka, contained in the Munich Museum. — **sumatrensis** *Stgr.*

wallacei. resembles above the figured *pava* (122 d), but has all white markings broader. — **wallacei** *Moore* has the upper surface of the hindwings suffused with bluish-violet. The Munich Museum contains also a ♀ with blue distal border of the hindwings. I have only seen specimens from North-East Sumatra, but never from the western

pava. part of the island. — **pava** *Fruhst.* (122 d). ♂: Upper surface brown-grey with the usual *Lebadea*-design, but the white markings much less prominent than in *alankara Horsf.* from Java or *wallacei Moore* from Sumatra. Both wings have the black submarginal band very prominent, but only indistinctly bordered with white. The forewings with a postmedian series of generally crescent-shaped spots extending from the costa to the anal angle. Beyond the apex of the cell three elongate patches of white, and below the cell four additional median spots between the median nervules and the submedian. Hindwings with a row of 7 white, helmet-shaped median spots and, parallel with it, another proximal subbasal series of spots the upper one of which is about 2 mm in breadth, whence the remaining ones gradually taper to a thread-like line. Under surface yellowish-grey, on the forewings the white markings of the upper surface are repeated, but are much broader, causing the outer and inner marginal bands to partly run together; on the hindwings the two median bands of the upper surface are quite faintly seen through; but both wings have the undulate submarginal band, which appears here brown instead of black, very distinct. *pava* was the first *Lebadea* that was found on the small is-

alankara. lands accompanying Sumatra on the South-West. Birmah Pulo-Tello, near Nias. — **alankara** *Horsf.* from Western Java, occurring up to elevations of 1000 ft., is, as may be expected, the palest form among the Macromalayan races, distinguished by most dainty white stripes and uncommonly large median lunular spots on the hind-

samana. wings. Both wings have the undulate submarginal band bordered with white proximally. — **samana** subsp. nov. is a smaller form from Eastern Java, with somewhat diminished white markings above. In some years it is quite common on the foot-hills of the Tengger Mountains and to the South of Malang in the Zuidergebergde, up to about 2000 ft. of altitude, in open woods, where it frequents the blossoms of low shrubs. Do-

natuna. herty found it also in Bali. — **natuna** *Fruhst.* deviates quite considerably from *paduca Moore* from the neighboring Borneo; it rather approaches *L. sumatrensis Stgr.*, differing from it in having on the forewing the white helmet-shaped discal spots very feebly developed, and in the presence on the hindwing of a broad violet series, which is hardly noticeable in *sumatrensis*. On the other hand the white submarginal band, which in the latter is very broad, is in *natuna* only just indicated by a series of white curved dashes less than one mm in width. But the discal series of brown helmet-spots is rather well developed. Both wings underneath much more richly marked than in Sumatra ♀♀, differing also in Borneo ♀♀, especially on the hindwings, in the presence of a very narrow, sharply defined, but intensely brillant brown submarginal zigzag-line. ♀ expanse of forewing

paduca. 42 mm. Natuna Islands. — **paduca** *Moore*. Specimens from North and South-East Borneo have on the forewing the white lunules, and on the hindwings the median area much narrower than in *sumatrensis* and *mala-*

paulina. *yana Fruhst.* ♀♀ with median stripes on hindwings almost obsolete. — **paulina** *Stgr.* has the brown-black spots in the median area of the hindwings more distinct, the under surface richer and paler brown-yellow than in *paduca*. Palawan, not scarce in January.

41. Genus: **Parthenos** *Hbn.*

The genus *Parthenos* occupies among the Limenitidi quite an isolated position, not alone on account of its different neuration, but also on account of its general appearance, the peculiar style of colouring and the shape of the valve. In other respects, however, it so closely agrees with the *Limenitis* type, that it cannot justly be separated from that group, but should rather be considered as some distant Subgroup, although some authors unite them with the Euthaliidi. *Parthenos* not only has the precostal arising behind the subcostal, but bifurcate, and it generally also possesses a narrow precostal cell. The short spur at the base of the median is distinctly developed. On the forewing the 1. Subcostal arises at the middle of the cell; the 2nd originates immediately beyond the first, one half of it coalescing with the main stem, and reaches the margin a short distance before the apex. The 3rd and 4th branches arise quite close together, almost from the same point, shortly before the apex. The upper discocellar is absent; the middle one short, pointing inward, strongly incurved and joining the median precisely at the origin of the second nervule. The third median nervule prolonged

far beyond the cell; the discocellular bent at a sharp angle outward. This characteristic distinguishes *Parthenos* from all the other Nymphalid genera. On hindwing cell closed as in *Lebadea*. Tegumen unusually develop d. Uncus as in all other Limenitidi, but with heavy, broad base, slightly curved distally. Valve most characteristic, sharply angular, provided with long bristles, constricted before the very broad extremity which is armed with unusually sharp teeth. At the base and over the dorsal ledge there is a long spur whose motion is controlled by separate muscles, similar to that found in the genus *Neurosigma*. As far as known, the Indian forms have the valve more elongate than the species of the Papuan Region. The marginal teeth of the valve vary according to the species, but this is hardly to be depended on to furnish a sure means of distinguishing between the frequently very similar forms. Thus it must for the time being be left undecided, whether one or the other Melanesian form deserves to be accorded specific rights or not, the more so since also the earlier stages are quite similar and subject to variation. Of the two species inhabiting German New Guinea, the pupae are, according to Ribbe, hardly to be distinguished from one another. Larvae feed on various vines f. i Zehneria umbellata (of the family of Cucurbitaceae); they resemble those of the Subgroup *Moduza*, are chiefly green, with brown head and two rows of finely branching dorsal spines; pupa brown or green, pointed on either side of the head, in shape resembling a boat. Imago as a rule quite common; its flight soaring or sailing, the wide-spread wings being scarcely moved; a peculiarity of theirs consists in their turning most unexpectedly and racing away at full speed, rendering their capture difficult, unless one happens to find them sipping the honey from flowers. As a rule they inhabit the low-lands, only in Burma they were observed at altitudes of from 3—5000 ft. They are mostly encountered during the wet season, and it is, at least on the main land, a rare occurrence to find a really good specimen during the dry season. Its range extends over the entire Empire of India, the Philippines, Macromalayan Archipelago, Celebes and New Guinea as far as the Solomon Islands. In the Micromalayan Islands and in Australia the genus is not represented, probably because the larvae are unable to survive the protracted dry periods of those arid regions.

P. cyaneus *Moore* (120 d) distinguished from all the other known species by the gorgeously brillant, pale greenish grey-blue colouring of the upper surface, and by the unusually large white spots. Underneath it closely resembles the other *Parthenos* species; but the different shape of the pupa with its greatly distented wing-cases in which it deviates from that of *P. virens*, points to its being a separate species. Larva pale yellow suffused with purplish-brown; abdomen darker; on the back striped with dark brown, each segment ringed with spots of white; head armed with thin spines, much finer than in *Moduza calidasa*; segments covered with fine hair. The back is moreover covered with spines, longest on the first and ninth segments. Feeds on Modecca. Pupa purplish-brown. Imago is found from May until July, and again in November and December, from the lowlands up to about 5000 ft. It is a slow flier, but very wary, resting on large leaves with expanded wings. Ceylon. Valve more elongate than in the Melanesian species. *cyaneus.*

P. sylvia *Cr.* has developed among all the species of the Indo-Malayan Region the greatest number of forms, being exceedingly sensitive toward climatic and local influences. On the mainland and the Andamans we encounter, moreover, seasonally dimorphic forms. — **sylla** *Don.*, of relatively small size, originally described from southern China; my specimens came from Manhao (Yunnan); in Tenasserim it occasionally is found together with *gambrisius*. Forewing has the submedian, and the hindwing the basal area suffused with blue-green. — **gambrisius** *F.* above pale green, slightly suffused with bluish-green. — **apicalis** *Moore* (120 d), the form of the dry season, has the white spots on the forewings united into a sort of band. Ranges from Eastern Bengal to Assam and Burma, and the Mergui Archipelago. I collected die fa. *apicalis Moore* near Tandong in Tenasserim in May, in Siam in January, in South Annam in February; the rainy season form in Tonkin during August and September. — **roepstorffi** *Moore* closely resembles *gambrisius*: the form of the dry season approaches *apicalis*. Its size somewhat smaller, the colouring of the upper surface moss-green, underneath faded grey-green, rather paler than in specimens from North India. Andamans, Nicobars. — **virens** *Moore* is a highly specialized form, easy to tell by the broad black border and the greenish golden colouring of the upper surface of the wings. Under surface with very heavy black submarginal spots, which distinguish it from *cyaneus* of Ceylon. Larva according to Moore's figures green with yellow lateral stripe and reddish or blackish spines; head brown. Pupa brown, smoother than that of *P. cyaneus Moore*; according to Moore it takes but three days to develop the imago. South India, as far as the North Kanara District. — **lilacinus** *Btlr.*, a lovely form of the Malay Peninsula, excelling by the beautiful violet-blue stripes along the submedian on the forewing and on either side of the black median band on the hindwing. — **sumatrensis** *Fruhst.* (120 c). Upper surface striped with paler blue, on the under surface of the hindwing the basal area uniform pale green, not blue-green as in Perak specimens. My collection contains only specimens from North-Eastern Sumatra, but none from the western part of the island. According to Hagen it frequents the borders of sunlit open woods; some time ago hundreds of these butterflies were seen on a newly made field-road bordered with Ipomoea, apparently without paying any attention to one another. Its flight is strong and rapid, sailing, being supported almost without moving the wings. Martin reports *sylvia.* *sylla.* *gambrisius.* *apicalis.* *roepstorffi.* *virens.* *lilacinus.* *sumatrensis.*

that it often flies over high trees, the wings slightly bent downward; it always frequents the vicinity of water-
sylvicola. courses; thus he once observed great numbers of it on the lily-grown borders of the Badagei River. — **sylvicola** *Fruhst.*, a small, very pretty form; ground-colour above a lovely golden brown, hindwings with median bands of grey-violet, devoid of all blue; on the forewings the discal spots are dusted with grey-violet. Java, especially common in the eastern part of the island, during the rainy season, along the borders of woods, not ascending
bellimontis. above 1600—2000 ft. — **bellimontis** *Fruhst.* (120 c) is a very dusky form, hindwing with a brown-red submarginal band. The specimens contained in my collection do not give the locality; they were obtained from
borneensis. the collection of the late Mr. v. Schoenberg, and came presumably from South-Eastern Borneo. — **borneensis** *Stgr.* (= nella Swinh.) seems to be intermediate between *sumatrensis* and *bellimontis*, with darker blue-violet colouring than the former, and a green submarginal undulate band on the hindwing. North-Borneo. —
butlerinus. **butlerinus** *Fruhst.* refers to a rather pale form approximating to *sylla Don.* from South China; above grass-
philippensis. green with pale blue stripes on the hindwings. Island of Palawan, not scarce in January; Balabac. — **philippensis** *Fruhst.* (120 c) is characterized by the very broad black distal border of the forewing and the pale brown-yellow basal area of the hindwing. Seems to be very constant from Luzon to Mindanao. Semper
joloensis. received at one time nearly 1000 specimens from Camiguin de Mindanao. Flies from April till July. — **joloensis** *Fruhst.* is somewhat like *sulanus* (120 d), but with more white on the forewings. From Jolo of the Sulu
salentia. Archipelago. — A similar small-spotted form inhabits according to Semper also Sangir. — **salentia** *Hpffr.* common both in the North and South of Celebes, is a large-sized form, forewings with pale grey-green patches,
bangkaiensis. hindwings above brown-yellow, not unlike *philippensis.* — **bangkaiensis** subsp. nov. is rather dark, colouring deep grey-green, with some small hyaline patches on the forewings; under surface conspicuously streaked
sulana. with black. Island of Bangkai. — In **sulana** *Fruhst.* (120 d) the hyaline spots are more reduced and at the same time of a blue lustre; all the black markings increased. Under surface also of the forewing with a pro-
ellina. minent black submarginal band. Sula-Mangoli and Sula-Besi. — **ellina** *Fruhst.* from Batjan, Halmaheira
obiana. and Morotai resembles *obiana* (120 b), but has the transparent spots rather larger. — **obiana** *Fruhst.* (120 b),
nodrica. underneath more richly ornamented with black than *ellina.* Island of Obi, quite common. — **nodrica** *Bsd.*, originally described in "Voyage d'Astrolabe" from Buru and New Guinea; unknown to me in natura, but was collected in considerable number in Buru by Doherty. — According to Oberthür it occurs also on Waigiu together with *P. tigrina.* If *nodrica* really came from Waigiu or New Guinea, the Buru form must receive another name, for it is hardly to be assumed that *nodrica* should appear in an identical form in Buru as well as in the Papuan Region, considering the great tendency of the *Parthenos* species toward insular variation. —
brunnea. **brunnea** *Stgr.* from Amboina and Ceram is of much larger size than either *ellina* or *obiana*; upper surface with
numita. brown-yellow shading over the transparent spots. — **numita** *Fruhst.* from Goram rather resembles specimens from Key in the absence of all shading of the hyaline spots on the upper surface. Hindwings a lovely golden
bandana. brown. — **bandana** *subsp. nov.* from the spice-island of Banda, inferior in size to specimens from Goram and Ceram,
tualensis. the general colouring above darker than in *numita.* Type in Staudinger's collection. — **tualensis** *Fruhst.* (120 c), of rather large size; forewing striped with pale green; hindwing smoky-grey. Key Islands; according to
aruana Kühn not very abundant, but single specimens may be observed all the year round. — **aruana** *Moore* resembles *tualensis*, but with whitish-hyaline instead of greenish discal spots, and greatly reduced white markings on forewing. Aru Islands. — In New Guinea and some of the adjacent islands the variability of *Parthenos* reaches its highest development. Thus the forms of the Dutch western part of the island are changed to such an extent that they must be considered and treated as a separate species (*tigrina Voll.*) (120 a). But in the entire eastern part of the island, comprising the British sphere and the most easterly portion of the German possessions, we encounter forms which have preserved the character of the West-Malayan *sylvia*, with which they may
guineensis. therefore, together with the forms of the Bismarek Archipelago and Solomon Islands, be united. — **guineensis** *Fruhst.* (120 b) replaces *sylvia* on the Gulf of Huon, German New Guinea. Forewing grey-green, exhibiting among all New Guincan forms the most diminished white markings. Valve shorter, stouter at the base than in *P. cyaneus Moore*, somewhat broader distally than in *P. aspila Honr.* Larva was discovered by Wahnes; it varies considerably, the dorsal stripes are somewhat darker than in *P. aspila Honr.*, covered with white bristles; lives
pherekides. gregariously on some species of vine. Pupa green. — **pherekides** *Fruhst.* (120 a) resembles somewhat *tigrina* (120 a) in the brillant brown-fulvous colouring of the upper surface of the hindwings. Milne Bay, British New Guinea.
pherekrates. — **pherekrates** *Fruhst.* differs above from *pherekides* in the broader and paler green colouring and the larger size of the white markings which, however, do not reach the size of the hyaline spots of *tualensis Fruhst.* On the forewing the black submarginal band is very much narrower than in *pherekides*, being bordered with pale green. On the hindwing the discal and marginal spots are reduced in size, being separated by broader spaces of brown-yellow. The under surface is likewise considerably paler, having all the black bands and other markings more obsolete and the ground-colour more faded; only the basal area is darker green, contrasting more sharply with the much lighter outer half of the wings. Fergusson Islands and Collingwood Bay, British New Guinea.
couppei. — **couppei** *Ribbe* (120 b), characterized by broad, dirty white spots on the forewings. Neu Mecklenburg. —
fusciplena. **fusciplena** *Fruhst.*, described from specimens without certified locality, refers to the form of Neu Pommern; on the forewing the spots are suffused with yellowish-brown; underneath the ground-colour is deeper grass-

green than in *couppei*, with heavier black submarginal spots. — **neohannoverana** *subsp. nov.* resembles *couppei* in lacking on the primaries the yellowish shading of the spots which, however, are much larger; under surface of hindwings paler green, with less distinct black markings. New Hannover. — **thesaurus** *Math.* (120 b), originally described from Treasury Island, our figure after a specimen from Bougainville, differs from the forms of the Bismarck Archipelago in having the hyaline patches on the forewings reduced in size and mor broadly bordered with black. Found by Ribbe also on the Shortlands Islands of the Solomon group. — **thesaurina** *Sm.* from Santa Cruz of the Solomon Group is unknown to me in natura. — **etoga** *subsp. nov.* inhabits Guadalcanar, characterized by the partially obsolete white spots on the primaries and the unusually broad black bands on secondaries. Also the submarginal area beneath has the black bands and spots more prominent than *thesaurus* from the Shortlands and Bougainville. Flies in April. On the Solomon Islands we find in addition a whole series of more or less well differentiated insular forms; however, the available material is too scanty, and I therefore limit myself to mentioning only one more form which among the large series of *Parthenos* found in the British Museum attracted my special attention: **ugiensis** *subsp. nov.*, of relatively small size, colouring mainly pale yellow-green, forewing with very small, almost clear white transparent spots. Island of Ugi.

neohannoverana. *thesaurus.* *thesaurina.* *etoga.* *ugiensis.*

The name of **P. tigrina** is adopted here to designate a number of unusually dark forms; possibly, however, it must eventually give way to the name of *nodrica Bsd.*, if the type of *nodrica* really came from Waigiu, as Oberthür (Lép. Océaniens 1880 p. 47) asserts. The valves of the three forms subjected to examination differ but slightly among themselves, but are decidedly shorter than that of *P. cyaneus Moore* from Ceylon. Also uncus shorter, more sharply curved, more flat at the base. — **tigrina** *Voll.* (120 a) has in ♂ the white markings on the forewing partly shaded with yellowish, and the basal area of both wings bright brown-yellow. Under surface yellowish-green with distinct, black submarginal bands. Described from Salawatti; does not differ from specimens taken on Aetna and Kajumera Bay, Dutch south-western New Guinea, contained in my collection. from Mr Chas. Oberthür I received a ♂, collected by Doherty near Wandesi on Geelvink Bay. — **nodrica** *Bsd.* refers to a dark form with very small intramedian spots on the forewings. Andai, also Dorey. — **terentianus** *Fruhst.* (120 a). ♂ has on forewing the hyaline spots completely covered with black scales. Hattam in the Arfak Mountains, discovered by W. Doherty. — **aspila** *Honr.* (120 a) represents the melanotic extreme, lacking also in ♀ the light spots. Common on Astrolabe Bay, German New Guinea; discovered also on Humboldt Bay by Doherty. Larva according to Hagen living gregariously, differing according to Ribbe from that of *P. sylvia guineensis Fruhst.* in the dorsal line being darker. They vary greatly in shade of colour, from light to dark, but always are covered with white bristles; they feed on some sort of vine. Pupa boat-shaped, green, head provided with two points. — **pardalis** *Fruhst.* differs from Vollenhoven's figure of *tigrina* from Salawatti in that the black border of both wings is still broader and the white hyaline spots on the primaries somewhat smaller. Moreover, it has but two costal spots instead of three, and beyond the cell but 2 instead of 4 distinct, white subapical spots; on the forewing the anal angle is more broadly margined with black, and the white spot at the edge of the cell starting from the upper median nervules is much smaller than in *tigrina*. The black transverse stripes which originate at the base, broader. Under surface very dusky, both wings with extraordinarily broad, deep black submarginal bands, also the marginal border very broad and margined with jet-black, a characteristic not mentioned in Vollenhoven's description of *tigrina*. Island of Waigiu.

tigrina. *nodrica.* *terentianus.* *aspila.* *pardalis.*

42. Genus: **Neurosigma** *Btlr.*

Undoubtedly this Genus belongs to the *Limenitidi* and not to the *Euthaliidi*, as Butler meant they should. A proof of this is the very large and characteristically curved precostal which arises exactly at the origin of the subcostal, and the limenitoid sexual organs. From *Limenitis* and *Pantoporia* it is distinguished by having on both wings the cells closed, the middle discocellular on the forewing curved inward, the lower discocellular gently undulate and joining the median a short distance beyond the second median nervule. The third subcostal nervule arises between the apex of the cell and the fourth, its course being, as far as the fourth nervule, very close to the main stem. On the hindwing the upper and middle discocellulars are of equal length, the lower discocellular feebly angled, somewhat longer than the middle one, and joining the median shortly beyond the second nervule. Costal margin almost straight. ♂♂ have the fore feet delicate, thinly covered with silky hair, femur and tibia of equal length, and tarsus but slightly shorter. The only species we know, *N. siva Westw.* from North India, is of more than medium size, and the curious design of black and white spots upon a bright orange ground distinguish it at once from every other genus. As so many forms of the Himalayas, it stands quite isolated. Tegumen with limenitoid uncus and distinct scaphium. Valve quite different from those of *Parthenos*, resembling that of *Limenitis* proper, but with two basal teeth. Its shape is very slender, terminating in a distinct, chitinous point. Imago not found beyond altitudes of 4800 ft.; two broods are known. Its occurrence is quite local.

doubledaii. Of **N. doubledaii,** the only known species, we observe in India three local forms: **doubledaii** *Wstw.* *siva.* (114 c), originally described from a ♀; ♂ form was named **siva** *Wstw.* (114 c). Both types came from Sylhet. — *fraterna.* **fraterna** *Moore* (114 c) refers to ♂♂ of the dry-season. Sikkim and Bhotan as far as the Naga-Hills. Very scarce in Sikkim, in April and May, and again in October. But in the Chittagong Hills dozens of ♂♂ were found by Doherty. On the whole Sikkim specimens are smaller and paler in colour. The specimens in the Tring Museum specially referred to by Moore, I found to differ sufficiently from Assam specimens to prompt me to use *nonius.* the name of *fraterna* not only in the sense of a seasonal, but also of a local form. — **nonius** *Nicév.* is distinguished by its inferior size; on the whole it resembles the ♀ of *doubledaii*, but the hindwings which are white, streaked with black, lack the yellow discal spot. Karen-Hills, at an elevation of from 4—5000 ft., in April and May, and again in September. ♀ unknown.

43. Genus: **Abrota** *Moore.*

Structurally and morphologically it approaches *Limenitis*, indicating in shape and colouring a transition to the *Enthaliidi*. The middle discocellular on forewing with recurring vein, otherwise as in *Moduza*. Median spur distinct, on hindwing cell may be open or closed. Only one species is known, leaning towards seasonal variation, and of rather irregular distribution. In the lower valleys of Sikkim it is during summer locally quite common. They are mostly found in dense forests, resting on leaves with expanded wings. Sexual organs limenitoid, quite simple. Uncus as in *Limenitis*, valva elongate, its extremity shaped as in *Neurosigma*, but only with one basal tooth arranged as in *Parthenos*.

ganga. **A. ganga** *Moore* (123 c) was based on specimens of the rainy season, having on the hindwings the black *jumna.* discal bands rather close together. — **jumna** *Moore* is treated by some authors as a distinct species, but it probably is only a dry-season form. Its colouring is paler, hindwings with isolated black discal patches. During my stay in Darjeeling (rainy season) I only could obtain the darker form *ganga Moore*. ♀♀ occasionally with an olive-green lustre on the upper surface, underneath easily distinguished from ♂♂ by the broad, pale brown-red patches suffused with violet at their periphery.

pratti. **A. pratti** *Leech* (Vol. I, p. 189, pl. 61 a) appears in the British Museum under the older name *confinis* *Fldr.* — *confinis* is scarce in Western China, on Omei-shan and to the South of Yangtsekiang near the city *formosana.* of Kwei-tchou. — **formosana** *Fruhst.* (123 b) was a surprising discovery of Sauter's. Hitherto only ♂♂ were found, which resemble those of *pratti*, but with heavier black bands above and with paler and clearer brown-yellow under surface. Very scarce, only 4 ♂♂ were taken in the mountains of Formosa; in Fruhstorfer's *esvara.* collection. — At Mupin we find **esvara** *form. nov.*, smaller than ♀ fa. *pratti*, with paler brown-yellow spots.

Tribus Euthaliidi.

The numerous forms of this group represent a transition from the *Limenitidi* to the *Apaturidi*, resembling the former in structure and morphology, whereas their robust build indicates a relationship whith the latter. From either group they are sharply separated by the peculiar shape of the larva.

44. Genus: **Tanaëcia** *Btlr.*

Distinguished from the *Euthalia* proper by the shape of the palpi which have the terminal segment extraordinarily long and sharp pointed and joining at almost right angles the middle segment, which is very thick at the end; but the terminal segment is of varying length in the different species. Schatz considers *Tanaëcia* to be the oldest form of the *Euthaliidi*, since they do not so plainly display in their colouring the sexual Dimorphism distinguishing the majority of the genus *Euthalia*, in which the ♂♂ as a rule greatly differ from the ♀♀, whereas in *Tanaëcia* they have not developed any separate form. From the shape of the sexual organs we can distinguish between three special groups which differ to such a degree that one might very easily take them to represent entirely different genera; a difference not again found within the great Nymphalid family in regard to species whose colouring is so much alike. Valve limenitoid throughout, although varying in length, beak-shaped, broad at the base, ventrally distented, in front terminating in a sharp point. Uncus either needle shaped (*T. lupisa* and allies) or, as in genus *Dichorragia*, hook-shaped (*T. pelea* and subspecies); or extraordinarily long, snake-like, distally widened in a fashion resembling the distented neck of a cobra (*T. aparasa* and allies). Early stages unknown. — Imago chiefly in the low-lands, common up to elevations of 2000 ft.,

vations of up to 2000 ft.; on Kina Balu up to 3800 ft. The majority of species prefer the shade of the open woods, where they may often be met with in great numbers, resting on low shrubs with wings expanded. Due to their feeble wings, their flight is never so rapid as in the true Euthaliidi, but they rather move ahead with a gentle up and down motion, generally returning to their old place. The centre of their distribution is the Macromalayan Region, especially Borneo, with one species in the Andamans and threein the Philippines. Also in the Sulu Islands (Jolo) we find several species closely allied with the Borneo forms. The recognition of the various subspecies is one of the most difficult tasks confronting the Entomologist, and, considering the inconstancy and monotony of the markings which recur in all the species, it must always be a matter of sentiment rather and speculation than of certainty. This is particularly the case with the ♀♀ which lack sexual differentiation. Beside this variability and analogy of markings, there exists a tendency toward colour-mutation which in certain species (*T. lutala*, *apsarasa* and *pelea*) produces all shades of colour from the palest to the most extreme melanotic. The variability in the colouring of individuals belonging to the same collective species is so great that even sceptic authors like De Nicéville and Snellen considered as good species quite a number of mere forms which are here united on account of the similarity of their sexual organs; thus from Borneo alone 9 so-called species will have to disappear. But on the other hand it become necessary to establish a series of new, hitherto disregarded, insular forms. It appears to be the general rule, that of the three commonest Macromalayan species there exist three main types, which are either a) altogether brown, b) suffused with blue or violet, or c) distinctly margined with blue; these chief types are again connected with one another by every possible intermediate combination of colours. Beside this variation in colour we find a great dissimilarity in the shape of the black intranerval spots, which in one and the same species may vary individually from mere dots to large sagittate spots. These may be either isolated or united into undulate bands; and it is of importance whether the intramedian spots of the forewings are all alike, whether they are white or shaded with bluish-violet, whether they are isolated (*T. lutala*, *apsarasa*) or wheter they are united with the submarginal band common to all the species (*T. pelea*). On the hindwings it appears to be an important feature whether the white area is traversed by two (*pelea*, *lutala*) or three rows of black or brown lunules (*apsarasa*). Every casual observer of this group would presumably suppose these forms to be in the majority crosses between different species. But the structure of the genitals presents just in those species which have the most similar colouring (*lutala* and *apsarasa*) such wide differences that hybridisation appears impossible, whereas vice versa species that are otherwise easy to distinguish from each other (*T. pulasara* and *trigerta*) have those organs almost identical, so that a copula would not be impossible. The variability of colouring is moreover accompanied by a great diversity as to the shape of the white bands which may be either narrow or very broad, and also to the contour of the wings, in each species there being found individuals with elongate, pointed wings resembling *Euthalia*, as well as others with broader and more rounded outlines. Finally also their size is subject to great variation, often depending on the locality; thus are f. i. specimens from western Sumatra invariably larger than those from the north-eastern part of that island.

It is of some interest to observe that the Polymorphism of *Tanaëcia* is limited to Borneo, the Malay Peninsula, Banka, Billiton and Sumatra with their satellite islands, whereas the remaining islands, particularly Java with its rigidly constant endemic forms, display a marked uniformity. Structurally *Tanaëcia* differs from *Euthalia* in that on the hindwing the precostal is invariably bifurcate, and that the first two subcostal nervules confluesce with the main costal stem. In the ♂♂ frequently also the third subcostal unites with the costal vein to such a degree that only a short rest remains.

a) Uncus, as far as examined, curved in sickle-shape.

T. cibaritis *Hew.* (131 d) is on account of its variegated, lovely under surface one of the prettiest butterflies of the Andamans. Under surface of ♂ yellowish, of ♀ blue-green, the white band being accompanied on either side by a series of black streaks and lunules united into bands. In addition some conspicuous black submarginal lunules and, in the cell of the forewing, redbrown, blackringed dots. The ♂♂ seem to vary according to the season, for Nicéville as well as Moore figure specimens that do not agree with either Hewitson's type or our figure, having on the hindwing above the white band considerably narrower and margined distally by another, complete series of confluent undulate lunules of bluish violet. Beneath the white band of the forewings is likewise narrower, and on the hindwings the black spots accompanying the white band are heavier than in *cibaritis*. Such ♂♂ I name **vinaya** *form. nov.* Andamans, according to Moore and Bingham also Nankauri of the Nicobars, which latter locality Nicéville however does not acknowledge; the ♂♂ represent the *fa. vinaya*, having in addition the hindwings margined with green. *cibaritis.* *vinaya.*

elone. **T. elone** *Nicév.* (131 d), an alpine form first discovered on the Battak Mountains of North-Eastern Sumatra; 2 ♂♂, 1 ♀ from Padang Bovenland in the west of the island in my possession. Under surface smoky-brown, forewings with violet marginal area, hindwings completely suffused with violet. The ♀ lacks on the forewing the violet border, and the hindwings are only in the median area thinly dusted with grey. Forewing of ♀ also paler brown. Hindwings in either sex marked with black streaks and undulate lines in the basal, median and submarginal areas.

amisa. **T. amisa** *Sm.* (131 e) is, like the preceding, a highly specialized form, with very plain markings of the upper surface; in the ♀ the white band of the hindwings widens out distally and the black roundish submarginal spots show through more distinctly. Under surface: Apical portion of forewings pale brown with black intranervал spots. Base grey-brown. Hindwing of ♂ dusted with whitish-grey distally as well a basally, whereas in ♀ the outer area of both wings is of an uniform darker brown than in ♂. Kina-Balu (North Borneo), ca. 3800 ft.

Of **T. calliphorus**, one of the most lovely coloured species of the Genus, we know two insular forms:
smaragdifera. **smaragdifera** *subsp. nov.* (131 e as *calliphorus*), of a duller hue than *calliphorus*, ground-colour paler brown, the rather grass-green band of the forewings but slightly, the emerald-green band of the hindwings considerably narrower. Beneath pale grass-green throughout, clouded with blue-green and black-brown. Locality unknown,
calliphorus. presumably Mindoro. — **calliphorus** *Fldr.* Forewing with a green band at the periphery suffused with a golden lustre; on the hindwing the band brillant blue, shading into green toward the anal area. Under surface as in *smaragdifera*, but with black instead of brown submarginal spots. February till November; type from Luzon; also Babuyanes and Pollilo.

T. leucotaenia which replaces the preceding species in the Central and southern Philippines, is probably only a subspecies of the same, although I refrain from uniting them here, not having compared their sexual organs. The under surface is shown in our figure of *dinorah* (131 d); upper surface of hindwing either with a broad or with a greatly reduced white postdiscal band, disappearing completely in specimens from the southern-
leucotaenia. most islands. **leucotaenia** *Semp.* Hindwing with a clear white transcellular band not margined with blue distally. Forewings beneath brown with greenish apex; hindwing as in dinorah, but with more conspicuous spots of black-brown. Camotes, according to Semper also Leyte, Panaon and Bohol. May till August, and
aquamarina. October till March. — **aquamarina** *subsp. nov.* differs from Semper's type in the wide aquamarine-blue band
dinorah. distally accompanying the white postdiscal area of the hindwing. Mindanao. — **dinorah** *Fruhst.* (131 d). Upper surface of hindwing without any white and blue bands, having in their place a zone of pale grey-brown. ♂ beneath dusted with chalky greenish-white, ♀ with pale brown. Island of Bazilan, February,
lupina. March, discovered by W. Doherty. — **lupina** *Druce* resembles *dinorah*, but is somewhat darker brown above. Forewing with white apical spots, which are not found in *dinorah*. Sulu (Jolo) Archipelago.

T. trigerta resembles above *cibaritis*, but on the forewing the white band widens and divides costally, as seen in our figure of *singoradja* (131 d). Beneath it varies according to the locality; base of forewings brown-yellow, hindwing with blue suffusion over the inner half. Specimens from western Java with distinct black spots accompanying the whitish median area; these never occur in ♀♀ from farther East. Hitherto only
trigerta. known from Java and Bali. — **trigerta** *Moore*, an attractive butterfly of deep brown ground-colour, and with delicate, distally white-margined serrate rows accompanying the white median band distally. On the forewing the white area varies, often disappearing entirely, at other times being clouded with brown costally. ♂: Under surface of hindwings always with black dentate spots, which occasionally lack in ♀. Also the intensity of the brown-yellow shading of the forewings varies. West Java, on the Bay of Palabuan and the Djampangs
dandapani. near Sukabumi, common everywhere up to 2000 ft. of altitude. — **dandapani** *subsp. nov.* has the white longitudinal bands of both wings wider, the ground-colour paler brown and on the under surface more faded. Eastern Java, in the Zuidergebergde, south of Malang, from the shore up to about 1600 ft. Common, particularly to-
singoradja. wards the end of the rainy-season, March and April. — **singoradja** *Fruhst.* (131 d) is the reverse of *dandapani*, of larger size, with more pronounced satellite insular character. Forewings somewhat more elongate than in *trigerta*, with very pale median band, and a series of indistinct pale markings extending from the inner angle to about the second median nervule. Hindwing with narrower, more sharply incurved discal band. The forewings differ underneath from *trigerta* in the dark brown outer margin, and the much more sharply dentate median band which is broader and edged with a darker tint than in *trigerta*. The hindwings have the basal half dark brown, the discal band narrow, slightly margined with brown proximally, and the outer border dark. Antennae black above, beneath brown with a black ring before the tip. Expanse: 1,6″. Island of Bali, October. Tegumen with uncus as in *T. pelea*, but slightly stouter. Valve slender, not so sharply pointed distally as in *T. pelea stygiana*.

T. pelea is exceedingly sensitive toward climatic influences. The white markings are clearly seen in our figure of *vikrama* (133 b). On the forewing the grey-white band is deeply cut up distally by broad sagittate

spots; on the costa it bifurcates, sending two long, pointed spots toward the apex of the cell. Under surface of hindwings with two rows of black dentate spots, isolated in ♂, in ♀ united into a band. Found throughout the Macromalayan Region excluding Java, in the plains and lower hills. Genitals characterized by the sharply falcate, though delicate uncus; valve uncommonly slender, pointed, the distal extremity curved upwards. The species varies individually in that on nearly all the islands where it is found, we observe beside the main form with uniform grey-brown upper surface also a more luxuriant modification having the white band of the hindwings more or less broadly suffused at the periphery with pale blue or violet; still others appear from their small size and pointed wings like a separate species, having the outer margin of the hindwing nearly entirely blue or violet. In the two latter types the blue colouring frequently also continues to the inner margin of the forewing. The colour of the under surface varies from ochreous to pale yellow; frequently the entire lower surface of the ♀♀ is faded whitish-blue. **pelea** *F.* (= pulasara *Moore*) has among all known forms on the forewings the broadest helmet-shaped spots; in some ♀♀ the entire marginal area of the forewing is moreover laved with whitish-violet. — **consanguinea** *Dist.* refers to a small-sized ♂ form with pointed instead of rounded wings. — **robertsi** *Btlr.* is another albino form of dwarf size having the entire outer discal area of the forewing pearly white; the sagittate spots are distinctly separate. — **violaria** *Btlr.*, originally described from Singapore, designates a form having the hindwings richly suffused with blue-violet. Specimens with extremely narrow, elongate wings found in Sumatra are alled *phintia Weym.*; they remind us of *Euth. salia decorata Btlr.*, having the pale area on the forewing often altogether obsolete, but on the hindwing nearly always clear white, on either side margined with a gorgeous violet. Under surface as a rule dark ochreous with whitish-blue submarginal zone. Malay Peninsula. — **supercilia** *Btlr.* was based on the form from the island of Penang which I think is identical with a series of *pelea* from Singapore contained in my collection. Inferior in size to *pelea*, ground-colour deeper brown, especially the median area of hindwings deeply obscured. The black submarginal dentate spots on the forewings sometimes imperceptibly scaled with grey-white distally. Singapore, Penang. — **djataca** *subsp. nov.* surpasses *pelea* as well as *supercilia* in the extent of the clear white median band of the hindwing and in the sharp-pointed shape of the submarginal sagittate spots. Both wings, moreover, distally adorned by prominent white intranerval spots. ♀ type in the Fruhstorfer collection; ♂ with uncommonly broad light median area, laved with pale whitish-pink. The hindwings have the black arrows still more distinct than in *supercilia Btlr.* and *violaria Btlr.*, almost as heavy as in *heliophila Fruhst.* (132 a). Several ♀♀ from Bunguran of the Tring Museum have also the white portions flesh-coloured. Natuna Islands. — **crowleyi** *Btlr.* designates the very scarce form of North Borneo, based on uncommonly pale specimens. My collection contains, however, only dark specimens, resembling the sombre grey-brown ♂♂ from Singapore. The ♀♀ are easy to recognize, having the hindwings almost entirely brown, whereas the forewings contain large, elongate intramedian spots resembling in shape those of *valmikis Fldr.* Under surface brown with pale ochreous clouding. Hindwing with light brown submarginal undulate and zigzag stripes. North-Borneo. — **producta** *Btlr.* circumscribes an excellent insular race, resembling *pelea robertsi Btlr.*, but of larger size and with nearly obsolete sagittate spots. The faded white colouring indicates the Sulu Islands to the North of Borneo, whereas Butler mentions the Philippines as its home. ♀ type in the Godman collection of the British Museum. — **vordermani** *Snell.* from the island of Billiton is a violet form, of which only 3 ♂♂ are known which, judging from Snellen's figure, are closely allied to *violaria Btlr.*, with very distinct double rows of black submarginal spots on the hindwings and very broad white area of the forewing. — **yaso-**

pelea. *consanguinea.* *robertsi.* *violaria.* *supercilia.* *djataca.* *crowleyi.* *producta.* *vordermani.* *yasodara.*

dara *subsp. nov.* appears to be the smaller form of the island of Banka adjacent to Billiton, judging from a number of specimens in the Tring Museum, the Adams collection of the British Museum and in the Munich Museum. The forewings have the bands broad as in *vordermani*, the hindwings suffused with pale blue. —

vikrama *Fldr.* is the form occurring in the low-lands of Deli in the north-eastern part of Sumatra. Ground-colour paler brown than in Singapore specimens, the white median area of the hindwing as a rule less densely shaded with brown. ♂♂ underneath pale grey-yellow, ♀♀ varying from faded greenish to red-brown. The name-type has the white median band on the hindwing narrow, margined with blue-violet. — The British Museum and the Felder collection contain a large series of specimens having the entire outer portion of the hindwings blue: **myosotina** *form. nov.* Since similar specimens have not been received in Europe for some time, it is likely that the locality whence they came from, has been subjected to cultivation. — **dukha** *form. nov.* is a very common variety with uniform grey-brown upper surface resembling *palguna* from Java. — **phintia** *Weym.* (= *superba Btlr.*) refers to an alpine form of very small size, with pointed hindwings which have the upper surface lovely blue or violet. ♀ with blue or purplish longitudinal bands, occasionally having the entire upper surface suffused with purple. — **paryanya** *subsp. nov.*, the larger form from near Pandjang, differs above from the form of the north-eastern part of Sumatra in the uncommonly broad white bands which even in the

vikrama. *myosotina.* *dukha.* *phintia.* *paryanya.*

darkest specimens are hardly shaded with brown. Under surface more vividly coloured, at the base pale ochreous, the distal area sharply defined, pearly-white, slightly suffused with grey-violet. — **vikramida** *form. nov.*, analogous to *vikrama*, from the western part of Sumatra, larger than *vikrama*, with brillant white longitudinal bands on both wings which are margined with a gorgeous violet-purple. Under surface more intensely ochreous, with more distinct, black macular rows. — **norina** *form. nov.* resembles *Euth. erana Nicév.*, being midway between this and *phintia*; wings elongate, but without the violet-blue irroration of the upper surface of the secondaries, which have only a narrow white area on the forewings completely shaded with grey-brown. Padang Bovenland, West Sumatra. Sexual organs either broad, rounded (*vikrama Fldr.*) or following the slender *phintia* type. Uncus sharply falcate; valve very much pointed, curved upwards at the extremity, covered with long hair. — **siddhartha** *subsp. nov.* from Pulo Tello of the Batu Islands. Inferior in size to the West Sumatran form, a transition from *vikrama* and *paryanya* to *T. heliophila Fruhst.* (132 a) from Nias, but with all the white markings completely shaded with grey and the submarginal spots on the hindwings not so pronounced as in *heliophila*. Type in the ADAMS collection of the British Museum.

vikramida. *norina.* *siddhartha.*

T. heliophila *Fruhst.* (132 a) is easy to recognize by the clear white markings of the forewings and the very large conical submarginal black spots on the hindwings which in ♀ are even more pronounced than in the figured ♂. The ♂♂ have the underside of the forewings brown-yellow, of the hindwings purple. Island of Nias, not very common.

heliophila.

T. palguna is the commonest *Tanaëcia*, generally passing in collections under the name of *pelea*. At first I thought of uniting it with *pelea*, but an examination of the genitals shows a great difference between the slender, almost straight and delicate uncus of the Lombok form (*palguna stygiana Fruhst.*) from the sharply curved uncus of *T. pelea vikrama*. Since in the Euthaliidi even among otherwise well separated species the genitals often show hardly any difference, I think that the actual existance of such a deviation cannot be neglected, the less so since, in contrast with *pelea*, MOORE's *palguna* develops no colour-varieties whatever. It inhabits Java and the adjacent Micromalayan islands. **palguna** *Moore.* ♂ similar to *stygiana* ♂ (131 e), but the white median band of the hindwing is narrower anally and but slightly dusted with brown. ♀ larger than ♂, with more rounded wings and occasionally with median band twice as wide. Under surface mainly grey-violet, marked with dots and wavy lines of delicate brown accompanying the white stripes. West and East Java. — **balina** *Fruhst.*, a dwarfed insular form with narrow and heavily brown-shaded median band on the deep brown upper surface. Forewing beneath broadly bordered with brown, all other markings more distinct. Island of Bali, September. — **stygiana** *Fruhst.* (131 e) is larger und darker than Javanese specimens. The anterior portion of the white median band of the forewing is divided by black spots and narrower, whereas in the Javanese form that part is broadest. The under surface of *stygiana* is darker, the forewing margined with brown instead of whitish as in *palguna*, and the hindwing brown at the base, not suffused with blue; all bands and other markings of the under surface heavier. Uncus much more like that of *trigerta* than of *pelea vikrama*, even more delicate and slender. The valve, however, more pointed, narrower distally than in *trigerta*, closely resembling that of *vikrama*. *stygiana* is not common in Lombok; still I could always figure upon catching, between 11 and 1 o'cl., when the sun's rays reached even the shadiest nooks in the forest, from 3—4 of these lovely butterflies.

palguna. *balina.* *stygiana.*

Tanaëcia trigerta and *palguna* count among the commonest butterflies of Eastern Java: one meets them everywhere in the open woods, resting, especially during the hotter hours of the day, with expanded wings on the leaves of shrubs a short distance above the ground, — a most lovely sight. They are not at all shy. On my arrival in southern Java in 1892 the cultivation of coffee had not yet reached the enormous proportions of to-day, and the coffee-gardens, — where all kinds of other insects abounded, but butterflies were rare, — were agreeably interrupted by stretches of forest land: at that time I could easily capture during March and April about 1000 *palguna*, and I never knew which I should take first, whether the *Tanaëcia* or their constant companions viz. *Euploea mazares* and *elusina*. The enormous numbers of these species became really irritating, for whenever I wished to capture a better species such as *Euthalia salia Moore*, *Apatura nakula Moore*, *Cynitia japis Godt.* or some *Lycaenidae*, that rabble would be sure to fly just in front of the net, unsteadying eye and hand: at present, after the lapse of only a short space of time, the increase of coffee-culture and the corresponding disappearance of the forests renders the capture of even a dozen of *palguna* quite a task, and the *Euploea* have disappeared entirely from that region, or have, like *Cyrestis periander* and *Hestia stolli*, retired to the most remote forests skirting the seashore.

T. palawana *Stgr.* from Palawan, an island well known for the great number of endemic forms existing there, has both sexes nearly alike, pale brown with two irregular rows of submarginal zigzag bands. On the forewing the sharply defined white band is accompanied distally by black intranerval sagittate spots margined with whitish violet proximally. Under surface grey with reddish ochreous base of the forewing. Both wings also above with distinct submarginal zigzag lines and, in addition, with a complet series of anteter-

palawana.

minal streaks. January, not very scarce. — **rudraca** *subsp. nov.* from the island of Balabac deviates from the name type so much that Dr. Staudinger considered it to be a new species. Forewings with more white in the submarginal area; under surface darker, with broader black lines. *rudraca.*

T. lutala, a somewhat variable species limited to Borneo and the adjacent islands. In colouring it resembles *T. apsarasa* and *munda*, as well as *pardalis*, differing therefrom in the sharply falcate *pelea*-like uncus. Valve deviates from that of *pelea* in lacking the basal swelling. The spotting of the under surface is shown in our figure 133 a (erroneously called *pardalis*, whereas the figure named *lutala* ♂ represents *orphne Btlr.*). The hindwings differ from those of the *aruna-pardalis* group in the presence of only two rows of black submarginal spots which on the upper surface represent very long arrows. But as there exist also specimens displaying traces of a third row of black discal spots, it is rather easy to mistake them for *munda* and its allies. **lutala** *Moore* (133 a as *pardalis*) has the upper surface pale brown with faded whitish outer half. The very long and pointed intranerval spots are margined with white proximally. *lutala* is limited to the lower plains, whereas ou Kina Balu we find a darker brown form lacking almost every trace of white in the hindwings. Under surface of the normal form pale yellow, of the mountain form smoky-brown. — **varuna** *Voll.* is probably the form from South Borneo, distinguished by the more distinct black submarginal sagittate spots. — **ampla** *Btlr.*, an interesting insular form from the Sulu Archipelago which is known for producing a great many albino forms; based on a ♀ of the Godman collection in the British Museum, having the white area of both wings still more faded and broader than in typical *lutala*; on the hindwing the sagittate spots are larger, but still more isolated. *lutala.* *varuna.* *ampla.*

T. valmikis *Fldr.* shares with *T. lutala* the sharply curved uncus and the double row of black submarginal spots on the under surface of the hindwings; however, we treat it here as a separate species as it invariably has the submarginal spots on the hindwings rounded instead of sharply pointed, and on account of the large square white intranerval stripes of the forewings, which resemble those of *varuna Fldr.* and *pardalis Voll.*, but are much larger. The hindwings of the ♂♂ as well as ♀♀ show only rarely a white median band, and are occasionally suffused with purplish underneath. ♀ smoky-brown, never pale yellow as in *lutala*. — **viola** *subsp. nov.* is the name of a lovely form often met with in commerce, having the posterior portion of the very broad median area of the hindwings above suffused with a lovely violet-blue. — **lutalina** *form. nov.* from South-eastern Borneo has on the forewings the intramedian spots shaded with grey, and on the hindwings the median band nearly clear white without any lustre of blue or violet. — **chariestata** *form. nov.* finally is an unusually large, luxuriant form with broadly white forewings, traversed underneath by very broad median bands of black-brown. Type in the British Museum, one ♀ from Sishassen also in the Tring Museum. *valmikis.* *viola.* *lutalina.* *chariestata.*

b) Uncus very plain, straight, sharp-pointed, delicate.

T. orphne *Butl.* (133 a as *lutala*), a plain looking species, dark grey or black-brown above, with isolated, small, occasionally grey-shaded, intramedian spots which sometimes may be very broad as in *valmikis* (= fa. **pseudo-valmikis** *form. nov.*). ♀ smoky-brown with small square brown-dusted spots on the forewing. Under surface with two very distinct and a third rather faded submarginal band. Base ochreous, outer half whitish-violet. ♀ brown-yellow with red-brown submarginal zigzag lines. Uncus only slightly curved, resembling that of *T. munda* and *clathrata*, but somewhat more robust. North Borneo, presumably in the mountains; from Kina Balu in Fruhstorfer's collection. *orphne.* *pseudo-valmikis.*

T. munda is one of the prettiest species, of great individual variability and of wider distribution than was hitherto assumed. In Borneo two forms exist, one in the low-lands and the other in the mountainous districts. **munda** *Fruhst.* (133 c) has as a rule the macular band on the hindwing broader and more brillant clear white than is shown in our figure. ♀ resembles above *apsarasa* ♀, but has on the hindwing the white inner half of the band clearly separated from the pale blue outer portion. Also the under surface recalls *apsarasa*, but both wings have the base darker yellowish-brown and more intensely and richly tinted. Before the apex five violet-white, pointed spots; the submarginal row of brown wedges much broader. The hindwings have the marginal area whitish-violet, not yellowish-grey as in *apsarasa*, and also marked with 7 very conspicuous, black, sharp pointed, distally excavated, arrow-shaped spots. ♀ with wings more rounded than ♂, forewings with more distinct white wedges, hindwings with brown instead of black spots, and broadly brown outer area; under surface still paler, all the white bands and spots broader, but the submarginal arrows, like in *aruna* ♀, *martigena* ♀ and other *Tanaëcia*, faded brown instead of black. ♂ 1³/₈″, ♀ 1½ ″. — **fruhstorferi** *Btlr.* (133 b ♀ as *gandarva*, and 133 d as *apsarasa*) circumscribes the sharply separate, plain looking, small-sized form of the low-lands of North Borneo, occurring also in the South and South-East of the island. As a rule the forewings have the intramedian spots clouded with brown, and the hindwings lack the white inner portion of the median band either completely or only display faint traces of it. ♂♂ without any violet-blue *munda.* *fruhstorferi.*

salina. on the hindwings are: **salina** *form. nov.*, resembling *Euthalia salia bipunctata* (133 b) and *T. pelea* fa. *norina.* The ♀ has on the hindwing mostly a narrow band placed in the very middle of the wing; occasionally also a *albifasciata.* broadly white proximal area: = **albifasciata** *Btlr.* (133 d); — the very reverse is **evanescens** *Btlr.*, dark brown *evanescens.* on both sides with nearly confluent white markings, making it doubtful whether it is not rather a dark form of *bungurana.* *T. pelea crowleyi Btlr.* — In the Natuna Islands we find **bungurana** *subsp. nov.* ♂ with sharply pointed forewings, the median spots clouded with grey, of fairly large size; also the submarginal dentate spots prominent. Under surface with heavy black markings. One ♂ seems to be a transition to *munda*, having the upper surface of the *manavira.* hindwings broadly suffused with pale blue. Bunguran (Natuna), type in the Tring Museum. — **manavira** *subsp. nov.*, a small form with relatively narrow, delicate pale white bands, laved with flesh-colour. Discovered by W. *nyagrodna.* Doherty in Pulo Laut situated to the South-East of Borneo; type in the Tring Museum. — **nyagrodna** *subsp. nov.*, a highly variable local form, approaches *fruhstorferi* from the lowlands of Borneo in the obscured helmet-shaped spots on the forewings, but with very broad band on the hindwing (recalling *munda*) which has the terminal border edged with pale violet. Under surface paler ochreous than in Borneo specimens. — One ♂ has the wings suffused throughout with purplish-brown, the forewings adorned by a broad white band formed by the intramedian spots uniting with the submarginal stripe. Hindwing with only two rows of small white spots: *carma.* = **carma** *form. nov.* from the Malay Peninsula in Fruhstorfer's collection; a number of specimens in the *sumatrana.* Adams collection of the British Museum. — **sumatrana** *subsp. nov.* (133 c as *martigena* ♂) I at first considered to be allied with *martigena Weym.* on account of its brillant colouring, but the plain shape of the uncus which in the latter species resembles the head of a snake, proves its relationship with *munda.* The ♀ was by Butler united with *T. superba Btlr.* which he treated as a separate species, although its ♂ is identical with *T. pelea fa. phintia Weym.* Forewing with broader markings dusted with brown-grey, hindwing with uniformly broad white median band; the black arrows shorter. Under surface in either sex brillant ochre-yellow, the *niricvara.* brown bands more indistinct. North-Eastern Sumatra. **niricvara** *subsp. nov.* ♂ above grey-brown with a series of delicate submarginal zigzag lines and greatly obscured, though still visible, median spots. Hindwings with black arrow-shaped markings edged with blue only on the inner side, resembling *T. pelea fa. phintia Weym.* Another ♂ without any blue, with just two rows of white submarginal markings on the under surface of the hindwings and two rows of black sagittate spots. Batu Islands. Type in the Tring Museum.

T. clathrata is structurally not to be separated from *T. munda*, of which perhaps it is only an extreme blue form. The ♀♀ are not yet known with certainty, which fact also points towards *munda* the ♀♀ of which are very much rarer than the ♂♂. If it should be proved to belong to *munda*, its name would have prior rights. All the forms have in common the brown ground-colour especially of the under surface of the forewings which in alpine specimens shades on the hindwing into blackish, in ♂♂ from the low-lands to greyish white. Three *clathrata.* local forms: **clathrata** *Voll.* (133 d) from the South of Borneo, above marked with white pearl-shaped spots. *coerulescens.* — **coerulescens** *Sm.* (= *ellida Stgr.*) from North Borneo, with two or three white dots near the costa of the hindwing. One ♂ of my collection lacks on both wings the blue distal border. Hindwings only with delicate intra- *purpurea.* nerval dots thinly edged with white distally. The entire surface suffused with dark purplish-blue (= **purpurea** *nicévillei.* *form. nov.*). — In the Malay Peninsula and in the mountains of Sumatra we find **nicévillei** *Dist.* (= *subclathrata Stgr.*), both wings above with broader pale blue border; the black dots on the hindwings more delicate than in *clathrata*; under surface also distally darker than in the low-land form of Borneo. Very scarce; according to Martin not found below elevations of 3000 ft. Only 2 ♂♂ were captured within 13 years. 2 ♂♂ from Perak in Fruhstorfer's, 2 others from West Sumatra in the Adams collection of the British Museum.

c) Uncus snake-shaped at the end

T. aruna has produced a great number of forms, the main types of which have a peculiarly discontinuous range of distribution; *aruna* proper has not yet been observed in Sumatra, whereas on the satellite islands (Banka, Batu) we notice a similarity to the Malay types. The forms with blue uppersides, of which we figure *martigena* and *satapana*, are among the most beautiful *Tanaëcia.* In Borneo the uniform brown types prevail, and the blue form (*apsarasa*) is not so brillantly coloured as in Sumatra and the Malay Peninsula. In all forms we notice 3 submarginal rows of spots on the under surface of the hindwings the middle one of which, although the least developed, shows through above. The peculiar shape of the uncus which might almost justify the creation of a new Genus (if we followed the plan adopted in regard to the *Cyaniris* Group of the *Lycaenidae*) remains in all the forms extremely constant. It is more elongate than in the other species, being nearly as long *aruna.* as the valve; the latter trough-shaped basally gradually, tapering to a fine slightly, down-curved point. **aruna**

Fldr. refers to the very plain-looking, grey-brown, rare form from Perak. Forewings with rather large, isolated helmet-shaped spots resembling *valmikis*. The large black isolated arrows are broadly margined with white proximally. Hindwing with a narrow row of white spots accompanying the black discal lunules proximally. Under surface pale clay-yellow, lighter than in Borneo specimens. — **satapana** *form. nov.*, above richly adorned with blue-violet somewhat like *martigena* (133 c) from Sumatra, but of smaller size, with reduced, more isolated white median spots on the forewings, beneath rather darker and more profusely marked with black. Malay Peninsula. — **triratna** *subsp. nov.* refers to a small insular form. Both wings have the black sagittate spots edged with pale flesh-colour; hindwing with three distinct rows of black spots. ♀ like ♂ of *Euthalia salia cordelia*, beneath deep red-brown. Natuna Islands. — **pardalis** *Voll.* is the oldest name given to the brown main form of southern Borneo. Vollenhoven's figure gives a very good idea of the under surface with its three rows of black submarginal streaks. Above very much like *T. lutala Moore*, but the anteterminal area is not so broadly laved with white, and the intramedian spots are smaller; moreover, the black arrows on the hindwings are farther apart. Under surface of forewing deep ochreous, of hindwing pale grey-yellow. — **apsarasa** *Voll.* (133 d) looks in the ♂ like a separate species; hindwings above very variable as to intensity of colouring and the extent of the pale violet or blue markings. But we always find in both sexes the middle row of black spots beneath showing through above in the shape of a blue undulate band, by which feature *apsarasa* ♂ and ♀ are always easily distinguished from the very similar ♀♀ of *T. munda* and *fruhstorferi*. Beneath like *martigena* (133 c), but the basal area more deeply obscured. My collection contains specimens from the South-East and also the low-lands of North Borneo. — **subochrea** *Btlr.* was based on the brown alpine form from northern Borneo; distinguished from the southern brown *pardalis* by the deeper brown ground-colour and the more sharply defined white markings of the forewings. The three parallel rows of black spots on the under surface of the hindwings are particularly heavy. Under surface of ♀♀ more uniform brown-yellow than in *pardalis*. — **margarita** *Btlr.* is distinguished by the rounded instead of pointed intranerval spots of the upper surface of the hindwings. North Borneo. — In the Sulu Archipelago we find an uncommonly pale, richly white marked form: **dohertyi** *Btlr.*; type in the Godman collection of the British Museum. — **martigena** *Weym.* (= watsoni *Btlr.*) (133 c), a common form from north-eastern Sumatra, characterized by the broader and more intensely blue colouring of the upper surface. The colour of the under surface varies from pale ochreous to dark brown-yellow. The black dentate bordering of the hindwings less distinct than in *subochrea* and *aruna* fa. *satapana*. *martigena* is in comparison with *apsarasa* very constant. The helmet-shaped median spots of the forewings mostly dusted with grey-brown. — **pratyeka** *subsp. nov.* has these spots also in ♂ clear white, and in both sexes the white median bands of the upper surface broader, whereas the ♀♀ are much less profusely suffused with violet. Padang Bovenland, West Sumatra. — **sramanas** *subsp. nov.* is less constant than the two Sumatran forms, but darker, without any blue or violet above. On the forewings the white helmet-shaped markings are shaded almost black; hindwings with very large sagittate spots and 3 complete rows of black spots beneath. Batu Islands; type in the Tring Museum. — **namarupa** *subsp. nov.*, a dwarfed form from the island of Banka, presumably also occurring in Billiton, approaching *pardalis* of South Borneo, but having the white median helmet-shaped spots on the forewings as a rule reduced. Very common in Banka. A great number of specimens in the Munich Museum.

satapana. *triratna.* *pardalis.* *apsarasa.* *subochrea.* *margarita.* *dohertyi.* *martigena.* *pratyeka.* *sramanas.* *namarupa.*

45. Genus: **Euthalia** *Hbn.*

This varied and much disputed genus we render here again as comprehensive as it was known to the authors of the latter half of the past century; for notwithstanding their great divergence, the extremest species are invariably connected with one an other by intermediate forms, rendering a sharp and natural distinction impossible. Thus Moore's genus "*Dophla*" which was recognized also by Bingham, is well-founded enough, if we only consider the type *Euthalia evelina Stoll.* But even one of its nearest allies, *Euth. teuta*, lacks the most essential characteristic of the genus, viz. the closure of the cell of the hindwings, and on the forewings retains only a rudimentary trace of it. Thus we limit ourselves to repeating the characteristics common to all the species, described by Schatz as follows: "Palpi long, densely squamate, with elongate, straight terminal segment, the width of which at the base equals that of the middle segment; the latter ist clothed with hair above. Eyes naked; antennae long, gradually passing into the long club. On the forewing the cell is for the most part open, but rarely closed. Subcostal five-branched; the first arising at the middle of the cell, frequently coalescing with the costal and 2nd subcostal, the latter likewise with the 3rd subcostal nervure. The second branch arising before the end of the cell, the third beyond it at varying distances. Upper discocellular almost absent; the lower radial at its base strongly bent inward, forming, in the case of the cell being

closed, a middle discocellular with an oblique inward angle. Lower discocellular, whenever present, joining the median a short distance beyond the origin of the second nervule. Hindwing with single or indistinctly bifurcate precostal arising beyond the subcostal. Cell of the hindwing open. ♂ has the forefeet covered with short hair, femur and tibia equally long, tarsus somewhat shorter. ♀♀ with larger forefeet and longer tarsus, covered with short spines from the 2. to 4. segment. In all the species that have been examined, the valve sharply contrasts with that of *Tanaëcia*, in being never beak-shaped, but short, wrinkled, blunt, occasionally distented or sharply cut off, sub-cylindrical as in *Rhinopalpa*. Uncus always very plain, never hook-shaped or distented distally; either slender (*Cynitia*), or robust (*Euthalia*, *Dophla*, *Adolias*); it may, however, have a sort of helmet-shaped crest (*Dophla recta*), or be so much distented dorsally as to present the appearance of a goose's head (*Adolias*). But these characteristics are not constant even within the groups of *Dophla* or *Adolias*.

The life-history has been given at length in Vol. I. We will only mention their predilection for fruit of all kind which enabled me to capture on bananes hundreds of specimens of good species but rarely seen in Europe. Although the majority of species inhabit the low-lands, some, especially the Palaearctic species and those of the islands, are alpine in their habits. The greatest number we find in the Empire of India, namely 29—30 species, in Borneo and Sumatra 22 each, in China 18 species. Java however has only 14 and the Eastern Micromalayan Islands only 3 or 4. From Celebes we know 4, from the Moluccas and the Papuan Region 2, whereas the Philippines including Palawan are inhabited by 16 species. The northern limit is Formosa, in the East the genus does not go beyond the Bismarck Archipelago.

The different local forms have not yet been sufficiently studied, and a great number may still be expected from the satellite islands of Sumatra and Borneo. Whereas Banka and Billiton still produce a great number of sharply separated forms, going south the number decreases rapidly, although in Nias we still find 11 different forms.

Group I: **Cynitia** *Snell.* (= Felderia *Semp.* [*praeocc.*]).

Of delicate build, compared with the other Euthaliidi, more or less like the preceding genus. Forewings as a rule more produced and the distal margin more sharply excavated than in *Tanaëcia* and *Euthalia* s. s. Inner margin generally protracted similar to the *Euploeidae*. Only the first subcostal nervule confluences with the costal vein. Precostal as in *Tanaëcia*. Hindwing with a black androconial patch varying in size in the different species. Genitals very much like those of *Euthalia*, deviating in the blunt valve from *Tanaëcia*. Uncus very plain, its structure differing according to the species: invariably curved downwards, occasionally slightly distented in the middle. The early stages are only known of one species. The larva feeds on Melastoma malaboricum: green, on the back with red, blue-ringed ocelli: spines covered with hair that are yellow at the tips. Pupa green, all prominiscences golden dotted with black. The flight of the imago is less rapid than of Euthalia, and they are not confined exclusively to the forest, fluttering along the edge of the woods and displaying their lovely colours in the sunlight. ♀♀ in contradistinction to *Tanaëcia* always greatly different from ♂♂, resembling in their grey-brown dress *Tanaëcia*. All the species are highly susceptible to geographical and climatic influences: thus in Java one species breaks up into 3 local forms, and of the Macromalayan *C. cocytina* hardly two ♀♀ are alike: also the ♂♂ vary greatly in the colour of the distal margin and in the ground-colour of the under surface.

E. lepidea is one of the best known Himalaya butterflies, generally found in the hot valleys as far South as the Malabar Coast and the Malay Peninsula; I have met with it also in Tonkin and Annam. The markings of the species are well shown in our figures 132 a and b. Uncus very short and robust with distented base. Valve shorter than *E. asoka*, *japis* and *cocytina*, resembling in shape that of *E. cocytus*, ventrally excavated, somewhat more slender distally. Larva following the general type of *Euthalia*, green with a dorsal row of light red, blue-pupilled eye-spots. The lateral feathery appendages yellow at the tip. Pupa at the head somewhat more compressed than that of *E. garuda*; green, all prominiscences golden-yellow, dotted with black and gold. **lepidea** *Btlr.*, described from North India, has a certain resemblance with *E. cocytus*, but the sexes are less dimorphic. ♂ with uniform pale grey marginal area which in ♀ is duller and darker, being slightly obscured with fuscous. ♀♀ have the forewings marked beyond the cell with large pale brown spots. Some specimens of the rainy season are broadly edged with brown (= fa. **adustata** *form. nov.*). From the Niani Valley as far as Assam; rare in Sikkim and Nepal, every where common in Assam, up to about 3000 feet of altitude, throughout the year; but it is difficult to capture on account of its rapid flight. — **miyana** *subsp. nov.*, mentioned by Butler in 1868 as a South Indian form, is inferior in size to *lepidea*. Both sexes have the border of the hindwings paler, the grey tint shading in all the ♂♂ and many ♀♀ into white distally. ♀♀ darker above than Assam specimens, without the pale transcellular patches. Under surface especially of the ♂ more conspicuously clouded with brown. Type from Karwar; flies in August and September. Moore reported it also from Orissa in the Central Provinces. It loves to alight on walls and the white-washed ceilings of the verandahs surrounding the bungaloes. Larva feeds on Melastoma malabaricum and Careya arborescens (Myrtacea), common in the latter part of the rainy season. — **sthavara** *subsp. nov.* was, together with the preceding form, already

lepidea. *adustata.* *miyana.* *sthavara.*

figured by Moore (Lep. Indica III, 1896, pl. 225). ♂ inferior in size to Assam specimens, bordered with darker grey above. Forewings underneath more uniformly red-brown, terminal area more profusely shaded with grey-violet. ♀ with roundish spots of pale brown beyond the cell of the forewing. Moore reports it from the whole of Burma; particularly at Akyab, during the dry season, in the parched jungle, at Fea near Bhamo, and in the Karen Hills in September. ♀♀ from Beeling (Tenasserim) in the British Museum are smaller than those from Bhamo, and of a paler grey-yellow colouring underneath. — Of **cognata** *Moore* of which until recently only one ♀ specimen was known, I captured the ♂ in East Siam during the dry season; it appears to be a dwarfed form, with still duskier brown marginal border of the hindwing and deeper brown under surface. ♀ distinguished by the semi-translucent, almost hyaline transcellular spots on the forewing and the delicately brown-marmorated under surface. Discovered in the vicinity of the ruins of Angkor (Siam) in December. — **flaminia** *Fruhst.* (132 a) appears to be the melanotic extreme of the species. ♂ of the rainy season form has the grey terminal area of the hindwing dusted with reddish-brown. ♀ with occasionally nearly obsolete grey marginal border on the hindwings, and with rather small median spots on the forewings, square in shape, not dot-like as in *cognata*. Under surface of ♂♂ chiefly grey-black, with the outer border of the hindwing pale grey-violet; ♀♀ (132 a) more brillant, with a touch of purple. Tonkin (Chiem-Hoa) August, September. Of the dry-season form the ♂♂ are smaller than those of *flaminia* and *lepidea*, but with a pale or yellowish-grey irroration on the hindwings; the ♀ has on the hindwing the terminal area dull grey, and lacks the hyaline or pale spots, resembling therein the ♀ of *miyana* from the South of India. This form which I discovered in Tonkin and southern Annam in February (the dry-season) I name **mirditta** *form. nov.* It is very scarce and not easy to take. — *flaminia* appears to occur in Tonkin only in certain localities; thus I observed it in August 1900 in the woods bordering the road from Chiem-Hoa to Bac-Ken in Central Tonkin, at an altitude of about 1000 ft.; the ♂♂ were sunning themselves on the leaves, and their broadly yellow-bordered hindwings that appeared in the sunlight almost white rendered them a lovely picture. They generally occurred together with *Euthalia kesava, jahnu jahnides, julii indochinensis* and *phemius*. — **matala** *Fruhst.* ♂ resembling that of *flaminia*, but with mainly brown-red under surface, somewhat approaching *sthavara*. ♀ above suffused with pale violet, underneath even more broadly margined with pale purple or blue-violet. Malay Peninsula, exceedingly scarce.

cognata. *flaminia.* *mirditta.* *matala.*

E. julii is found together with *E. lepidea* throughout the entire Region of Farther India, occurring moreover also on several of the Malay Islands. It is equally sensitive towards external influences as *E. lepidea*. — **appiades** *Mén.* (132 c) designates the rather constant form of Sikkim; ♂♂ always distinguished by the pale blue distal margin on the upper surface of the hindwings; specimens of the dry season only differ in their inferior size from the form of the wet season. ♀ of the wet season above smoky-brown marked with rudimentary subapical and transcellular spots. Under surface resembles our figure; those of the winter (dry) season above rather paler brown, underneath resembling the ♂♂, but with greenish instead of pale blue basal area of the hindwing (= fa. **virescens** *form. nov.*). According to Nicéville *appiades* is the commonest among the Euthaliidi of Sikkim, occurring throughout the year on the lower hills. Doherty discovered it also in the Kumaon Himalayas, although as a great rarity. Farther East *julii* commences to vary considerably; there are ♂♂ lacking on the hindwing the blue area (= **adima** *Moore* 132 c), or displaying only faint traces of a greenish intranerval spotting (= fa. **khasiana** *Swinh.*). The ♀♀ may in either season have the forewings above spotted with greyish-white, these spots occasionally uniting underneath into oblong transcellular patches. — **sedeva** *Moore* refers to ♀♀ in which the whitish median spots extend to the middle of the wing. — **balarama** *Moore* is a ♂ form reapproaching *appiades* in the pale blue terminal border on the upper surface of the secondaries. Some intermediate specimens contained in my collection display underneath the colouring of the dry season form, resembling, however, also *virescens* from Sikkim in having the hindwings underneath suffused with pale greenish. Assam, rather common. — **xiphiones** *Btlr.*, originally described from Moulmein, refers to an extraordinarily small form varying no less than *adima*. Still the commonest form of the ♂ seems to be that which in the blue area of the hindwing resembles *appiades* and *balarana*; those I received from Lower Burma are but faintly striped with blue, not unlike *khasiana Swinh.* Of the ♀ we know two sharply distinct seasonal forms, that of the wet season resembling the normal *adima* ♀ in the broadly white transcellular spot on the under surface of the forewing, that of the dry season copying the ♀ of *virescens* from Sikkim. Its range extends from Bhamo and the Shan States as far as southern Tenasserim and the Mergui Archipelago. — **indochinensis** *Fruhst.* (132 c) is based on the specimens I discovered in Tonkin and Central Annam; ♂ with relatively narrow stripe of dark blue on secondaries. ♀ above with prominent grey-white subapical spot on the forewing; underneath like ♀ of *irma*, but forewing without the white median spots. June till November. — **aridaya** *subsp. nov.* resembles the small Perak form. ♂♂ above very dusky, forewing with very narrow, pale green terminal border such as we find in Siam specimens. ♀ like a miniature copy of ♀ of *indochinensis Fruhst.* Island of Hainan; very scarce; type in the Tring Museum. — **odilina** *subsp. nov.*, an interesting local form, distinguished above by the pale brown ground-colour, from which the black-brown undulate bands stand out very distinctly. On hindwing terminal border yellowish-green, occasionally suffused with a faint bluish lustre. Beneath it approximates nearest to *julii Boug.*, according to Distant's figure. Siam, at 1000 ft., January and February. — **julii** *Boug.*,

appiades. *virescens.* *adima.* *khasiana.* *sedeva.* *balarama.* *xiphiones.* *indochinensis.* *aridaya.* *odilina.* *julii.*

the name type, is exceedingly scarce; described here from the excellent figures of Distant's and a number of specimens found in the Tring Museum. ♂ somewhat like *indochinensis*, but with more blue on hindwing; ♀ resembling a normal *adima* ♀, with two fine, white costal spots on the forewing; hindwing suffused with a lovely milky blue, marked in the subapical area with two delicate green stripes. Malay Peninsula; Dr. Hagen
irma. observed it also in North-Eastern Sumatra. — **irma** *Fruhst.* (132 a) ♂ above like Distant's figure of *xiphiones Btlr.*, but the black markings of the under surface show through more clearly above. But the under surface of the primaries differ considerably in the unusually broad double series of submarginal spots, which are placed more closely together and are at least four times as broad as in *xiphiones*; moreover, all the black dots on the undersurface of the hindwings are more distinct. ♀ approaches Moore's figure of *sedeva* (Lep. Indica, Vol. III, pl. 223 f. 1 c), but the white subapical spots are narrower and more closely connected, and there is in addition, nearer the apex a second, triangular white dot. The white discal spots which in *sedeva Moore* are very conspicuous, are in *irma* obsolete, a feature which it shares with *indochinensis Fruhst.* from Tonkin. The under surface is of a most vivid colour and delicately marked; the ground-colour a dull blue-green laved with whitish-grey. On the forewing the apex as well as the subapical and discal spots are clear white, likewise the broad median band on the hindwing. The ultracellular and submarginal areas are pale brown shaded and spotted with vandyck-brown. The hindwings with a submarginal row of eight sagittate spots dusted with moss-green peripherically.

telchinia. **E. telchinia** *Mén.* (132b) is figured here for the first time, together with its two hitherto unknown seasonal forms. The smaller ♀ belongs to the dry period, whereas the larger one of which we figure the under
aphidas. surface, and which has been described as **aphidas** *Hew.*, is the form of the rainy-season. Even the ♂♂ show some difference due to the seasons, those of the dry season being pale grey, those of the wet season deep brown. The ♀♀ of the winterform lack the brown submarginal band of the hindwings and have the ground-colour paler ochre-yellow. *telchinia* is rare in Nepal, Sikkim and Bhotan, but quite abundant in the Khasia Hills in Assam. In Sikkim it flies between April and October, not above 3000 ft.

whiteheadi. **E. whiteheadi** *Crowley*, one of the loveliest Euthaliidi, is probably a good species, replacing *telchinia* in Hainan. Above black-brown suffused with olive-green; forewing with two large pale blue-green patches in the cell, several small white ultracellular spots and a submarginal stripe of lovely pale moss-green, starting at the apex and, gradually widening, extending to the anal angle. On the hindwing a pale green submarginal band, enclosing several indistinctly black lunular spots and edged distally by a broad black terminal border. ♀ has the band of the hindwing wider and more blue-green, and the transparent white spots on the forewing larger. Under surface deeper red-brown than in *telchinia*-♀, the hyaline spots reduced. From several specimens of the Tring Museum. Hainan, apparently not very rare.

E. cocytus, a much disputed species from Siam described already in 1787 by Fabricius, and correctly identified by Moore in 1896. *cocytus* varies greatly in its colouring according to the locality, three local forms
satropaces. being known in Farther India alone: **satropaces** *Hew.* of which I possess specimens from Lower Burma, occurs throughout the year in Tenasserim and the Mergui Archipelago. ♂ with very broad pale grey terminal area of the
cocytus. hindwing and pale ochreous underside, just as it appears in Moore's figure. — **cocytus** *F.* is whitish-grey beneath, with darker grey outer border of the hindwings above. ♀ with larger, white, grey-dusted subapical spots on the hindwing than in *satropaces*. I took this form in Siam, in January and February at an altitude
ambrysus. of about 1000 ft. — **ambrysus** *subsp. nov.* (132d as *cocytus*) is the darkest form of the collective species; having the marginal border of the upper surface of the hindwings dusted with brown; ♀♀ with smaller apical spots of greyish-white than in the ♀♀ of the two other forms. Under surface deeper yellow than in *cocytus*, with more conspicuous black-brown undulate bands, particularly on the hindwings. It is not impossible that *ambrysus* may be only the wet-season form of *cocytus*; the types at least were taken during the rainy season. June, July, Than-Moi, North Tonkin. Clasping organs of the simplest possible structure, hardly to be distinguished from those of *E. lepidea* and *E. japis cocytina*; but the valve is somewhat more curved and more distinctly excavated than in *E. japis*, *cocytina* and *E. javana*; uncus more delicate than in *E. lepidea*, not distented in the middle as in *E. javana*.

E. godarti replaces *cocytus* in the Macro-Malayan Region, but although the ♂♂ deviate in colourign considerably from *cocytus*, the ♀♀ differ but slightly both in colour and markings from the continental form. The sexual organs are rather more slender than in *cocytus*, *lepidea* and *cocytina*. Uncus sharp pointed, in the middle slightly distented. The black scent-scale spot on the upper surface of the hindwings larger than in *cocytus*. The ♂♂ differ from those of *E. cocytina* in having on the under surface of the forewings in the middle of the inner margin a very distinct, glistening scent-area, that had hitherto escaped attention, since even Shel-

ford in his description of the ♂ of the Borneo form did-not mention it. — **asoka** *Fldr.* inhabits the Malay Peninsula. The ♀ which has been correctly figured by Distant, resembles our figure of *E. javana* (132 d) and *E. phlegeton* (133 a), being distinguished from the much commoner *cocytina macnairi Dist.* (132 e) not only by the secundary sexual marks, but also by the more produced apical portion of the forewings. Of the ♀ we know two forms: **jordani** *Fruhst.* (132 e) lacks the pale grey-blue colouring of the submarginal area of the forewing; **asoka** *Fldr.* has both sides of the brown band of the forewings broadly suffused with a beautiful delicate blue, being distinguished from *jordani* also by a broader, more conspicuously grey-white median band. Beneath it resembles the ♀ fa. *puseda Moore* (133 c), only the spots composing the macular band of the forewing are more irregular. The hindwings of *jordani* have three, those of *asoka* five clear white spots. — **mara** *subsp. nov.* takes the place of *asoka* in North-Eastern Sumatra, possibly also in Banka and Billiton. Dr. Martin who rediscovered it, separated it justly, though opposed by De Nicéville, from *E. cocytina*, which in the colour of the ♂ it closely resembles, the marginal border of the hindwings being violet-blue; ♀ approaches *vacillaria* ♀ (132 e), but is of superior size, the forewings with larger spots, hindwings with a clear white median band and a few white intranerval patches beyond the brown postdiscal undulate band. On the under surface the white spots are smaller than in *asoka*; hindwings with the median and submarginal areas of a faded whitish colour, but without the conspicuous median band characteristic of *asoka* and *jordani*. According to Martin it is the rarest *Euthalia* in the Sultanate of Deli, occurring at somewhat higher altitudes than *E. cocytina*. — **godarti** *Gray* from western Sumatra, is in ♂ larger than *mara*, of a more vivid violet-blue, beneath rather darker with the outer margin more profusely suffused with grey-violet; it greatly resembles *floralis* ♀ (133a), and even more *martigena* ♀ (133 c), being of a more brillant hue than *mara* ♀. On the forewings the greyish-white hyaline spots are larger; the median band of the hindwings clear white, reaching the anal angle. ♀ beneath of a deeper colour, with larger white hyaline spots. Padang-Pandjang. — **samasara** *subsp. nov.* (132 e as *vacillaria*) is of all known forms the smallest and darkest. The ♀ lacks on the hindwing the white median patch, and has the blue area considerably darker than in the other forms. On the forewings the grey-white hyaline spots are very small. On the under surface the white spots are surrounded by a rich brown, the undulate brown stripes of the hindwings being particularly heavy. Island of Nias, only 1 ♀ in the Fruhstorfer collection. — **vacillaria** *Btlr.* resembles in ♂ *mara Fruhst.* from Sumatra, in ♀ the figured Nias form (132 e), only of larger size, having the dull white spots, especially in specimens from South Borneo, more developed, the blue suffusion of the median area of the hindwings deeper than in *godarti* and *mara*, but in contradistinction to *samasara*, spotted with white anteriorly. Shelford described the ♀ from specimens of the Sarawak Museum; my collection contains specimens from the North and South-East of Borneo. The ♀ is very variable, hardly two specimens looking alike. The type which is in the British Museum, is pale brown, finely dotted with white in the median area of the hindwings. On the forewings the hyaline spots are white without any dusting of grey. — **arama** *form. nov.* refers to ♀♀ with larger, brown-dusted hyaline spots on the forewings, and a complete light-coloured band on the hindwing which anteriorly is white, otherwise pale lilac. In very rare cases this band may be altogether dark blue, as in a ♀ of the British Museum. North and South Borneo. — **dhayma** *subsp. nov.* is nearer to *asoka Fldr.* from the Malay Peninsula than to *vacillaria* from Borneo. The pale area of the hindwings is broader than in all the other forms of *godarti*, but more faded, as is the case with all the Euthaliidi from that island. The hyaline spots on the forewing are shaded with grey. Sulu archipelago, type in the British Museum. — **phlegeton** *Semp.* (133 a) is characterized by a very large black scent-patch on the upper surface of the hindwings; otherwise the ♂ resembles as to shape of wings the other forms of *godarti*; but the ♀ approaches above rather *cocytus* and *telchinia* in the relatively small, dark brown hyaline spots. ♀♀ from Mindanao have the under surface obscured with fuscous as in *telchinia*. ♀ likewise dark smoky-grey. Occurs, according to Semper, from January until October in Samar, Camiguin de Mindanao and all over Mindanao. — **nirodha** *subsp. nov.* ♂: upper surface not violet, but pale blue, occasionally laved with greenish; hindwings with broader outer margin; under surface, as seen in figure, chiefly yellowish in ♀, faintly striped with brown. February, Bazilan. — **javana** *Fruhst.* (132 d) inhabits Java, where it is exceedingly scarce. My collection only contains specimens from the Zuidergebergde in the East, but I observed at one time a ♂ also in the western part of the island at about 16—1900 ft. altitude, on a journey from the south-coast to the table-land of Pengalengan. The ♀ which has the forewings ornamented with blue, resembles somewhat the ♀ of *asoka Fldr.*, differing, however, in the absence of the white median spots of the hindwings, in the place of which there appears a pale grey-brown patch. In the ♀ the under surface of the hindwings is very much like that of *nirodha* from West Sumatra, but the white spots of the forewings are confluent as in *asoka*. Uncus very delicate, long, sharp pointed, slightly thicker in the middle, contrasting with *E. cocytina* and *E. japis*. Valve likewise more slender.

asoka. *jordani.* *mara.* *godarti.* *samasara.* *vacillaria.* *arama.* *dhayma.* *phlegeton.* *nirodha.* *javana.*

E. flora is the oldest name of a hitherto not clearly understood species occurring from Tenasserim to Sumatra, also in the Mergui archipelago and the island of salanga. Above it resembles the ♂♂ of *godarti*,

beneath however it comes closer to *E. lepidea*, for which reason Bingham treated it as a subspecies of the latter. The ♀ is very much like the ♂, in Tenasserim very constant, but in Malacca Peninsula exceedingly variable,
andersoni. which accounts for its receiving from Distant four different names. — **andersoni** *Moore* (132 a ♂ b ♀) is found in Tenasserim and the Mergui archipelago. ♂ above with white apex and white fringes of the hindwings,
flora. the latter lacking the black anteterminal line, but displaying a broad marginal area of pale blue. — **flora** *Btlr.*, originally described from a ♀ taken in the Malay Peninsula, belongs presumably to a dry-season form; both wings margined with pale blue, the forewings with three white transparent dots. Undersurface pale
maclayi. yellow with brown longitudinal stripes and shadows. — **maclayi** *Dist.* (type in British Museum), has the blue border above broader and of a deeper shade, the under surface clouded with darker brown, the distal area
stoliczkana. pale violet. — **stoliczkana** *Dist.* is probably a rainy-season form, with only rudimentary traces of the blue median band of the hindwings and black-brown under surface. Distant figured also another ♀ form of *flora* under the name of **macnairi**, which seems intermediate between *flora* and *maclayi*, with a narrower blue margin above than the latter, beneath rather resembling *andersoni Moore* from Tenasserim. Malay Peninsula, 1 ♀
salangana. from Sumatra in the British Museum. — **salangana** *Fruhst.* is closely allied to *maclayi*, but still paler and decorated with bands of violet above; the violet marginal band on the forewing narrower than in *maclayi*, disappearing entirely near the apex, but on the hindwing much wider. Forewings beneath without white subapical spot and with almost obsolete black submarginal line, which is not dentate, and runs almost straight. Hindwing without a trace of a black submarginal stripe; otherwise like *maclayi*; the outer margin somewhat paler and edged with violet instead of with blue. Type from the island of Salanga, in the British Museum; another, very similar and pale form from Penang, Siam, in the Adams collection of the British Museum.

E. cocytina is the collective name of a species that has among the Euthaliidi developed the greatest number of forms. This name must now be again introduced, since *cocyta F.* had to give may to the elder *cocytus F.* In fact, it appears from the critical examination by Prof. Aurivillius that *cocyta* is identical with *cocytina Horsf.*, having the under surface equally pale ochreous, without any dark markings beside the lines in the cell of the forewing, just as in *blumei Voll.*; therefore the substitution of Horsfield's name seems justified. *cocytina* inhabits the Macromalayan Region, with the exception of Java, where it is replaced by another distinct species (*E. japis*); moreover it is found in all the minor islands, breaking up into a great number of generally quite sharply separated races which again in either sex vary individually to a surprising degree. Most of all it varies in Borneo where we find two local forms, one in the North, another in the South-East of the island. Especially in the northern part we find hardly two individuals alike, especially since here also the difference in elevation plays some part. Also in Sumatra we find two local races. The ♂♂ resemble in colouring partly *E. godarti*, but are easily distinguished by having the apex of the forewing less produced, and by the smaller scent-patch of the hindwings above. Moreover, *cocytina* ♂♂ lack the bright frictional surface of the forewings beneath. In the ♀♀ we never observe on the forewings a few isolated hyaline spots, as in *godarti* ♀♀, but invariably confluent bands of clear or dull white. Among the ♂♂ we may distinguish two chief types:
obscurata. a) those with light (*blumei*), b) those with dark undersides of both wings: = **obscurata** *form. nov.* — Above we distinguish again in either group a) individuals with pale blue (*blumei*), b) with violet bordering, espe-
violetta. cially of the hindwings (fa. **violetta** *form. nov.*). The hindwings may still further have, especially in individuals with pale yellow under surface, the terminal line exceedingly fine (*blumei*) or broad and sharply margined with black: The ♂♂ belonging to the form with dark under surface are sometimes faintly suffused with purplish-violet, particularly on the brown submarginal band, and in Borneo specimens we notice as a chief character-
arya. istic of the hindwing a blue-violet submarginal zone (= **arya** *form. nov.*). — Also among the ♀♀ we find in Borneo both the palest and darkest forms (fa. *ambalika Moore*, 133 b; fa. *martini Fruhst.* 137 d) *). The sexual organs show no pecularities, but resemble those of all the other *Cynitia*. Uncus single, long, curving downwards distally, slightly distented in the middle, never so stout as in *E. lepidea* from Northern India, nor quite so slender as in *E. godarti Gray*. Valve club-shaped, bluntly rounded anteriorly, apparently varying according to the locality, being broadest and through-shaped in the dark form of the low plains of Sumatra, narrowest and longest in fa. *montivaga Fruhst.* from the mountainous parts of Western Sumatra, but in either longer than in the Javanese form *E. japis Godt.* The species is everywhere common, but prefers the more
puseda. open woods and the lower plains. — **puseda** *Moore* (133 c) was the earliest name given a ♀ form which is very common in the Malay Peninsula, but is not found elsewhere. The oldest name of the ♂ of the Malay form is
macnairi. **macnairi** *Dist.* (132 e) which its author unfortunately treated as the ♂ form of the collective species of *E. flora Btlr. macnairi* belongs to the type with pale blue bordering of the upper surface and dark under surface.

*) In northern Celebes I saw in December 1895 near Toli-Toli an *Euthalia* which very closely resembled *cocytina*.

In addition, there occur ♂♂ with light under surface (*fa. blumei Voll.*) and either light blue or pale violet upper surface, and still others, of an alpine form, which are larger and have the under surface suffused with a rich violet or purple. The ♀ form **floralis** *form. nov.* (133 a), distinguished by the conspicuous white stripes of the hindwings like in *ludekingi* (132 e), had not been known until lately. I also have ♀♀ from Perak in which the white median area of the hindwings is deeply encroached upon by the broad shading of pale blue. *puseda Moore* (133 c) is the darkest extreme of all the ♀ forms, resembling the melanotic Borneo forms *gandarva Voll.* and *martini Fruhst.* (137 d). On the forewings the uncommonly broad helmet-shaped spots are shaded with grey-brown, the submarginal undulate line is very distinct, frequently edged with whitish-violet distally. Beneath it closely resembles *E. decorata Btlr.* ♀, in the milky-white outer area of the otherwise pale ochreous wings. *puseda* I received also from Palembang (*Sumatra*), and the Tring Museum also contains similar specimens from the same, although not very reliable source. Malay Peninsula. *puseda* was originally described from Penang; it is the commonest of all the Euthaliidi of Perak. Distant mentions *floralis* and *puseda* also from Singapore. *floralis.*

— **sakyamuni** *subsp. nov.* is inferior in size to its allies from the Malay Peninsula and Sumatra; as a typical butterfly of the tin-producing island of Banka it is of an albinotic type with very pale, faded yellow under surface. ♀ belongs to the ♀ form *mitra Fldr.* which is rare in Sumatra, with the light patches on the forewings obsolete and the white band of the hindwings indistinct. Common in Banka; type in the Tring Museum. — *sakyamuni.*

cocytina *Horsf.* (= *cocyta F.*) probably comes from the West of Sumatra, where an uncommonly large local form occurs, of which the ♀ was described first as **ludekingi** *Voll.*, whereas the name **blumei** *Voll.*, although identical with *cocytina*, refers to the ♂ form with pale yellow underside and pale blue-margined upper surface. Beside this we find throughout Sumatra also ♂♂ with dark undersides (*obscurata Fruhst.*), and among specimens having the hindwings bordered with blue or violet also fa. **margiola** *Fruhst.* — Another distinguished, alpine form from the Padang Bovenlanden is **montivaga** *form. nov.* (132 d as *cocytina*), above bordered with violet, underneath clouded with a rich brown and suffused with purple or grey-violet. The ♀♀ of *cocytina* (*ludekingi*) are larger than those from the North-West of the island, having the white area larger, more sharply *cocytina. ludekingi. blumei. margiola. montivaga.*

defined, suffused with dark violet, but in none of my 16 specimens with pale blue. — **gopia** *Moore* is the oldest name of the form from North-eastern Sumatra, based upon a ♀ with clear white, costally divided, oblong patches on the forewings and a broad, clear white inner median band on the hindwings, separated by a bluish area from another, submarginal row of spots. — **mitra** *Fldr.* refers to a monotonous ♀ form having the hindwings uniformly suffused with pale blue, and the pale patches on the forewings shaded with grey-brown. The hindwings with only three white costal spots. — **samudaya** *subsp. nov.* is a very distinct form with altogether melanotic ♀♀ approaching in colouring *gandarva Voll.* and *martini Fruhst.* ♀♀, but having all the white spots, particularly on the forewings, still farther reduced; the hindwings showing only a few dull brown median spots. Batu Islands, type in the Tring Museum. — **upasakas** *subsp. nov.* (Sanskrit for "monk") was based on a rather small, dark, insular form with unusually dark under surface of both wings. The ♀♀ resemble *fa. mitra Fldr.* in having the whitish patches of the forewings shaded with brown-grey. Natuna Islands, Tring Museum. — *ambalika Moore*, the oldest name of the Borneo races, applies to the form found in the northern part of the island. The ♂♂ have on the upper surface the blue distal margin of the forewings deeply dentate proximally. The submarginal band of the under surface consists of heavier, more quadrate spots than in Sumatra- and Perak-♂♂, and the hindwings display often a blue or violet zone (= **arya** *Fruhst.*). Generally speaking, all the ♂♂ are beneath darker than those from other localities, and *blumei* of such pale yellow colouring as shown by its author are not at all to be found in Borneo. The majority of ♀♀ is dark brown with brown-shaded, oblong, wedge-shaped spots on the forewings, and white median rays entering an area of pale blue which in addition is traversed by a finer, outer row of somewhat faded scalloped spots. — **ambalika** *Moore*, is a ♀ form resembling *fruhstorferi* (133 b); one of the most distinguished Euthaliidi, on account of the great development of the mitra-or tiara-shaped components of the macular row of the forewing which in some cases are slightly sprinkled with brown (**tiara** *form. nov.*) (133 b as *fruhstorferi*). Much rarer are pale brown ♀♀ with only slight, faded remains of a violet median band (**colorata** *form. nov.*). Another lovely form has the anterior white spots on the forewings not divided, but forming, together with the remaining spots, long wedges which continue, though only to a slight extent, also on the hindwings (= **trilobita** *form. nov.*). Besides these we know ♀♀ without any white spots whatsoever on the forewings which appear almost uniformly dark brown, generally accompanied by a deeper brown clouding of the under surface (= **paramitra** *form. nov.*). — **magnolia** *Stgr.* is a very rare form; forewings dark chocolat-brown, with fine small, widely-separated white spots beyond the cell; the hindwings with a broad band of violet-blue, without a trace of white, separated from the outer margin by a broad brown border. Under surface dull ochreous with the white patches of the forewings more confluent; the hindwings faintly paler in the median area. **ambalika** *Moore* (133 b as *fruhstorferi*) finally has all the white *gopia. mitra. samudaya. upasakas. arya. tiara. colorata. trilobita. paramitra. magnolia. ambalika.*

spots very much increased and the violet colouring practically absent, only occasionally accompanying the black-
diardi. brown dentate median border. North Borneo. — **diardi** *Voll.*, one the commonest ♀ forms, of South Borneo.
martini. — A very dark form is **martini** *Fruhst.* (137 d), ♀♀ with very faint white bands on the hindwings and without a vestige of violet above. Dr. Martin captured quite a number of them near Sintang on the Capuas River
gandarva. in the Interior of South Borneo. — **gandarva** *Voll.* with clear white spots on the forewing recalling *ambalika*, and with rudimentary remains of violet bands on the hindwing, is a transition from the extreme melanotic
darani, *martini* to the ordinary, richly blue ornamented *diardi*. South and South-Eastern Borneo. — **darani** *subsp. nov.* (darani is the Sanskrit word for "adjuration") refers to the palest of all forms so far known. ♀ closely approaches *ambalika* ♀, but with even more prominent rays of white, especially on the secondaries; beneath it resembles rather the ♀ of *puseda* than of *ambalika* or *diardi*, in the very broad median area of the fore-
uposatha. wings. Sulu Archipelago, type in the Godman collection of the British Museum. — **uposatha** *subsp. nov.* is, on the contrary, an insular race of very deep colouring, from Banguey, the type in the Staudinger collection of the Museum in Berlin. ♂ with pale blue bordering of the hindwings above; ♀ of a peculiar *Tanaëcia* – like grey, with large, grey-white, dark margined wedges on the primaries and very narrow grey median band of the hindwing. Beneath it resembles the Borneo form, but with greatly reduced, pale median area of the hindwings.

E. japis takes in Java the place of *cocytina* which, contrary to Vollenhoven's statement, does not occur there; neither is his report correct regarding the occurrence in Java of *varuna* (recte *lutala*) and *gandarva* (recte *diardi*); for these forms are exclusively found in Borneo. The sexual organs of *japis* are very similar to those of *cocytina*, especially as regards the cylindrical, almost club-shaped valve, which is considerably shorter than in *E. godarti javana Fruhst.* Also the uncus is shorter than in *javana* and stouter basally, but somewhat more slender than in the Sumatran form of *cocytina*. Of *japis* there exist in Java two distinct local forms, one in the East, one in the West of the island, beside an alpine form from the mountains in the West. Although not at all scarce, the butterflies are very shy; they prefer densely wooded districts and are easiest to bait with bananas; however, unlike *Euthalia eion*, *Zeuxidia* or *Kallima paralecta* a. o. they are when feeding not forgetful of all danger, but, like *Herona pringondani* and *Euthalia salia*, rise at the slighest noise caused by the
japis. approach of man. **japis** *Godt.* (133 c) is found in the eastern part of the island, where I collected a great number in the open forests of the Zuidergebergde to the South of Malang, at altitudes of from 1000—1600 ft. ♂ above with beautiful white longitudinal bands margined with greenish-blue. ♀ as in the figure. ♂ underneath yellow-
böttgeri. ish at the base and whitish violet in the outer half of both wings. — **böttgeri** *Fruhst.* (133 c) ♂: Ground-colour of the upper surface in quite fresh specimens velvety-black, in flown specimens dark coffee-brown. Forewings with a violet, rarely blue band generally starting close to the apex, occasionally only at the upper radial, and extending thence, gradually growing wider, to the anal angle; in the center it is laved with white; on the hindwing this band continues to the anal angle, being, however, mainly white, only margined with violet or, more rarely, with light blue. On the forewing the somewhat paler cell is traversed by 4—5 black, oblique, partly curved stripes; the outer margin of both wings with beautiful white fringes. Under surface pale yellow-brown; forewing with pale violet apex and a white band corresponding to that of the upper surface; a dark discal stripe and 5 small irregular red-brown stripes in the cell. ♀: above dark coffee-brown, with a white band starting at the lower radial of the forewing and, growing broader very gradually, continuing to the anal angle of the hindwing. Beyond the cell on the forewing a series of brownish or whitish spots which, commencing at the subcostal, disappear again at the submedian and are separated from the white submarginal band by a pretty wide streak of deep-brown. Occasionally this discal band reaches the hindwing closely following the white band. Hindwings as in ♂, only with 2 elongate, dark ringed spots in the cell. Under surface pale tawny, with a spot of ashy blue-grey at the apex of the primaries. Otherwise like the upper surface, but the macular band yellowish and the stripes in the cell red-brown. Body in either sex above and beneath like the ground-colour of the wings. Eyes red-brown; antennae black above, redbrown beneath. Palpi and legs yellowish. Expanse ♂: 2,1″, ♀ 2,4—2,6″. *böttgeri* is rather common in western Java, especially on the Vulcano Gede, at an
palabuana. altitude of from 4000—6000 ft. — **palabuana** *subsp. nov.* refers to the form from the low-lands of western Java, representing a transition from the eastern *japis* to the alpine western form *böttgeri*. I have only met with *palabuana* in the moist forests skirting the Bay of Palabuan in the southern part of the island. ♂ like *japis* ♂, but mostly without any white stripes on the forewing which, like the median band of the hindwing, are

margined with a somewhat darker blue, but never with violet as in *böttgeri*; the blue being always broad and heavy, in contrast to the latter. ♀ has the forewings spotted with white and brown, on the hindwings a narrow oblique median band margined with violet proximally. Under surface of the ♂♂ which resemble *japis* also in size, laved with an intense whitish-violet distally. ♀ darker than *japis* ♀, approaching *böttgeri*, but smaller and with clearer white transcellular spots on the forewings. *japis* has not been found as yet in Bali.

E. jahnu, hitherto only known from India, was proved by me to occur also in Siam and Tonkin. Only two local forms are known: **jahnu** *Moore*, above hardly to be distinguished from *jahnides* (132c). The peculiar purple colouring which Moore called "wine-brown" is well represented in our figure. Beneath it very closely resembles *E. appiades*. ♀ without the white submarginal portions of the forewing characteristic of the eastern form *jahnides*. Dry-season specimens are somewhat paler yellow-brown, with less blue on the hindwing. Rare in Sikkim, during the summer, like *appiades* only at low altitudes; common in Assam; also in Upper Burma, the Karen Hills, Tenasserim and the Mergui Archipelago (Moore). — **jahnides** *Fruhst.* (132e, ♂, b ♀). ♂♂ have the under surface more variegated, with dark olive-green spots in the cell of the forewings, and more distinct longitudinal bands. ♀♀ paler than *jahnu*, with broad whitish subapical spots almost devoid of scales, instead of the brown spots of *jahnu*. Underneath even more conspicuously white, also in the submarginal area. One ♀ from Siam, probably of the dry-season, has the submarginal spots on the forewing clear white. Tonkin, Siam, up to 1000 ft. of altitude. Clasping organs differing considerably from those of the other *Cynitia*, rather approaching *Tanaëcia*. Uncus slightly curved as in *T. lutala*. Valve somewhat as in *T. pelea*, but more uniformly broad, sharper anteriorly than in *T. pelea*, with up-curved extremity. According to Elwes, the specimens collected by Doherty in the Karen Hills are smaller and broader than those from Sikkim; they may be intermediate between *jahnu* and *jahnides*. *jahnu.* *jahnides.*

E. semperi *Stgr.* is characterized by the peculiar grey-brown upper surface relieved on the hindwings of the ♂♂ by a very broad velvety-black androconial patch. Markings as in *T. lutala*, but the submarginal sagittate spots on the forewings are very sharply pointed and narrowly edged with white proximally. On the hindwings, particularly of the ♂, a whitish zigzag band obscured with grey-brown. Under surface distinguished by a peculiar faded yellowish-grey colour, somewhat darker at the base. The pale brown submarginal band on both wings encloses a rather broad white stripe. Island of Palawan, scarce. *semperi.*

Group II: **Euthalia** *Hbn.*

Differs from *Tanaëcia* and *Cynitia* in the stouter body, the more robust, mostly pointed wings. The first subcostal as a rule does not unite with the costal vein, as in the two other groups. In ♂ the first subcostal arises immediately at the end of the cell, in ♀ a little distance beyond. Hindwing with precostal curved, single, not angled as in *Cynitia*; both wings with cell open. Larva armed on either side with 10 long horizontal fleshy spines which, being barbed on either side with finer secondary spines, look like feathers. Several species have on the upper surface of the hindwings a costal androconial patch which, however, is exceedingly variable, being present in some forms of the same species, but lacking in others. Sexual organs are but imperfectly differentiated and for that reason offer only an unreliable means of distinction. Uncus and valve quite regular in structure; the former shorter, broader basally than in *Cynitia*; valve trough-shaped, cylindrical, blunt distally, occasionally cut off straight.

E. tanagra *Stgr.* resembles in colouring *Cynitia semperi Stgr.*, but is of heavier build, with stouter, above deep black antennae and more sharply pointed wings. ♂ above with relatively small androconial spot; markings as in *E. ottonis* (128 d), but less distinct and broad. ♀ approaches *E. salia*, the under surface of the hindwings being suffused with blue-green at the base; otherwise pale yellow with grey-white margin (like in *C. semperi*) and darker, ochreous base. Island of Palawan, scarce. *tanagra.*

E. ottonis *Fruhst.* (128 d) represents quite an isolated species hitherto only found in Nias. ♀ even larger than the figured ♂, with more rounded wings and more broadly white upper surface. Beneath the sexes are alike, yellowish grey-brown, suffused with pale moss-green at the base of the hindwing, and with a very sharply defined marginal zigzag line accompanied distally by a clear white band. Nias, rare, March until May. *ottonis.*

E. kesava, the type of Nicéville's genus "*Nora*", based upon the black androconial patch peculiar to the forms united with it. Structurally *Nora* differs in no way from *Euthalia*; the first subcostal nervule in the forewing of the ♂ stands quite free, in ♀ only approaches the costal vein for a short distance, and the *kesava.*

3rd subcostal arises in ♂, as in *Euthalia* proper, far beyond the end of the cell. Thus it appears that *Nora* is absolutely synonymous with *Euthalia*. Of the 8 species named by Nicéville 5 belong to *E. salia*, 3 to *E. kesava*. However, the creation of this genus *Nora* is easily explained by the fact that the forms belonging to it are like the *Tanaëcia* among the most variable Euthaliidi, and indeed hardly have their equal among the entire Nymphalid group. In *Nora* as in *Tanaëcia* we observe, beside the usual sexual differentiation, also Polymorphism in the ♂♂, a phenomenon not often found in Nymphalids. Thus for instance of the many ♂ forms of *Nora bipunctata* of Borneo hardly two resemble one another. The *Nora* are mostly of local occurrence, and limited to the Macromalayan Region with their nearest satellite islands; only *kesava* also occurs in the North of India. Its limits of distribution reach from Hainan to Tonkin, Tenasserim, Sikkim, the Malay Peninsula, Borneo and the Sulu group in the North, Sumatra and Nias in the South. East of Lombok they do not seem to occur; and in Celebes they are not at all represented, this island possessing altogether rather few Euthaliidi; a fact which may help to prove the hypothesis of Celebes having never been connected by land with Borneo; otherwise it would be difficult to understand why, of the host of Euthaliidi inhabiting Borneo, a greater number should not have emigrated to and propagated in Celebes. — **kesava** *Moore*, described in 1859 from two
arhat. different local forms (the ♂ from Assam, ♀ from Burma), develops in India three geographical races: **arhat** *subsp. nov.* (arhat = the neophyte) (128 e as *kesava* ♂) is one of the commonest Euthaliidi in Sikkim, where it is found between April and December in the hottest districts, not above 3000 ft of altitude. ♂ smaller and paler than ♂♂ from Silhet and Assam, the brown-yellow costal colouring of the hindwings more extended; the under surface of the dry-season form is almost without any, that of the wet-season form with quite insignificant black spots and stripes. ♀ more monotonous than Assam ♀♀. The rainy season form of Sikkim above with grey indistinct longitudinal bands and faded pale translucent patches. An intermediate form has the ground-colour
kesava. light brown with dull brown-grey longitudinal stripes of the upper surface. **kesava** *Moore*: ♂ larger, darker green above; ♀ of the rainy season with whitish instead of grey-brown stripes, the hyaline spots more prominent than in *arhat*. Under surface more intensely brown and of a richer blue. The (unnamed) ♀ of the dry period is above uniformly brown, with sharply dentate submarginal lines margined with dull whitish proximally. Under surface of primaries richer white than in ♀ of the wet-season; hindwings more broadly suffused with blue, both wings
discipilota. marked with brown zigzag lines. Assam, very common. — **discipilota** *Moore* represents the smaller form of Te-
rangoo- nasserim and Burma, with two transparent white patches on a dull brown-grey ground. — **rangoonensis**
nensis. *Swinh.* is its respective dry-season form; forewings with a broad greyish-white band margined on either side by sharply dentate zigzag lines. Under surface even more broadly white than in Assam ♀♀. From Bhamo and the Shan States as far as Tenasserim. In Siam I took during January and February a pair of *kesava fa. discipilota*,
sastra. of very small size, the ♀ densely shaded with black-brown distally. — **sastra** *Fruhst.* (128 d), based on a ♀ of the extreme dry-season from southern Annam, of very small size; on the forewing the white band is slightly scaled with brown, as far as the lower median. Under surface darker brown yellow than in *rangoonensis* ♀,
tudela. with narrower blue basal area of the hindwing. Mouhot found this form also in Cambodja. — **tudela** *subsp. nov.* is of larger size; ♀ resembling *kesava* ♀, but in the dry-season form with more distinct grey-white markings of the forewings and less variegated under surface, the base being less blue. ♀ of the rainy-season form dark brown-yellow underneath with broader submarginal bands. August, September, Chiem-Hoa (Tonkin). Crowley mentions a similar form from Hainan.

E. monina is here re-instituted to designate the collective species generally known as *E. salia*, following Prof. Aurivillius, (Entom. Tidskrift 1897, p. 143) who discovered in the Copenhagen Museum 2 ♂♂ of the type which are identical with the form figured by Distant as *ramada* from Perak. Previous authors, amongst them Dr. Staudinger, misled by Fabricius' diagnosis had transferred the name of *monina* to other species; (thus Staudinger to *E. cocytina puseda Moore* from Malacca) causing no end of confusion in collections. *monina* is in all its forms the most variable *Euthalia*, with strongly pronounced Polychroism both in ♂ and ♀. The sexual organs document its near relationship with *Cynitia* in the club-shaped, though shorter valve, with the other Euthaliidi in the very short, basally broader uncus. The valve is boat-shaped, rounded at the end.
monina. **monina** *F.* (= *ramada Moore*) (128 b). Forewings uniformly black, without a vestige of a white discal band; hindwing with broadly blue distal border, not traversed by a black submarginal
perakana. band, but extending to the forewing in the shape of a greenish anal suffusion. — fa. **perakana** *Fruhst.*
decorata. Hindwing with greenish distal border traversed by a black submarginal zigzag band. — fa. **decorata** *Btlr.* (128 c), originally described from Singapore; occurs also in Perak, judging from a ♀ of my collection. Forewing with a fairly broad, whitish, grey-shaded band continuing in some cases to the hindwing.

Most specimens have the outer area of the upper surface dusted with dark green. — **somadeva** *Fldr.* refers to a ♀ form distinguished by sharply defined, broadly black-brown submarginal bands and by having the outer half of the forewings distinctly white; the under surface of the forewings with a submarginal band widening towards the costa. Forewings moreover with isolated broad median spots of white. — **laverna** *Dist.* (133 d as *puseda* ♀) is another ♀ form, having the intramedian spots grey and not separated. — **gardineri** *Fruhst.* designates an extremely dark form of uniform brown upper surface such as is represented in DISTANT's figure (pl. 14 f 7). An analogous form occurs in Borneo described as *bipunctata Voll.* — **erana** *Nicév.*, a local form of north-eastern Sumatra, apparently still more variable than *monina monina* from Perak. A large number of the ♂♂ can hardly be distinguished from *decorata* ♂♂ from Singapore; but the ♀♀ are easily recognized by having on the forewing the brown dentate band very slightly edged with white proximally, and the median spots shaded with grey or purple and isolated. The median area of the hindwings is, however, broader and clearer white, and there are ♀♀ which are either grey or suffused with purple all over, or have the submarginal area of both wings violet. A number of ♂♂ belong to fa. **ramada** *Moore*, others approach the Javanese *salia* in the brillant colouring and broad white band of the hindwing. An especially luxuriant form is that of western Java. — **pseudosalia** *Fruhst.* is of larger size; ♂ with large bands of white suffused with gorgeous violet distally. Of the ♀ we find two types: a) unicolorous grey, but with clear white bands broader than in *erana* ♀♀; b) a much rarer form having the hindwings suffused with blue-violet. — **viridibasis** *Fruhst.* refers to a ♂ form with bronze-green basal area of both wings. Other ♂♂ have the distal area of the hindwings pale green: resembling fa. **perakana** *Fruhst.* From Padang Bovenland, not very abundant. — **manda** *subsp. nov.* ♂ resembling *fa. ramada Moore*, ♀ that of *decorata* from Singapore, but rather smaller, darker, the median band on the hindwing much narrower and sharply defined. Type in the ADAMS collection of the British Museum. Batu Islands.

somadeva. laverna. gardineri. erana. ramada. pseudosalia. viridibasis. perakana. manda.

— **inspersa** *Fruhst.* is intermediate between the Macromalayan *decorata Btlr.* and *erana Nicév.* and the Micromalayan *salia obsolescens Fruhst.* The white median band of both wings has a tendency to become obsolete, being obscured by numerous scales of grey-brown. Both wings have the anal area sprinkled with grey-green; Banka. Type in the Leiden Museum. Beside *inspersa* we find in Banka another variety approaching *bipunctata Voll.* of Borneo (Munich Museum). — **natuna** *Fruhst.* (128 a) was based on a ♀ of uncommonly large size having the broad median area of the hindwings laved with flesh-colour. This form seems to be more nearly related to *decorata Btlr.* from the Malay Peninsula than to *laverna Btlr.* of Borneo. From *decorata* it differs in that the black submarginal markings of both wings are more pointed and encroach more deeply upon the intranerval spaces, particularly on the hindwings. The white helmet-shaped spots accompanying the black dentate band proximally are larger. On the hindwing the white median band is from the anal angle to the first median much more broadly suffused with dark violet than in *decorata*. On the under surface both wings have the distal area broadly white, covering nearly ⅔ of the wings, the base paler, light yellow. Natuna Islands.

inspersa. natuna.

— **bipunctata** *Voll.* (128 b) is the oldest name given the Borneo form which displays a truly bewildering variability. Not only re-occur here all the variations which we meet with in Perak and Sumatra specimens, but quite a number of new ones not found elsewhere. My collection contains an instructive series of specimens representing a complete circle of polychromous forms; ♂♂ of all shades from unicolorous brown-black to such having the distal margins green and blue, and, moreover, we find among them all transitions from quite plain, unmarked specimens to those with white-banded wings. From a large collection of specimens made on Kina Balu by WATERSTRADT within comparatively short time this variability appears to be individual rather than seasonal. Only it must be observed that the rich blue and green specimens came almost exclusively from the higher mountains, whereas the uniformly dark specimens are found both in the mountains and the low-lands. *bipunctata Voll.* (128 b) was based upon the darkest form which, although rather scarce, is widely distributed, displaying the same dusky brown-black colouring, whether it occurs in the alluvial plains of the South or in the mountains of the North. Some specimens are quite brown, whereas others are thinly scaled with green, and still others show the beginnings of white bands, such specimens approaching *obsolescens Fruhst.* from Lombok. — **stictica** *form. nov.* was sent to me by Mr. SHELFORD from Kuching, North Borneo. Ground-colour pale brown, marked above with white zigzag lines reaching on the forewing the median vein, and with dusky brown-grey, helmet-shaped median spots. — **cordelia** *Fruhst.* (128 b) refers to a form with green-margined hindwings, occasionally also forewings. — **ilka** *Fruhst.* (128 a) flies together with the preceding, closely allied, form; the

bipunctata. stictica. cordelia. ilka.

hindwings have the outer margin violet, occasionally enclosing a white band similar to *E. salia* of Java.

lavernalis. Like *cordelia* quite common on Kina Balu in North Borneo, at about 4800 ft. of altitude. — **lavernalis** *Nicév.*, a gaily coloured low-land form with white submarginal band traversing both wings; hindwings suf-

limbata. fused with violet or pale blue. The white band is somewhat less pronounced than in *laverna*. — **limbata** *Fruhst.* corresponds to *fa. ramada Moore*, from which it differs in having the distal margin violet instead of pale blue. Of the ♀ two varieties are known, one with white bands on a grey ground (*bipunctata Voll.* 128 b), from the lowlands in the South and North, and the other with a more or less extensive violet suffusion of the hindwings, similar to *cordelia* (128 b) or *ilka* (128 b), exclusively inhabiting the mountainous region

indras. of North Borneo. — **indras** *Voll.* is another, very scarce ♀ form from the southern part of the island, with dull grey-brown upper surface, marked as in *Tan. lutala* and *subochrea*, having like these the intramedian helmet-shaped spots of the forewing shaded with grey. In addition a sharply defined submarginal band, and on the hindwing some faintly white patches. Under surface of the ♀ low-land form pale yellow, of the alpine

suluana. form brownish. — **suluana** *Fruhst.* is the northernmost form, with very broad, white margined forewings, and almost completely white hindwings only adorned with thin brown lines and zigzagbands. It is the palest of all known *Nora* forms, resembling in colouring the very pale *Tan. doherty Btlr.* from the same locality. Sulu

salia Islands, collected by Pryer. ♀ type in the British Museum. — **salia** *Moore* (128 e) is the earliest described form of the *Nora* group, for which reason de Nicéville as well as Moore should have based the genus on this instead of on *kesava*. Our figure represents the variety of western Java, whereas the ♀ of the eastern form

octogesima. was described as **octogesima** *Voll.*, distinguished from *salia* by having the band on the forewing nearly twice as wide, almost white throughout without a touch of brown. The ♂♂ of the Java form vary in the marginal border of the hindwing being either pale blue or greenish. According to my observation *salia* and its allies prefer the more open woods, where they may be met with in the hours of the forenoon resting on twigs and leaves along the forest-trails. *salia* I found both in the West and East of the island, from the shore to elevations of about 6000 ft. It is rather shy and wary, even when feasting on the offered banana bait; the noise caused by the breaking of a dry twig under the foot of the approaching collector is sufficient to drive it to abrupt flight; and the disappointed collector must content himself with admiring the lovely play of colours produced by the blue and white bands of the wings flashing upon him as the butterflies take to the wing. Only after a long pause they return again, but only by exercising the utmost care the collector can hope to get hold of them.

sramana. The ♀♀, however, being more indolent, are more easily captured. — **sramana** *subsp. nov.*, type in the Staudinger coll. of the Berlin Museum, is a very dark form with brown upper surface slightly laved with white

obsoleta. in the middle of the wings. Island of Bali. — **obsoleta** *Fruhst.* ♂. Upper surface dark brown, with the rings and bands of the under surface showing through, appearing like an obsolete brownish-white diseal band. Underneath both wings are smoky-brown margined with darker brown, and traversed by a dentate white submarginal band. Both wings in the basal area with the usual brown-red rings and streaks. Inner margin of the hindwings dull grey-blue. Antennae black, clubs red-brown beneath. Expanse: 1,2″. Island of Lombok, on the Vulcano of Rintjani, at about 2000 ft. of altitude. Above *obsoleta* is not unlike *Euth. bipunctata Voll.*, but the under surface is more like that of *salia Moore* although the broad white diseal band is nearly extinguished and not a trace of the lovely blue outer margin is visible. The diseal band on the under surface is very much narrower, and not white but yellow, and the inner margin of the hindwing edged with darker blue than in *salia*. But in the shape of the wings and in size both forms closely agree; the scent-hairs, however, on the inner margin of the hindwings, which in *salia* are delicate whitish-blue, appear in *obsoleta* dusky smoky brown. This is also the case in *bipunctata Voll.* with which it also harmonizes in the dark brown colouring of the hindwings; but *obsoleta* has the outer margin more sharply undulate, and the under surface of the hindwings rather greenish-grey, not brownish-yellow as in *bipunctata*. The ♀ of *obsoleta* was discovered by Doherty when we jointly collected near the village of Sapit on Lombok. It is a lovely form, above somewhat resembling *Tan. trigerta singoradja Fruhst.* ♀, in the brown-shaded median band of the forewing, but underneath with the characteristic *salia* design, although somewhat obscured by fuscous. ♀ type in the Tring Museum, ♂ type in the Fruhstorfer collection.

cordata. **E. cordata** *Weym.* (128 c) replaces *monina* and *salia* in Nias. ♀ like *ottonis* ♂ (128 d), forewings with

conspicuous, elongate, rectangular white markings; hindwings beneath with sharply defined brown submarginal band, slightly suffused with greenish at the base. Not scarce. — **srota** *subsp. nov.* ♂ larger, more broadly irrorated with pale green than *cordata* ♂, the white band on the hindwing broader, more deeply encroaching upon the anal angle. Under surface paler, ground-colour more faded, on the hindwing the white area margined with faded brown distally. Type in the Staudinger collection; came presumably from the islands adjacent to Sumatra or Borneo. *srota.*

E. garuda is the commonest Indian species. It frequents the proximity of human habitations where the food-plant of the larva thrives, and where it visits fallen fruit or the sap flowing from injured tree-trunks. Larva green with yellow dorsal stripes and similar rings on every segment, the lateral feathery hairs not tipped with black. Pupa green, angular, head provided with two fulvous horns. Wing-cases and third abdominal segment with red-brown edges. Larva mostly on Mangifera indica, also on Anacardium occidentale L., Loranthus scurrula L., together with the larva of *E. lubentina*. Other observers mention also Trophis aspera, Bryonia, the Mulberry tree and Rose. The larva eats but little, grows very slowly and rests most of the time motionless. The spines are shed in each moult, and in their place appear blunt tubercles which rapidly develop into the well-known feather-shaped hairs. Of *garuda* we know a series of different continental local forms all of which are subject to seasonal Dimorphism. — **anagama** *subsp. nov.* is a pale form with relatively large, but completely blackish median spots on the forewing, and small, conspicuous, black submarginal dots on the hindwing. Both wings have the base dark, the distal margin pale brown; on the forewings the submarginal band is darker, narrower and less pronounced than in the forms from farther East. Under surface yellowish-grey, clouded with reddish. Type from the North-West Province; according to Moore it also occurs near Bombay, in the Kangra District, according to Doherty in the Kumaon Himalaya at elevations of from 2000—3000 ft. One ♀ from Poona, in the Moore collection of the British Museum, is paler brown, with smaller white spots than in specimens from farther south. — **suddhodana** *subsp. nov.* (128 e as *garuda*) inhabits Sikkim, where it is common throughout the year in the lower valleys; also at Calcutta, where it is observed on old grey walls in the dirtiest part of the Native city, where it prefers the filth of the street to the nectar of flowers. Our figures represent the dry-season form; that of the wet-season is much larger, the ♂♂ with broader bands of brown and larger white hyaline spots on the forewings than in Assam specimens, the ♀♀ on the contrary having these markings more insignificant. — **garuda** *Moore* from Assam. ♂♂ beneath with narrower brown bands than in the rainy season form of Sikkim, also less broadly margined with violet. The hyaline spots on the forewings nearly twice as wide, and clear, not obscured. — **merilia** *Swin.* (129 a) circumscribes a pale form of the dry period; ♂ above pale brown, beneath light brown-yellow, without any darker submarginal stripes. Common in the Khasia Hills. — **apama** *subsp. nov.* ♂ with more pronounced hyaline spots on the forewing than in *anagama*. Under surface pale yellow, broadly shaded with reddish-brown. In both sexes the dark-brown submarginal band is well developed. Siam, Cochin-China, common in the low-lands; I collected it in the temple-gardens near Bangkok and in the Botanical Garden of Saigon especially in December and January; occurs also at Bhamo in the Shan States and presumably in the Mergui Archipelago. — **aditha** *subsp. nov.* refers to an uncommonly large form; upper surface with strongly obscured base, the hyaline spots of the forewings dusted with brown; under surface with uncommonly broad submarginal spots. ♀ with grey-brown discal spots and sharply defined grey-brown distal area of both wings. Island of Hainan; type in the Tring Museum. Also in Tonkin we may expect to find a form related to *aditha*. — **meridionalis** *Fruhst.* (128 c) (= diversa *Evans*, J. B. N. H. Soc. 1912) is, especially in the ♀, much larger than *suddhodana* and *garuda* from the North of India. ♀ above not brown but of the peculiar green shade characterizing *Dophla laudabilis Swinh.* The median row of spots is broader and always clear white. Underneath it differs from *garuda*, resembling rather *vasanta Moore* from Ceylon. Also the ♂♂ have the upper surface, although in a lesser degree, broadly suffused with greenish. South India, Malabar and the Coromandel Coast northward as far as Kanara; in the Nilghiris up to 3000 ft. According to Moore, Nicéville, Mackwood and Dr. Manders, specimens of a variety of *garuda* occur, although very rare, in Ceylon. Although I never have seen Ceylon specimens which are not represented in the British Museum either, I presume that they coincide with *meridionalis*. — **acontius** *Hew.* ♂ above dark brown finely dotted with white in the median area. Beneath suffused with greenish blue. ♀ with broadly white longitudinal bands on both wings bifurcating near the costa of the forewing. Andamans. — **gurda** *Fruhst.* (128 c) heads the series of Macromalayan forms. Of relatively small size, ♂ with insignificant dull hyaline spots on the forewing. Under surface darker than in Siam ♂♂, more resembling the Sumatran form. ♀ is very variable, not two of the spe-

anagama. *suddhodana.* *garuda.* *merilia.* *apama.* *aditha.* *meridionalis.* *acontius.* *gurda.*

cimens in the Felder collection of the Tring Museum or in the Fruhstorfer collection being quite alike. Some which might be taken for ♂♂ are very dark, of dwarfed size, with nearly black hyaline spots on the forewing; in others the spots are about half as large as in *meriliia* (129 a). as it is shown also in Distant's figure; still others have the spots yellowish-white, nearly of the size of a pea. Malay Peninsula, pretty scarce in collec-
purana. tions on the Continent. — **purana** *Fruhst.* resembles in ♂ *E. tinna Fruhst.* (130 a), but on the forewing the spots are smaller and obscured with grey. The ♀♀ are intermediate between *gurda Fruhst.* and *sandakana Moore.* having both wings even darker, and on the forewing the grey-brown macular band reaching the lower median, occasionally even the submedian, is somewhat less broad than in *sandakana*. Moreover they differ from the latter in the greenish instead of brown colouring of the upper surface. The red-brown submarginal band on the forewing beneath is broader than in *gurda*, narrower than in *sandakana*. The larva is very difficult to detect even by practised eyes, although it rests free and unhidden in the middle of Mango leaves. Imago very common; in contradistinction to the other Euthaliidi it is not limited to the woods, although it loves the shade, but is mostly
sandakana. met with in fruit-orchards, where the ♂♂ chase one another from tree to tree (Hagen and Martin). — **sandakana** *Moore* has the hyaline spots on the forewings broader, more band-like, the under surface still darker than in *gurda* and *purana*, frequently suffused with purple. Of the ♀ two forms are known: a) one with grey-white, very distinct median spots on the forewing, b) another with brown blurred dashes. ♀♀ from the south and south-east of the island are somewhat paler brown than those from the North. Common in the
palawana. Sultanate of Brunei. — **palawana** *Stgr.* of which I only know the types, is very rare, Dr. Platen capturing only 1 ♂ 6 ♀♀. Upper surface darker than in *sandakana Moore*; ♂ nearly brown-black, the white macular band on the forewing is shaded with grey and reaches the inner margin. Underneath the white markings are, according
jeloana. to Staudinger, more prominent than in *garuda Moore* from India. Palawan. — **jeloana** *Stgr.* ♂♂ in the Staudinger collection have the brown-grey subapical markings of the forewing more indistinct and blurred; underneath more obscured than in *palawana*. ♀ forewing with broader macular band and a second (outer) whitish anteterminal stripe. Jolo in the Sulu Archipelago. Also from Domoran (August) in the Semper collection.
kastobo. — **kastobo** *Hag.* (128 d) is one of the most) interesting Euthaliidi on account of the almost incredible deviation from the neighbouring Javanese *E. aconthea Cr.* Both sexes beneath with very prominent black submarginal bands and a brillant white straight median band occasionally reaching the submedian vein. Island of Bawean, on Kastobo Lake, not scarce.

vasanta. **E. vasanta** *Moore.* ♂ resembles that of *E. garuda meridionalis Fruhst.*, but is of smaller size, without greenish suffusion of the upper surface. The ♀, however, widely differs from the *garuda* type in that the white band on the forewings is very broad and oblique, not vertical, ending at the lower median; occasionally, however,
fulica. it may be absent (= fa. **fulica** *Fruhst.*). Both sexes are beneath pale grey margined with whitish violet. Common in the low-lands of Ceylon, even in the gardens of Colombo, especially in June and July, and again from October till December. Pupa resembles that of *Euth. garuda*, but according to Moore's figure, with green instead of red horns, and paler yellow edges of the wing-cases. Larva resembles that of *garuda*, feeds on the Mango tree.

aconthea. **E. aconthea** takes in Java and the Micromalayan Archipelago the place of *garuda*, which may be only a subspecies of it, although it seemed advisable to treat it here as a separate species on account of the uniformity of markings in all the eastern forms, and the difference between their respective larvae. Supposing Moore's figures to be correct, the larvae of the Indian *E. garuda* and *vasanta* differ from that of *E. aconthea* in that the lateral feathers lack the black tips which are clearly seen in Horsfield's figure of the larva of *E. aconthea* (1829, 1857). The dorsal stripe is white instead of yellow, and the feathers longer than in *garuda*. Pupa more yellow-green, the yellow margin of the wing cases broader, the horns black instead of green or red. **aconthea** *Cr.*, figured from specimens from Batavia, is in ♀ subject to colour aberration. Already Cramer know the extreme albino form with the broadly white median markings of the forewing; but the dark form figured
arata. on pl. 129 b (fa. **arata** *form. nov.*) is much more abundant. In East Java we find also an intermediate form
sacvida. = **sacvida** *form. nov.* which like *niveipicta* (129 b) has a narrow, sharply defined, dull grey median band occasionally continuing to the hindwing. ♂♂ from East Java are as a rule smaller than those from the West, with darker green suffusion and deeper brown undersurface. *aconthea* is rather scarce, being found from the shore to

an elevation of about 2000 ft. — **suidas** *subsp. nov.* closely follows the East Javanese form, having the whitish median macular band on the forewing still sharper and narrower. Island of Bali, very scarce; type in the Staudinger collection. — **nivepicta** *Fruhst.* (129 b). ♂ with distinct white-grey, angled semi-band on the upper surface of the forewings; ♀ as figured, with moderately broad, grey-white median area; underneath the band continues on the hindwings to near the anal angle, being nearly twice as broad as in *aconthea*. Island of Lombok, at elevations of about 2000 ft., near the Sassack villages in fruit-orchards; occasionally found sipping the sap of the Areng Palm. Scarce. — **asvatha** *subsp. nov.* has on the forewing the bands much narrower and blurred brown-grey, continuing also on the upper surface of the hindwings. Sumbawa, type in the Tring Museum: 1 ♀ in the Staudinger collection. To this form I suppose belonged also that *Euthalia* near *E. garuda* which Doherty saw on Sumba without being able to capture it. According to Shelford *aconthea* occurs also in Borneo, but I have never seen specimens from there.

suidas. *nivepicta.* *asvatha.*

E. jama is a rare species of India where it has developed three local forms each of which again varies seasonally. — **jamida** *Fruhst.* (129 c) is the form of the dry-season found in Sikkim. ♂ smaller than that of the Assam form, above traversed with less broad stripes of black. ♀ with insignificant grey-brown streaks beyond the cell of the forewing. Under surface pale grey-brown, at the base suffused with green, and with obsolete dark brown bands. The ♀ of the rainy season has all the whitish grey portions of the forewing reduced. According to Nicéville scarce and limited to the lower hills in Sikkim. — **jama** *Fldr.* (129 c) has, especially in ♀ of the rainy-season form, the transcellular spots on the forewings very distinct, clear white, arranged in the form of arches. ♂♂ beneath darker, more broadly and deeper brown, with clearer whitish-brown subapical striae. Assam. — **verena** *subsp. nov.* is closely allied to *jamida*, but smaller, and the ♂ above paler brown. The hyaline spots beyond the cell of the forewing still more reduced, and nearly obsolete also on the under surface which is faded grey-brown. Type from Upper Burma. — **phelada** *Semp.* ♂ hardly differing above from the Sikkim form, but beneath the colour is much darker, the grey and blue portions having been replaced by brown. ♀ according to Semper's figure, with nearly obsolete white streaks on the forewings. Scarce. Luzon, June till November; also Mindoro. — **cusama** *subsp. nov.* ♂ resembles *phelada*, ♀ differing in the increased hyaline markings of the forewing in which it approaches *jama Fldr.* and other continental forms. Mindanao, Camiguin de Mindanao. ♂ in Fruhstorfer's ,♀♀ in the Semper coll. of the Senckenberg Museum at Francfort, and in the Staudinger collection.

jamida. *jama.* *verena.* *phelada.* *cusama.*

E. alpheda replaces *E. jama* in the Macromalayan Region, being related to the continental form in the same way as *E. aconthea Cr.* is to *E. garuda Moore*. But we keep it here separate on account of the increased hyaline markings of the forewings of the ♀ which continue to the submedian, whereas the hyaline streaks on the upper surface of the ♂♂ have disappeared. — **yamuna** *Fruhst.* (129 c) approaches in ♀ *alpheda* from Java (129 b), lacking likewise the white median spots on the hindwings, but with broader white bands on the forewings. Above it is paler grey-brown than *alpheda*. Malay Peninsula, scarce. — **kenodontus** *Fruhst.* (129 c) inhabits Sumatra, resembling in either sex much more the Borneo form than *E. alpheda* from the neighbouring Java. ♂ beneath deeper brown than *alpheda* ♂; ♀ forewing somewhat like *yamuna* ♀, but with less distinct median stripes. Hindwing with a broad white median band, broadly suffused with purple in specimens from the North-East. Under surface of ♀ specimens from the Sultanate of Deli heavily spotted and striped with brown, in the form from the West of the island pale grey, resembling the Javanese race. Very scarce, Dr. Martin obtaining within 13 years only 3 ♂♂. The Fruhstorfer collection contains 2 ♀♀ from North-Eastern Sumatra and one pair from the Padang Bovenlanden. — **bankana** *Fruhst.*, an uncommonly pale form of the island of Banka; ♂ smaller than all its allies, with uncommonly deeply obscured submarginal bands. The subapical striae on the under surface of the forewings are very short, but prominent. ♀ somewhat paler grey-brown than that of *E. aconthea*; the subapical band of the forewing considerably broader costally. Beyond the two black rings in the cell of the forewings a faint whitish area. On the hindwing the median band is broadly suffused with violet, accompanied distally by larger brown submarginal spots than in *yamuna*. ♀ type in the Leiden Museum. A number of ♂♂ in the Munich Museum. — **alpheda** *Godt.* (129 b) inhabits solely Java, having not spread even to Bali. ♀ above of a deeper olive green than the other insular forms, the transcellular white spots clearer, not reaching further than the upper median, whence it continues to the inner angle in the shape of a pale yellowish-grey band. ♂ beneath pale grey green, ♀ greenish with faded whitish-violet outer area. Not very abun-

yamuna. *kenodontus.* *bankana.* *alpheda.*

dant, although well distributed over the whole island up to about 2500 ft. I took this form on banana-bait.

parta. — **parta** *Moore* has been repeatedly mistaken for others, the ♂♂ in Staudinger's collection being named *phelada*, the ♀♀ *yama*. It is true that Moore's figure of the ♂ (1859) is not a good one, showing on the forewing not a trace of the white subapical transcellular streaks, only beneath a few faint remnants, more feeble than in *cusama Fruhst.* ♂♂ smaller than in *E. jama cusama Fruhst.* of the Philippines. ♀ approaches *yamuna* ♀ from Perak, but with more sharply defined, narrower white median markings of the forewings. Hindwing with broader median band, more richly suffused with violet, the entire under surface darker. North Borneo,

krannon. scarce. — **krannon** *Fruhst.* (137 d). ♂ is the darkest form of the collective species; under surface as dark as in *E. jama cusama*, but with conspicuous dark brown submarginal band, which in *cusama* is only feebly indicated. ♀ slightly variable, resembling that of *kenodontus* of North-East Sumatra, occasionally having the median band obscured with grey, sometimes quite obsolete (137 d). Under surface more faded than in *kenodontus*, but the base deeper brown-yellow than in *E. alpheda* ♀. South-East Borneo. Discovered by Dr. L. Martin at Sin-

soregina. tang, South Borneo. — **soregina** *subsp. nov.* refers to the palest form having almost the entire surface of both wings covered with faded white median spots, and the under surface a faded whitish. Sulu Archipelago, Godman collection; type in the British Museum.

numerica. **E. numerica** *Weym.* may be retained as a species of its own, presenting, especially in ♀, considerable differences from *alpheda-jama*. ♂ beneath of a peculiar dark yellow colour, with sharp-pointed, long intranerval streaks which on the forewings reach the lower median; the submarginal lunulate or scalloped bands much more distinct than in *alpheda jama*. ♀ much larger than the largest *jama* ♀ from Assam, with increased white markings of the forewing and heavy submarginal bands. Rather scarce, especially the ♀. Island of Nias.

E. eriphyle was based by its author on ♂♂ of two different species, namely of the true *eriphyle* (figured in 1891 by Nicéville himself) and those of *Euthalia apicalis Voll.* or rather *merta Moore*, 3 specimens of which from Tenasserim in my collection are marked *E. eriphyle* by Nicéville's own hand. Moreover, the true ♀ of the species was mistaken by him for *E. binghami* ♀, until Bingham, recognizing the true relationship between these "illegitimately married" forms, corrected it in his 'Fauna of British India'. Only he made the mistake of considering *E. eriphyle* identical with *E. apicalis Voll.* (recte *E. merta Moore*). But *eriphyle* is a very distinct species limited to Farther India, whereas *E. merta Moore*, although being also found in Tenasserim and the Malay

eriphyle. Peninsula, belongs really to the Fauna of the Greater Sunda Islands. — **eriphyle** *Nicév.* resembles above *E. chula* (129 d), but the cell of the forewing and marginal area of the hindwing are much paler greenish-grey. ♀ approaches the figured *chula* ♀ (129 d), but the grey-white markings of the forewing are hardly half as large and the hindwing lacks them altogether. Described from Central Tenasserim; Elwes says that *eriphyle* is the commonest *Euthalia* in the Karen Hills, where Doherty captured large numbers in March and April. I also

delmana. saw a large series of specimens from Perak in the Tring Museum. — **delmana** *Swinh.* is, according to its author, the rainy-season form of *eriphyle*, having both upper and under surface darker. Very scarce, only

chula. two ♂♂ from the Khasia Hills, Assam, known. — **chula** *Fruhst.* (129 d) refers to the form of Siam. ♂ of smaller size than *eriphyle* ♂, the brownish marginal markings of the hindwings somewhat more obscured and less extensive than in *eriphyle*. Underneath resembling the ♂ of *luisiada* (129 d), with nearly equally broad, dark brown, submarginal stripes. ♀: Forewings with irregular, grey dusted spots, repeated also beneath, but without the grey shading. Hindwing occasionally with whitish-grey subapical spot, as in our figure (129 d), or without it. Hindwing resembles beneath that of *mindorana* ♀, but with smaller submarginal spots, and with pale greenish basal area. I collected this form in January and February near Muok-Lek (Siam) at an altitude of about 1000 ft.

lioneli. — **lioneli** *Fruhst.* (129 e), a much larger form of Tonkin, above deeper brown with median spots reduced and the costal markings of the forewing more heavily dusted with brown. Under surface deeper brown, the suffusion of the hindwing more blue-green and limited to the inner half, the black cellular spots oblong, sharply defined, as in *mindorana* (129 d). Tonkin, collected by me near Than-Moi in June and at Chiem-Hoa in August.

E. lusiada replaces *chula* in the Philippines. Undoubtedly it has developed from the same form as the Indian *eriphyle*, surpassing it in size and richness of the greenish suffusion of the under surface. Its home

are the Philippines, whence we know a number of not very sharply separated insular forms, 3 of which we mention here: **lusiada** *Fldr.*, the northern form, differing beneath from our figure (129 d) in the broad blue- *lusiada.*
green irroration of the outer half and along the base of the hindwings. ♀ somewhat resembling *mindorana* ♀ (129 d), but the hindwing less brillantly suffused with greenish beneath. Apparently very local and scarce, since Semper received from Luzon only 4 ♂♂ and one rather mutilated ♀; flies from May till November. — **mindorana** *Fruhst.* (129 d) is a more luxuriant form having the outer margin of the hindwing suffused with *mindorana.*
green, the under surface richer green, all the black markings heavier and broader than in *lusiada*. ♀ larger than ♂, paler brown, forewing with three spots which are grey above, clear white underneath. Mindoro, collected by Dr. Platen. — **malissia** *subsp. nov.* (129 d as *lusiada*) resembles above rather the name-type. Ground- *malissia.*
colour dull coffee-brown, with broad, almost deep black longitudinal stripes. Underside either without any blue-green suffusion, as in our figure, or with very faint greenish lustre at the anal angle of the hindwing. ♀ above pale brown with obsolete darker median bands on the hindwings, and three indistinct white transcellular spots on the forewings shaded with greyish-brown. Under surface more monotonous and paler than in *mindorana* ♀, only the base of the hindwing being feebly shaded with blue-grey. Island of Bazilan, March, discovered by W. Doherty. Semper mentions it also from Mindanao.

E. merta has a greater range of distribution than was assumed until lately, and the synonymy of the forms seems still rather chaotic, chiefly on account of the errors of previous authors, who considered *merta* Moore and *apicalis Voll.* to be different species. — **merta** *Moore* was erroneously described in 1859 as co- *merta.*
ming from "China"; only in 1886 Distant found out that its true home was the Malay Peninsula, but although he correctly recognized the ♀, he attributed to it the ♂ of a different species (*E. tinna Fruhst.*), whereas its real ♂ he named *E. parta Moore*, a form belonging to *E. alpheda Godt. merta* is found from the Malay Peninsula to Tenasserim, in two seasonal forms, one with deep brown-yellow under surface, striped with blackish-brown (rainy-season), and the dry season form **pseuderiphyle** *form. nov.* with pale brown, thinly black-dotted upper *pseuderi-*
surface and light yellow underside showing only traces of a darker longitudinal striation. Such specimens *phyle.*
De Nicéville mistook for his *eriphyle*. The ♀ of the Tenasserim form is still unknown. *merta* ♀ resembles rather *apicalis* ♀ (137 d), but has the upperside more richly suffused with violet, with more delicate brown submarginal spots. From Tenasserim to the Malay Peninsula and Singapore. — **prisca** *subsp. nov.* is allied to *E.* *prisca.*
merta of Perak, but the ♂♂ are smaller, above with heavier black markings. Some ♂♂ specimens of the Tring Museum are darker, with reduced white markings, suffused with an intense flesh-colour. Several ♀♀ of the Munich Museum, collected in May, represent an extreme albino form, presumably of the dry-season; both wings have the entire outer half whitish, also beneath, and all the white spots and bands broader, in contrast with ♀♀ from Sumatra. Banka. — **pseudomerta** *Fruhst.* (= eriphyle *Martin and Nicéville*) of which I only know *pseudo-*
the ♀ (type in Dr. L. Martin's collection in Diessen, cotype in the Munich Museum. On the forewing the me- *merta.*
dian spots are clearer white, larger, more sharply pointed distally, on the hindwing the submarginal spots smaller than in *merta* from Perak and Singapore. Very scarce, Dr. Hagen obtaining once near Labuan, Sultanate of Deli, from January till April about 10 ♀♀ from the natives. — **phantasma** *subsp. nov.* (137 c as *pseudomerta*) *phantasma.*
deviates farthest from the name-type. Upper surface richly suffused with purple, the very large oblonge white spots faintly clouded with grey, edged with greenish-white distally; a rudimentary greenish band at the inner angle of the forewing; on the hindwing the very sharply defined white undulate band with a delicate suffusion of bronce-green; between the medians two small white transcellular wedges not found in any of the other *merta* forms. Under surface darker than in my darkest Borneo ♀♀, golden-yellow with green basal area of the hindwing; all white markings more pronounced, especially the median band of the hindwing. The ♀ type (locality unknown) in the Fruhstorfer collection; presumably from Nias, judging from the increased white markings of the forewing and the grey-green irroration. Another ♀ (without any indication of the locality either) I saw in the Tring Museum. — **apicalis** *Voll.* (137 d), of which hitherto only the ♂ was *apicalis.*
known with certainty, was captured by Dr. L. Martin near Sintang on the Kapuas River in South-West Borneo; he also observed ♂ and ♀ in copula, removing thereby all doubts existing as to the relationship of the ♀ form which, although known long ago, had never been described or figured. ♀: Ground colour above grey-brown, with whitish median band dusted with grey on the forewing, which band is even more conspicuous beneath. On the forewings the wedge-shaped spots are larger than in *merta Moore* from Perak, the under surface of the hindwings more broadly suffused with green. ♀♀ from the South-East of the island have both sides darker than the 4 ♀♀ from Sintang before me, deeper golden-brown, but of lesser intensity than *E. merta phantasma* from Nias. ♂♂ from northern Borneo are larger than those from the South, beneath likewise more

brillant golden-brown. North Borneo, Kina Balu, 5 ♂♂ in Fruhstorfer's; 7 ♀♀ from Sintang and South-East Borneo in Staudinger's collection. One ♂ from the Sulu Archipelago in the British Museum.

E. kanda of which only the ♂ was hitherto known, is one of the plainest-looking Euthaliidi. Above unicolorous dark umber-brown of a peculiar golden-green bronce lustre. On the forewing the cellular spots as in *apicalis*, both wings traversed by slightly undulate black lines closely approaching each other on the hindwing. Beneath it resembles a very pale *merta* ♂, but with much more delicate markings. An essential characteristic to distinguish the sexes by are the black crescent-shaped rings at the end of the cell in the forewing, which are narrower and more compressed than in any other *Euthalia*. Antennae quite red beneath, above as far as the middle brillant pale fulvous, differing from those of all other species. The ♀ which resembles *Tan. pelea* or *palguna*, has been known since 1862 under the name of *surjas Voll.* without being recognized
elicius. as belonging to *kanda*. 4 local forms deserve mentioning: **elicius** *Nicév.*, described from Burma and Tenasserim; the dry-season form distinguished from the Macromalayan allies by the pale yellow colouring of the under
kanda. surface, resembling *E. merta fa. pseuderiphyle.* — **kanda** *Moore* (♀ = surjas *Voll.*) seems to be very scarce. The ♂♂ are found in all the larger collections, but of the ♀ I only know 3 specimens in the British Museum, whereas it is not represented in either the Tring or Staudinger collections. Beside the form of the southern
surjas. part of the island = **surjas** *Voll.* we know also darker ♀♀ from North Borneo, having the broadly white median band of the hindwing dusted with grey or brown, the marginal band brown, strongly undulate and continuous, somewhat like in *E. salia bipunctata Voll.* ♀. From *salia* ♀♀ they are easily separated by the absence of the blue basal colouring of the hindwing, this being replaced by a faint suffusion of milky-white. Borneo, Malay Pen-
atys. insula. — **atys** *Fruhst.* (137 as *surjas*) inhabits North-Eastern Sumatra; in the Munich Museum I think I saw also some ♂♂ from Banka. *atys* differs from *surjas* in the more pointed outline of the forewings. The submarginal dentate markings of both wings are less sharp, but accompany the veins as far as the outer margin. The median band which in *surjas* is dusted with brown on the forewing, but nearly obsolete on the hindwing, is in *atys* clear white as far as the anal angle of the hindwing, and scaled with grey-brown only between the radials and the upper median. On the hindwing, moreover, the brown submarginal dentate band is margined with white distally, broadly at the apex, gradually fading out toward the anal angle. Both wings with paler, whitish violet markings beyond the cell. The under surface resembles many forms of *Tanaëcia*, on account of the blurred indistinct colouring of the brown-yellow basal and whitish-blue distal areas. The red-brown proximal bordering of the white bands is somewhat more sharply serrate than in *surjas*. Beneath *atys* differs in the richer blue-white colouring of the marginal area of the forewing. Deli, scarce. ♀ type in the Fruhstorfer
phineas. collection. — **phineas** *subsp. nov.* lately discovered in Nias, is larger than *atys* from Sumatra, *kanda* from Borneo and *elicius* from Tenasserim, with sharper, much wider and heavier black longitudinal bands of the upper surface. Originally in the Van De Poll collection, it is now in the Adams collection of the British Museum

E. agnis, one of the rarest species of the genus, inhabits exclusively Java and Sumatra; although it has not yet been found in the Malay Peninsula or Borneo, it will most likely be discovered also there, where also the parallel species *E. tinna* is known. The sexes differ to an unusual degree. The ♀♀ are more abundant than the ♂♂, which of the Javanese race were only discovered during my trip to Java. ♂ resembles above *E. tinna Fruhst.* (130 a), coffee-brown with purplish lustre; beneath easily separated from all the other members of the genus by the peculiar grey-white lustre, suffused with violet, resembling that of the South American *Prepona*, margined by delicate brown stripes and traversed by faint, nearly obsolete bands of a similar colour. ♀ somewhat like *E. vasanta Moore* ♀, but the under surface is brown-grey, without any milky-white or pearly lustre. The genitals are distinguished from those of the other species by the perfectly flat cylindrical valve being cut off straight anteriorly. Uncus somewhat more robust and longer than in *E.*
agnis. *salia*. The imago is only found in the mountains, never below an altitude of 3800 ft. — **agnis** *Voll.* (129 a ♂ b ♀). The ♀ of this rare species was in 1862 described and figured by Snellen Van Vollenhoven (in Tijdschrift voor Entomologie Vol. V, p. 252, pl. 12, fig. 2). The species is dimorphous, the ♂ differing greatly from the ♀, which most resembles *Euth. vasanta Moore*, whereas the ♂ looks rather like that of *E. garuda Moore*. The ♂ I discovered on the Vulcano Gede, and it was figured in Berl. Ent. Ztg. 1894, on pl. 18, f. 8. Upper surface: Ground-colour of both wings dark coffee-brown, interrupted by a somewhat paler submarginal band. Forewings with two small triangular, dirty-white, apical patches and a subapical row of 5 similar spots

whieh appear almost white beneath. The hindwings have along the outer margin a row of seven distinct black intranerval dots, and beyond the cell on the costal margin a subtriangular patch of peculiar violet hue. Forewings beneath whitish-grey at the base, in the middle and at the apex laved with violet; a brown marginal band, two brown, blaek-margined cellular stripes and a submarginal row of 6 irregular black dots, the lower one of which increases in width towards the inner angle. On the hindwings the black row of dots reappears also underneath, otherwise they resemble the forewings, but have 4 brownish, black-margined, irregular spots at the base. Antennae dark brown, tipped with yellow. Palpi, head and body coffee-brown above, whitish beneath. Abdominal extremity blaekish. Legs on the outside brownish, on the inside whitish. ♀ somewhat variable, either resembling our figure (129 b), or having the band on the hindwings less distinctly defined proximally, shading into the basal colour. Very scaree, not below elevations of 3800 ft., and only on the Vulcano Gede in Western Java. — **modesta** *Fruhst.* is an exceedingly rare form from the Battak Mountains in Sumatra, inferior in size to *agnis*. *modesta.* The ♂ I saw for the first time only lately in the Tring Museum. They differ from *agnis* ♂, aside from their diminutive size, in the more delieate white dots on the forewings. ♀ is smaller than *agnis* ♀ of Western Java, and, as is the rule in Sumatra butterflies, much darker. It rather resembles the ♀ of *tinna Fruhst.* in having the subapical and median dots and bands eonsiderably reduced and densely scaled with grey. The hindwings have the costal area whieh in *agnis* is whitish-grey, dark, and the median region traversed by a narrow faint, pale band. The under surface has the ground-eolour darker brown than in *agnis*, with a dull bronce-yellow shimmer in the outer half. ♀ type in my collection. I expect that on Kina Balu in North Borneo there also exists a form allied to *modesta*. But all the specimens I received myself or saw in the STAUDINGER collection belong to the following species.

E. tinna inhabits the Macromalayan Region, Java exclnded; above it resembles *E. agnis*, but underneath it widely differs from it in the absence of the silver-grey *Prepona*-like lustre distinguishing that species. Above it deviates from it by having the subapical white spots on the costa of the forewing smaller, but the ultraeellular spots making up the median macular row longer, streak-like. The ground-colour is darker, almost blaek. The whitish light on the costal margin of the hindwing is absent, and the median stripe is plaeed nearer the blaek submarginal band. Underneath *tinna* approaches *jama Fldr.* and *garuda Moore*, especially *garuda sandakana Moore*, but is rather paler, having the white median maeular row shorter and the blaek submarginal longitudinal band more distinct. The hindwings beneath are hardly to be distinguished from those of *sandakana Moore*. The ♀ of *tinna* is in its general appearance so mueh like *agnis Voll.* ♀ from Java, that at first I took it for a loeal form of it; only when I received from Sumatra the true *agnis* ♀ which there flies together with another form of *tinna* described below, I discovered my error. From *agnis* ♀ it differs in having the median band of the forewing narrower, eonsisting of isolated, more roundcd spots, and densely dusted with grey-brown. The upper surface of the hindwing is darker than in *agnis*, with a broad median band suffused with violet. The blaek submarginal row is made up of elongate streaks, accompanied distally by a series of violet-white dots. Beneath it resembles *sandakana Moore*, but the colour is paler, and the white, very distinct median band reaches on both wings the anal margin. — **tinna** *Fruhst.* (130 a) differs from *E. agnis* in having *tinna.* the uncus longer and more sharply pointed. ♀ distinguished by having the submarginal band of the hindwing suffused with a gorgeous violet lustre. Kina Balu, very scarce, at elevations of from 3800—4800 ft. Type in the FRUHSTORFER collection, a few specimens in the Tring Museum and the STAUDINGER collection. — **paupera** *Fruhst.* was already known to DISTANT who, however, conneeted it with *merta* ♀ which belongs *paupera.* to quite a different group. From *tinna* it differs in the paler brown colouring of the upper surfaee, which distinguishes also the following *agniformis*; the subapical dots are absent, and the whitish median band reduced and obsolete. On the under surface of the forewing the submarginal band is indistinet: likewise the brown postdiscal row of pale brown spots on the hindwings; altogether *paupera* has all the white and brown markings less perfectly developed. — Of **agniformis** *Fruhst.* (129 b), of whieh only the ♀ was hith- *agniformis.* erto known, I diseovered among the treasures of the Tring Museum also the ♂ marked *E. merta*. The under surface lacks the grey-white or pearly lustre. The ♀ is even paler than the two preceding forms; all the white spots and bands inerease to such an extent that the subapical and ultracellular spots are nearly united. On the forewing the white spots are still very distinct between the 3rd median and the submedian, whereas in *agnis* they are extinguished, and in *tinna* barely indieated. The hindwings are adorned by a sharply defined, nearly clear white, median band faintly edged with violet. The blaek submarginal dots as well as the accompanying white spots are larger. The under surface is paler yellowish, of a faint bronce-lustre, and the median

spots and bands are even more prominent than above. Sumatra, Battak Plains; flies with *Euth. agnis modesta Frnhst.*

E. anosia is one of the most easily distinguishable species, on account of the ashy-grey colour of the upper surface which according to the locality is more or less suffused with greenish. ♀ always larger than the ♂, forewings with rounded or dentate transcellular spots of clear white. Under surface nearly as above, only somewhat paler, likewise ashy-grey, faintly clouded with brown, the hindwings occasionally with a highly faded greenish irroration. Although widely distributed, it is everywhere very scarce. Dr. Hagen's collector found in the island of Banka a number of the larvae on a Mango Tree; they resembled the larva of *E. garuda Moore*; the pupa is smaller than that of *garuda*, with a row of small dorsal spines and several yellow, brown-margined dots. Quite a number of local and insular forms remain still to be created. — **anosia** *Moore* from Sylhet, very scarce in Assam, comprises probably also the specimens mentioned by Moore from Bhamo, Upper Burma, Tenasserim and the Mergui Archipelago. Since *Pavie* found it in the Laos states, we may expect it also from Siam and Indo-China. Upper surface chiefly brown-grey, with broad pale grey bands. ♀ has on the forewing the transcellular spots sharply dentate distally. Under surface most delicately marbled with brown. — **saitaphernes** *subsp. nov.* is a well differentiated form from Sikkim; both sexes are above and beneath paler than *anosia*, without any brown marmoration. ♂ without the pale costal patch, but with large white hyaline spot at the inner end of the cell in the forewing. ♀ with roundish, not pointed, ultracellular spots. Type from Sikkim in the British Museum. According to De Nicéville it is exceedingly scarce at Singla, April and October. One finds it as a rule in riverbeds, resting with open wings on huge rocks from which it is not easy to distinguish. — **bunaya** *subsp. nov.* inhabits the Malay Peninsula. Judging from specimens of the Tring Museum and the Staudinger collection as well as from Distant's figure, the ♀ has the ground-colour pale grey-green, the forewings with sharply pointed transparent spots; under surface paler than in the Borneo form, on the forewing the white dentate spots narrower than in Assam and Borneo ♀♀. Presumably it occurs also in Sumatra. It is everywhere very scarce; Dr. Martin capturing within 13 years only 1 ♀, Dr. Hagen in the same time only 4 specimens. — **dodanda** *subsp. nov.* was sent by Dr. Hagen to the Tring and Munich Museums; his Malay collector has also discovered the larva on Mango trees. **dodanda** approaches in either sex more the form of Perak than that of Sumatra, but the ♂ is above either darker grey-green or blue-grey; ♀ has the semi-band at the end of the cell even more deeply dentate than Perak or Sumatra ♀♀. Type in the Tring Museum. — **yenadora** *subsp. nov.* (129 e) approaches the Sikkim form, being much smaller than the others, with paler grey-green colouring, especially of the under surface which displays only faint traces of a brown or greenish irroration. The spots composing the white semi-band of the forewing are mostly rounded distally, much smaller than in Perak and Sumatra ♀♀. ♂♂ found by me in East Java are smaller even than those from the West, having on both wings the median area more reduced and paler. 8 ♂♂, 2 ♀♀, captured at elevations of from 1500—2200 ft. on the foot-hills of the high Volcanoes. — **yapola** *subsp. nov.* is the darkest of the Malay races. ♀♀ above with sharply defined, deep green basal and pale grey-green median markings. The subapical white macular semi-band is less deeply encroached upon than in *bunaya* from Perak. Beneath darker even than Assam ♀♀, the olive-green markings broadly diffuse also on the margin of the hindwings. South-East Borneo; lately quite a number was taken by Dr. Martin on the Kapuas River near Sintang.

anosia. *saitaphernes.* *bunaya.* *dodanda.* *yenadora.* *yapola.*

E. phemius is a beautiful, chiefly continental species distinguished by highly-developed sexual Dimorphism. The larva was found at Hongkong on the Litchi Tree (Nephelium litchi *L.*). Pupa large, green, profusely dotted with gold. Its flight, corresponding to the robust strong build, is very rapid. Still, being not in the least shy, it is easy to capture when resting on leaves with wings expanded. The ♀ prefers the shade, whereas the ♂♂ love the open sun-lit forest-paths (Walker). Its range extends from Sikkim and Bhotan to Assam, the Naga Hills and Burma. Since Dr. Seitz and Walker observed it at Hongkong, we may expect to find it also in southern China, possibly also in Hainan. I met with it in Tonkin, and Pavie in the Laos States. **phemius** *Dbd.* (131 d ♂, e ♀), is figured from specimens of the rainy-season. The ♂♂ of the dry period are smaller, with shorter white strigae on the forewings and pale green instead of blue anal margin of the hindwings, which latter, in addition, lack the lovely blue-violet submarginal stripe beneath. ♂♂ from Sikkim are smaller and have the under surface more monotonous than those from Assam, but the ♀♀ are, aside from having the violet margin of both wings beneath reduced, hardly to be separated from the Assam ♀♀. In Tonkin I found the ♂♂

phemius.

in August and September in the dense woods near Chiem-Hoa; they are a wonderful sight, flashing in the sun their brillant blue hindwings against the deep green background of the forest. In Sikkim they ascend to elevations of 4000 ft. (Elwes and Nicéville); March till December. — **seitzi** *subsp. nov.* (137 d), of smaller *seitzi.* size, ♂ with very fine, but clear white, prominent transcellular lines of the forewing. The blue marginal border as well as the white anteterminal band of the hindwing somewhat diminished. ♀ above paler brown than Sikkim and Assam ♀♀, on the forewing the white band narrower, tapering more strongly toward the anal angle. Under surface with increased spotting of blackish-brown, and a corresponding disappearance of the submarginal suffusion of the hindwing which in *phemius* is pale blue. ♀ with much narrower white band. Hongkong, collected by Prof. Seitz. According to Walker it is rather abundant in December and January; a second brood appears in April. Larva on the Litchi Tree. — **ipona** *subsp. nov.* ♂ inferior in size to *phemius*, hindwing without *ipona.* a trace of a white anteterminal stripe accompanying the pale green distal border of the hindwings. Forewings with very broad brown longitudinal bands above. Beneath it is even more obscured than *seitzi*, without the white terminal band of the hindwings. Discovered by Doherty at Gunung-Ipoh, Perak. Type in the Tring Museum.

E. euphemius *Stgr.* replaces *E. phemius* in Borneo; but the sexes are not so eminently dimorphic. *euphemius.* Both sexes with wings more rounded. ♂ dark, ♀ somewhat paler smoky-brown. ♂ has the forewings marked with similar hyaline ultracellular striae as in *phemius.* ♂ as well as ♀ have the hindwing bordered by a broad milky-blue terminal band, the under surface dirty brown-grey. ♀ has the white macular band obsolete, and on the hindwing a brown, somewhat obsolete, median band; the ♂ has the marginal border of the hindwing rather broad and violet; Kina Balu, very scarce, only 1 pair known.

E. mahadeva, distinguished by the remarkable Dimorphism of the sexes, has developed quite a number of separate insular and local forms, all of which, with the exception of the subspecies of Palawan, are among the greatest rarities. Of many forms only 2—3 specimens are known, of the Sumatra form indeed only one pair. Forewings pointed, somewhat paler distally than in the blackish-brown, black-banded basal area. Hindwing with greenish or blue-grey, rather wide, marginal border occasionally marked with black triangular spots which may be either quite rudimentary or form a complete band. ♀ resembles that of *Tan. trigerta*, brown with more or less sharply defined, white or brown-grey median band on both wings. The ♂♂ have the under surface brown with black-brown submarginal band. Hindwing with distal area whitish or grey-violet. ♀ faded brown or grey-yellow, the white band indistinct, generally fading into the ground-colour. On the whole it resembles so much *E. merta* and *E. salia* that Butler took the ♀ of the Borneo form for a *Nora.* They inhabit the dense woods, and are only known to occur in the low-lands. Of **mahadeva** *Moore* (130 a), although *mahadeva.* described already in 1859, the habitat was unknown until I discovered it in Java. Under surface characterized by two very broad, black, clamp-shaped parallel lines in the cell of both wings. ♂ pale grey with whitish inner margin which on the hindwing nearly reaches the cell. ♀ with *Tanaëcia*-brown base, laved with pale blue on the inner margin of the hindwing. Very scarce, both in East and West Java. — Of **sakii** *Nicév.* only the ♂ *sakii.* was known, until in 1904 I obtained also the ♀. ♂: Hindwing with deeper blue border than in *mahadeva* ♀, the submarginal macular band, barely indicated in the Java form, is accompanied proximally by distinct, delicate white dots. ♀ has on the forewing the median band somewhat narrower and heavily clouded with grey-brown. Under surface of ♂ darker, more profusely shaded with brown and brown-yellow. ♀ with more conspicuously black submarginal undulate band on both wings. North-eastern Sumatra. — **zichri** *Btlr.* (♀ = indistincta *Btlr.*), somewhat like *rhamases* ♂ (129 a), but with broader blue marginal border of the hindwing. ♀ resembles the *E. bipunctata* ♀ so closely that Butler described it as a species of *Nora.* The white spotting is very profuse but even more faded than in Javanese ♀♀. Borneo, only a few specimens known. — **rhamasses** *Stgr.* (129 a) *zichri.* *rhamasses.* may be recognized by the narrow blue-green marginal border of the hindwing; In the ♀ the band on the hindwing consists only of grey-white scallops, being completely clouded by brown at the anal angle. ♂ underside resembles that of *E. sakii*, but is more conspicuously spotted with brown. Hindwing irrorated with grey-violet as far as the submarginal row of dots. ♀ brown-yellow with dull milky-white markings. Palawan, not very scarce; Doherty collected a considerable number in January. — **zichrina** *Fruhst.* resembles *sakii* ♂, but has *zichrina.* on the hindwing the terminal border even darker blue, and the proximal row of dots very distinct. ♂ beneath faintly irrorated with dark blue at the anal angle. ♀ not described as yet. Malay Peninsula as far as Tenasserim; 1 ♂ from the Karen Hills in the Elwes collection, 1 ♂ from Lower Tenasserim in the British Museum, the type from Perak in the Fruhstorfer collection. — **binghami** *Nicév.* probably represents an extreme dry- *binghami.* season form; ♂ above with pale green anal border of the hindwing, otherwise hardly differing from *rhamasses.* Under surface of the hindwings broadly laved with pale yellow in the median and anal areas. ♀ not known: the ♀ described by Nicéville as *binghami* ♀ being *E. eriphyle Nicév.* Type of ♂ from the Dannat Range, Tenasserim.

sericea. **E. sericea** *Fruhst.* (137 c) replaces *E. mahadeva* in the island of Nias. ♂ with whitish submarginal area on the forewings which latter are, in addition, marked with two white helmet-shaped intramedian patches. Hindwings with distinct black intranerval spots accompanied proximally by grey-blue scallops. Under surface dark smoky-brown, the white area surrounding the black-brown submarginal spots broader. The ♀ has on the forewings the grey-white median spots nearly twice as wide as in *E. mahadeva Moore*. Very scarce, ♂ type in the Fruhstorfer, 1 ♂ 2 ♀♀ in the Adams collection of the British Museum.

E. lubentina refers to a series of gorgeous forms distinguished by the rich, fluorescent green upper surface, marked, aside from the usual white spots, with red. The sexes vary considerably; the ♀ has the wings more rounded than the ♂, with broad white band and large white cellular spot on the forewing. Larva on various species of Loranthus; resembling that of *E. garuda*, grass-green, with a dorsal row of purplish angular spots which occasionally contain a diamond-white dot in the middle. The lateral spines are rather shorter than in *garuda*, the feathery appendages broader, tipped with purplish-brown. Pupa green with two brown lateral patches centred with dirty white. The horns at the head ringed with brown. Imago everywhere scarce, ♀♀ more abundant than ♂♂ which love to sip the moisture from wet spots in the road, but generally are observed circling around the tops of high trees in tireless, rapid flight. Uncus relatively very short, otherwise as in *E. salia* and *agnis*. Valve elongate, angular, above deeply grooved, ventrally distinctly excavated, sharply cut off distally, without marginal teeth as in *E. adonia*. On the continent the species is subject to the influence of the seasons; in Borneo we find two distinct forms, one in the mountains and the other in the low-lands, which were until lately treated as separate species. But the great scarcity of the available material renders it impossible to venture a definite opinion at the present time. Staudinger inclined towards the view that *E. adonia* is only a variety of *E. lubentina*, which, notwithstanding the similarity of the design and arrangement of the red markings of the under surface, seems improbable on account of the wide range of distribution of *adonia*, and also on account of certain morphological differences in their respective genitals. On the continent *lubentina* has
lubentina. developed several local forms: **lubentina** *Cr.* (131 e) was hitherto only known from the South of China, being identified with the Indian form; but the specimens taken by me in Tonkin, have, notwithstanding their larger size, the white spots making up the band of the forewing smaller and farther separate. In Tonkin I took
indica. during April and May only 2 ♀♀, at an elevation of about 2000 ft., on moist spots in the road. — **indica** *Fruhst.* (131 a). Specimens of the dry season have the ground-colour beneath paler than those of the wet season; ♀: Hindwings light brown-grey, faintly shaded at the base; those of the wet season have the under surface of the hindwings almost throughout pale olive-green, but on the forewings the white subapical spots smaller. Assam ♂♂ are distinguished from the Sikkim type by their brillant colour, being more prominently marked with red and white. On the other hand the Burma form appears smaller, with the colouring more faded and the red spots on the forewings obsolete. According to Aitken it is not very scarce on the hills surrounding Bombay, otherwise it is very rare in the Himalayas from the North-West Province to Sikkim, Assam and Upper Burma (Bhamo). The ♀♀ were taken also near Rangoon on ripe Gua-
arasada. vas. Specimens from Siam taken by Druce in 1874, in the British Museum. — **arasada** *subsp. nov.* is the form of Southern India, ascending in the Nilgiris to 4000 ft. of altitude, also found in the plains of Travancore. I possess ♂♂ from Karwar (August) and a ♀ from Cannapore. ♂ has the upper surface of the forewings paler, of the hindwings more intensely green than in the North Indian form. ♀ more brillant pale green, with narrower, but more sharply defined, white macular band on the forewing. Under surface in both sexes more richly shaded with pale coffee-brown than in *indica*, especially at the apex of the forewing; hindwing grey-brown, feebly
psittacus. suffused at the base with blue-grey. — **psittacus** *Fruhst.* is limited to the lowlands of Northern Ceylon where it occurs between Dambulla and Amurhadnapura as well as at Trincomali, in the dense woods peopled by monkeys; it is always observed on fallen fruit on the ground. Forewings have the base almost black, not green or iridescent; the hindwings are deeper green, with smaller red dots that are more distinctly ringed with black.
chersonesia. ♂♂ beneath almost without any red in the basal area of the hindwings. — **chersonesia** *Fruhst.* is the first of a series of more distinctly differentiated Maeromalayan forms. The ♂ is hardly to be distinguished from *indica Fruhst.* (131 a); ♀ resembles *culminicola* (131 a), but has the white spot before the apex of the cell nearly twice as large, and the intramedian macular row steeper and larger. Hindwing with marginal area pale olive-green of an intense lustre, underneath faded brown-grey anteriorly, dull blue-green anally, spotted with pale
rajana. red. Malay Peninsula. — **rajana** *subsp. nov.* is also in ♂ considerably differentiated from the other forms. Forewing with three white elongate streaks at the end of the cell, and 5 white subapical dots; on the hindwing the anal margin darker green than in Malacca specimens. The under surface of the forewings is marked with unusually large and distinct, white submarginal spots, the hindwings are irrorated with dark blue-green. ♀ differs from Sumatra ♀ in having the white longitudinal cellular band, the three white streaks at the apex of the cell, and all the transcellular spots broader than in *mariae*. Island of Banka, type in the Munich Museum.
mariae. — **mariae** *Fruhst.* ♂ stands midway between *culminicola* from Java and *whiteheadi* from Borneo. Hindwing above with rather less red, but bordered with darker green than in Java ♂♂. The white dots on the forewing

are smaller than in *whiteheadi*. One ♂ from Padang has on the hindwing beneath almost no red, another ♂ from the Battak Plateau has it darker throughout, with brillant red markings. ♀ appears from a specimen taken by Dr. Martin in the Battak Mountains to greatly resemble *culminicola* ♀ (131 a), but is of larger size, with broader white median spots on the forewings, and greatly reduced red spots on the hindwings. *mariae* is very scarce in Sumatra; type from the Battak Plateau. It is not impossible that in the low-lands there exist ♀♀ approaching more closely *chersonesia*, *rajana* and the continental *indica*, since Dr. Hagen reports having taken two specimens in his fruit-orchard at Labuan, but that the species was more abundant on the Plateau whence his Malay collectors brought him about one dozen of specimens. — **adinda** *subsp. nov.* refers to a ♀ *adinda.* in the Adams collection discovered by Van De Polls. It is without doubt one of the most beautiful of all the Euthaliidi. ♀ about one third larger than *culminicola* or *mariae* ♀, almost approaching in size our figure of ♀ of *lubentina* (131 e) from Tonkin. The entire upper surface suffused with an intense lustre of gold. Forewing resembles that of *indica* in the two white parallel submedian stripes. Hindwing pale brown with large white-grey median spots. Island of Nias. — **culminicola** *Fruhst.* (131 a) differs from all the preceding forms of lubentina *culminicola.* in the more luxuriant red markings of the upper surface of the hindwings which are in addition paler and bordered with a more brillant green than ♂ of *mariae* or *whiteheadi*. The ♀ has as a rule the white intramedian spot on the forewing narrower than is shown in our figure, usually only one half as wide. From the allied forms *culminicola* differs in the increased red markings of the hindwings above. Very scarce, never at altitudes of less than 3800 ft., in the Tengger Mountains (East Java) as well on the Vulcano Gede in Western Java. — **white-** *whiteheadi.*
headi *Sm.* has the ground-colour darker than in the Java form, the hindwing with a brillant lustre of steel-blue in the costal area. The dark green anal margin encloses somewhat smaller black spots; the primaries have the anteterminal band mostly blue-green, only in one ♂ pale bronce-green, faintly suffused proximally with green. On the under side of the hindwings the anal margin is as in *mariae* not bordered with red. ♀ differs from *culminicola* ♀ in having the white subapical spots on the forewings and the red spots on the upper surface of the hindwings reduced. Kina Balu, scarce. — **adeona** *Sm.* refers to a ♀ form from the lower plains approaching *adeona.* *chersonesia Fruhst.* The white macular row on the forewing is steeper than in *culminicola*, *mariae* and *whiteheadi*, having the last spot on the submedian placed nearer the base and very large. Type from Silam, North Borneo. Some ♂ specimens sent to me by Mr. Shelford from Kuching and Mount Batang in Sarawak seem to be the ♂ of *adeona*; having the under surface somewhat paler than the alpine form *whiteheady*, the red spots more faded; the anal margin rather grey instead of blue-green. — **adeonides** *Fruhst.* is the form from the alluvial *adeonides.* plains of South-Eastern Borneo, distinguished by the diminished white spotting of the forewings, the sub-
median patch being almost obsolete; also the red markings of the hindwings are greatly reduced. — **philip-** *philippensis.*
pensis *Fruhst.* closely approaches *whiteheadi*, differing from it in the smaller size and the paler green colouring of the ♂; hindwing with smaller red median and anteterminal spots. Forewing with only a comma-shaped white cellular streak and only 2 instead of 3 striae beyond the cell. Under surface with a complete series of red median dots reaching, as in the continental *lubentina*, the submedian, whereas in the Macromalayan forms it ceases in the centre of the wing. Also the strongly curved row of white submarginal spots on the forewing is very distinct, clearer white than even in *E. indica Fruhst.* Type from Bazilan, February and March. — **nadenya** *nadenya.*
subsp. nov. inhabits the Northern Philippines. ♂♂ according to Semper contrast with *philippensis Fruhst.* in the red cellular spots on the forewing. One ♀ from Luzon in the Berlin Museum differs from South Indian *lubentina* ♀♀ in the diminished white median spots of the forewings, having only one white dot left below the submedian at the anal angle; also the upper apical white dots are much smaller. Of the inner row of red dots on the hindwings there are only two left, and the black submarginal spots are more obsolete. On the under surface, however, the hindwings have all the red markings more intense, those in the cell larger, in the median area smaller; the costal border more broadly red. The apex of the forewing is marked only with a faint trace of brown, otherwise shaded with blue-green. Very scarce, Semper obtaining within many years only 1 ♀ from Luzon and several others from Mindanao; the latter most likely belong to the more southern *philippensis*. May till November.

E. djata is likewise a very rare species of the northernmost part of Borneo and Palawan; probably the adjacent islands are inhabited by separate forms, ♂ above without any white dots or striae, the red markings of the hindwing almost disappearing. ♀ approaches the *adeona* type, but with vertical median band. Hindwing shaded grey, with very pale red median spots. On the whole the ground-colour is more faded than in *lubentina*. ♂♂ underneath without white cellular striae; hindwing almost completely clouded with blue-grey. — **djata** *djata.*
Dist. unknown to me in natura, originally described from Sandakan. According to Distant's description it varies from *lubentina* in the following respects: ♂ smaller, darker; forewings above without any red cellular

or white apical spots. Under surface: Forewings likewise lack the white spots. On the hindwing the costal margin is red at the base, the submarginal spots fading away towards the anal angle. ♀ resembles *lubentina* ♀, but without the inner series of red, black-bordered spots. Upper surface with two black undulate discal lines.

ludonia. Expanse ♂: 2″, ♀ 2 3/8″. — **ludonia** *Stgr.*, of which I only possess one pair captured by Doherty in Palawan during January, is in ♂ dark grey-green, hindwing above with 3 anteterminal and 2 median spots of dull red. ♀ has the median spots dull red, clouded with grey, widening ont into a sort of band, conspicuously edged with black. On the forewing the subapical dots and transcellular striae are larger than in *adeona*.

irrubescens. **E. irrubescens** *Sm.* (Vol. I, p. 190) inhabits Omei-Shan in western China. Upper surface dark green streaked with black, and with two red striae in the cell of the forewing. Under surface: Forewing as above, hindwing somewhat like in *E. lubentina*, having the entire inner margin bordered with red.

E. amanda replaces *E. lubentina* in the Celebian Subregion. ♂ very plainly marked, above black with dark green marginal area of the forewing and greenish steel-blue border of the hindwing; the latter in addition with a black postdiscal band, a median zigzag line and conspicuous submarginal, intranerval scallops. ♀ has the forewing marked as in *lubentina*; the hindwing with a red median band varying in width according to the locality, and with black anteterminal dots edged with red distally. Under surface of ♂ grey-black, forewing with two red cellular streaks; ♀ grey suffused with bluish; hindwing with two rows of red spots, as in ♂.

amanda. — **amanda** *Hew.*, type from South Celebes; our figure was taken from a ♀ taken in the low-lands of Northern Celebes; in the majority of cases the ♀ has on the hindwing the red median band much narrower than it appears in the figure. Very scarce. Type was taken at the falls near Macassar, brought to Europe by Wallace; I dis-

eutaenia. covered the species on the Peak of Bonthain at an elevation of 3300 ft. in March. — **eutaenia** *subsp. nov.* (131 e as *amanda*) refers to the form from northern Celebes, ♀ distinguished, aside from the luxuriant red stripes, by the more faded black submarginal spots of the under surface. Toli-Toli, November, December; Minahassa,

periya. up to about 3000 ft. of altitude. Scarce. — **periya** *subsp. nov.* differs from Minnahassa specimens in the darker ground-colour, the larger white spots on the forewing and the broader, more intensely red bands of the hindwings; these characteristics are in both sexes even more evident on the under surface. Island of Bangkai, type in the Staudinger collection.

E. adonia is, in contradistinction to *lubentina*, a chiefly insular species, occurring on the continent only in Farther India, and reaching the Smaller Sunda Islands. ♂ differs from *lubentina* in having on the forewing the white submarginal dots Smaller and placed vertically above one another; the upper surface lacks the red cellular spots. ♀ can be recognized by the vertical, band-shaped white median area of the forewing, generally extending also to the hindwing where it varies according to the locality. Also the ♂♂ have as a rule the red median spots on the forewings nearly twice as large than in *lubentina*, but this does not hold good on the smaller islands. The sexual organs closely resemble those of *lubentina*, the uncus being somewhat longer and more robust, the valve with two distinct distal teeth which are absent in *lubentina*; ventrally not distented. As also in the preceding species of the *lubentina* group, the third subcostal branch arises in both sexes at an equal distance beyond the cell in the forewing, differing therein from the other Euthaliidi. The earlier stages are not known. The imago is said to visit fallen fruit, but I never succeeded in taking it on

adonia. suspended bananas. They prefer the low-lands, and are even rarer than *E. lubentina*. **adonia** *Cr.* (129 e) was originally described and figured from a ♀ taken at Samarang on the North-East Coast of Java; our figures represent specimens from near Sukabumi in Western Java. ♀♀ from the surroundings of Malang in the Eastern part of the island have on the forewing the white bands and transcellular spots rather broader. Very scarce,

pura. occurring from the coast to an altitude of about 2000 ft. — **pura** *Fruhst.* (131 a) is a good example of the modifications produced on the small satellite islands; for notwithstanding the many obvious differences it is nothing more or less than a melanotic insular form of the well known *adonia Cr.* of Java, having all the white markings of the forewings greatly reduced and obscured, and the red spots on the upper surface of the hindwings much smaller and more rounded. Also the under surface has all the white and red markings greatly reduced, being dark green, not brownish, and the black submarginal dots are more prominent than in *adonia*. The reduction of the white spots is even more surprising, because the long white streaks on the 3rd median nervule and anal margin of the forewing have nearly disappeared. The white spots of the hindwings are barely half as wide as in Java ♀♀, but the black submarginal dots are both above and beneath at least twice as large. The anal angle of the hindwing lacks beneath the broad blue irroration distinguishing *adonia*. *pura* stands about midway between this and *sapitana Fruhst.* from Lombok, but is somewhat darker than the latter which has the white bands broader. Island of Bawean; flies from July till September. 10 ♂♂ 7 ♀♀ in the Fruhstorfer col-

sapitana. lection. — **sapitana** *Fruhst.* which goes among all the forms farthest East, has likewise the white bands reduced, although in a lesser degree than in *pura*, resembling rather our figure of the West Java form than *pura* ♀.

Under surface darker than in *adonia*, somewhat paler than in *pura*. Island of Lombok, at an elevation of about 2000 ft., in May and June. ♂ unknown. We may expect a similar form also from Bali, and another (near *pura*) from Kangean. — **sumatrana** *Fruhst.* is considered to be an extraordinary rarity, Dr. Hagen and Martin *sumatrana.* capturing within nearly 15 years only 3 resp. 2 specimens. According to Hagen, Sumatra ♀♀ are of a less brilliant colouring than those from near Sukabumi. One ♂ of my collection has the white spots of the forewing smaller than *adonia* ♂; the ♀ the red markings of the hindwing considerably reduced. On the other hand the latter has on the forewing the white subapical spots much larger. ♀ type from Palembang. — **malaccana** *malaccana.* *Fruhst.* ♂ with paler green marginal border, ♀ with smaller white spots than the Sumatra form. Very scarce; Malay Peninsula. — **beata** *Fruhst.* is the very reverse to *pura*, having on the forewing the white spots broader *beata.* even than in *adonia*, but on the hindwing the white discal bands somewhat narrower. For the rest *beata* is more monotonous as to its colouring, resembling rather *malaccana Fruhst.*, differing from this as well as from Distant's figure (Rhop. Malayana pl. 19, f. 11) in that the three white subapical spots as well as the large median patches are deeply notched distally and not rounded as in *malaccana*; on the forewing the 3 spots at the apex of the cell are more pointed and irregular, the white patches in the median band of the hindwings however more uniform, rendering the band much more regular. Forewing beneath pale brown. Siam (Bangkok). — **princesa** *princesa.* *Fruhst.* ♀♀ from Palawan differ from Javanese ♀♀ in having the uppermost patches of the white median band on the forewing narrower, longer and more isolated. The fourth subapical dot is united with the third costal streak; on the forewing the white cellular spot is much smaller, triangular. Under surface: The forewing with broader white marginal border and a darker, broader, black submarginal band. On the hindwing the spots composing the median band are more closely united, edged with black all around and rather quadrate. On the under surface of both wings the red markings more obsolete. — **montana** *Fruhst.*, a most distinguished form *montana.* differing from the other Macromalayan species in the larger size and darker ground-colour; on the forewing the black submarginal band, and all the black dots as well as the outer median band of the hindwing are larger and more prominent. Beneath the white median row of dots is somewhat reduced, on the hindwing the red markings are more sharply defined, and the green anal border is wider. Palpi and forefeet more intensely red. The ♀ which is likewise larger, has on the forewing the white median spots shorter, narrower and, for that reason, standing farther apart. The median band of the hindwing is, as in Distant's figure of *malaccana*, placed farther toward the base, growing gradually wider from the costa toward the anal angle. On the hindwing the three red apical dots are smaller than in *adonia*, more like in *malaccana*; moreover, the red markings of the under surface of both wings are more reduced than in *adonia*. Length of forewing ♂: 1.25″, ♀ 1,55″. Kina Balu, North Borneo.

E. amabilis *Stgr.* exceeds in size *pura* which it otherwise resembles in the reduced white markings. Hind- *amabilis.* wing above without the red costal spots, underneath recalling *E. amanda* from Celebes in the complete row of large oblong red spots accompanying the black submarginal patches which are also on the forewing very distinct. Discovered in Sula Mangoli by Dr. Platen; only 2 ♂♂ 3 ♀♀ are known.

E. franciae represents in its size and the design of its markings a transition to the species of the *Dophla* group which it also otherwise resembles in having the cell of the forewing closed, though not completely. The species is seasonally dimorphic, the band of the upper surface varying in clearness of tint and width, according to the season and locality. Characteristic of the under surface is the delicate blue-green, bronce-like ground-colour which is richly suffused with silver-grey, and on the hindwings adorned with stripes of pale lilac, especially in specimens of the dry-season. Forewing with a large quadrate black spot at the anal angle. **franciae** *Gray,* *franciae.* type from Nepal, apparently also in Sikkim and Bhotan, has on the upper surface the longitudinal band broader and clearer white than is shown in our figure (131 b); ♀♀ of the wet period are largest, with broader longitudinal bands of deeper yellowish-white. ♀ very scarce. In Nepal and Bhotan the ♂ is rather abundant during summer in the forest belt at elevations of from 4600—5500 ft. — **raja** *Fldr.* (131 b as *franciae*) is very common *raja.* in Assam. Our figure represents the ♂♂ of the rainy-season, distinguished by very narrow bands. Beside these there is an intramedian form with but slightly broader median bands of pale yellow. ♀ very large, with big pale yellow anteterminal patches on the forewing. — **galara** *form. nov.* refers to specimens of the extreme *galara.* dry-season, distinguished by their very small size, but having even in the smallest ♀♀ the whitish patches on the hindwing broader than in the largest rainy-season ♀♀. Hindwings beneath with three instead of only one, pale violet or purple longitudinal lines, and suffused throughout with an intense silver grey lustre. Assam; a similar form was collected by Doherty in March at Bernardmyo (Upper Burma) between 5—7000 ft. of altitude, and in Pegu during March and April at 4—5000 ft.

Group III: Symphaedra *Hbn.*

Structurally not to be separated from *Euthalia* with which it was re-united by Bingham. Cell open in both wings. The third subcostal nervule arising, as in *E. anosia*, a short distance beyond the cell, this distance being the same in both sexes. The only reason for keeping up this group is the peculiar bright colouring of the upper surface reminding one of African species, their small size, the correspondingly short antennae and the red-lined palpi. The earlier stages resemble in every way those of *Euthalia*.

nais. **E. nais** *Forst.* (= thyelia *F.*, alcandra *Hbn.*). Both sexes have the upper surface reddish-ochreous; the distal margin, a submarginal semi-band, and two large spots, one at the apex of the cell and the other in the median area, black. Hindwing with 7 black intranervral submarginal dots. The ♀♀ are larger than the ♂♂, rather paler fulvous, with broader black outer margin and heavier dots and bands. On the under surface of the forewings the subapical spots, though as a rule white, occasionally assume an yellowish tone, varying at the same time in size; likewise does the white or yellowish median band of the hindwing which, being broken in a ♂ from Karwar, is in one ♀ only indicated by a costal dot, and in another ♀ from Ceylon is altogether absent. Cilia alternating black and white, broadly tipped with white. Antennae black, tipped with yellow. Palpi grey, red at the sides. Tarsi of forefeet red. Eyes brown. Length of forewing: ♂ 1,15″ ♀ 1,25″. Larva according to Moore pale green, with a dorsal row of purple spots, the sides provided with a row of 10 very long horizontal fleshy spines which are covered with fine green harmless hairs. Pupa short and broad, dorsally keeled, broadly triangular in the middle, head bifurcate; green with dark and golden spots and lines. According to Moore *nais* is common on the plaines of India, with the exception of the north-western provinces, but rather rare in the hill-country, also in Sikkim. Doherty found it in Kumaon at an altitude of 1000 ft., and Hampson observed it in the Bamboo-jungle at 2—3000 ft. Nicéville reports it also from Calcutta, Lower Bengal, Orissa, the entire South of India with Ceylon, and on the west coast as far as Bombay; but in the Punjab it is scarce; it prefers there the open arid country. Mysore (October and January), Koonoor, Kanara, Mhow in Central India (October till July), Poona (April; thus it appears that it can be found throughout the year. According to Davidson Bell and Aitken the larva feeds on the Ebony tree (Diosopyros melanoxylon); the imago has about the same habits as Junonia and Pyrameis: their flight is low, rapid and jerking; it frequently alights with wings expanded, and is attracted by sugarcane and refuse of all kinds.

Group IV: Dophla *Moore.*

Although Snellen, Moore and Bingham treated this group as a separate genus, it seems impossible to follow them, considering that only a few species show the characteristic closure of both cells, whereas others either lack the discocellular of the hindwing or have on the forewing only a rudimentary cross vein. In size exceeding all other Euthaliidi, they are a transition to *Adolias* which they also resemble morphologically in the robust uncus which is occasionally provided with a helmet-shaped crest (*E. recta*), whereas the valve is still euthaloid throughout. Scaphium well developed, basally formed like the foot of an elephant.

E. teuta was by Bingham wrongly united with *E. recta* from which it is anatomically sharply separated. Uncus very plain, robust at the base, but drawn out to a very fine straight point distally, whereas *E. recta* has the uncus shorter, sharply curved and provided with a large helmet-or comb-shaped appendage. Outwardly *teuta* differs from *recta* in lacking the red anal spot on the hindwing and having on the forewing the spots composing the band deeply notched distally, and irregular. Of the ♀ we know two seasonal forms; specimens of the
teuta. dry-season have the macular band even more broken and smaller than those of the rainy-season. **teuta** *Dbd.* (131 b) shows a peculiarly discontinuous distribution, occurring on the main land only in Assam, Burma, Siam and Malay Peninsula (?), appearing again in the Andamans which it can only have reached from Burma, whereas in the Peninsula of India proper it is not represented. But we may expect it also from Tonkin and
teutoides. Annam. Quite common in Assam; also in the Arakan Hills. — **teutoides** *Moore*, distinguished in ♂ by three smaller yellowish apical spots, in ♀ by the much broader stripes. ♀ paler beneath than ♀♀ from Assam, above
ira. paler brown. Forewing beneath with paler red spots than in *teuta*. Andamans, not abundant. **ira** *Moore*, an exceedingly scarce form of decided dry-season character; only 2 ♂♂ are known; Moore's type in the British Museum has on the forewing the yellowish band greatly reduced; on the hindwing the black submarginal spots contrast more sharply with the paler brown ground than in *teuta*. July and August, at Moulmein, and in the valley

of the Salween River in Burma. — **affinis** *Lathy* closely approaches the preceding, differing from it in the darker under surface and in having, especially on the secondaries, the longitudinal band still more reduced. I found this form in January at an elevation of 1000 ft. Only 1 ♂ in the Fruhstorfer collection. — **piratica** *Semp.* resembles *E. teuta* in that the spots on the forewing are much smaller and not notched distally. ♀ differs less from ♂ than is the case in *teuta*, the band of the forewing being, especially near the costa, equally narrow, while on the hindwing it widens towards the anal angle. On the latter the black submarginal spots are rather square, not triangular as in *teuta*, and unite into a band which is only separated by the veins; beneath it differs but slightly from *teuta*. Luzon and Mindoro. — **sarmana** *subsp. nov.* (131 b as *piratica*) bears the same relation to *piratica* as *affinis Lathy* to *E. teuta*, having on the forewing the yellowish spots making up the band even more reduced. Under surface paler than in Mindanao specimens, with nearly obsolete red markings. Discovered in February and March by Doherty on the island of Basilan. — **medaga** *subsp. nov.* was already known to Semper, who figured a ♂ from Camiguin de Mindanao. A ♀ from Mindanao in my collection differs from Semper's ♀ in having the white spots on the forewing hardly half as wide and darker yellowish. ♂ deviates from that of *sarmana* in having the yellow macular row of the hindwing nearly twice as large. Under surface darker than in *sarmana*, ♀ hardly to be distinguished from *E. teuta* ♀.

affinis. *piratica.* *sarmana.* *medaga.*

E. bellata takes in the Macromalayan Region the place of *teuta* of which I should take it to be a subspecies were it not for the fact that both forms occurred together in Tenasserim. ♂ hardly differs from *teuta* ♂, but the ♀ is distinguished by a more delicate submarginal undulate band on the hindwing. A number of rather sharply separate forms in some of which the white macular band of the hindwing is only represented by two, four or six small bluish-white dots, whereas in others (as in the forms from Java and Sumatra) it may be very conspicuous. — **gupta** *Nicév.* is the form which deviates farthest from typical *teuta*. It inhabits Upper Tenasserim; one ♀ discovered by Bingham in the renowned Thungyeen forest is, together with a pair in the Nicéville collection of the Calcutta Museum, all we possess of this form. In the ♀ the white spots of the hindwing are entirely absent, and on the forewing the longitudinal band is only indicated by 5 insignificant spots of white. Ground-colour pale brown, laved with yellowish along the black submarginal line of the hindwing. The under surface has the outer portion of both wings richly suffused with violet grey. Hindwing beneath with a white costal and another, oblong anal spot, otherwise without a trace of a median band. — **goodrichi** *Dist.*, described from Perak, is found as far North as Southern Tenasserim, but beyond, in the northern part it is replaced by *gupta Nicév.* ♂ resembles that of *eion* (131 c), although with smaller yellow spots on the upper surface of both wings. The ♀ represents a transition to the remaining Malayan forms. Forewing with a complete series of 8 blue-white median spots; hindwing with 4 white wedge-shaped markings. The forewing has in addition the submarginal area between the black and white macular rows suffused with grey-violet. Exceedingly scarce, only 1 pair in the Fruhstorfer collection. — **eurus** *Nicév.* is an excellent insular race resembling *eion* (131 c), but larger, ♀ with richer pale lilac ornamentation of the outer portion of both wings. On the hindwing the undulate line is more marked than in *gupta* and *goodrichi*, the white median band consisting of distally sharp-pointed wedges. According to Martin it is found quite near the shore, not even ascending the lower foot-hills. Not very abundant; but my collectors brought at one time a fine series from West Sumatra. — **yapana** *subsp. nov.* appears more nearly related to *eurus* than to the neighbouring form of Nias. ♂ smaller than *eurus* ♂, the median spots of the forewing greatly reduced, much smaller than in *externa*, but on the hindwing larger. Pulo-Tello of the Batu Islands. Type in the Tring Museum. — **externa** *Nicév.* might almost be conceded specific rights. ♂ has on the forewing the yellow spots twice as large as in *eion* (131 c), but on the hindwing so much reduced as to stand perfectly isolated. ♀ resembling *goodrichi* ♀, with even smaller, hardly recognizable white median striae, but with broadly white instead of pale lilac suffusion, as in *eurus*. Very scarce. Island of Nias. — **eion** *Nicév.* described from specimens I discovered in Eastern Java. ♀ still more profusely laved with white than in *externa*. On the whole it most resembles the continental form *E. teuta*, a frequent occurrence in Java butterflies. This form I captured in large numbers on bananas early in the dry-season (March, April) in the Zuidergebergde of Eastern Java, at an altitude of about 1600 ft. Also in Western Java it was found, though very scarce, in the forests skirting the bay of Palabuan. — **veyana** *subsp. nov.*, a surprising discovery of Everett's, representing a miniature *E. eion*. Ground-colour pale brown, markings as in *eion*, only the white spots more oblong. Flores, only 1 specimen known, type in the Tring Museum. — **bellata** *Druce* (= cenespolis *Hew.*) coincides as to colouring with *eurus*, but is paler and the white median band of the ♀♀ is much narrower. North Borneo, scarce. ♀♀ also from the South-East of the island in my collection. — **salpona** *Fruhst.* ♂ has the upper spots of the median band of the hindwing somewhat larger than in *bellata* from North Borneo, rendering the band more uniform. Under surface darker than in Borneo specimens, with a more oblong, black-margined and pale red-centred spot in the cell of the hindwing, and with broader median bands. Natuna Islands. — **eson**

goodrichi. *eurus.* *yapana.* *externa.* *eion.* *veyana.* *bellata.* *salpona.* *eson.*

Nicév., a very good subspecies almost deserving to class as a distinct species. ♂ resembles *gupta* ♀, having the ground-colour pale brown with distinct black submarginal spots. Median spots of the forewing isolated. Hindwing has the intranerval spots ringed with black, gradually decreasing in size from the costa to the anal angle. ♀ approaches *externa* ♀, but has on the forewing the white spots very long, band-shaped. On the hindwing the spots are as in the ♂, but larger. Ground-colour pale yellow-brown. Island of Palawan, very scarce.

recta. **E. recta** is much rarer than *E. teuta*, occurring like this in two broods, one of the dry-season with very broad longitudinal bands on both wings, ♀ with monotonous red-brown under surface; the form of the wet-season having the under surface dark brown, richly clouded with black. Two local forms have been described: **recta** *Nicév.* (131 c); our own as well as Moore's figure (Lepid. Indica p. 212) represent the form of the wet season. *monilis.* Rather abundant in Assam, very scarce in Burma, where Bingham took one ♀ in Thoungyeen Forest. — **monilis** *Moore* differs from *E. teuta affinis Lathy* with which it associates, in the sharply defined, pale stripes both above and below, and the red spot at the anal angle. Although it is of much smaller size than *recta*, the bands, especially of the hindwing, are much wider. Both Moore's type and two specimens I took in January display *cosana.* the pale colouring due to the dry-season. Central Siam, Muok-Lek. — **cosana** *subsp. nov.* refers to a darker form with narrower, whitish-yellow stripes; hindwing with larger anal spot of red. Under surface more brillantly grey-violet than in Assam ♂♂. ♂ type in the Staudinger collection at Berlin. According to Moore a ♂ taken by Doherty in Perak in January is in the Godman collection of the British Museum.

labotas. **E. labotas** *Hew.* (131 b), described by its author as a *Limenitis*, seems to be confined to the North and East of Celebes, being neither by myself nor by Doherty found in the South of the island. The ♀♀ are easier to capture than the smaller, slightly darker ♂♂. Beneath whitish-grey, with deep brown intranerval submarginal shading. Minahassa, one ♀ from the island of Lemben to the North of Tondano, another one from Kendari, Eastern Celebes, (January) in the Fruhstorfer collection.

E. nara inhabits the Eastern Himalayas and western China, whence two forms are known which, although the ♀♀ are more or less alike, are sharply separated in the ♂ sex. Probably some intermediate forms will *nara.* still be found in Yunnan and Tibet. **nara** *Moore* (130 c) is particularly interesting on account of the distinct Dimorphism of the sexes. The ♂♂ vary in that on the upper surface of the hindwings the yellow costal spots may be isolated, as in our figure, or confluent. Under surface of the ♂♂ of a peculiar yellowish-green shaded with black, of the ♀♀ pale blue-green. My collection contains ♀♀ with broad, complete white band on the hindwing as well as such in which the band only reaches the middle of the wing (Elwes, Naga Hills). Not very scarce in Bhotan, but extraordinarily rare in Sikkim where it occurs at about 6000 ft. of altitude from July till September. Moore's type came presumably from Nepal. Doherty found a somewhat different form in *omeia.* the Naga Hills, July and August, at 8—9000 ft. — **omeia** *Leech* (= ♀ consobrina *Leech*) (Vol. I, p. 190, pl. 58c, d), distinguished by the broadly pale golden-yellow costal area of the hindwing. ♀ smaller than *nara* ♀, wings more rounded; forewing with narrower white semi-band. Collected by Leech on Omei-Shan and at Mupin; *alutoya.* also from Siao-Lu in my collection. — **alutoya** *subsp. nov.* is intermediate between *nara* and *omeia*. ♀: Forewing striped as in *omeia*; shape of wings as in *nara*, but the white band consists of shorter, more quadrate instead of oblong spots. Beneath it resembles rather *nara* than *omeia*. China, locality not given.

dubernardi. **E. khama** *Alph.* (= sinica *Moore*) (Vol. I, p. 190) enters Indian territory as **dubernardi** *Oberth.* (Vol. I, p. 190). Yunnan, Tseku.

strephon. **E. strephon** *Sm.* (Vol. I, p. 190), likewise allied to the *nara* group, from Omeishan, Western China. The locality Tientsin is erroneous, should be Tientsuen.

E. sahadeva which had until lately been thought to occur only on the main land, was discovered also in Formosa by H. Sauter. Although its sexual differentiation is less pronounced than in *nara*, it varies more *sahadeva.* individually. — **sahadeva** *Moore*, described from specimens that probably came from Nepal or Sikkim. ♂ above pale olive green, marked with 5 dull whitish yellow spots united into a sort of band. In the ♀ these spots are nearly clear white. On the hindwing the ♂ has 6 yellowish patches. Very scarce in Sikkim, August and September; somewhat more abundant in Bhotan where it was discovered, together with *E. nara*, by Gen. *nadaka.* Ramsay. — **nadaka** *subsp. nov.* (130 c as *sahadeva*), very local in Assam whence I possess a fine series from the Khasia Hills. Doherty found it also in the Naga-Hills. ♂ on both sides darker leaf-green than specimens

from farther west, a fact already mentioned by Moore (Lep. Ind. III, p. 133); hindwings with 3 instead of 6 white discal spots; a ♀ figured by Moore (Lep. Indica pl. 241) lacks these altogether. — **narayana** *Sm.*, a small-sized alpine form of which only a number of ♀♀ are known with certainty, all of which were taken near the Ruby Mines in Upper Burma. Ground-colour rather paler green than in *nadaka* ♀; on the forewing the spots are smaller. Elwes reports having seen in the Naga Hills several ♂♂ some of which resemble *narayana*, others *iva Moore*; however I assume that he was mistaken in this. — **pyrrha** *Leech* (Vol. I, p. 190, pl. 88 d) is only known to me in ♀. Type from the Province of Kweichow; occurs also on Omei-Shan and at Mupin, June, July. Scarce. — Of **kosempona** *Fruhst.* (130 d) I possess 3 ♀♀ having on the forewing the white band suffused with yellowish, and broader than in *nadaka*, likewise the subapical spots larger. Hindwing with 3—5 discal dots margined distally with yellow. Under surface mainly yellowish green with heavier black subbasal markings. Very scarce, June-July, at Kosempo in Formosa. *narayana.* *pyrrha.* *kosempona.*

E. leechi *Oberth.* (Vol. I, p. 191, pl. 58 d) resembles *sahadeva pyrrha*, but ♂ differs in the paler bronce-colour and in lacking on the forewing the white or yellow band. Occurs in the same localities as *E. sahadeva pyrrha*. *leechi.*

Of **E. iva** *Moore*, one of the rarest Indian butterflies, only the ♀ has been described and figured. It is larger than *sahadeva* ♀; in colouring it resembles *E. nadaka* ♀, but has on the forewing the white spots broader and more sharply pointed. Hindwing above with 4 white dots. Under surface a lovely green, forewing with a slightly yellowish tone, hindwing pale emerald green, marked as above, but with 6 rounded median spots on the hindwing. I once took a ♀ at Daling (Sikkim) in August at an altitude of about 6500 ft. One pair from Manipur in the Nicéville collection of the Calcutta Museum, one ♀ in the Hewitson coll. of the British Museum. *iva.*

E. kardama *Moore* (Vol. I, p. 191, pl. 58 a) is one of the most common butterflies of Western China, forming part of every collection sent froom Szetchuan. Common in Western and Central China. *kardama.*

Of **E. patala** (Vol. I, p. 191) 3 local forms are described: **patala** *Koll.* ranging from Chumba to Nepal. — **pratti** *Leech* (Vol. I, p. 191, pl. 58 c), rare in June and July near Itchang and Chang-yang in Central and Western China. — **taooana** *Moore* is above darker olive green than *patala*; ♀ with much broader yellow bands on the forewing. Type from Taoo, Tenasserim, at 3—5000 ft. of altitude. Doherty always found it in March and April on the excrements of Tigers which at that time were still very numerous in the Karen Hills. I myself observed between Petichang and Tandong, Tenasserim, in May a ♂ on a moist spot in the bridle-path. In the Tring Museum there are 7 ♂♂ from Perak presumably taken by Doherty. *patala.* *pratti.* *taooana.*

E. confucius *Westw.* (Vol. I, p. 191, pl. 58 b), a lovely species, differing from *E. patala* in having on the forewing 3 instead of 2 whitish subapical spots, and in the more variegated under surface of the hindwings; not very scarce in Western and Central China. *confucius.*

E. formosana *Fruhst.* (130 d) is not allied to any form of the continent; discovered by Sauter at Kosempo, Formosa, in June. On the hindwing the median band is, especially in ♀, uncommonly broad, straight and pale yellow, on the forewing more irregular. Beneath it resembles *E. confucius*, being olive green, laved with whitish-yellow in the median area, and suffused with pale green at the base. Forewing with a distinct, sharply dentate, black submarginal band reaching from the anal angle to the lower radial. Apparently rather common; 12 ♂♂, 8 ♀♀ in the Fruhstorfer collection. *formosana.*

E. hebe *Leech* (Vol. I, p. 191, pl. 58 b), very scarce, ♀ as yet unknown. From Omei-Shan and Chang-yang (type). *hebe.*

E. shinnin *Fruhst.* (130 d) apparently replaces *hebe* in Formosa, where it is likewise very scarce. Only the ♂ is known, differing from *hebe* in having the longitudinal band of the forewing more regular and on the hindwing the macular band shorter and curving rather more inward; both bands pale ochreous, not yellowish-green. The under surface lacks on the hindwing the terminal border which in *hebe* is very distinct; also the black submarginal band found in *hebe* is absent. Kanshirei, Formosa, June, discovered by Sauter; 5 ♂♂ in the Fruhstorfer collection. *shinnin.*

thibetana. **E. thibetana** (Vol. I, p. 191), a Chinese species occurring in two local forms: **thibetana** *Pouj.*, somewhat smaller, with paler yellow longitudinal bands than *E. undosa Fruhst.* which is in Vol. I, pl. 58 b figured erroneously as *thibetana*. Apical spots smaller, on the hindwing the discal spots arranged in a straight r line. Western
yunnana. and Central China. — **yunnana** *Oberth.* (Vol. I, p. 192) enters the Indo-Australian Region at Tseku. It may be recognized by the increased blue irroration of the hindwings, a characteristic of all Euthaliidi occurring in Yunnan.

undosa. **E. undosa** *Fruhst.* (= themistocles *Oberth.*) (Vol. I, pl. 58 b as *thibetana*) (1907), differs from *Euth. thibetana Pouj.* (figured by Leech in „Butt. of China" 1893, pl. 21 f. 8) as follows: ♂ has the ground-colour paler, yellowish, not dark grey-green. Both wings have all the markings more brillant dark yellow, instead of a dull pale clay-colour. The yellow spots composing the median band of the forewing are more irregular, the upper ones more isolated. The median band of the hindwing proximally and distally deeply constricted, edged by black undulate lines. Hair of the body paler green. Under surface more richly marked with black, ground-colour paler, rather yellow than brown. Submarginal band on both wings broader, more prominent. On the forewing the median band extends farther toward the base, being margined with black, on the hindwing very strongly undulate; anal area clothed with pale green hair and scales. Antennae pale, not dark fulvous beneath. Mupin, West China.

aristides. **E. aristides** *Oberth.* (Vol. I, pl. 192) is found together with *E. undosa Fruhst.* near Tseku at an elevation of about 6000 ft.

alpherakyi. **E. alpherakyi** *Oberth.* from the mountains of Siao-Lu and Mupin, and from the lower region near Tien-Tsuen (2000 ft.). In Vol. I, p. 191 the locality is erroneously given as Tientsin, the port of the Province of Tchili.
monbeigi. — **monbeigi** *Oberth.* (Vol. I, p. 192) from Yunnan, distinguished by the richer blue-grey shading.

E. duda, one of the loveliest Euthaliidi, hitherto only known from the Himalayas, was recently discovered also on the Yunnan-Szetchuan border; hence we may distinguish between two separate local forms:
duda. **duda** *Stgr.* (130 d); ♀ one third larger than the figured ♂, and correspondingly more broadly shaded with moss-green in the subanal area of the hindwing. Underneath both sexes are alike, pale green laved with faded blue at the base. White bands as above. Described from Assam where in some years it is not scarce; occurs also in Bhotan, very scarce in Sikkim whence only a few specimens have become known (July and August). —
sakota. **sakota** *subsp. nov.*, figured by Oberthür (Lep. comparée 1912), came from Tseku (6000 ft. of altitude); it is smaller than *duda*, having the ground-colour of both sides paler and more uniformly green, without any blue beneath. On the forewing the white band is composed of much smaller, more isolated spots, on the hindwing, however, it is broader, margined with paler blue distally. Yunnan, rare in collections.

durga. **E. durga** *Moore* resembles *duda*, but is much rarer; on the forewing the white median band is broader, the subapical spots smaller, on the hindwing the median area steeper and distally dentate. Under surface chiefly blue instead of yellowish-green, the distal portion of both wings nearly grey-black. According to De Nicéville, it formerly used to be rather common in Sikkim, but is at present very scarce in consequence of the destruction of the forests as a result of the growing tea-culture. Occasionally a fair number is brought from Bhotan, where it flies from June till August at elevations of from 3000—4800 ft.

evelina. **E. evelina** is one of the most widely distributed Euthaliidi, occurring on the main land from Assam and Burma to Southern Annam and being lately discovered also in Hainan, so that we may also expect it from Tonkin. Its southern limits reach from Karwar and Ceylon to Java and the Celebian Subregion. It is nowhere abundant, being always met with singly or in pairs; Dr. Martin therefore supposes that, like tigers or large birds of prey, certain individuals usurp a good-sized area, suffering no intruders. If I remember rightly, I never captured it in Ceylon, Java or Cebeles on bananas, but invariably on the ground, and in Sumatra they were occasionally observed on wet saw-dust spilt in the woods. Larva on Diospyros melanoxylon *Roxb.* and D. candolleana *Wight.*, often congregating in surprisingly large numbers. It is green with a wine-coloured spot on every segment; the lateral, feathery spines longer than in the other Euthaliidi, pale green tipped with black.
derma. Pupa short and broad, green, adorned with silver at the base of the thorax and at the back. — **derma** *Koll.*, described from Masuri, but presumably from Assam, being since 1844 never found farther west. Above as in *compta* (130 b); ♀ much larger than ♂, rather brownish-green; under surface grey with broad brown bands.
vallona. Forewing with one, hindwing with three red spots near the cell, paler in ♀. — **vallona** *subsp. nov.* of which

only the ♀ is known to me, is much larger than *derma*, approaching in the colouring of the upper surface the Macromalayan forms; both wings have the basal area deep brown-green, sharply defined and greatly obscured in the middle of the wing. Under surface much paler grey than in the other continental forms, the red spots very distinct, only two on the hindwing. I took this form in April at Kanburi (Siam) near the Tenasserim line on the border of a small river flowing through the forest. To *vallona* belong presumably also the specimens mentioned from Burma and Tenasserim by Moore and Bingham. — **annamita** *Moore* closely approaches *laudabilis Swinh.* (130 b). Both sexes have the apex of the forewing laved with white; ♀ in addition with a clear white median area on both wings as in *laudabilis*. Cochin China, only 1 pair in the British Museum. *annamita.*

— **gasvena** *subsp. nov.* is the very reverse of *annamita*, being an uncommonly dark, smaller insular form, beneath shaded almost throughout with blackish-grey. Island of Hainan, very scarce, type in the British Museum. *gasvena.*

— **laudabilis** *Swinh.* (130 b), ♂ differs from the figured ♀ in the absence of the whitish-green suffusion of the submarginal area of the forewing. Underside blue-grey with moss-green bands. Larva as described in the general diagnosis; found, especially in the wet-season, in enormous numbers. Imago appears in January; the chief time, however, is June and July; in the Nilgiris it ascends to 3800 ft.; northward it goes as far as Karwar and Kanara. — **evelina** *Stoll.* occurs in Ceylon. ♀ like *laudabilis* ♀, but with pale green, bronce-like instead of whitish area on the forewing. Under surface darker grey shaded with brown. I encountered it especially in the low-land forests in the North, but it occurs also at Galle and Labugama in the southern part of the island. It is one of the few Nymphalids flying in the afternoon, but very shy and hard to capture. As a rule one meets within large areas only one individual, although Dr. Manders observed once nearly 30 of them in the neighborhood of Mahintale, in August, sipping the sap flowing from an injured tree. — **mahonia** *subsp. nov.* refers to the rather large form of Sumatra. I chose this name on account of the resemblance which this robust and strong butterfly with its dark green variegated upper surface bears to the very tough Chinese Berberidacea with its varying shades of dark and light green. Formerly I united *mahonia* with *compta* (130 b) of the Malay Peninsula, but it differs from it in the straight, very feeble median band of the hindwing, the lovely pale blue-green under surface, and by having two instead of three red spots on the hindwing. Occurs everywhere singly, more abundant in West Sumatra near Padang-Pandjang than in the Sultanate of Deli. Dr. Hagen encountered it in shady nutmeg gardens and on house and stable drains. They generally remain in the same locality, and Hagen thinks that they deposit their eggs singly over a larger area. — **pyxidata** *Weym.* is a transition from *mahonia* to *sikandi Moore.* ♂ like that of *compta* (130 b), underneath equally dark grey-green, with 3 red basal spots on the hindwing. ♀ with white median area of the forewing, continuing on the hindwing in the shape of a very faint irroration beyond the cell. Island of Nias, only few specimens are known. — **sikandi** *Moore* (= soma *Fldr.*). ♂ distinguished by the absence of the red cellular spot of the forewing which in ♀ is still feebly visible. ♂ smaller than *mahonia* ♂, ♀ has the white area of the forewing more sharply defined than in *pyxidata*; the median band being very conspicuous also on the hindwing, this form shows, as it often is the case in Javanese butterflies, the richest white markings. Beneath it approaches nearest to the Siam form *vallona Fruhst.*, but has in both sexes the red basal spot on the hindwing very indistinct. West Java, scarce, up to 2000 ft. — *laudabilis.* *evelina.* *mahonia.* *pyxidata.* *sikandi.*

Of **mahapota** *subsp. nov.* I only know the ♀ (Munich Museum); resembling *mahonia Fruhst.* from Sumatra, but with paler submarginal area of the upper surface of both wings. Under surface more variegated than in *mahonia* ♀, differing in the presence of nearly black longitudinal stripes. Also the red basal spots of the hindwings beneath are more pronounced. Island of Banka, apparently very scarce. — **magama** *subsp. nov.* approaches again *mahonia* from Sumatra. ♂ rather smaller, ♀ paler brown, otherwise no difference above. Under surface darker throughout, ♀ with a distinct row of brown-green submarginal lunules hardly noticeable in my Sumatran ♀♀. Also the primaries are shaded with darker green-brown in both sexes. South-East and North Borneo, very scarce. — **tyawena** *subsp. nov.*, type in the Staudinger collection, differs from *magama Fruhst.* in having the under surface pale blue-grey, and on the forewings the longitudinal bands of the under surface a faded dark green. ♀ of uncommonly large size, much paler than those from the rest of the Philippines. Two types may be distinguished: **eva** *Fldr.*, a small form from Luzon, resembling the North Indian *derma Coll.*, pale blue-green or light brown beneath, — and **proditrix** *subsp. nov.*, much larger, approaching ♂♂ from Celebes: above dark brown, beneath very much like *dermoides Rothsch.*, brown-green throughout, intensely shaded with bluish-grey. Island of Basilan, discovered by W. Doherty; according to Semper also in Mindanao and Camiguin de Mindanao; March till December. — **bangkaiana** *Fruhst.* surpasses in size the Celebian forms, being on both *mahapota.* *magama.* *tyawena.* *proditrix.* *bangkaiana.*

sides darker than *dermoides*, with broader, blue-green stripes beneath. Island of Bangkai, type in the British
dermoides. Museum. — **dermoides** *Rothsch.* from South Celebes, upper surface deep brown, forewing with broad black band; under surface alternating green-brown and blue-green, with distinct red spots. Found chiefly in August.
bolitissa. — **bolitissa** *subsp. nov.* hardly differs from *dermoides* above; ♀ much larger than ♂, paler brown. Beneath much darker than *dermoides* from farther south, uniformly brown-green, only the anal border of the hindwing laved with grey or blue-green. ♀ has the under surface of the forewing largely brown-grey; hindwing grey-blue strea-
fumosa. ked with brownish-green. Toli-Toli, North Celebes, November and December; also Tondano. — **fumosa** *Fruhst.* (130 b) represents the melanotic extreme, having the bands of the upper surface even broader than in *dermoides*, and deep black. Beneath like *bolitissa*, nearly black, hindwings with very conspicuous black anteterminal lunules, and very narrow, grey-blue distal border. Sula-Mangoli, collected by W. Doherty.

E. durya inhabits exclusively the Macromalayan Region; only recently it was proved by Bingham to exist as far North as Southern Tenasserim. The upper surface is represented in our figure (130 b). Under surface pale yellowish-green, with insignificant spots of darker green or brown, and two black-ringed cellular patches. The earlier stages are not known. Imago mostly scarce, being always found in the densest woods. —
mahara. **mahara** *subsp. nov.* (130 b) is the smallest form, distinguished by a very conspicuous yellow spot in the cell of the forewing. On the hindwing the median spots are darker than in the other forms, broadly ringed with black.
manaya. Under surface a delicate grass-green. East and West Java, very scarce, up to 1600 ft. of altitude. — **manaya** *subsp. nov.*, larger than the Java race, especially in ♀, with broader white markings. Under surface very pale green, feebly sprinkled with brown. Sumatra, particularly in the western part of the island, whence I possess
durya. 8 ♂♂ 5 ♀♀. — **durya** *Dbd.* differs only in having the under surface more richly spotted with brown. Malay
monara. Peninsula, recently found also in Tenasserim. — **monara** *subsp. nov.* from Borneo differs from Sumatra specimens in the more prominent greenish-brown submarginal spotting of the under surface. Presumably it occurs
saidja. also in Palawan. — **saidja** *van de Poll* (130 c), a very distinct form almost deserving specific rank, can be recognized by the whitish-yellow submarginal area of the forewing. Under surface with more conspicuous markings than even in the Borneo form, those of the upper surface showing through, being larger and margined with green. Island of Nias, ♀ very scarce.

Group V: **Adolias.**

Comprising the largest and most magnificently coloured species, differing from *Dophla* in the open cell of the hindwing in which it resembles *Euthalia* s. s. But the forewing has, as in *Dophla*, the cell closed. According to Schatz the chief differences from *Euthalia* are the following: "In *Adolias* the 1. subcostal arises before the middle of the cell, the 3. at about one third of the distance between the 4. and the apex of the cell. The cell is always closed on the forewing, open on the hindwing. The middle discocellular very short, curved; the lower one joining the median far beyond the origin of the second nervule, whereas in *Euthalia* it joins, if it is at all present, almost immediately beyond the 2. nervule. Precostal single, out-curved. Palpi short, thickly clothed with yellow-brown hair, the basal segment strongly curved, the central one very long, distented at the end; terminal segment elongate, oval. Antennae uncommonly long, straight, with very elongate club". The earlier stages are not known, since Dr. H. Dohrn, who bred *E. dirtea* from the larva, did not publish any description. The sexual organs resemble those of *Dophla*; uncus distented, dorsally resembling the shape of a bird's head. Valve very long, board-like at the base, with a concave ventral ledge, slightly curved distally. Imago more or less varying individually. Seasonal forms are not with certainty known, but of the commonest species we know both an alpine and a low-land form. Sexual Dimorphism is the rule. The butterflies keep always near the ground, alighting on stones and roots, or feasting on rotting fruit; flying mostly in the densest forest, occasionally on roads enclosed by hedges; very shy and hard to capture. Almost all the species emit an agreeable odour, which is very persistent and can be noticed a long time afterward on being moistened. They prefer the lower plains, ascending in Java to about 2000 ft., in Sumatra to 3000 ft. of altitude.

A. dirtea ranges from North India to Hainan, the Philippines and the Macromalayan Region. Both ♂ and ♀ vary considerably, especially in the width of the bands of fore and hindwings and in the extent of the black marginal border of the hindwing, which latter may either appear as a deeply dentate though sharply defined band, or be encroached upon by rays emerging from the glossy blue submedian band. ♂ generally with pale clay-yellow under surface, laved with violet at the anal angle and marked on the forewing with a few white dots. In Borneo and Sumatra specimens are common with dark red-brown under surface, broadly blue-black anal area

and large spots of green-blue (= fa. *montana Hag.*). ♀ varies especially in the Java and Borneo form, some having the spots of the upperside blue-green instead of yellowish, and the under surface pale blue-white, others being shaded with moss-or brown-green. — fa. **esmalta** *form. nov.* (127 b) varies greatly in the shape and colouring of the yellowish median dots distinguishing the upper surface of the ♂ forewing and the black submedian spots in the band of the hindwing. The ♀♀ are of a more monotonous tint, the silky gloss found in the ♂♂ being only faintly indicated on the costal margin and on a few veins. Dr. Hagen describes its habits as follows (Iris 1896, p. 172): „This lovely butterfly is very common, but only in shady, moist places, f. i. in ditches along the road shaded by Bamboo, under houses and in the fruit-orchards of the Malay Kampongs, on the refuse-heaps of kitchens and in the woods. Its flight is very rapid and strong, but, although exceedingly shy, it flies, even if chased, only a short distance, close to the ground, frequently alighting upon the bare earth, never on twigs or branches, with wings expanded. Both sexes are equally common. Martin and De Nicéville report that *dirtea* only occurs from November till March. While it is true that during this, the rainy season, it is most abundant, I possess also quite fresh specimens taken in April, May, June and August". — **pardalis** *Moore*, a northern form of the island of Hainan; ♂♂ very scarce, not greatly differing from Tonkin specimens, whereas some ♀♀ of the Tring Museum have, in the place of yellow spots, the markings of the forewings near the costa whitish, on the hindwings partly blue. — **eleanor** *Fruhst.*, a very dark form, ♂ resembling that of *khasiana* (127 b), with very dark, though somewhat broader band of the hindwing enclosing very large black intranerval spots. Under surface dark red-brown, with steel-blue anal area of the forewing which moreover has the median spots white, not blue as in *khasiana*. ♀ not like *khasiana* ♀ (127 c), but rather resembling the Macromalayan forms, approaching in the whitish-yellow costal spots of the forewings also *pardalis Moore* from Hainan. ♀ Underside with larger, nearly white, median spots than in Perak ♀♀, and richly suffused with golden-brown. Tonkin, ♂ type from Vanbu in the Tring Museum. Other specimens I took in August and September at Chiem-Hoa; several ♀♀ from Central Annam (November, December) in my collection. —

esmalta.

pardalis.

eleanor.

jadeitina *subsp. nov.* (127 b as *dirtea*) is the reverse of *eleanor*, of which it may be the dry-season form. ♂ may be recognized by the very pale bronce-green outer margin of the forewing, and the largely greenish, likewise very pale, black-dotted marginal border of the hindwing. Under surface reddish-fulvous, hindwings with very distinct square median spots of golden-yellow. ♀ superior in size to *eleanor* ♀, forewing with larger spots of dull golden yellow above. From Tenasserim, Lower Burma, Muok-lek (Central Siam, January) in my collection. According to Moore it is very common in many parts of Burma, where it may be found the year round on fallen, rotting fruit, from the coast up to an elevation of about 3300 ft. Farther North it was taken at Bhamo and in the Shan States, in the South at Tavoy and the Mergui Archipelago. — **khasiana** *Swinh.* (127 b ♂, c ♀) a highly specialized form. Both sexes resemble *E. cyanopardus Btlr.*, the ♂ to such a extent that Bingham united the two within the same species. But aside from its larger size, *cyanopardus* differs in having the palpi of the ♂ greenish, those of the ♀ whitish, whereas all the representatives of the *dirtea* group have them red-brown. Beside the figured ♀, we find as a rarity an albino form with much larger, almost yellowish spots on the forewing, and whitish-green instead of bluish submarginal markings of the hindwing (= **dolia** *form. nov.*). — Another aberration having the median spots of the hindwings above fulvous instead of white, is **dirteoides** *form. nov.* Common in Assam, very scarce in Sikkim, occasionally abundant in Bhotan. Nicéville reports it also from Nepal, and the Crowley collection of the British Museum contains, moreover, specimens from the Naga

jadeitina.

khasiana.

dolia.

dirteoides.

Hills. — **dirtea** *F.* was originally described by its author as coming from „Bengalia". Butler believed that it might have come from Java; but *dirtea* is there one of the rarest butterflies, occurring only within a short distance to the North of the Bay of Palabuan and the Djampangs south of Lukahmi. As on the other hand Fabricius received during his time a large number of butterflies from the Malay Peninsula, it is very likely that the type of *dirtea* also came from there, the more, since it resembles the neighbouring forms. Perak specimens of my collection approximate most closely those from Sumatra, but the ♀♀ are slightly larger, surpassing even Borneo specimens. ♂ shares with the Sumatra form the heavy black submarginal spots of the hindwings and the relatively broad black terminal border, which distinguish it from the paler *jadeitina Fruhst.* of Tenasserim. The ♀ seems to exist in two seasonal forms, one of normal size with large yellow patches

dirtea.

above, and a smaller form with greatly reduced and darker spots. A specimen like this marked „Perak, Künstler" in Honrath's collection. Distant also observed the great liking *dirtea* has for fallen fruit, and that cut-up pine-apples placed in the road at the right time of year never failed to attract large numbers of either sex.

montana. — **montana** *Hag.* was described as a very small-sized alpine form of North-western Sumatra. This form I find, however, to be the rule also in the lowlands of the Sultanate of Deli, and another, very dark ♂ of my collection came from Muara-Enim in the Residency of Palembang. Thus I assign the name of *montana* to the form of North Sumatra in general, resembling beneath *annae* (128 a). Dr. Martin tells us that *dirtea* was very common in Deli before the increasing tobacco-culture destroyed the forests. They were found near the houses, and could be easily caught on the kitchen refuse or on the fruit that was being thrown away by the Chinese

nephritica. cooks. — **nephritica** *subsp. nov.* refers to the rather larger form of western Sumatra. ♂ with more prominent black spots in the somewhat broader, deeper blue band of the hindwing. Under surface paler throughout, as a rule with less steel-blue at the inner angle of the forewing. Two forms of the ♀, one smaller, having the hindwing richly suffused with golden-brown, the other larger having the basal area of the hindwing chiefly
gigantea. blue-green, and not laved with yellow in the distal area. From near Padang-Pandjang. — **gigantea** *Fruhst.* (127 c) is larger than even *nephritica*. ♂ distinguished by the lovely golden-red spotting of the upper surface of the forewing and the large black spots of the hindwing. But the under surface is still paler fulvous than in *nephritica* ♂♂. ♀ has the forewing partly dotted with white. Genitals resembling those of *E. cyanopardus Btlr.*, but shorter, more deeply constricted basally; valve not curved distally, more irregularly, concavely excavated. Island of
javana. Nias, not abundant. — **javana** *Fruhst.* (127 a ♂ c ♀) is distinguished by the jet-black, slightly glossy colouring of both sides and the sharply defined band on the hindwing which is very dark blue, with a strong silky lustre; it resembles *dirtea annae Hag.* of Bawean and *dirtea khasiana Swinh.* of North India, representing a transition from the latter and *dirtea* to *cyanopardus*. Like *gigantea* and *annae*, *javana* is adorned on the forewing by a large white apical spot, and a narrow green submarginal band sharply defined by a black marginal band fringed with white and black. As in *gigantea* the cell is spotted with red-brown. On the hindwing the band is rather narrow, anteriorly suffused with very dark violet. ♂ underside as a rule very dark red-brown. Forewing under surface blue-black at the anal angle, with two greenish and one violet-white, median spots, and two other, bluish-white ones at the anal angle. Cell traversed by 2 red-brown bands surrounding a black patch centred by two brown spots. Between the median veins below the cell two brownish, occasionally whitish spots. Antennae above black, beneath red-brown. I have only one specimen which is as light as our figure; the majority have the hindwings beneath greenish-brown; a great many ♂♂ are of pretty dark colour, resembling *montana Hag.* and *annae Hag.*, these flying during the rainy-season together with the larger and paler ♂♂. ♀♀ have both sides polychrome and most brillantly coloured. The upper spots are whitish, the rest sulphur-yellow, those at the margin edged with green. The hindwings have the spots very large, pale orange-coloured, and the double submarginal row of lunular and helmet-shaped spots much heavier, more confluent, and more richly adorned with green than in the other *dirtea* ♀♀. On the under surface the cell of the forewing encloses two white spots edged by a very distinct, black, curved line. Also in *javana* ♀ we observe the two types described under *sumatrana*, which recur also in Borneo; the first, larger one, possibly of the rainy period, having the under surface of the hindwing chiefly blue-green, resembling *esmalta* (127 b), and another, smaller form, spotted with orange above similar to *annae* (127 d), and broadly suffused with golden brown beneath. *javana* is one of the loveliest forest butterflies. Its velvety-black and amethyst-blue wings, expanding whenever it rests for a moment upon the ground, reflect the most gorgeous play of colours not surpassed by anything the Orient offers to the astonished eye. As mentioned above, the *Euthalia* emit a strong fragrance, which may be explained by their great liking for all kinds of aromatic tropical fruits, such as pine-apples, sugar-cane or bananas. The small number of forms of *Adolias* found in Java must be ascribed to the absence of forests, for it would otherwise be incomprehensible that, whereas all the greater Sunda Islands including the comparatively small island of Nias, Continental India and probably also Malacca are inhabited by 3 species, Java should only have one (*E. dirtea*). — Another form with more rounded wings and heavier markings of the upper surface

annae. is **annae** *Hag.* (128 a ♂, 127 d ♀). It is somewhat smaller than *gigantea Fruhst.* and *javana Fruhst.*, sharing with the latter the large white subapical spot of the forewing. Beneath it agrees with most specimens of *javana*, but is darker, and the anal spots of the forewing which in *javana* are still isolated, are united into a compact band of violet-blue.

On the upper surface of the forewings the green-blue marginal band is in *annae* only very slightly dentate and covers the entire terminal margin. Both spots behind the cell are blue-green instead of reddish-brown as in the hitherto mentioned forms of *dirtea*. The ♀ is characterized by having on the forewing the subapical spots broader, white instead of yellow, on the hindwing invariably orange. Under surface of the ♂ as in our figure (128 a); the ♀ has the forewing laved with blue-white, on the hindwing the basal area lovely deep blue, the terminal half red-ochreous. *annae* is one of the characteristic butterflies of the island of Bawean, where it is very common and easy to take from July until September. The FRUHSTORFER collection contains 40 ♂♂ 25 ♀♀ which hardly vary among themselves; the more astonishing seems the difference from *dirtea javana Fruhst.* — **ritsemae** *Fruhst.* refers to a very common form from the island of Banka; the ♀♀ differ from those of Sumatra, Perak and Borneo in the much smaller and more delicate spots on the upper surface. Type in the Leiden Museum; a number of ♀♀ also in the Tring Museum, a large series of specimens, collected in May by Dr. HAGEN, in the Munich Museum. — **silawa** *subsp. nov.* closely agrees in the ♂ with the Sumatran form, but has the anterior part of the band of the hindwing paler violet. In the ♀ the reduction of the yellow spots above is carried even further than in *ritsemae*, even to their being completely obsolete. — ♀ fa. **immaculata** *Snell.*, an extreme form of the ♀ in which also the yellow median spots on the under surface of the hindwings have disappeared. Island of Billiton. — **chalcedonides** *subsp. nov.* inhabits Borneo, possibly also the Natuna Islands. According to the large number before me from the South-eastern part of the island, *chalcedonides* seems to be on an average smaller in size than *dirtea F.* from Perak or *nephritica Fruhst.* from West Sumatra, thus approaching the form of North-eastern Sumatra. Of either sex we know the same two principal forms existing in Sumatra and Java. Like in Java, neither the smaller one resembling in its dark under surface *montana Hag.*, nor the larger one with paler red-brown under surface has seasonal character. I have both forms from the North and South-East of Borneo. The much more common ♀ shows the colouring of the dry season, being broadly suffused with rufous beneath. — A markedly different form was figured as **esmalta** *Fruhst.* (127 b) (v. p. 687), above resembling *dirtea khasiana*-♀, in the white spots on the forewing and the blue bands of the hindwing also *E. cyanopardus*. The under surface is blue-green, with prominent white spots on the forewing. — **palawana** *Moore* is of course most closely related to *chalcedonides*. I possess only ♂♂, which differ from Borneo ♂♂ in having the black submarginal spots on the hindwing almost twice as large. The brilliant band is somewhat narrower and more obscured costally than in *chalcedonides*-♂♂. Under surface dark red-brown, forewing with a large steel-blue anal spot. Palawan, scarce. — **ellora** *Fruhst.* from Mindoro has, in contradistinction to *palawana*, the marginal border of the forewing extraordinarily broad and light. On the hindwing the band is likewise very broad, dull pale blue, finely dotted with black. ♀ coarsely dusted with red-brown above, the basal half of the hindwings beneath blue, the rest suffused with blue-green. Very scarce; SEMPER receiving during many years only two specimens. — **cavarna** *subsp. nov.* of which I have only seen a few ♀♀ in the STAUDINGER collection, closely follows *palawana Moore*, but is of smaller size and darker colouring, with smaller golden-yellow spots above; Balabas.

ritsemae. *silawa.* *immaculata.* *chalcedonides.* *esmalta.* *palawana.* *ellora.* *cavarna.*

E. perdix *Btlr.* An interesting species hitherto only known from the island of Nias, possibly represented also in the other islands adjacent to West-Sumatra. The ♂ resembles *gigantea*, but on both wings the green, resp. blue terminal border is defined by a straighter line. Hindwings with quite minute black submarginal dots. Under surface somewhat like that of *dirtea annae Hag.*, but slightly paler and more monotonous, the forewing less black; the blue submedian band characteristic of *annae* is in *perdrix* reduced to an obsolete spot. On the other hand the latter has between the median veins two very large greenish spots. ♀ distinguished on forewing by two obliquely cut-off transcellular spots and three broadly whitish median stripes margined with rufous and united into a band. Forewing in addition with a submarginal row of rufous spots. Hindwings like those of *dirtea annae Hag.*, but with larger, more whitish, median spots. Beneath the base of the forewing is red-brown, of the hindwing blue-green. The spotting of the upper surface clearer white and more conspicuous. Also on the hindwing the white is greatly increased, three roundish spots in the cell and the transcellular spots which are reddish above, being almost white. Nias, very scarce. According to KHEIL these butterflies emit a most agreeable fragrance on being softened under a bell-jar.

perdix.

E. canescens inhabits the Macromalayan Region with the exception of Java. It is a small, insignificant species, differing from *dirtea* in having both sexes almost alike, but still resembling it in the red-brown palpi and the close resemblance of both sexes to the pattern of the ♀ of *E. dirtea F.* The arrangement of the yellow spotting which varies on the different islands is seen in our figure of *canescens* (127 a). ♀ as

canescens. a rule somewhat bigger, with larger and paler spots on the upper surfaee. — **canescens** *Btlr.* (127 a) has the maeular rows on the hindwings not always red-brown as in our figure, but usually pale elay-yellow. In the ♀ the spots are larger, those in the mcdian area of the forewing ehanging to white; moreover, the submarginal macular row of both wings is in the middle and at the anal angle also whitish. South-East Borneo, of local
leopardina. occurrenee; searce. — **leopardina** *subsp. nov.* refers to a lovely form of the Sulu Islands in whieh the white eolouring reaches its maximum, the forewings being, with the exeeption of the black eell, almost completely white. On the hindwing an entirely white submarginal band and pale yellow median spots. Under surface of the forewings likewise eompletely white, hindwings with the exeeption of a yellow anterior portion suffused
pardalina. with whitish-blue. Type (♀) in the British Museum. — **pardalina** *Stgr.* is the opposite, melanotie extreme; forewing with larger yellow patches than in *canescens Btlr.* from Borneo, but in the ♀ laeking the whitish-yellow spots characteristic of that form, giving it an almost male appearance. The ♀♀ laek on the under surface of
tigrina. the forewing the indistinet whitish blotehes of *canescens*. Malay Peninsula, exeeedingly rare. — **tigrina** *subsp. nov.* appears to be a retrogression toward the Borneo form, the ♂♂ having the forewings spotted with whitish instead of yellowish. Aecording to Hagen not very scaree in Bangka. Type in the Tring Museum. —
civetta. **civetta** *subsp. nov.* has among all the forms of the species the smallest spots. Beneath darker than *pardalina* or *tigrina*; forewings with redueed yellow-brown median spots. ♀ almost exaetly like ♂. Aeeording to Dr. Martin it is only found on the Tableland of Sumatra, always searce. One ♂ in my eolleetion from Palembang, taken in the lowlands, where also in Borneo *canescens* is exelusively found.

elna. **E. elna** *van de Poll.* (127 d) takes the plaee of *canescens* in Nias. Espeeially on the under surfaee the white areas of the forewings are still larger, being arranged somewhat as in the ♀ of *E. perdrix Btlr.* of the same island. ♂ slightly smaller than the ♀ of our figure. Beneath it resembles most *E. canescens*, but has on the hindwings the anal angle more deeply suffused with lilae.

β) Palpi blaekish or greenish-brown, in ♀ oeeasionally with whitish lateral stripes.

E. aegle takes the place of *dirtea* in the Mieromalayan islands, whenee so far only two geographieal
aegle. races are recorded, namely from Sumba and Flores: **aegle** *Doh.* ♂ blaek above, with a few dark greenish spots near the eosta, three in the cell (2 at its apex), two in the inner median area, one basal dot and, slightly distant, a few others; a row of 5 white subapieal spots extending to the second median vein, the seeond dot being the largest, the third obsolete. A submarginal band of dull bluish-white dots, the lower of whieh sagittate, extends from the anal margin to very near the apex, the spaees between being dull blue-green. Hindwing with a broad green band enelosing distally pointed black patehes and margined by a broad, jet-blaek terminal border encroaehed upon by delieate rays of green. Under surfaee of the forewings blaek with brown suffusion of the apieal area and with two rows of oblique white spots. Between the median nervules and above each radial some more dots; the eell traversed by two blue-white bands, one in the middle, the other at the end, and with some isolated dots. Hindwing purplish-brown with bronze lustre; the paler distal half traversed by a submarginal band formed of dark spots; in the cell three light brown spots, in the diseus an irregular row of five spots. The colour of the under surfaee, the narrow, pale blue band and the numerous spots easily distinguish *aegle* from *dirtea*. One ♂ was taken at Pada-Dalung, one ♀ at Mandas, Sumatra. Do-
herty could not give any description of the ♀; presumably it approaehes the ♀ of *floresina Fruhst.*, with numerous white dots on the forewings above and two or three rows of yellowish spots on the hindwings. —
floresiana. **floresiana** *Fruhst.* ♂: Upper surfaec of forewing like that of *aegle*, but with all the spots and dots larger and paler. The hindwings share with *aegle* only the deep blaek ground-colour. Within the submarginal band an irregular row of 5 unequally large dots distributed between the eostal and upper median veins; the upper blue-white, about as large as the seeond, elear white one; the three following are mueh smaller and yellowish; the band resembles that of *aegle*, composed of three colours, pale blue prevailing, gradually fading to yellowish towards the anal angle. The spots separated from eaeh other by black veins and sprinkled with whitish scales, more profusely toward the anal angle. The black, heart-shaped patehes within the band are bordered distally by large, partly elongate, partly long pointed, white spots narrowly edged by blue, deeply encroaehing upon and eutting into the blaek outer border, whieh is much narrower than in *aegle*. Ciliae black and white, inner margin of the hindwing eovered with pale yellow hair. Under surfaee of the forewings deep blaek with brown apical area; all the spots larger and paler than in *aegle*, only those in the eell smaller. Hindwing with dull dark brown basal and pale yellowish outer half. The three dots in the eell, as well as the median row distinguishing also *aegle* beneath, are pale yellow, forming a vivid contrast with the ground-colour. Antennae as in *aegle*; the eyes, however, blaek instead of red-brown; palpi mueh paler; body above resembling

that of *aegle*, beneath pale yellow. ♀ much larger than ♂, with uncommonly large macular rows, 2 whitish dots above the cell which is margined with green, and 2 large yellow dots before the lower median, barely visible in the ♂. On the hindwings not a trace of blue or white visible, but all the spots and the band greatly enlarged. As far as the lower median the spots are pale orange, turning more yellowish towards the anal angle. The median nervules very faintly irrorated with greenish. Near the origin of the lower radial two green-yellow dots, suffused with blue in ♂. Ciliae whitish-yellow. Under surface as in ♂, but paler, especially on the hindwings on which the brown basal suffusion is quite obsolete, being replaced by the pale yellow ground-colour. *floresiana* is among all the species of *Symphaedra* the most daintily and richly, though not most brillantly coloured, without any loud, but rather delicate, harmonious tints. Expanse of ♂ 46 mm, ♀ 52 mm. Taken in Southern Flores at the end of the dry season in November 1896 by A. Everett; types in the Tring Museum.

E. aeetes replaces *dirtea* in the Celebian Subregion. The upper surface is shewn in our figures 127 d; the under surface is dark brown, with white oblique bands in the ♂ and the ♂-like ♀ form. *aeetes* is the only *Adolias* with polymorphic ♀♀, among which the form with ochreous upper surface resembles *dirtea* most. Three local forms are known: **aeetes** *Hew.* (127 d). ♂ easily recognized by a broad, grey-violet submarginal band *aeetes.* with purplish lustre on the upper surface of the hindwings. Of the ♀ forms we figure the one resembling the ♀ in 127 d, whereas 128 a represents the form *ignigena Fruhst.* which comes closest to *dirtea*. *aeetes* was first discovered in Minahassa, but is found also in the dense forests near Toli-Toli (Northern Celebes), an excellent region for butterflies. The extraordinarily moist climate (heavy rain-showers being recorded at least for one out of every three days) favours the development of most luxuriant forests, which extend uninterruptedly from the top of Buki-Cako, an immense, massive mountain of about 8000 ft. of altitude, to the sea-shore. Whereas at the top coniferous trees are thriving, the shore-forest contains Palms, Bamboos and Figtrees which are frequently unrooted by the rushing waves. My favorite spots in these virgin forests teeming with insects were the creeks which, if it did not rain for a few successive days, would rapidly dry up; throwing rotting fruit and meat upon the border of the creek, I always was certain of good results. But whenever a heavy shower came, the creek, soon becoming a wild torrent, would carry the feast intended for my beloved butterflies into the sea, leaving me to take what I could along the edge of the tossing waters. They mostly selected wet places, stones or roots of trees, if they did not feast on the alluring bait, always with wings expanded; although pretty common, they were difficult to catch, being very shy and restless, and would at the least noise fly away for a distance of 5—6 yards. In the net they would dart about most wildly, broken or damaged wings being the result. But I always enjoyed their lovely appearance and even more their delicate, violet-like fragrance, and occasionally I could take with me to my lonely hut a series of 10 specimens. One day, walking up and down an empty watercourse, I was able to catch an *aeetes* in a rather unusual manner. It was coming straight at me with closed wings, about 2 yards above the ground. Most astonished at its extraordinary way of flying, I caught it in my net and found it dead, having been carried through the air by some *Asilid*, either *Asilus mendax Walk.* or *Promachus bifasciatus Macq.*, both of which were very numerous at Toli-Toli. This Dipteron, measuring only 2 cm in length, had without any trouble transported its prey which measured 65 mm and at least represented 20 times its own weight. *aeetes* is distinguished by its lovely appearance as well as its delicate fragrance; both sexes are highly variable. The colouring of the under surface reminds one of *aegle Doh.*, as is the case with most of the Celebes species; from its other Malay allies it is greatly different. In the ♂♂ the three white subapical spots and the white oblique subapical band composed of 5 unequally large patches vary but little; but the forewings have the outer border often only adorned with white dots, between which occasionally a band of dull bronze-green is interposed like in *aegle*. Also the greenish and purple costal and cellular dots vary very much in size and number. Hindwing with a dark violet band of dull lustre, greatly varying in width, but always very distinct; parallel to this we find before the outer margin frequently another, similarly coloured, dentate line, accompanied by blackish, proximally notched, distally sharp-pointed spots. Before the anal fold always a tuft of long greenish hair surrounding the scent-patch. Ciliae clear white, only at the extremity of the veins interrupted by the brown ground-colour. Both wings have the under surface vivid brown-red, suffused with purple, from which on the forewings the same white spots as seen on the upper surface, but rather larger, stand forth most conspicuously. The cell is above accompanied by a spot of pale violet, occasionally also joined by another one crossing the cell. Near the base we find, as in nearly all species of *Adolias*, some brown spots bordered with black. On the hindwing a submarginal band composed of blackish streaks, and a median row of pale violet subquadrate spots, very

conspicuous in the anterior half but fading away towards the anal angle. Antennae above black, the club brown-red beneath, the other segments ringed with white. Palpi black-brown above, paler underneath. Eyes brown. Body on both sides like the ground-colour. The ♀♀ are much larger than the ♂♂, with the ground-colour paler, and on the hindwings the bands more grey-violet; but they are more polychrome than the ♂♂, having in addition the inner half of the forewings speckled with red-brown, and on the hindwing a brown-red submarginal band. Under surface paler, the white spots more dull and the violet dots on the hindwings barely
phasiana. indicated. Like the ground-colour also palpi and legs are paler. — **phasiana** *Btlr.* (= meridionalis *Fruhst.*) (127 d) is smaller than the northern form *aeetes*. ♂ nearly always without the violet band of the hindwings, or only with traces of it. Of the ♀ the Fruhstorfer collection contains 4 different forms: a) one ♂-like, much smaller than *aeetes*-♀, with whitish apical and submarginal bands; hindwings uniformly deep black-
genetta. brown, with only two rows of obsolete, small grey spots. (January 1896, Patunuang.) b) **genetta** *form. nov.* resembles in the forewing the just mentioned ♀, but has the submarginal spots larger, yellow, and the base as well as the inner median area speckled with yellowish. On the hindwing a green-yellowish band, distally accompanied by a row of 7 far apart orange spots. Around the cell 3 large orange patches. Also beneath it resembles the ♂-like ♀, but is rather paler, with clearer white spots and on the hindwing a distinct reddish-brown border, not unsimilar to that of *Adolias satrapes Fldr.* and *trapesa Semp.* Antennae black, tipped
ignifera. with red. (Flies in November.) c) **ignifera** *form. nov.* is analogous to the northern *ignita*-♀, but smaller, with the orange spots and bands reduced. Under surface brownish, profusely suffused with orange, with the orange spots of the upper surface showing through. Antennae black, club broadly red-brown beneath. Patunuang. January.

tyrtaeus. d) **tyrtaeus** *Stgr.* is chiefly characterized by 3 elongate spots at the costa behind the middle of the forewing, forming a sort of semi-band, below which 3 other very large spots extend to the inner margin. On the hindwing the second, submarginal macular row has developed into a broad yellow band only intersected by the veins. The band preceding it consists of very large spots, whereas of the 4 basal ones only the two placed in the cell are distinct, although smaller. Under surface brown, with larger, obsolete spots. The ♂♂ of *phasiana* preferred like *aeetes* resting on the stones near the ground, whereas the yellow ♀♀, frightened by my coming, would chase like mad through the undergrowth of the forest skirting the Patanuang River, and were most difficult to catch. South Celebes; found by Doherty also at the Falls of Maros and near Tanette.

rubellio. — **rubellio** *Fruhst.* from the island of Bangkei to the East of Celebes (not to be confounded with Banguey or Bangoëi between Borneo and Palawan), approaches, like most Lepidoptera of East Celebes, most closely the form from the South of the island; it is somewhat larger, paler brown than *phasiana*, but with the same markings of the forewing. The principal difference is in the hindwings which are quite uniformly brown, with only a submarginal row of 7 elongate, narrow rufous dots. Antennae quite black, without the red club of *phasiana*. A closely allied form from Tombngu, East Celebes, in the Roeber collection. Island of Bangkei or Banggai. Type in the Berlin Museum.

E. damalis, a highly specialized form, is confined to the Northern and Central Philippines. The sexes are monomorphic, superficially resembling *Pap. castor Westw.* Forewings pointed, narrow, hindwings rounded. Ground-colour brown, on both wings with yellow anteterminal spots; on the hindwing a submarginal band composed of quadrate patches; all of these markings recur also on the under surface, being augmented on the
damalis. forewings by a white semi-band and a few irregular white dots in the cell. — **damalis** *Er.* is found in Luzon, according to Semper also in the Babuyanes, where it flies throughout the year, but locally and scarce. The
galoa. ♀♀ have occasionally also above on the forewings a rudimentary white band. — **galoa** *subsp. nov.* differs from *damalis* in having the yellow inner band of the hindwings much narrower. Mindoro, type in the British Museum.

E. cyanipardus, the largest of all the species of *Adolias* as well as of all the *Euthaliidi*, is distinguished by the blue and white-dotted ♀, the dark green under surface, the long, quite black antennae and the dark palpi. It must be a beautiful spectacle to observe and chase these gigantic, gaudily coloured butterflies, but we have hitherto only very scant notes on their occurrence. Sexual organs very much like those of *dirtea F.*, but stouter, uncus thicker basally, valve slightly more slender, distinctly curved distally, uncus with a helmet-
cyanipar- shaped crest. 5 local forms are known: **cyanipardus** *Btlr.* (127 c ♂) is, like *khasiana*, very constant. Forewing
dus. with large white dot before the apex, and a narrow, irregular, dark green submarginal band. On the hindwing the submarginal band tapers gradually from costa to anal angle, being intersected by the black veins. The costal spot is quite isolated, either enclosing a minute dot, or being cut into by a thin black streak. The remai-

ning spots have a peculiar tulip-shaped appearance, inwardly sinuous and outwardly stalked. Before the apex some rounded black dots. The black marginal border of the hindwings is streaked with green. Ciliae black and white. The ♀ has the forewing spotted with white, the base and outer fascia sprinkled with blue. On the hindwing a median double row of white, blue-edged dots. The submarginal double lunular row consists near the costa of violet, for the rest pale blue spots interspersed with whitish atoms. Under surface pale sea-green with numerous white spots. ♂ length of forewing 53 mm, ♀ 64 mm. It has so far only been received from Assam, where it is not very scarce. — **albopunctata** *Crowl.*, a melanotic, smaller, but highly specialized form; ♂♂ almost jet-black, but beneath resembling the Assam form. On the forewing 2 very large white subapical spots, 4 large, yellowish dots in the cell and one below the lower radial. The hindwings completely lack the blue band of which there are only left 5 large, brillant blue dots. Beneath the ♂♂ resemble those of *cyanipardus Btlr.*, but with larger white subapical dots and smaller cellular and median spots; hindwings according to *Moore*'s figure with a blue dot in the cell and 6 dots around it. ♀ very much like *cyanipardus*-♀, but with larger whitish-blue spots on the forewings and small submarginal dots on the hindwings which are throughout broadly bordered with white-blue. Otherwise the hindwings are dotted with darker than in *cyanipardus*; beneath with smaller median and cellular dots, but much larger white submarginal spots. Very scarce, only a few species being known. I observed it in January at Muok-Lek (Siam) at an altitude of about 1000 ft., in the dense forest; it was very shy, and always scarce. — **sandakanus** *Fruhst.* ♂ smaller than *S. cyanipardus Btlr.*; forewing with narrow green anteterminal stripe (in *cyanipardus* always blue), hindwing with 2 larger white apical spots, and in the violet submarginal area black patches, but with much narrower black distal border. ♀ likewise smaller, with darker markings of the hindwings. The two submarginal bands of the hindwings, in *cyanipardus* always whitish-blue, are green-blue, and the black dots within them confluent, not separated. Characteristic are the red tips of the antennae, which in *cyanipardus* are invariably black. South-East and North Borneo, everywhere very scarce. — **bangkana** *Hag.*, a melanotic insular form, in which of the blue band adorning the hindwing only a few violet spots are preserved. Also the greenish-blue marginal striation of the forewing is greatly reduced. Very scarce, only a few pairs found by Dr. Hagen in Banka. — Of **martha** *Strand*, first discovered by Dr. Hagen in North-East Sumatra, a ♀ specimen was recently taken also in West Sumatra.

albopunctata.

sandakanus.

bangkana.

martha.

E. satrapes *Fldr.* (= imperator *Hew.*), one of the most interesting butterflies in the East, is very scarce, occurring in two sharply differentiated insular forms in the Philippines. The sexes are nearly alike, the ♀ but slightly larger. Upper surface black, basal area of both wings faintly irrorated with blue-green. Forewing with white spots arranged somewhat as in *cyanipardus*-♀. Hindwing with broad blue median and white submarginal macular band. Forewings beneath black, conspicuously spotted with white; a blue-grey stripe in the cell. Hindwing red-brown with a grey-violet submarginal band and reddish grey-violet discal spots arranged as in *dirtea F.* Costal border of the forewings as well as base and terminal border of the hindwings lovely vermillion red. Occurs in Luzon in the wooded mountain districts from July till December; according to Semper also in Polillo, Mindoro, Camiguin de Luzon. — **trapesa** *Semp.* replaces the former in Mindanao. Above it differs in having on the forewings the white macular bands smaller and on the costa placed closer to the base; on the hindwings the blue band much wider, except at the costa, and of a rather paler, more greenish tint. Underneath the macular rows of the forewings are of the same size as in *satrapes*, but approach nearer to the base costally; on the hindwing the pale transverse band and outer margin broader, greatly encroaching upon the dark red-brown ground-colour. As in *satrapes*, both sexes are quite alike in shape of wings and markings. It is one of the characteristic and possibly very ancient local forms which in the course of time has been modified to such an extent that it may be considered as a separate species. One specimen of the Berlin Museum shows the following additional differences from *satrapes*: On the upper surface of the hindwing the submarginal spots are more feebly developed and the gorgeous vermillion outer border of the under surface somewhat narrower. The discal row of violet-brown punctate spots extending in *satrapes* obliquely to the termen, forms in *trapesa* an uninterrupted semi-circle to the costal margin. In *trapesa* we find, moreover, on the under surface of the hindwings two black bands, reaching the middle of the wing, which are not found in *satrapes*. Eastern Mindanao.

satrapes.

trapesa.

Subgroup **Lexias** *Bsd.*

Comprises only two species which reveal their close relationship with *Adolias* and *Euthalia* in the subcostal nervules being united with the costal vein; in this it differs from *Dophla* which has all the subcostal

nervules free. Also in its sexual organs it approaches *Euthalia*, the uncus being not distented, the valve slender, tapering distally, and armed with fine teeth. The name *Lexias* is only kept here because it occurs in the litterature since 1832 and indeed can claim priority to the better known name of *Adolias* (1836).

E. panopus. Above brown-black, forewings in either sex faintly marbled with yellow. Both ♂ and ♀ with a submarginal band of rufous or ochreous, varying in width according to the locality. ♀ larger than the ♂, dimorphic, there being, in addition to the ♂-like ♀♀, also such with white striation of the hindwing (♀-fa.

virginalis. **virginalis** *form. nov.*). On the hindwing, moreover, a row of black submarginal dots, forewing with a blue-grey, black-ringed cellular spot, reminding us at once of the relationship with the Moluccan-Melanesian *E. aeropus*, which it replaces in the Philippines. It is rare in collections, the specimens in the Tring and British Museums dating from Semper's time, partly not giving the locality. Dr. Platen seems to have taken a number in Min-

panopus. danao. — **panopus** *Fldr.* Hindwing above with very broad fulvous submarginal band. Flies in Luzon from

miscus. May till July. — **miscus** *subsp. nov.* with much narrower striation of the hindwings; in the ♀ the white-banded form *virginalis Fruhst.* is said to be more common than the ochreous form. Described from several

vistrica. specimens in my collection and in the British Museum. — **vistrica** *subsp.* (or *form.*) *nov.* I saw in the Hewitson collection in London. In the ♂ the yellow band of the forewing is only thread-shaped. Locality unknown, presumably one of the Central Philippine islands, Semper mentioning *panopus* from Bohol and Leyte.

E. aeropus which was already known to Linné, ranges over a wider area than was hitherto assumed, occurring throughout the Moluccas, from the Sula Islands to New Guinea and reaching even the Bismarck Archipelago. Although one of the most common Melanesian butterflies, no attention was paid to its variability, neither its local differentiation nor the Polymorphism of the ♀♀ being recorded; of the latter only the yellow and white-banded form were known. The markings resemble those of *eutychius* and *choirilus* (127 a). ♂ underneath brillant ochreous, forewing with a broad, rather paler submarginal band, in contradistinction to *panopus* with only two blue-white median spots. ♀ forewings black, traversed by a band composed of isolated spots. Hindwing either white or pale yellow, always with broad, jet-black marginal border. Basal area with 7 milky-white patches. Palpi of ♂ red, of ♀ pale yellow with whitish base. Larva euthaloid, green with black dorsal stripe, black head and very long feathers. Pupa distented, ventrally with sharp edges, head pointed. Feeds on Calophyllum; the eggs are deposited on the under surface of the leaves, on which later the caterpillars crowd together until they have entirely consumed them. When larger, they are more lively and spread farther apart

eporidorix. (Ribbe). — **eporidorix** *subsp. nov.* differs in the ♂ in having on the forewing the rufous cellular dots and preapical spots smaller; beneath darker than specimens from the Southern Moluccas, with the black submarginal spots reduced. The ♀ exceeds in size those of the remaining forms, having at the same time the largest

orestias. and most intensely yellow markings of the hindwings. ♂ type from Batjan, ♀ from Halmaheira. — **orestias** *subsp. nov.* refers to the darkest insular form; the median bands of the ♂♂ narrower than in *aeropus* of the

paisandrus. Southern Moluccas. Sula Mangoli, Type in the Staudinger collection. — **paisandrus** *subsp. nov.* is rather common in the island of Obi; ♂ larger than Batjan ♂♂, with larger and paler fulvous bands. ♀ forewings likewise

helvidius. with broader, less widely separated spots than in *aeropus* ♀. — **helvidius** *subsp. nov.* resembles in the ♂ most the Batjan form. ♀ characterized by having on both wings the spots and bands reduced, the median area of

aeropus. the hindwings orange-red instead of pale yellow as in the ♀♀ from the other Moluccan Islands. Buru. — **aeropus** *L.* Recognized by the large, elongate spots at the apex of the cell in both wings; hindwing with nearly

choirilus. twice as wide yellowish median band as in *helvidius* ♀. Amboina, Uliasser, Ceram, Goram. — **choirilus** *subsp. nov.* (127 a) is the first in the series of Melanesian races, in which the ♀♀ may be either yellow or banded with white, whereas from the Moluccas we only know yellow ones. ♂ relatively small, differing from *eporidorix*-♂ in the larger size of the twin-spot at the apex of the cell in the forewing and the increased black striation and spotting of the under surface. ♀ either white, as in the figure, or with uniform pale yellow spots on the forewing and similar median area of the hindwing, whereas in all their Moluccan allies the preapical and cellular spots are white. Both forms of the ♀ are found in Waigeu, distinguished beneath by having the basal and median areas of the hindwings white, in contradistinction to *aeropus*-♀♀ which are mainly ochreous; but the ♀♀ with yellow upper surface have the marginal border of the hindwings black, partly suffused with rufous. Waigeu,

eutychius. common. — **eutychius** *subsp. nov.* (127 a) is found on the main island of New Guinea, very rarely also in Aru, Key and Dampier Island. Periodically it is very common, and Hagen reports that formerly one could collect from the Calophyllum trees the larvae and pupae by the basket. The butterflies fly in the shore-forests,

especially from November until March. Of the ♀ I have 4 forms in my collection: a) the ♂-like form with deep ochreous spots and bands above; b) **ergena** *form. nov.* with white apical and cellular spots on the forewings, otherwise like the ordinary and common ♀. — **albifera** *form. nov.* resembles the figured *choirilus* (♀ 127 a), but has on the forewing the white spots reduced; — **midia** *form. nov.* with pale yellow bands bordered all around with canary-yellow, thus resembling the ♀♀ of the Moluccan forms, although by no means so profusely white as f. i. ♀♀ from Saparua. Obi and Buru. All the ♀-forms of *eutychius* are beneath paler or darker ochreous, *albifera*-♀ excepted, which in its white basal area resembles the white ♀ form *choirilus*. The black submarginal spots on the under surface of the hindwings vary considerably, being on the whole more conspicuous than in *choirilus* and most marked in the ♀-fa. **midia** from Finschhafen. The ♂ (127 a) has the bands of the hindwings considerably narrower anally. — **hegias** *subsp. nov.* from the Bismarck Archipelago is of smaller size than *eutychius*-♂, with broader fulvous bands above. Type from Neu-Pommern, where Ribbe found in the forest near the shore only one ♀ of the white type. *ergena.* *albifera.* *midia.* *hegias.*

Subgroup **Euthaleopsis**. *Van de Poll.*

In structure approaching *Lexias*, having the cell in the forewing closed. On the forewing the second subcostal nervure is absent, the first united with the costal, the third arising in both sexes a short distance beyond the cell. The group comprises only one species with an enormous eastward range; in colouring it resembles the *E. lubentina* group.

E. aetion differs sexually in that the ♀♀ are larger, with more rounded wings, which are spotted rather canary-instead of pale yellow. The sulphur-yellow area of the ♂ hindwings above may be in the shape of a band, or more circular, as in *donata* (130 a). Underneath the colour varies according to the locality from grey to black brown; likewise the white submarginal spots which replace the black or red patches characterizing the other *Euthaliidi*, vary somewhat in being more or less distinct. Hagen supposes that the larva is found like that of *Lexias aeropus eutychius Fruhst.* on Calophyllum trees. In some years the imago is quite common, in others hardly one specimen may be seen. Its range extends from the Northern Moluccas through New Guinea to the Bismarck Archipelago and the Louisiads. — **plateni** *Stgr.* is the darkest race of the entire species. The yellow median spots of the ♂♂ are smaller than in the Melanesian forms, and steeper. Under surface nearly black, the red basal stripe of the hindwing especially prominent. Batjan, Halmaheira, described from 2 ♂♂. — **donata** *Fruhst.* (130 a) from Waigiu has the spots pale yellow like in *aetion Hew.* (Type from Aru); on the forewing the discal spots, particularly at the apex of the cell, are barely half as wide as in Aru specimens; also on the hindwing they are smaller; the submarginal spots on the forewing more obsolete. — **philomena** *Fruhst.* (130 a), based on specimens from Kaiser Wilhelmsland, was found by Doherty in larger numbers on Humboldt Bay. ♀ rather variable; the yellow twinspot at the end of the cell on the under surface of the hindwing may be absent, blurred or quite distinct. Some ♀♀ have, as in our figure, the yellow dash on either side of the submedian on the forewing above distinct, others obsolete or only indicated by a few scales. From the name-type, *philomena* differs in the deeper yellow colouring of the spots on the forewings and the reduced submarginal dots, beneath especially in the reduction of the pale area which in *aetion* fills the entire middle of the wing. — **sosisthenes** *subsp. nov.* has on the forewing the yellow stripes reduced, but the discal area of the hindwing very distinct; beneath it resembles *aetion* from Aru. British New Guinea, also Woodlark, Rossel Island and a few other islands adjacent to Eastern New Guinea. — **aetion** *Hew.*, described from a ♀, has always been rare. It most resembles *donata* (130 a), but the ♀ has the sulphur-yellow bands above broader; beneath the white as well as yellowish-white areas are larger than in ♀♀ from Waigiu and Aru; not known from the Key-Islands yet. — **thilei** *Ribbe*, a melanotic race with very small discal spot on the hindwing above. Herbertshöhe. *plateni.* *donata.* *philomena.* *sosisthenes.* *aetion.* *thilei.*

— **rugei** *Ribbe* closely resembles the ♂♂ of *philomena Fruhst.* from German New Guinea; on the forewing the semi-band rather narrower, but longer; the hindwings lack underneath the whitish-yellow discal area, which is reduced to only two minute dots. Neu-Hannover. *rugei.*

Tribus **Apaturidi.**

In this group we meet for the first time larvae without any spines, in contradistinction to all the preceding groups, the caterpillars of which are covered with spines. The main characteristic is therefore the shape of the larva, in which the *Apaturidi* differ both from the hitherto described groups, and from those of *Anaea* and Nymphalids s. s. (*Charaxidi*). The larvae of the *Apaturidi* are either smooth or densely covered with very fine tubercles, tapering on either side, with only 2 blunt or bifid horns at the head. The tail terminates in 2 short spines which are usually folded close together, forming a conical projection. On the 7. segment the grown

larva of *A. iris* (according to Dr. Müller the American species also on the 5. and 10.) has a short, pointed projection. Pupa laterally visibly compressed, usually with a strongly projecting ledge at the black, the head terminating in two points. The venation of the imago resembles on the whole that of the Vanessids. The median spur is entirely absent; this distinguishes them from the *Limenitidi*, from which they differ, moreover, in the ♀♀ having the first four segments of the fore tarsi armed with spines. A relationship with the true Nymphalids seems to be precluded by the quite different venation, although the larvae most resemble those of *Charaxes*. On the other hand the pupa differs so much in shape that any possible relationship based on the larva is thereby rendered invalid. The great analogy between the pupae of *Apatura* and *Thaleropis* on the one side and *Hypanartia* (a Neotropical genus closely allied to *Vanessa*) on the other leads us to suppose that the *Apaturidi* are very nearly related to and possibly developed from the *Vanessidi*. The characteristic curving down of the 2. subcostal nervule, distinguishing alike the *Argynnidi*, *Diadema* and *Limenitidi*, but absent in the *Vanessidi*, is not found in any form of *Apatura* either; on the other hand the latter preserve one feature characteristic of the Vanessids, the union on the forewing of the lower discocellular with the forepart of the 3. median nervule, in at least two genera: *Dilipa* and *Thaleropis*, whereas the majority lack the discocellular altogether. Also the fact that the ♀ forefeet are armed with spines, the absence of the median spur and the similarity of the foodplant (Urticaceae) indicate their relationship with the Vanessids. Finally it is noticed that the ocelli characteristic of the *Apaturidi* recur, although frequently quite rudimentary, in many Vanessids and always in exactly the same position. The fact that the larva is without spines, could be explained by assuming them to be resorbed or aborted, in the same way as we find is the case in *Catagramma* and *Haemetera*. The sexual organs of the *Apaturidi* are characterized by the long penis and the relatively (considering the size of the imago) rudimentary, nearly always sharply curved, hook-shaped uncus. Valve as a rule broad, sometimes with a dorsal appendage, nearly always with a sharp upcurved point which in one genus rises to the extremity of the uncus and can be seen even with the naked eye (*Eulaceura*). Saccus always rope-shaped. The geographical range of the *Apaturidi* is of great interest, comprising the large Oriental as well as the North and South American Faunal Regions.

46. Genus: **Dichorragia** *Btlr.*

This genus, remarkable on account of its geographical distribution, was by Felder and Butler placed with the *Euthaliidi*, by Dr. Schatz and Seitz with the *Apaturidi*. Indeed *Dichorragia* represents a transition from the *Euthaliidi* to the true *Apaturidi*, resembling the former in the short penis and the distally rounded valve, the latter in the curved uncus and the long, pointed palpi. The chief characteristic, the shape of the larva, we do not know as yet. According to Dr. Schatz the ♀♀ forefeet are armed with spines. *Dichorragia* stands nearest the Papuan genus *Apaturina*, being distinguished from the other *Apaturidi* by the single, almost straight precostal vein being at the end obliquely cut off, whereas otherwise it is usually bifurcate or outcurved. The cells are closed as in *Apaturina* from which it differs in having the middle discocellular much larger and strongly curved inwards, the furcation of the 4. and 5. subcostal nervules longer. Closed cells we find among the *Apaturidi* otherwise only in *Dilipa* and *Thaleropis*, which, however, have but one subcostal nervule arising before the end of the cell, whereas *Dichorragia* has always two. The external appearance of the two closely allied genera is so characteristic that they cannot possibly be mistaken for any other. The ground-colour is deep, rather bluish olive-green, spotted with black and bluish. Before the termen a very fine, but distinct white zigzag line, in one species on the hindwing a broad white marginal border. The ocellus between the 1. and 2. median nervule characteristic of the *Apaturidi* is on the forewings indicated by a white dot, on the hindwing by the unusual development of the spot in this place. They inhabit the deep valleys in the Himalayas; in Java we find of one species an insular form confined to the mountains. The northern *D. nesimachus* we find also in Hondo and Formosa, the Philippines, the entire Macromalayan Region, Celebes and the Sunda Islands. A second, sharply separated species we know from the Moluccas and New Guinea.

nesimachus. *nesseus.* *nesiotes.*

Of **D. nesimachus** a number of local forms are known, 3 of which have already been described in the Palaearctic part (Vol. I): **nesimachus** *Bsd.* (Vol. 1, p. 168, pl. 60 b), found throughout the year from Kulu to Assam, in the lower foothills. In Burma and Tonkin where I observed it from May till July, *nesimachus* is very scarce. — **nesseus** *Sm.* is found in Western China, and **nesiotes** *Fruhst.* (Vol. 1, p. 168, pl. 60 b), according to the catalogue of

Matsumaura's, from Hondo southward as far as the Liu-kiu Islands. — **formosanus** *Fruhst.* (114 b) is a lovely form of Formosa, not very common and only known from higher elevations. Closely related to the Japanese *nesiotes*, it represents a very dark insular form, with less significant and finer white markings than *nesiotes*, very similar to *nesimachus Bsd.* of India. Thus *formosanus* seems to be intermediate between the form from Continental India and Japan. — **peisistratus** *subsp. nov.* approaches, in contradistinction to the preceding form, *pelurius* from Celebes (114 b), being of larger size and of pale olive-green groundcolour with faint golden lustre; but the outline of the wings is more rounded and the grey-white submarginal striae are decidedly broader. According to Semper, specimens taken in July and October resemble the Indian form, whereas March-specimens have the submarginal markings narrower, but more prominent. From the Philippines; the Type from Mindanao in Sempers collection; found also in Panaon, but very scarce. — **pelurius** *Fruhst.* (114 b), the largest form, is easily recognized by the very distinct grey-white bands of the forewings and the large black submarginal dots on the hindwings. The ♀ is even paler grey-green than the ♂, with very prominent, delicately white terminal dentate bands. Known only from Northern Celebes from the littoral up to about 3800 ft. of altitude; taken by me at Toli-Toli in December. — **harpalycus** *subsp. nov.* from the island of Bangkai differs from *pelurius* in the ♀ having the under surface of the hindwings less marked with white and violet, but with larger black round spots. — **peisandrus** *subsp. nov.* was discovered by Dr. Platen in Sula-Mangoli; it differs from *pelurius* in the darker, more profuse submarginal spotting. The white strigae of the forewings narrower, more richly suffused with violet and more sharply delineated. The type, like that of *harpalycus*, in the Staudinger Collection of the Berlin Museum. — **mannus** *Fruhst.*, a dwarf race of the island of Java, is distinguished from Sikkim-specimens by having on the forewing the preapical streaks broader and, especially underneath, more prominent and clearer white. West- and East-Java, at elevations of from 2800—3800 ft. Very scarce. — **machates** *Fruhst.* inhabits north-eastern and western Sumatra as well as the Batu Islands; the ♂♂ are larger than those from Sikkim and Java, differing from the former in having on the forewings above the subapical strigae broader, but obsolete, and blackish-grey instead of whitish; the black spotting is more profuse than in Sikkim ♂♂; in the ♀ the submarginal spots of the hindwings are pale grey-green, not dark blue as in typical *nesimachus*, and the white markings of the under surface of the forewings are more profuse. — **derdas** *Fruhst.* has in the ♂ the black spots on the upperside even larger than in *machates* and on the forewings the subapical streaks darker; underneath the subapical strigae of the forewings are in the ♀ shorter, the black spots correspondingly larger; the discal row of blue dots on the hindwings underneath more prominent than in Sumatra-specimens. South- and North-Borneo. — **niasicus** *Fruhst.* ♀. Differs from *derdas Fruhst.* of South-Borneo and *machates Fruhst.* of Sumatra as well as from the remaining forms of *nesimachus* in the complete absence of the grey-white subapical band on the forewings above and the reduction of all the white markings of the upper surface. The black submarginal dots on the hindwings are smaller, the green-violet longitudinal dashes in the median area of the hindwings larger. Nias. — **deiokes** *subsp. nov.* is smaller than the Assam form, resembling *mannus* of Java; the white markings of the upper surface more profuse, although more faded, those of the under surface of the forewings clearer than in *nesimachus* of northern India. Perak, Malay Peninsula. Type in Staudinger's collection.

formosanus. *peisistratus.* *pelurius.* *harpalycus.* *peisandrus.* *mannus.* *machates.* *derdas.* *niasicus.* *deiokes.*

D. ninus has on the forewing in the place of the anteterminal pointed arches two rows of white striae, and on either side of the hindwings snow-white patches edged with black distally and varying in size according to the locality. **ninus** *Fldr.* (114 b) from the Southern Moluccas, and **distinctus** *Roeb.* (114 b ♀ instead of ♂) from Kaiser-Wilhelmsland may be recognized by the more oblonge white spots, the more rounded wings and smaller size. The ♂ differs from the figured ♀ only in having the forewings more elongate and the marginal area of the hindwings proximally edged with darker blue-green. According to Dr. B. Hagen a rapid flier, although it does not fly very far. June until November.

ninus. *distinctus.*

47. Genus: **Apatura** *F.*

Chiefly a Palaearctic Genus, represented by a few endemic species in the Himalayas. Although inhabiting the lower hills, many forms are also found at higher altitudes. We may distinguish two special groups, *Apatura* and *Rohana*, the former being distinguished by having the uncus as long as the valve, whereas in the latter it is shorter. Valve broad, mussel-shaped, resembling *Anodonta*. Penis long, sword-like.

1. Group: **Rohana** *Moore.*

Comprising a few plain-looking species chiefly limited to the Palaearctic Region, differing in structure but slightly from *Apatura* in having the middle discocellular more rounded; the sexes differ greatly in colouring.

A. parisatis comprises a great number of forms, occurring from Hongkong to Ceylon and throughout the Macromalayan islands; slightly subjected to seasonal Dimorphism, the dry-season form being paler, the rainy-season form larger and more deeply coloured. ♂ black; forewing invariably with a small white preapical dot and occasionally slightly brown apical area, ♀ red-brown, banded with paler yellow. Larva pale yellowish-green with green dorsal and two similar lateral stripes; head and horns black; rests in day-time on the under surface of the leaves of Celtis lycodoxylon, feeding only at night. Pupa pale green, compressed, with a
parisatis. ventral row of sharply keeled projections; head with long horns. **parisatis** *Westw.* (114 e), of which we figure the wet-season form from Assam, ranges from the Kumaon Himalaya to the Shan States; specimens from Sikkim, where the ♂♂ are very common up to an altitude of 5000 ft., whereas the ♀♀ are extremely scarce, are of
atacinus. inferior size, with pale brown under surface. — **atacinus** *subsp. nov.* inhabits Southern India, where the caterpillar is found on Celtis tetranda Roxb. It is a local form approaching *camiba* (114 e) from Ceylon, but the ♀♀ are larger, paler red-brown, more profusely streaked with yellow, and likewise very scarce. In the Nilgiris
camiba. it ascends to nearly 6000 ft. — **camiba** *Moore* (114 e) is found in the hill-country in Ceylon throughout the year. The figured ♀ belongs to the dry-season form, those of the wet-season being larger and rather red-brown. —

tonkiniana. **tonkiniana** *Fruhst.* is the largest form of *parisatis* known, the length of the ♂ forewing being 29 mm against 23—25 of those from Siam and Sikkim. In my 5 ♂♂ the forewing lacks the white apical dot distinguishing all other forms. Beneath it differs from Sikkim and Siam specimens in having on the forewing the discal band pale blue and at least three times as wide, lacking on the hindwing the violet submarginal band. Both wings are, moreover, more broadly suffused with brown underneath. The ground-colour of the ♀ is very dark yellow-brown, with darker black-brown spots and bands than appear in Moore's figure 2b on Pl. 194. Beneath it differs from fig. 2 c in the more sharply scalloped discal bands of both wings and a distinct black
siamensis. submarginal band. Type from Than-Moi (Tonkin), June, July. — **siamensis** *subsp. nov.* (115 a). ♂ smaller than Tonkin-specimnes, with more intense and profuse violet-white spotting underneath; ♀ uncommonly pale yellow-brown, with broader white median bands underneath than in Sikkim or Tonkin ♀♀. Collected by me in Siam, at about 1000 ft. of altitude, in the dry season in January. The form from the Malay Peninsula is presumably alike. The ♀♀ visit flowers and keep away up in the trees, whereas the ♂♂ love to settle on wet spots on the ground or on rocks. The black scales are very loose, in consequence of which it is almost impossible to obtain
staurakius. a really good specimen. — **staurakius** *subsp. nov.* from Hongkong surpasses in size even Tonkin specimens of either sex; ♀ moreover traversed by pale yellow bands, strongly contrasting with the darker and broader brown-black submarginal bands. According to Walker not scarce from March until May, the ♂♂ flying in
hainana. full sunshine, the ♀♀ preferring the shade. — **hainana** *subsp. nov.* has been but lately discovered in the island of Hainan, whence I have 2 ♂♂ of the rainy-season, differing from Hongkong ♂♂ in the paler red-brown
sumatrensis. basal spots of the hindwings. — **sumatrensis** *Stgr.* (114 e) is characterized by the broad apical spot of the forewing which, especially in ♂♂ from North-eastern Sumatra, is rather paler red-brown. The ♀ is darker yellow-brown than that of *siamensis*. Dr. Martin reports that the ♂♂ assemble in damp and muddy spots of the roads, where they may be easily taken with the net; but unfortunately the deep velvety-black irroration is as easily rubbed off as the blue dew on a plum. According to Dr. Hagen the ♂♂ may be very easily caught on the ordure of the Musang (Palm-marten), which greatly attracts them. The ♀♀ differ but slightly from those of the Continent, being in colouring intermediate between *siamensis* and *parisatis*. My ♂♂ from Padang-Bovenland in Western Sumatra are somewhat darker than those from the Sultanate of Deli. — **javana** *Fruhst.* (115 a). ♂ smaller than those from Sikkim, easily recognized on the forewings underneath by having all the spots in the cell red-brown instead of black; the discal band of the hindwing is more rectilinear and, beyond the cellwall, not black, but redbrown. The ♀ is rather variable, a pale yellow dry-season form alternating with a more red-brown rainy-season form. Both differ from Continental specimens in the more distinct white submarginal dots of the forewings and the darker base of the wings. Moreover, they possess 5 white subapical dots against only 3—4 in the Indian specimens. Underneath the discal band is more sharply undulate. Also of the ♂ we know a dry-season form with paler, more unicolorous under surface, without any violet shading.
javana.
ruficincta. East and West Java, not scarce at altitudes of up to 2—4000 ft. — **ruficincta** *Lathy* may be recognized by the particularly large spot at the anal angle of the upper surface of the hindwings. Nias, very scarce, only
borneana. 2 ♂♂ known in the Adams Collection of the British Museum. — **borneana** *Fruhst.* from Borneo differs from the Siam and Sikkim form in the presence of a black dot between the 1. and 2. median nervure on the forewings underneath, which characteristic it shares with *nana Stgr.* of Palawan; from this, however, it may be distinguished by its larger size and the obsolete submarginal black markings which along the Costa of the forewing and between the radials of the hindwing are replaced by red-brown. The ♀, which unfortunately I
nana. do not know, shows probably an even larger difference. Kina-Balu. — **nana** *Stgr.* resembles *javana Fruhst.*; the ground-colour of the upper surface of the ♂♂ somewhat darker, the under surface of both wings more
rhea. distinctly spotted with white. Palawan, very scarce. — **rhea** *Fldr.* (116 a). A rare form from the northern Phi-

lippines, of which I only know the specimen from the Babuyanes in the Semper Collection at Francfort. ♂ paler brown than those from farther South, ♀ with broader white median band than in ♀ fa. *nilka Fruhst.* from Java. Found in the Babuyanes and Luzon from January to October. — **mindora** *Fruhst.* ♂ differs from Semper's fig. 2, Pl. 15 (Philippine Butterflies, 1886) in the larger size and the pale brown marginal border both above and beneath. Before the anal angle of the hindwing a red-brown wedge-shaped spot. The black anal eye-spot broadly ringed with red-brown, likewise the much larger black ocellus between the 2. and 3. median nervure of the forewings beneath, on which latter we notice a white discal band below the cell and a white submarginal band. The hindwings have before the apex of the cell a red-brown spot. The eye-spot as above, but the anal wedge almost absent. Mindoro; similar forms also in Bohol, Leyte and Siargao. — *mindora.*
danaë *Fruhst.* has the white discal band narrower, on the forewing the submarginal band shorter, but more prominent than in *rhea Fldr.* Mindanao. — *danaë.*
pagenstecheri *Nicév.* (115 a). One ♀ taken by me at Toli-Toli in Northern Celebes during December. The type came from Dongala, where it was discovered by Prof. Kükenthal; ♂ not known to me. — *pagenstecheri.*
macar *Wall.* (= athalia *Btlr.*) is a smaller form of Southern Celebes, which I encountered in November near the Falls of Maros. The whitish median band reduced, the yellow antemarginal irroration of the hindwings more faded and indistinct. *macar.*

A. parvata *Moore* represents a transition to the true Apatura, retaining, however, underneath entirely the colouring of *Rohana camiba.* Known only from Sikkim, Bhotan and the Khasia Hills, it ascends in the former locality to about 5000 ft. The ♂ approaches in size the largest ♀♀ of *A. parisatis staurakius*; red-brown, the forewings with yellow median spots, the hindwings with an oblique median band of pale yellow colour, shading into reddish distally. ♀ duller brown than the ♂, on the forewing distinct traces of a pale median area. *parvata.*

A. nakula, a delicate species with polychromic ♀♀, shows a peculiar range of distribution, being hitherto known only from Sumatra, Java and a few of the Philippine Islands. — **artaxes** *Nicév.* somewhat resembles *nakula* (115 a), but has in the ♂ a narrow band of red-brown before the apex of the forewing and underneath both wings marked with contiguous grey-violet median streaks. ♀ smaller than *rana* ♀ with uninterrupted white median area. Very scarce, Dr. Martin capturing within 13 years only 2 or 3 ♂♂, whereas the ♀♀ seem to be somewhat more abundant, but to be only found on the Battak Tableland. — *artaxes.*
Of **nakula** *Moore* (115 a) I have observed in Java 3 different chief forms of ♀♀. Groundcolour dull brown, both wings with distinct, broadly white discal bands. East-Java, Tengger Mountains, 2000 ft. ♀ fa. *nakula.*
camiboides *Fruhst.* Groundcolour pale ochreous, with basal half darker; discal band pale yellow. In its pale colouring it approaches light ♀♀ of *camiba Moore* and *javana Fruhst.* East-Java. — *camiboides.*
♀ fa. **nilka** *Fruhst.* (116 a ♀). Groundcolour dull pale brown, with dark brown spots in the cell of the forewings and black submarginal bands. The discal band is white only underneath, being above densely dusted with grey. This is the commonest form, occurring in East- and West-Java, approaching the ♀♀ of the dry-season described as *nilka.*
nakulina *Fruhst.* (115 a as *nakula* ♀). The ♂♂ are smaller than those of the rainy season, and not black, but of a peculiar pale brown, beneath dark brown, almost devoid of any markings. ♀ grey-brown, with slightly paler discal band, scaled with dark grey. Under surface of a peculiar pale coffee-brown, the discal bands reddish-white. A similar form was found by Doherty in Bali. — *nakulina.*
rana *Stgr.* (115 a) differs in ♀ from the pale Javanese ♀-fa. *nakula* in having on the forewing the white median band narrower and divided, the anteterminal spots of the hindwings above yellowish instead of whitish. ♀ more abundant than ♂. Flies in January. *rana.*

2. Group: **Apatura** *F.*

Antennae with heavier clubs than in *Rohana.*

A. sordida *Moore* (= phaecia *Hew.*) (114 e ♂, d ♀) is a rare species limited to Sikkim, where it was observed in October and November. The figured ♀ in the collection of Prof. Dr. Seitz. Under surface of a peculiar fish-grey with nacreous transverse bands of the forewings. — *sordida.*
modesta *Oberth.* refers to a form lately described from Tseku, Yunnan. *modesta.*

A. plesseni *spec. nov.* ♂ above like that of *subalba Poujade*; but the pale costal spot on the hindwing not rudimentary, but continuing to the middle of the wing. Under surface silvery-white with a postdiscal band formed by a row of white spots edged with black and distally accompanied by a row of yellowish-brown submarginal spots. The basal and median area of both wings with a few pale blue dashes. Formosa; a ♂ in the collection of its discoverer Baron v. Plessen at Munich. *plesseni.*

A. ambica is a continental species highly susceptible of local as well as seasonal influences, a fact which was only lately recognized. Among the islands it is only Sumatra which produces the species; on the other hand we do not know yet the form from Perak, which remains to be discovered. — **ambica** *Koll.* from Cashmere and Masuri is not represented in my collection; I think, however, it should be separated from the more eastern form *namouna Dbd.* Occurring at altitudes of from 5—8000 ft., the ♂♂ stated to be always common, the ♀♀ extremely scarce. The larva was first described by Nicéville; from his figure it appears dark green, with dorsal ledge, the head with short horns, the abdomen ending in a sharp red-brown point; the *ambica.*

anterior three segments with lateral tufts of hair; feeds on Ulmus wallichiana Planch. Pupa pale green, covered with whitish down. Imago common at Mussorie from April till June, and again in September and October.

namouna. — Of **namouna** *Dbd.* we figured the rainy-season form in Vol. I, Pl. 50 (♂) and 55 d (♀). ♂♂ of the dry-season are considerably smaller, with the red-brown band on the under surface of the hindwings barely half as wide. Above it varies in as much as on the hindwings the fulvous costal spot may be present, indistinct or

bhavana. quite absent. Some aberrative specimens have also been named: **bhavana** *Moore* (Lep. Ind. I, S. 160) with

zanoa. but 2 instead of 3 white preapical dots on the forewings; — **zanoa** *Hew.* Hindwings without the white band above, but with broader brown terminal border beneath. Assam-♂♂ are somewhat larger than those from Sikkim, with more intense blue lustre; hindwing with smaller white submarginal dots above and more prominent

garlanda. brown bands underneath. — **garlanda** *subsp. nov.* inhabits Upper Burma and the Shan States. The transcellular white spots on the upper surface of the forewings are less marked than in Sikkim ♂♂, and the red-brown

miranda. longitudinal band on the hindwings beneath is unusually narrow. — **miranda** *Fruhst.* differs from *namouna Dbd.* in having on both wings the spots larger and the white bands broader. On the hindwings in addition two costal and one uncommonly large orange anal spot. On the hindwings the brown submarginal band beneath is broader than in *namouna* from Sikkim, the silvery submarginal area correspondingly narrower, as are also the silvery subanal lunules on the forewings. In ♀ the spots and bands are clear white, not yellowish as in *namouna* from Sikkim. These lovely butterflies have the same habits as *Charaxes*, visiting excrements or stones at the edge of water-courses covered with rotting substances; resting with folded wings, and displaying in the

claribella. sun their lovely silvery underside. Siam, Muok-Lek (1000 ft.), January and February. — **claribella** *Fruhst.* (115 b) is larger than its allies, from which it may be distinguished by the greatly produced apex; the white spots on the forewings are larger, the median bands narrower than in *namouna.* Beneath it differs from the latter as well as from *miranda* in the much broader brown submarginal bands, which encroach like long teeth upon the silvery-white submarginal area. This form I only found at Than-Moi, Tonkin, in June and July

martini. 1900. — **martini** *Fruhst.* ♂ approaches in its small size the dry-season form from Sikkim; all the subapical spots round, not angular, those nearest the cell isolated; ground-colour rather brown than black; underneath the submarginal bands darker brown, the brown admarginal line of the hindwings much narrower even than in dry-season ♂♂ of *namouna* from Sikkim and Burma. But the greatest difference is observed in the ♀, a specimen of which in the Dohrn collection at Stettin is said by Dr. Martin to be entirely black. Battak Mountains, Sumatra. It is pretty certain that *martini* occurs also in the mountainous part of the Malay Peninsula.

chevana. Of **A. chevana** we know in Indo-China two forms: **chevana** *Moore* (116 a) is an exceedingly rare form, occurring from Sikkim as far as the Naga-Hills and Upper Burma. Of the ♀ only one specimen is known in the Druce collection at London; it differs from the ♂ in the broader white markings and the absence of the

leechii. blue gloss. — **leechii** *Moore* (Vol. I, p. 164, Pl. 51 b) inhabits Western China.

A. ulupi is the oldest name of an Indo-Chinese collective species, better known under the name of *A.*

ulupi. *fulva.* **ulupi** *Doh.* of which hitherto only one specimen is known, in the Elwes collection, is smaller, with broader

fulva. black outer border than *chrysolora* (115 b). From Margherita, Upper Assam. — **fulva** *Leech* (Vol. I, p. 164, Pl.

subcaerulea. 51 a) develops two ♀ forms: **subcaerulea** *Leech* (Vol. I, p. 163, Pl. 50e) and **setia** *Fruhst.*, both lacking on

setia. the hindwings above the grey or greenish-white longitudinal band. I have a ♀ in which this band is completely absent, being replaced on the hindwing by a row of 3 roundish rufous transcellular spots; this difference

dubernardi. is possibly peculiar to the form from Tien-Tsuen whence the type came. — **dubernardi** *Oberth.* from Tseku

chrysolora. (Yunnan) approaches again *ulupi* in its small size and darker colouring. — Of the insular **chrysolora** *Fruhst.* (115 b) (= una *Wilem.*), which curiously appears like a pale form of the continental *fulva Leech*, with greatly reduced black apical border and quite narrow black spot at the end of the cell in the forewing, I recently

formosana. obtained 3 quite different ♀ forms, the most common of which is **formosana** *Moltr.*, analogous to *subcaerulea Leech*, but both wings with clear white instead of yellowish, longitudinal bands on a pale green ground,

pseudo-pallas. underneath with pale green basal area. — fa. **pseudopallas** *Fruhst.*, so called on account of its similarity to *pallas Leech*, with a narrow deep ochreous band on dark green ground; underneath the basal area dark

pseudo-fasciola. moss-green. — **pseudofasciola** *form. nov.*, called after *Apatura fasciola Leech* (Vol. I, p. 164, Pl. 51 a), which it resembles in the bright ochreous colouring of the light areas above. In the mountains of Formosa; ♂ not very scarce; one of the many discoveries of Sauter's.

ilia. **A. ilia** is represented in the Indian Region by **here** *Fldr.*, being reported be Bingham also from Upper

here. *nikosia.* Burma and the Shan States. — **nikosia** *subsp. nov.*, a dark insular race, replacing *here* in Formosa, differing from the Japanese and Chinese forms in the larger size and more profuse black spotting. Formosa. Type 1 ♀ in v. Plessen's collection at Munich.

recidiva. **A. iris recidiva** *Stich.* (Vol. I, p. 161) was renamed in 1912 *chrysina Oberth.*

48. Genus: **Dilipa** *Moore.*

May be distinguished from *Apatura* not only by the ciliated eyes and closed cells, as Moore indicates, but principally by the fact that the 2. subcostal arises at a considerable distance beyond the end of the cell; moreover, the precostal is bifurcate and the forefeet of the ♂♂ covered with silky hair; tarsus and femur longer than tibia, which is slightly swollen at the end. Palpi and antennae as in *Apatura*. Cf. also Vol. I, p. 165.

D. morgiana *Westw.* (116 a). ♀ differing from ♂ in having the spots white, faintly suffused with violet, instead of golden-yellow. ♂: Forewing beneath rufous with greenish-brown apex; hindwing pale ochreous, suffused with greenish distally. In the ♀ the forewings are marked with white instead of yellow, the hindwings with a white band, widening in the median area. From Cashmere through Nepal to Assam and Upper Burma, but scarce throughout. Of the ♀ we only know a few specimens that were taken at Simla in the Western Himalayas and at Margherita in Upper Assam. Oberthür reports it to be rather common on the Black River in Tonkin. It flies throughout the year; one ♂ in my collection, was taken in Sikkim in October, whereas others were observed at Fort Stedman, Upper Burma, in July. In the Western Himalayas the highest altitude at which the species was observed, is 6000 ft. In Mussorie ♂♂ were observed on the tops of the hills in April, May and September; ♀ in September. *morgiana.*

D. fenestra *Leech* (Vol. I, p. 165, pl. 51 c) replaces *morgiana* in China. *fenestra.*

49. Genus: **Sephisa** *Moore.*

Interesting on account of the Polychroism of the ♀♀. Only two species are known on the mainland, which were recently also found in Formosa. Uncus and valve of equal length, as in *Apatura*; but the latter uncommonly broad distally, sharply cut off, without the finger-shaped projection distinguishing *Apatura.*

Of **S. dichroa** we distinguish the following local forms: **dichroa** *Koll.* (Vol. I, p. 165, pl. 56 a), chiefly limited to the Western Himalayas; a rapid flier, occuring up to 6000 ft. — **princeps** *Fixs.* from the Amur-Region is somewhat larger and paler rufous than **cauta** *Leech*, which was figured in Vol. I, pl. 56 b as *princeps*. — **albimacula** *Leech* was recently reported as *leechi Oberth.* from Tseku in Yunnan, and figured in Et. Lép. Comparée. — As **S. daimio** *Mats.* the form of Formosa was described, of which I only know 2 specimens distinguished by the clear white areas on the under surface of the forewings. *dichroa.* *princeps.* *cauta.* *albimacula.* *daimio.*

S. chandra was already described in Vol. I, p. 165. Two local forms are known: **chandra** *Moore* with highly variable ♀♀ which differ from the ♂ in the more rounded wings. The rarest form resembles the ♂: Hindwing with pale yellow patches, defined with whitish distally. — **atiya** *form. nov.* with broadly white transcellular and pale blue median spots on the forewings and clear white spots on the hindwings. — **djalia** *form. nov.* is the form most frequently coming to Europe. On the forewings the transcellular spots small, yellowish-white, median spots dark blue, the discal portions of the hindwings streaked with steel-blue. — **veria** *form. nov.* resembles the preceding, but on the hindwings the discal spots reduced to roundish dots; some ♀♀ in the Tring Museum are marked like *djalia*, with broad white apical spots on the forewing. Nearly all the aberrative ♀ forms came from Sikkim. Easily distinguished from *Apatura* by the trough-shaped valve which is sharply cut off distally. — **androdamas** *Fruhst.**) (114 c) (= rex *Wilem.*). ♂ smaller than *chandra Moore.* Hindwings both above and beneath paler yellow, beneath with broader violet suffusion of the submarginal area, larger violet subanal spot and broader black discal bands. The intraradial spots relatively broader and paler whitish-grey than in *chandra Moore.* The ♀ is even much more different, especially beneath, where the submarginal striae are more distinct, whitish-grey. Hindwing with broader white terminal and yellow subbasal and submarginal spots; also the white markings more profuse, especially above. Kosempo, 2.—14th of July 1908. Both the genus and species were new for Formosa, and its discovery was of great zoogeographical interest, since the species had hitherto not been found farther East than North-Siam, whence it presumably reached Formosa through Tonkin and Southern China, whereas in West-China it is not found. *chandra.* *atiya.* *djalia.* *veria.* *androdamas.*

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*) The word androdamas (= the subduer of men) is also the name of a silver-coloured gem, crystallizing in cubes, related to Marcasite.

50. Genus: **Eulaceura** *Moore.*

This monotypic genus is closely allied to *Apatura*, from which it may structurally be separated only by the shorter anterior median nervure. The chief characteristic are the clasping-organs. Uncus small, sharply bent downwards at the end. Valve with a very peculiar, spatula-shaped projection, raised vertically and extending beyond the terminal point of the uncus, its base deeply indented and its distal portion externally visible, on which peculiarity Butler founded the genus.

osteria. **A. osteria** ranges over the Macromalayan islands in a number of pretty sharply separated forms; the sexes are heteromorphie, with the white bands varying according to the locality. **osteria** *Westw.* (116 e) (♀ = panchaca *Fldr.*) was discovered in Java, where it is extremely searce, only 3 ♀♀ and 1 ♂ coming into my possession within three years, being taken an elevation of about 2000 ft. in the western part of the island. Of the ♀ whieh is somewhat variable, I possess beside the figured form also a darker one with more sharply defined bands of the hindwings, which are much narrower and more richly suffused with purple; also on the fore-
nicomedeia. wing the median band is reduced. — Of **nicomedeia** *subsp. nov.* I have a series of ♂♂ from north-eastern Sumatra and from the Padang-Bovenlanden in the western part of the island; from the latter locality (near Padang-Pandjang) I have also a ♀. The latter has the wings more pointed than the ♀ of *osteria*, with the transcellular portion of the forewing more faded, and in one specimen of the Tring Museum dusted with grey. On the forewings the median spots are more blue-white, on the hindwings the pale median area is reduced.
bipupillata. — **bipupillata** *Lathy* I can judge only from a ♀ in the Adams Collection of the British Museum and another in the Tring Museum. It is characterised by a band-shaped milky-white patch traversing the entire submarginal area of both wings, enclosing 2 intramedian ocelli; this band is in the other island-forms only slightly
kumana. developed. Island of Nias. — **kumana** *subsp. nov.*, described from a ♀ in the Tring Museum, from Perak and Penang, whieh deviates from Borneo-♀♀ in the clearer white and broader discal area of both wings. Presumably
jembala. we may refer to *kumana* also the specimens reported by Nicéville from Southern Tenasserim. — **jembala** *subsp. nov.* (type from Mount Marapok in Borneo), one specimen, collected by Waterstradt, in the Staudinger Collection at Berlin, is the darkest form; on the forewing the white spots eompletely isolated and greatly reduced, and the white bands of the hindwing replaeed by grey ones, with the leaf-shaped markings sharper than in Sumatra speeimens, although suffused with purple. The ♂♂ of my collection are at once separated
sitarama. from those from Sumatra and Singapore by the barely half as wide median band of the forewings. — **sitarama** *subsp. nov.*, an astonishing diseovery of recent times, has also in the ♂ forewing some white transcellular spots; in size it exceeds Perak ♂♂. Type in the Tring Museum, from the island of Hainan. According to Dr. B. Hagen the flight of *E. osteria* is very rapid, but only of short duration, it alights with wide-spread wings invariably on the under surface of the leaves, becoming thereby completely hidden to view. The collector must be extremely careful since the butterfly suddenly stops in its most rapid flight, turning in the most unexpeeted manner, and disappearing under some leaf.

51. Genus: **Sasakia** *Moore.*

Sexual organs with extraordinarily minute, short and slender uncus and very broad valve, drawn out, as in *Apatura*, to a long point, greatly projecting beyond the uncus. Only two species known, which have been lately discovered also in Formosa and the Province of Yunnan. Cf. Vol. I, p. 166.

charonda. Of **S. charonda** the northern insular form **charonda** *Hew.* has been treated already in Vol. I, p. 166, pl. 51 d), occurring in Japan from the North-island to Kiushiu, according to Matsumara also in Formosa, al-
coreana. though I have not seen speeimens from there. — **coreana** *Leech* (Vol. I, p. 196, pl. 52 a) extends southwards
yunnanensis. as far as Szetchuan. — **yunnanensis** *subsp. nov.* differs from Japanese specimens in the more intense and paler blue of the upper surface. Forewings with pale yellow spots, likewise the hindwings on which the pale yellow spots elearly stand forth from the pale green ground underneath. Yunnan, the locality unknown. Type in the Tring Museum.

funebris. **S. funebris**, hitherto only known from China, was recently discovered also in Formosa. — **funebris** *Leech* (Vol. I, p. 166, pl. 52 a). A very rare form from West-China; another mainland-form is *genestieri Oberth.*
fulguralis. (Vol. I, p. 166), taken an altitude of about 6000 ft. at Lutsekiang in the Provinee of Yunnan. — As **fulguralis** *Mats.* a very rare insular form was deseribed, the original description of which we eopy for the want of authentieal material. In eolouring and shape resembling the Chinese *S. funebris*, from which it differs as follows: Forewings above with two erimson spots traversing the eell, the inner of whieh somewhat L-shaped. Beneath

paler than above, the reddish spots larger and more distinct, a red spot also at the extreme base. Hindwings above with a reddish elongate spot at the anal angle and a series of reddish marginal spots, the inner of which is always most distinct. Beneath paler, with 3 reddish subbasal spots edged with black; inner margin broadly reddish, both cells with a reddish spot outside. Palpi crimson beneath; collar likewise; fore tibiae chiefly reddish. Length: ♂♀ 25—28 mm.; expanse of wings 70—85 mm. Formosa (Horisha).

52. Genus: **Diagora** *Snell.*

This genus, which is better known under the later name of *Parhestina Moore*, has its chief home in China and Japan, whence it has spread to Formosa, the Shan States and the Northwestern Himalayas. The several species mimick certain Pierids and even more closely Danaids, without, however, following any particular model, so that one cannot speak either of convergency or mimetism. (Cf. Vol. I, p. 167).

Of **D. persimilis** we know two local races in the Himalayas: **zella** *Btlr.*, the larger form, with broader whitish green areas above and correspondingly diminished black spots, than the name-type from Sikkim and Nepal. The larva was first figured by Nicéville; it feeds on Celtis australis *L.*, is green with lateral spines on each segment, those at the head longest. Pupa compressed, with a keeled line and red-brown ventral rings. Imago at elevations of from 4—7000 ft. in open woods or fruit-orchards, alighting on ripe plums and apricots, both on the trees and on the ground. — **persimilis** *Westw.* (116 d). ♀ but slightly larger than ♂. Nepal and Sikkim, scarce, at low elevations. My collection contains an extreme dry-season form with quite obsolete black markings, and surpassing in the extent of the pale areas even normal *zella* from Cashmere. *zella.* *persimilis.*

D. nicévillei *Moore* should possibly be placed near *subviridis Leech.* Only one ♂ is known from the northwestern Himalayas, taken by Nicéville at the end of May 1879 near Chumba on a forestpath. The markings of the upper surface remind one of *P. macareus*; yellowish with black border and veins; under surface with delicate black network and broadly yellow border of the submedian area. *nicévillei.*

D. mena is the oldest name of a number of conspicuous forms which inhabit China, extending southward to the Shan States and Upper Burma. — **mena** *Moore*, locality not known, probably came from Upper Burma; it resembles somewhat a *Calinaga*, in the arrangement of the black markings *nigrivena Leech* (Vol. I, p. 167, pl. 60 b). Ground-colour yellowish, hindwing with a series of flattened black submarginal spots. *viridis Leech* is a larger greenish form from Central China. — **nigrivena** *Leech.* Hindwings with elongate black anteterminal striae in a yellow area. According to Walker in Hongkong; still more common at Kowlung and Canton, in April and May. Larva not unlike that of *A. iris*, green, changing to a green pupa. — **subdecora** *Fruhst.*, locality not known (perhaps Hongkong), differs from the Chinese forms which I know in the absence of the black intranerval spots on the hindwing. Groundcolour about intermediate between *mena Moore* and *viridis Leech.* *mena.* *nigrivena.* *subdecora.*

Of **D. japonica** (Vol. I, p. 167, pl. 56 b, c) my collection contains a local or other form not described so far: **yata** *subsp.* or *form. nov.* with chiefly greenish colour; the black markings more obsolete than in *australis Leech* which it otherwise resembles. The exact locality not known. — **manja** *subsp. nov.* ♀ smaller than *japonica*, forewings with increased black markings above. Formosa, scarce. *japonica.* *yata.* *manja.*

53. Genus: **Hestina** *Westw.*

Structurally so closely resembling the preceding genus, that previous authors united the two. In Vol. 1 *Hestina* was placed between the Limenitidi and Vanessidi, but anatomical investigation has shown it to be undoubtedly an Apaturid; penis very long, saccus thread-like, valve apaturoid throughout, uncus short, very delicate. Valve most simple, of equal length as the uncus, without the lobe-shaped projection found in *Apatura* and *Sasakia.* The difference in the position of the third subcostal nervule between the various species has been pointed out by Dr. Schatz; but the justice of separating it from *Diagora Snell.* remains to be proved. The earlier stages are not known. It occurs from China and the adjacent islands to the Macromalayan islands and Celebes.

nama. **H. nama**, a common species, subject to climatic and geographical variation. — Of **nama** *Dbl.* (Vol. I, p. 193, pl. 60 a) we know a dry-season form with red-brown, and a wet-season form with black-brown border, both being connected by intermediate forms. Assam specimens are larger than those from Sikkim and Bhotan; Tonkin ♀♀ (116 d) paler, with narrower brown border. In Hainan we find a comparatively small-sized race resembling a dry-season form. *melanina Oberth.* (Vol. I, p. 193) was based on a melanotic aberration. Flies throughout the year and is mostly very common. *nama* is one of the most perfect mimicks. Examining it in a collection and comparing it with Danaids, the similarity does not appear so great; but if on the wing, it is quite impossible for the human eye to distinguish it. Although I had been fooled innumerable times, I always believed, while in Tonkin, to have caught a *Danais tytia* or *melaneus*, only to find, on opening the net, that it was a *nama*. Occasionally it visits wet riverbanks, alighting on the sand with closed wings. Also in this case they bear such a deceptive resemblance to Danaids that I ever believed to see a *Danais* which,
namida. curious enough, was pretty scarce in this part of Tonkin. — **namida** *Fruhst.* (116 d) has on the forewing the costal border more broadly black; all the white strigae and spots, particularly on the hindwings, narrower, smaller and broader; hindwings much more pointed than in *nama*, and more richly bordered with red. Underneath the apical area of the forewings is brown-black instead of reddish. Hindwing broadly bordered with brown, with a submarginal row of prominent white dots. The white submarginal lunules more flat, narrower, but clearer white than in *nama*. From North-East- and West-Sumatra, only on the high plateau, and very scarce.

ruvanella. — **ruvanella** *subsp. nov.* from Perak stands midway between *nama* and *namida;* the hindwings with faint black submarginal intranerval spots, entirely lacking in *namida*. Distant figures the costal border of the under surface of the forewings yellowish instead of brown-black, and the hindwings profusely red like in typical *nama*.

H. mimetica *Btlr.* inhabits Sumatra and Java, and may also be expected from the Malay Peninsula.
carolinae. *mimetica* might be taken to be the Macromalayan form *H. nama*, if its form **carolinae** *Snell.* (116 d) did not occur on the higher mountains of Sumatra side by side with *namida Fruhst.* The ♀ is hardly to be distinguished from the figured ♂, only by the more rounded wings and larger size. About its habits reports Dr. Hagen, that it is extraordinarily shy; generally flying pretty slowly, it becomes frightened by the least disturbance, when it darts away like an arrow so that one may hardly follow it with one's eyes; it never flies very far,
mimetica. but settles down on some bush, observing, however, everything so carefully that all attempts to approach are futile. — **mimetica** *Btlr.* from East- and West-Java (2000—3800 ft.) has the hindwings more broadly bordered with black-brown. A mimetic form, resembling *Danais larissa Fldr.* and *D. pseudomelaneus Moore.*

namoides. **H. namoides** *Nicév.* (Vol. I, p. 195) enters the Indo-Australian Region at Tseku, Yunnan.

divona. **H. divona** *Hew.* (115 b), a very rare species, has been described as *Diadema*, *Hypolimnas* and *Euripus*, until in 1909 I could prove its relationship with *Hestina*. Above banded with yellowish, resembling *Danaida menadensis Moore* and *D. cleona fusciplena Fruhst.*; hindwings underneath with long brown-black intranerval arrows, standing out from the paler border. Hitherto only mentioned from Minahassa. ♀ with yellowish-white median area of the forewing above.

H. assimilis forms a group by itself, the second subcostal nervure arising beyond instead of at the
assimilis. end of cell as in *nama*; two local forms are known: — **assimilis** *L.* (Vol. I, p. 193, pl. 60 a), appearing in spring, may, according to Walker, occasionally be observed at Hongkong and Kowlung (Canton) as early as in the beginning of April. Although a rapid flier, preferring the hill-tops, it is not at all shy. Walker
formosana. says that it is not scarce in the Chusan Archipelago, at elevations of from 1200—1600 ft. — **formosana** *Moore* (115 b) clearly displays by its inferior size, the broadly black veins and reduced red spots of the hindwing its insular character. Formosa; ♂♂ occur up to about 4500 ft.; not scarce. ♀ still unknown.

54. Genus: **Calinaga** *Moore.* (Vol. I, p. 193; Vol. IX, p. 463).

This genus was placed by me, following Dr. Schatz, next to *Penthema*; but an examination of the clasping organs showed it to belong more naturally to the Apaturidi. Uncus hook-shaped, rather shorter than the valve; the latter apaturoid throughout, also with the lobe-shaped projection, but slightly more rounded distally. From the Apaturids it may be distinguished by the shorter penis and saccus. In 1899 J. H. Watson wrote a monography of the genus, a short account of which may here be given as follows:

"The genus *Calinaga* (= *Dovidina Oberth.*) which was classed by MOORE with the *Nymphalidae*, by KIRBY and OBERTHÜR with the *Papilionidae* (next to *Parnassius*), and was later on by KIRBY referred to the *Nymphalinae* (*Hypolimnas*-group), was finally treated by MOORE as the representative of a special subfamily, the *Calinaginae*. This uncertainty prompted the author to subject it to a close examination, on the base of its geographical distribution, the structure of the egg, legs, antennae, the basal cell in the hindwing, the venation and general appearance. This results were the following: Judging from its distribution, the genus appears to be a very old branch of the original family of *Diurna*. The egg, some of which were taken from the abdomen of dried-up ♀♀, differs from those of the *Hypolimnas*-group as well as of *Parnassius*, approximating rather those of *Hestia* and *Danais*. Regarding the structure of the legs, the ♂ has the forefeet aborted as in all the Nymphalids, but whereas the ♀ has them perfectly developed, with the tarsi complete, the terminal segment being provided, beside with the claws, with a sort of ball (pulvillus) and some lateral appendages (paronychia). This tarsus must be considered to belong to the oldest type of legs among all the Nymphalids; it is more frequent in the middle than in the hindlegs, but is never found in the forelegs except in *Calinaga* and *Pseudergolis*, whereas it is characteristic of the *Pierinae*. Thus *Calinaga* must be placed immediately before the Nymphalids, in which the ♀♀ have already lost this peculiarity of the forelegs. As to the structure of the antennae, K. JORDAN has shown their squamation to resemble that of *Luehdorfia* and certain *Parnassius* (*stubbendorfi*), but in outward appearance they rather approach *Euploea* and *Danais*. One of the most important characteristics is, according to WATSON, the above mentioned basal cell, which is common to all the Papilionids, so that in this respect *Calinaga* approximates *Parnassius*, but differs from the *Danainae* and *Hypolimnas*. This basal cell seems to have been hitherto entirely overlooked in *Calinaga*, being not mentioned either in SCHATZS tabulary system of venation (STAUDINGER and SCHATZ, Exot. Schmett. II), in the same way as it was overlooked in *Parnassius*, where W. found it in every species examined. The only feature in which *Calinaga* approximates the Nymphalid group of *Diadema*, is the feeble upper discocellular vein in the hindwing and the even feebler lower discocellular in which it differs from the *Danainae*. In general colouring and markings the species of our genus resemble a group of *Parnassius* represented by *mnemosyne*, *glacialis*, *stubbendorfi*. Although no great importance is placed on this by the author, he inclines to the view that the three subfamilies of *Calinaginae*, *Picrinae* (Sect. *Aporia*) and *Parnassiinae* (Sect. *glacialis*) are closely allied to one another, and that, moreover, the aberrative genus *Calinaga* is also related to the *Danainae*, but not to the Nymphalid group of *Hypolimnas*, being therefore a side branch of that family of Lepidoptera which represents the origin of the genera *Picris*, *Papilio*, *Leptocircus*, *Parnassius* and the *Nymphalidae*. Although the majority of characteristics point towards the *Pieris-Papilio-Leptocircus* branch, still the structure of the male foreleg may be sufficient reason to place the genus at the head of the Nymphalids", or, according to FRUHSTORFER, with the *Apaturidae* where we have put them (STICHEL, in Zeitschrift für wissenschaftl. Insekten-Biologie 1911).

On page 462 two new geographical forms must be mentioned as subspecies of *C. buddha*: **fokienensis** *subsp. nov.*, a very light form, only clearer white than *lactaris Fruhst.*; type in the Tring Museum, from Kuatim (Northwest Fokien), where it occurs together with a gigantic Pierid, a probably undescribed form of *Aporia largetaui Oberth.* (Vol. 1, pl. 18 b). *fokienensis.*

C. avalokita *subsp. nov.* Upper surface with the greyish-white hyaline spots larger than in *buddha*. Under surface of hindwings evenly pale ochreous. Type from Siam, in the Tring Museum. The discovery of this form and its occurrence on the border of Siam and Burma side by side with *C. sudassana Melv.* (Vol. 9, p. 462), prove the specific rights of the latter as a separate species **C. sudassana**, so that we know at present three species of *Calinaga*. *avalokita.* *sudassana.*

55. Genus: **Herona** *Dbl.*

This genus which consists of only three species, agrees in venation as well as in the palpi and antennae, and altogether in structure, so closely with *Hestina* that only the quite different style of colouring and the somewhat different shape offer any reason for separating it as a genus of its own. The only characteristic of importance is the precostal which arises vertically, as in *Hestina assimilis*, in contradistinction to the excurved precostal of *H. nama*. The upper discocellular in the ♀ hindwing is longer than in *Hestina nama* ♀. Anatomically however, Herona is sharply separated from *Hestina* by the almost completely aborted uncus and the valve which, somewhat as in *Eulocera*, ends in a distinctly separated sharp point. Earlier stages unknown. The species prefer the forests; they are very shy; their flight is unsteady and restless, but they frequently alight on leaves or prominent branches; occasionally they creep about on the ground chasing after rotting fruit, or they alight on treetrunks with their head downwards. Distributed from Nepal and Sikkim to Tonkin, the Laos States, and from the Andamans to Bali.

Of **H. marathus** we know 4 local forms: **marathus** *Dbl.* (116 b), one of the commonest Himalaya Lepidoptera, which, however, never occurs in great numbers. ♀ somewhat paler ochreous than ♂. Dry season *marathus.*

specimens are smaller than our figures which are based on the wet season form. In Sikkim they occur at altitudes of from 3—4000 ft., where they are frequently met with on overripe fruit. Also at Bhamo and Fort Stedman in Burma *marathus* has been observed. But in Tenasserim we find **angustata** *Moore* which appears on account of the narrower and yellowish-white bands to be a transition to **andamana** *Moore* (116 b) in which the transverse bands are completely white. In Tonkin we find, curiously enough, again a form resembling *marathus* (= **marathon** *Fruhst.*), but easily recognized by the broader orange-yellow bands with a corresponding reduction of the black spots (rainy season), especially on the hindwings; here the black subanal spot is very broad and quite isolated, as is also the black discal spot, whereas in *marathus* it confluesces with the black distal border. Also the ♀ deviates considerably from those of Cachar, Sikkim and Assam, being coloured exactly as the ♂, whereas ♀♀ from India proper are whitish-yellow (dimorphic). Under surface, especially of forewings, paler than in *marathus*, with the whitish-violet bands greatly reduced and replaced by yellowish-brown. The species is new for Tonkin and Siam. Flies in June, July and January. Pavie also captured it in the Laos States.

angustata.

andamana.

marathon.

H. sumatrana takes the place of *marathus* in the Macromalayan Islands. Its flight resembles that of an *Euthalia*; it may be attracted by sweet banana-bait. **sumatrana** *Moore* resembles the figured *schönbergi* (116 b), differing only in having the whitish portions of the hindwings suffused with an intense violet tinge. A rare species, Dr. Martin capturing by the help of a number of natives only about 5—7 specimens in each year. I possess a ♀ from the Padang Bovenlanden. — **schönbergi** *Stgr.* (116 b) I only know from southeast Borneo. — **pringondani** *Fruhst.* (116 c). ♂ forewings light coffee-brown, with 2 white spots before the apex, and a broad, strongly excavated band of white reaching from the costa at the middle to the inner margin, displaying a pale violet iridescence between 3. and 1. median, and enclosing between 3. median and submedian 2 brownish spots. Termen deeply incurved near the lower radial, farther on undulate. Inner margin covered with fine yellowish hair to the middle of the wing. Underside straw-yellow, with bluish-white apex, a brownish terminal band and 3 oblique, brown, irregular bands in the cell, the outer of which reaches the inner margin. The spots in the subapical band are as above, more distinct than on the inner area. Hindwings strongly excavated, pale coffee-brown, covered with long brownish hair at base and inner margin. A rather broad blackish-fuscous terminal band marked in the upper half with 4 white lunules, almost obliterated in some specimens. A broad white submarginal band interrupted between costa and upper median by a dark brown zigzag band and another band arising near the termen at the first median and terminating at the anal angle. Within the white submarginal band, between subcostal and lower radial, an oblique, yellowish, triangular spot. Underside of hindwings suffused with whitish and violet, with a yellowish-brown terminal band tapering towards the anal margin, a brown, very irregular discal stripe from costa to submedian, and a brown band at the base of the upper radial. Inner margin clothed with white hair. Body and abdomen above with brown, beneath with white hair. Outer half of wings yellowish brown, inner half whitish. Antennae blackish-fuscous above, paler beneath, the clubs black all around, tipped with rufous. 69—73 mm. Type from East Java, at an altitude of about 1600 ft.; more scarce in the western part of the island, where I observed them only in the forests skirting the Bay of Palabuan; they were attracted by hung-up bananas, but could only be captured by exercising the utmost care. Doherty found them also in Bali.

sumatrana.

schönbergi.

pringondani.

H. djarang *Fruhst.* (116 b) is nearest to *H. pringondani Fruhst.* with which it agrees in size and the brown ground-colour, but from which it differs in the stouter wings, the less excavated apex and more rounded hindwings. On the forewings the subapical band much broader, the submarginal band of the hindwings narrower than in *pringondani*, with a brown spot in the white area between lower median and submedian. On the hindwing the narrow submarginal band only extends to the upper median, continuing thence to the anal angle in the shape of a fine line which is rather more distinct in ♀. Under surface darker than in *pringondani*, with the bands of the upper side more distinctly showing through, the whitish apex and the marginal intraradial spot absent. Termen of both wings with white fringe, but lacking the silky hair at the submedian. ♀ differs from ♂ only in size and the broader markings; palpi white instead of brownish. Body and antennae as in *pringondani*. ♂ 58, ♀ 70 mm. Nias, very scarce, only 4—5 specimens known, (1 pair in Fruhstorfer's, another in the Adams collection of the British Museum).

djarang.

56. Genus: **Euripus** *Westw.*

Formerly this genus comprised a number of quite different forms, being definitely circumscribed only by Moore. In one respect *Euripus* approaches *Hestina* with which it seems most closely related. We give here the distinguishing characteristics based on the type, *E. halitherses Dbl. a. Hew.*, in which species *Euripus* deviates from all other Apaturid genera by the position of the 2. subcostal nervule which arises even farther beyond the end of the cell than in *H. assimilis*, quite near the 3. But in its further course this nervule proves not at all constant in *Hestina*, for which reason it cannot be depended on to separate the two genera. The best means to distinguish *Euripus* from *Hestina nama* is the single, straight precostal, which, however, is straight also in *H. assimilis*. Although the *halitherses* ♀♀ differ widely from the ♂♂ in outward appearance, they closely agree in venation; in the palpi, however, they deviate considerably; those of the ♂♂ are quite normal, of the ♀♀ very long, the middle segment curved in S-shape, thickening at the end, the terminal segment quite minute and egg-shaped. Also the sexual organs differ but slightly from those of *Hestina*. Valve spatula-shaped, with the edges slightly turned upwards, not cut out distally as in *Hestina*. The most interesting characteristic of the genus is the dissimilarity between the sexes and the Polychroism of the ♂♂, in which they surpass even those of *Hypolimnas bolina*, almost every ♀ form mimicking a different *Euploea* model. But all the extremes are again connected with each other by intermediate forms, which however vary according to the locality, so that, f. i. we find ♀♀ with completely white hindwings only in Sikkim, those with yellowish-white hindwings only in Tonkin and entirely brown ♀♀ only in Borneo. This individual variability of the ♀♀ is augmented by a slight differentiation according to the season, which also influences the ♂♂ in that they may be lighter or darker, and on the islands we observe occasionally a change in the colour of the under surface of the hindwings. Mr. Bell discovered the earlier stages which were first described by Nicéville. Egg green, rather higher than broad, with 22 ribs. Larva on Urticaceae, like that of *Ergolis*, but distinguished by the absence of the dorsal spines characteristic of *Ergolis*. Head with two lateral horns and 3 or 4 short spines. Head and segments dark green. Pupa like that of *Apatura camiba Moore*. The three known species are distributed throughout the entire Oriental Region, from Sikkim to South India, Indo-China, the Philippines and Macromalayan Islands. In Ceylon the genus is not found, neither in Bali farther east, but is represented in Celebes by a wonderful species, the largest of the genus. ♂♂ occasionally frequent, ♀♀ everywhere extraordinarily scarce. Occurs on the lower hills, but never above 3000 ft.

E. halitherses is enormously sensitive toward climatic as well as geographical influences, having therefore developed a great number of local and insular forms. All inhabit the forest, and if there has been no rain for several days, and the hot sun beats down from a cloudless sky, they retreat to the cool and shady borders of watercourses where they have a rendez-vous on the moist sands. The ♂♂ like to alight on horsedung, with the wings closed, being so oblivious of every thingaround them that they may be taken up with the pincers. But on the wing they are very shy, their flight being jerking and unsteady, greatly resembling *Athyma* with which they may then be easily confounded. *halitherses Dbl.* (114 d) inhabits Sikkim and Assam, ♂ with bluish- *halitherses.*
white or more often yellowish blotches above. Of the ♀ we know 8 forms: **gulussa** *Fruhst.* (115 c). Hind- *gulussa.*
wings almost completely white, also the inner margin of the forewings laved with white, and with a broadly white transcellular oblique band. Presumably an extreme dry season form. Besides the typical form I also possess 2 ♀♀ from Sikkim showing a complete darkening of the submedian area of the forewing, and pale brown submarginal spots on the hindwing. After these comes **isa** *Moore* (114 d), interesting on account of its *isa.*
similarity to *Eupl. rhadamanthus F.* — **neda** *Fruhst.* is intermediate, with large white submarginal dots in a pale *neda.*
or dark brown border, hindwings with white stripes. — **pademoides** *Fruhst.* resembles somewhat the figured *pademoides.*
palavensis (115 c); a blue discal dash and a series of eight obsolete white stripes on the hindwings, all on brown ground. Very scarce, only known to me from Moore's figure (Lep. Indica III, pl. 204 fig. 1 and 1 a). —
haliartus *Fldr.*, another rare form having both wings brown above, bordered with blackish and dotted with *haliartus.*
violet. Forewings with white spot before the end of the cell and a whitish subapical band dissected by the ribs into 5 elongate spots the lower of which is obsolete. Hindwings white at base, with a submarginal row of white dots dusted with lilac. Under surface brown, with the markings of the upper side repeated. — **alcathoëoides** *Nicév.* Ground-colour brown, hindwings with the distal area laved with yellowish-white, mi- *alcathoë-*
micking *Euploea alcathoë*. Three ♀♀ from Siam and Assam have the forewings adorned by terminal spots arran- *oides.*
ged in pairs. Underside fuscous, with the terminal spots of the upper surface repeated, but without the yellow area in the place of which there are some yellowish submarginal dots terminating proximally in sharp points.

cinnamomeus. — **cinnamomeus** *Wood-Mas.* (114 d). One of the commonest forms, mimicking a blue *Euploea*. Forewings with violet or blue iridescence, hindwings with white terminal dots and occasionally some more or less prominent submarginal dots. — **nyctelius** *Dbl.* is a very scarce form, forewings purplish or violet, hindwings with steel-blue base, 3 discal black stripes and yellowish-white median area. — **gyrtone** *Fruhst.* resembles the preceding, but lacks on the hindwings the three basal streaks, and the forewings are adorned by a white transcellular band dusted with delicate violet. — **mastor** *Fruhst.* (115 d), from Farther India and Indo-China, larger and darker than the form of India proper. ♂♂ have the spots above shorter and more yellow. Hindwings darker, chiefly black, also underneath. Type from Tonkin, where the ♂♂ are not at all scarce in August and September. ♂♂ from Tenasserim are very much like *mastor*, but showing a resemblance also to *halitherses* from Assam. Siam ♂♂ (January) are smaller, spotted with yellow like *mastor*. It is quite probable that in Farther India all the ♀ forms mentioned under *halitherses* occur, *gulussa Fruhst.* excepted. Besides these there are found also some special modifications, such as ♀ fa. **phygalia** *Fruhst.* Ground-colour a dull coffee-brown, forewings as in *isa-neda*, but with the transcellular band faintly laved with yellowish. Hindwings cream-coloured throughout, with brown distal border. Underneath it resembles *neda* which likewise occurs in Tonkin. — ♀ fa. **hadria** *Fruhst.* is found, together with *cinnamomeus*, in Annam in November and December. Forewings with a whitish steel-blue transverse band. — **pfeifferae** *Fldr.*, from the Malay Peninsula. ♂ resembles the white-spotted *halitherses* ♂ of Sikkim, but with the black colouring increased and the white spots diminuished. ♀: Two forms known, one mimicking *Euploea rhadamanthus F.*, the other on which Felder's type was based, somewhat darker, both wings with uncommonly broad, black distal border, hindwings with but one white discal stripe. — **euploeoides** *Fldr.* is the brown form, somewhat resembling *palavensis*. Very scarce, ♀ not represented in my collection. — **sumatrensis** *subsp. nov.* Of the ♀ 3 forms are known: 1) Very rare, above uniformly brown, copying *euploeoides Fldr.*, 2) not unlike *isa Moore* and copying *Eupl. diocletianus F.*, not very scarce, 3) copying a blue *Euploea*, with blue or violet iridescence. According to Dr. Martin, the ♂♂ have a rapid flight like many *Athyma*, whereas the ♀♀ mimick also in their slow and sailing movements those *Euploeas* which they copy in their outer appearance. In one ♂ of the Tring Museum the white spots of the upper surface are nearly obliterated, but in general the ♂♂ have those spots larger than in *pfeifferae*. — **haterius** *subsp. nov.* (115 as *pfeifferae*) refers to the larger form of West Sumatra (only 1 ♀ in my collection captured in Padang Bovenlanden in the western part of the island. As usually, the western form surpasses *sumatrensis*, from the Northeast of the island, in size. The white spots of the hindwings are, as in *neda Fruhst.*, united with the discal strigae. — **niasicus** *Fruhst.* ♂ larger on the average than ♂♂ of the other *halitherses* forms, with the white stripes, especially in the cell, thinner and more isolated. On the under surface of the forewings the white marginal dots likewise more marked and always reaching the apex, in contradistinction to the other forms; also the hindwings excel in the rich white markings of the apical and subcellular area. — In contradistinction to these albino ♂♂, but still mimicking *Eupl. schreiberi Btlr.* the ♀ of *niasicus* is altogether blackish-fuscous, forewings with very faint violet irroration in the apical area and a white transverse band of 4 spots, the lower of which, as in *pfeifferae*, farther separate or reduced in size. Hindwings devoid of markings above, only the marginal dots showing through from underneath. ♀♀ extremely scarce. Island of Nias. — **javanus** *Fruhst.* varies most wonderfully, even in the ♂♂, of which hardly two are alike; my collection contains specimens from the eastern part of the island with white, bluish-grey, yellow or grey-green stripes. Besides these there occurs in East Java an aberration with nearly wholly black hindwings (= **lugubris** *Fruhst.*). Of the ♀ my collection contains 4 forms: **halizona** *Fruhst.* Forewing with apex pale violet, hindwings with a peculiar pale brown blotch growing broader apically and spreading over the entire marginal area. — ♀ fa. **albostictica** *form. nov.* replaces *cinnamomeus* in Java. Forewings steel-blue, with the apex delicately irrorated with violet. Hindwings brown, with prominent white terminal dots; on the wing it resembles *Hypolimnas anomala*. — ♀ fa. **pfeifferoides** *Fruhst.* replaces *isa Moore*. Steel-blue above, with the white spots reduced. — ♀ fa. **daniseppa** *Fruhst.* has on pale brown ground the markings of *Eupl. alcidice*, resembling the mainland form *neda Fruhst.*, copying on the wing the ♀ of *Eupl. alcidice Hbn.* ♂♂ from West Java are larger than those from the East, with the yellowish areas of the upper surface correspondingly larger. Everywhere to be found in open woods, at elevations of 1500—2500 ft. — In **borneensis** *Dist.* the variability of the ♀♀ reaches its maximum. Besides the 3 forms established by me formerly, viz: **uniformis** *Fruhst.* with uniformly brown upper surface, **loweimima** *Fruhst.*, likewise brown, but with the markings of *Eupl. lowei*, and **crastiana** *Fruhst.*, steelblue, with intensely whitish-violet apex of the forewings, the Tring Museum contains the following forms: **strigata** *form. nov.* Hindwings with blackish-blue basal stripes, distal area light brown. — **euploeina** *form. nov.*, resembling *loweimima*, but with blue ground-colour. Then there are ♀♀ with dark blue forewings and the apex striped with pale blue, such that are brown, with 2 rows of white patches in the submarginal area of the forewings, analogous to the mainland form

nyctetius. *gyrtone.* *mastor.* *phygalia.* *hadria.* *pfeifferae.* *euploeoides.* *sumatrensis.* *haterius.* *niasicus.* *javanus.* *lugubris.* *halizona.* *albostictica.* *pfeifferoides.* *daniseppa.* *borneensis.* *uniformis.* *loweimima.* *crastiana.* *strigata.* *euploeina.*

alcathoëoides Nicév. (= fa. **biseriata** *form. nov.*). — From the island of Banguey Staudinger received specimens which I name **aphelion** *subsp. nov.* ♂ smaller in size and with paler, almost white, spots than ♂♂ from Palawan, ♀ brown, with the submarginal spots on the hindwings faded whitish and partially confluent. — Of **palawanicus** *Fruhst.* (115 c as *palavensis*) I possess 2 forms of the ♀: our figure represents a brown form resembling *Eupl. butra*, with the white marginal spots obsolete; the other, **avara** *form. nov.*, largely cream-coloured, upper surface with a network of brown markings. ♂♂ according to Staudinger analogous to *halitherses Dbl.* ♂, but with the white costal spots reduced on the forewings. Island of Palawan; January. — **clytia** *Fldr.* (= ankaeus *Semp.* ♂), the oldest name of the North Philippine form, which Semper unfortunately transferred to the Mindanao and Camiguin de Mindanao form, causing thereby much confusion. ♂ with the pale markings of the upper surface smaller than in typical *halitherses* from Sikkim; the middle macular band at the costa farther apart from the distal one. On the hindwings not only the outer rows of dots, but also the intranerval spots larger than in Sikkim ♂♂. Ground-colour a deep steel-green, with the white markings less greenish-yellow than in *halitherses*. Of the ♀ Felder knew an interesting form mimicking *Euploea tobleri Semp.*, also resembling somewhat *Elymnias melias Fldr.* Forewing with 2 rows of white interlaced streaks. — **nysia** *Semp.* is a ♂ form from Bohol, according to Semper's figure (Schmett. d. Philippinen, pl. 15, f. 11—12), with brownish-yellow patches above, similar to those of the form of Mindanao and Camiguin de Mindanao. The corresponding ♀ differs from *clytia* in having the subapical spot more frayed out, but the white discal spots on the forewings increased. — **arestheion** *subsp. nov.* refers to the Mindoro form the ♀♀ of which are distinguished by unusually brillant colouring; one of them, however, is uniformly brown above, without any traces of white submarginal spots. Others have on the forewings white spots in the cell, the median and submarginal areas, and the hindwings nearly entirely white, faintly suffused with blue. — **lucasioides** *Semp.*, first used by its author to designate a certain ♀ form, may serve as the common name of the southern Philippine form, the type of which came from Camiguin de Mindanao. ♀ flies in March and April; resembles *palawanicus* ♀ (115 c), but with the white blotches on the hindwings separated and more conspicuous. — As **semperi** *form. nov.* I wish to introduce the deep steel-blue variety figured by Semper as *cinnamomeus* (pl. 15, f. 8); likewise from Camiguin de Mindanao. — **peirithous** *subsp. nov.* has among all the Philippine forms the greatest number of varieties, being at the same time the largest in size; Semper figured the ♂ erroneously as *clythia Fldr.* Of the ♀ he knew the brown form, resembling *Eupl. lucasi*, with large, streak-like submarginal spots on the hindwings. Besides these I saw in the Staudinger collection ♀♀ with white subapical bands on the forewings, others with blue transverse bands (= **coelestina** *form. nov.*).

biseriata. *aphelion.* *palawanicus.* *avara.* *clytia.* *nysia.* *arestheion.* *lucasioides.* *semperi.* *peirithous.* *coelestina.*

E. robustus takes the place of *habitherses* in Celebes, whence we know two local forms: **robustus** *Wall.* (= holofermes *Stgr.*) (115 c), distinguished by its large size, the nearly black forewings and the hindwings marked as in *halitherses*. ♀ easily recognized by the nearly square outline of the wings. Ground-colour pale coffee-brown, forewing with 4 square white spots in cell, hindwing with a similar large subbasal blotch; both upper and under surfaces with whitish-grey terminal dots arranged in pairs. Minahassa, North Celebes. — **myrinoides** *Fruhst.* Ground-colour paler than in ♀♀ from the North, with faint violet iridescence of the upper surface, marked somewhat like *Cethosia myrina.* From the neighbourhood of the Falls of Maros. Very scarce.

robustus. *myrinoides.*

E. consimilis is distinguished by the most highly developed sexual Heteromorphism, in which it even surpasses *halitherses*. Of all three local races the ♂♂ are distinguished by the lovely crimson blotches at the anal angle of the hindwings to which is added on the underside of the hindwings an equally intense crimson basal spot. The ♀♀ do not have this red anal ornament, but retain the basal spot on the underside of the secondaries. They show in general the same modifications of *halitherses* ♀, but the colouring inclines rather to whitish or yellowish. — Larva on Trema orientalis, an Urticaea, described in the general diagnosis. The eggs are deposited on the upper side of the leaves or close to the apex underneath. When hatched the young caterpillars partly eat the eggshells, after which they spin on the upper surface of the leaves a sort of nest. Later it sits on the middle rib of the leaf which it coveres with a fine silk web, above which it spins a sort of net which covers the entire larva, even its horns being invisible. — **consimilis** *Westw.* (114 d), from the North-west Himalayas to Nepal, Bhotan, Sikkim and Upper Burma; ♂ with the red marks of the hindwings narrower than in *eurinus* ♂ (115 c). Of the ♀ only two forms have been described: One clear white (114 d), the other of ivory colour; the former may display a more or less intense milky lustre. Only a few specimens were captured in each locality as f. i. at Dehra-Dun, Masuri, Kumaon Himalaya, Nepal, the Terai (Sikkim), mentioned by

consimilis.

meridionalis. Moore (Lep. Indica III, p. 46). — **meridionalis** *Wood-Mas.* inhabits southern India where Doherty found it in the Eastern Ghats as high as 5000 ft. Bell discovered the larva in the Kanara District. The name-type *eurinus.* came from Trevandrum, Travancore. — **eurinus** *Fruhst.* (115 c ♂, d ♀). ♂ differs in the broader black distal border of the hindwings from Indian *consimilis*. Among the ♀♀ we know those with white abdomen, ringed *amala.* with black dorsally, and those with entirely black abdomen. To the former belong: ♀ fa. **amala** *Fruhst.* *sunta.* Ground-colour yellowish; its general appearance reminds us of *Parhestina mena Moore.* — ♀ **sunta** *Fruhst.* (115 c), clear white, suffused with milky blue; differing from *consimilis* ♀ in the black intramedian submarginal spots on the hindwings. Discovered by Pavie in Siam, between Bangkok and Xieng-Mai, figured by Poujade *diocletiana.* in Nouvelles Archives du Musée de Paris. — ♀ fa. **diocletiana** *Fruhst.* A lovely form copying *Eupl. diocletianus* (*rhadamanthus*), analogous to *Euripus halitherses* ♀ ab. *isa* (Moore, fig. 1 b, pl. 203), differing from it only in the absence of the white apical spots on the forewings and of the white punctate row on the hindwing. Before the apex of the cell in the forewing a very broad white blotch, at the base a bluish-white wedge-shaped spot, and an indistinct suffusion on the submedian nervure. At the anal angle a rudimentary red spot. Under- *gudila.* side as above, but with the white marginal dots broader. Abdomen black. — ♀ **gudila** *Fruhst.* (115 d). Ground-colour blackish-blue. Forewings with 6 indistinct white admarginal spots towards the anal angle, and 3 blue, obsolete submarginal spots. Hindwing with a distinct row of white terminal dots and a submarginal row of 5 heavy, nearly quadrate, clear white spots growing narrower inwardly. Between 3. median and submedian a red dot. Under surface as above, with the admarginal dots on the forewings more distinct, but the rest reduced and less clear white. Abdomen black, dotted with white beneath. This aberration has some resemblance *triquilla.* with *Pap. papone Westw.* — ♀ **triquilla** *Fruhst.* Entirely bluish-black, with a few obsolete terminal dots on the hindwing and an obsolete red dot. Under surface: Apical area of the forewings and the hindwings dark fuscous. Basal area of forewings blue-black, distal area of hindwing jet-black. Both wings with several white admarginal dots, otherwise unmarked. The ♂♂ of *eurinus* are extraordinarily shy. I encountered them only in the forenoon in open woods, where they rested in the hottest sunshine on dead limbs, even of felled trees. When frightened they fly over the tops of the highest trees into the woods. After a long absence, however, they return to their resting place. The ♀♀ I always saw at the borders of half dried-up water-holes grown with rushes, resting with the wings folded, very much like the ♀♀ of certain Euploids and *Papilio*. They also are exceedingly wary and it is for that reason very difficult to capture really good specimens. I wish to add that all my specimens, both ♂♂ and ♀♀, I took within a very few days early in February, the dry and relatively cold period, but it seems that there also occurs a second brood, for Otto Möller took *E. consimilis* in the Terai (Sikkim) between July and September. Major Adamson found some ♂♂ at Bhamo in October and November, the ♀♀ in May.

57. Genus: **Helcyra** *Fldr.*

The two species of this genus count among the most interesting butterflies of Asia, first on account of their plain white and black upper surface and the charaxoid silverwhite underside, and second on account of their irregular distribution in China and the Eastern Himalayas, then again in Java, Amboina and New Guinea. Dr. Martin wrote that one of his collectors found near Macassar a form closely allied to *H. hemina*, from which it would appear that *Helcyra* has about the same distribution as the genus *Dichorrhagia*, only that the range of the latter extends farther in the Macromalayan Archipelago. Sexual organs apaturoid, uncus and valve of about equal length; the former with feebly curved point, valve like that of *Apatura* produced so to form a lobe, gently rounded ventrally, with a spine-like dorsal appendage at the middle. Penis long, sword-shaped, saccus thread-like.

superba. Of **H. hemina** we know 3 local forms in the Indian Region: **superba** *Leech* (Vol. I, p. 168, pl. 52 b) has *hemina.* come frequently to Europe during the past few decades. Western China. — **hemina** *Hew.* (116 c) is one of the rarest Sikkim-butterflies, flying during summer at altitudes of from 3000—4000 ft. Its flight is very rapid. In Assam it is during some years somewhat more abundant. Doherty found a ♂ in the Naga Hills, and several *masinia.* other specimens near the ruby mines in Upper Burma, in June. — **masinia** *Fruhst.* (116 c) I discovered in 1892 on the edge of a creek on the Plateau of Pengalengan (West Java) at an elevation of about 4500 ft.; I first thought it was a dwarf *Eriboea delphis*; ground-colour rather yellowish-green instead of milky-white, the distal border of the forewings growing broader anally. On the hindwings the admarginal band and the black submarginal spots broader, especially in the ♀♀. Under surface even darker than the upper surface. All the

black markings much more transparent, and the fine submarginal lunules thinner than in *hemina*. ♂ 38 mm, ♀ 43 mm. The black border of the hindwings is broader than in Hewitson's figure of *hemina*, and the rather larger black spots on the hindwings have no fine black lunules on the side towards the base. According to Snellen, *hemina* is mentioned in Dr. H. J. Veth's „Uebersicht dessen, was insbesondere durch die Niederlande geschehen ist für die Kenntnis der Fauna von Niederländisch Indien", Leiden 1879, which says that Messrs. Kuhl and van Hasselt discovered *hemina* in Java as early as 1820—22, and that the specimen is in the Museum of Leiden. But it was I who in 1893 first described the Java form. — A closely allied form was observed by Doherty from Pada-Dalung in Sumba, but could not be captured, and Dr. Hagen reported having received once 4 wings of a *Helcyra* in Celebes*); this would probably be a transition to **H. chionippe**, of which we know two insular races: **chionippe** *Fldr.*, one of the greatest rarities of Amboina (surely also in Ceram), larger than *hemina* and *masinia*. Under surface of hindwings broadly bordered with black. — **thyiada** *subsp. nov.*, discovered by Meek on the Aroa River (British New Guinea), after Hagen had already in 1897 reported it from the Sattelberg in Kaiser Wilhelmsland. Smaller in size than the Moluccan *chionippe*, and the upper surface of the hindwings more broadly bordered with black; underneath this border may or may not be present. — As **kibleri** *Weym.* a similar form was discribed from the Arfak Mountains in Dutch New Guinea; ♀ with only two or three white subapical spots on the forewings. *chionippe.* *thyiada.* *kibleri.*

58. Genus: **Apaturina** *H.-Schäff.*

This, the last genus of the *Apatura* group, is at once distinguished by its great size; the ocelli between 1. and 2. median nervules so characteristic of *Apatura*, which in most of the preceding genera were more or less indistinct, are generally quite complete, both on the upper and lower surfaces of either wing. From *Apatura* it only differs in having the cells closed. Palpi and antennae quite like those of *Apatura*; in venation it deviates but very slightly; the 3. subcostal nervule arises a little nearer to the end of the cell, and the precostal of the hindwing is bifurcate at the end, but the latter is in all Apaturids not constant. Both species of this genus count among the loveliest and largest Apaturids in the eastern Tropics. Ground-colour above black, with a yellowish or white macular band before the apex of the forewings; but the disk of the hindwing and the base of the forewing display a gorgeous iridescence of steel-blue changing to a metallic green or violet, according to the angle of vision. (Dr. Schatz). Sexual organs as in *Apatura*; uncus shorter than valve, which latter is nearly triangular, with a dorsal lobe. Tegumen with distinct scaphium, revealing thereby its relationship with *Dichorrhagia*. Penis sword-shaped, saccus thread-like. Inhabits the lowlands in Melanesia and the Moluccan Subregion.

A. erminea is found throughout the Moluccas and Papuan islands in a number of different forms, some of which are sharply enough separated to deserve specific rights. Only one form with brown ♀♀ (*papuana*) has been examined anatomically; and it is not unlikely that the forms with ♂-like ♀♀ belong to a separate species. But since there exist in the ♂ sex some intermediate forms, connecting *erminea* (with brown ♀♀) with the North Moluccan form (with blue ♀♀), there exist possibly also ♀♀ connecting the otherwise separate forms. Leaving these questions to the future, we here separate **erminea** *Cr.* (114 a). ♂ forewings with white bands, ♀ like *papuana* ♀ (114 a), but larger and with the ground-colour of the hindwings fulvous instead of yellowish-brown. Also the apical spots white. Under surface of hindwings very richly adorned with white, with the postdiscal dots larger than in the other forms. Scarce, in Amboina and Ceram. — **mirona** *Fruhst.*, the Buru form, approaches — strange to say — much more *ribbei Röb.* from Batjan than *erminea Cr.* from the much nearer islands of Ceram and Amboina; indeed it resembles it to such an extent that none but a very practised eye can discover that the lustre of the wings is more blue than greenish, as in *ribbei*. On the forewings the subapical dots roundish as in Obi specimens, and not so triangular as in *ribbei*; the blue submarginal band of the hindwings broader than in *ribbei*, but narrower than in *erminea* from Amboina. Under surface lighter than in *ribbei*, the eye-spot between 2. and 3. median on the hindwings more obsolete. *mirona* is intermediate between *erminea* from the southern and *ribbei* from the northern Moluccas, but is the smallest of all known forms. Island of Buru, Miro. November. My collection contains no ♀♀, and Holland received from Doherty only ♂♂, so that I assume the ♀♀ are still unknown. — **erinna** *Fruhst.* differs from all the allied forms in *erminea.* *mirona.* *erinna.*

*) *H. celebensis Mart* was discovered by its author also at Palu (Central Celebes); both wings have the brown distal margins twice as wide as in *masinia*.

having on the forewings the subapical band very broad and yellowish-brown, not clear white as in its nearest ally *erminea Cr.* from Amboina. The ♀ has the wings more rounded than the ♂, and differs, aside from the yellowish-brown band on the forewing, from *ribbei* (which has the subapical band white) in the broader, black outer border of the hindwings. Moreover *erinna* has on the hindwings 4 submarginal bluish-white dots, which are not found in *ribbei*. ♀ somewhat paler blue than ♂. Brown ♀♀ such as I possess from Amboina and

ribbei. New Guinea, I never received from Obi. Island of Obi. — **ribbei** *Röb.*, a distinct island form, differs both from *erinna* and *erminea* in having the transverse bands on the forewing much narrower, with only the two costal spots white, whereas the rest assume a yellowish tone, without, however, being so deep clay-yellow as the very broad bands of *erinna* of Obi. The ♀ has on the forewing the macular band nearly white, quite faintly dusted with yellowish-grey and greenish, and on the hindwings the ground-colour of the upper surface a

octavia. striking pale blue. Batjan and Halmaheira. — **octavia** *Fruhst.*, from Waigeu, differs from *papuana Ribbe* from Dutch and German New Guinea in the greenish instead of blue iridescence of both wings. On the forewings the white subapical dots much larger, clearer white, the uppermost elongate; the subapical band broader and deeper yellow, but not so large as in *erinna Fruhst.* from Obi. Between middle and lower median a distinctly blackish-blue centred ocellus which even in the freshest New Guinea specimens either is absent or only shows faintly through from beneath. Hindwings with broader black border, the black submarginal lunules more prominent. Between the upper and middle median nervules always a small, black, greenish centred ocellus, not found in *papuana*, or quite minute in ♀, but very distinct in *erinna*. In this *octavia* comes much closer to the Moluccan forms than *papuana* from New Guinea. Under surface of both wings darker, with all the white dots and bands more distinct and clearer white, the blue spotting of the hindwings more intense, likewise the black

papuana. dots in the cell of the hindwings. ♀♀ unknown. Island of Waigeu. — **papuana** *Ribbe* (114 a) represents a retrogression to *erminea*, the ♀♀ being brown instead of blue. ♂ above a beautiful steel-blue, not greenish as *octavia* ♂♂. In my large series of ♂♂ no difference appears to exist between specimens from Dutch and Ger-

microps. man New Guinea. — **microps** *Röb.* is an aberrative form with very small ocelli on the hindwings. According to Hagen it is not scarce, being generally found resting on the trunks of trees, with the head downwards and the wings closed. A rapid flier, using his wings, however, only when scared and generally returning to his

antonia. old resting place. November till July. — **antonia** *Fruhst.* approaches *octavia Fruhst.* in the dark greenish colouring and the broad black border of the hindwing, differing from *papuana Ribbe* in having the submarginal band on the forewings narrower but nearly dark fulvous, composed of smaller, more isolated spots. Underneath darker than *papuana*, with the blue spots on the forewings and the white discal dots on the hindwings greatly reduced, but on the hindwings the brown bands broader and more distinct. Milne Bay (British New Guinea).

xanthocera. ♀ not in my collection. — **xanthocera** *Rothsch.*, from the Solomon Islands, has the hindwings underneath chiefly fulvous, above very broadly bordered with black. Forewings pale brown at the base, with relatively

aluna. narrow transverse band. Choiseul. — **aluna** *Fruhst.*, rather smaller than the preceding, with the borders of the hindwings narrower. Island of Alu in the Straits of Bougainville.

neopommerania. **A. neopommerania** *Hag.* differs from the allied forms in the presence of a black, slightly waved middle line on the upper surface of the hindwings, the peculiar olive-green ground-colour and very broad, clear white transverse band of the forewings in which it resembles *erminea*. Sexes monomorphic. ♀ with the band on the forewings even larger than in ♂. Neu-Pommern, a local form also in Neu-Mecklenburg.

Tribus Charaxidi.

On the forewings the median vein with a short basal spur; 3. subcostal nervule ending in the apex; 4. subcostal very long, downcurved at the end, running to the outer margin (in *Siderone* and allies to the apex or a point just before it). Larva smooth, with 2 or 4 horns at the head, abdomen ending in 2 more or less long points. Several genera: *Prothoë, Eriboea, Charaxes.*

59. Genus: **Prothoë** *Hbn.*

The genus *Prothoë* is in the frequently most gorgeous colouring of the under surface related to *Charaxes* in the same way as *Agrias* is to *Prepona*.

In venation *Prothoë* closely follows *Charaxes*, although in its outward appearance displaying only in one species the *Charaxes* character; the only, apparently constant, structural difference is the straight, at the extremity obliquely cut off precostal. But all the *Prothoë* species are easy to recognize by the shape of their hindwings which are never provided with tails, only at the third median nervule projecting in a most characteristic manner to form a blunt lobe. Among the species of *Prothoë* we may distinguish three types all of which show a rather gradual change in venation and in the shape of the wings as well as in the markings, being represented by *P. calydonia Hew.*, *P. franckii Godt.* and *P. australis Guer.* Whereas in the first the *Charaxes*-type is very clearly retained, this grows less distinct in *franckii*, developing finally in *P. australis* and its allies quite a new form. This progression finds a good expression also in venation, f. i. the position of the 3. and 4. subcostal and the discocellulars. Thus in *calydonia* the former arise, exactly as in *Charaxes*, a short distance beyond the end of the cell, running very close together, whereas in *franckii* and *mulderi* (a form closely related to *australis*) they branch off far beyond the end of the cell and are farther apart. The lower discocellular is in *calydonia* only feebly curved (in *Charaxes* straight), but in *franckii* and *mulderi* forming an obtuse angle. The upper discocellular in the hindwings is in the former pretty large, in the latter very small. The ♂♂ of *P. franckii* possess a scent apparatus in the shape of a stiff, pale brown hairpencil, resembling that of *Agrias* (but lacking the pouch at the inner side of the hind margin); in *mulderi* the hair found along the submedian is similarly stiff, whereas in *calydonia* it is soft as in *Charaxes*, apparently not exercising the functions of a scent-organ. Among the *Prothoë* it is *P. calydonia* that surpasses in the gorgeous colouring of the under surface all other butterflies; one may well name it the *Agrias* of tropical India, although the plain yellowish-white, on the hindwings more bluish-white and black bordered upper surface but slightly resembles the wonderful forms of its South American allies. But the underside is so wonderfully and richly adorned by all possible colours in red, yellow, blue, green and black that it is not surpassed by any other species, at least of day-butterflies. Quite unique as to the colouring of the wings is *P. franckii*, displaying on the forewings above a broad glossy sky-blue band on a dark ground, but resembling in no manner *calydonia* beneath. Quite different again both in shape and colouring are *P. australis* and its allies, which in the feeble structure of their wings greatly deviate from *Charaxes* even in their outward appearance, displaying on the upperside both of fore and hindwings a large yellowish blotch on dark, blackish, sometimes also white ground, on the under surface in adidtion also pale dots and streaks (Dr. SCHATZ). The sexual organs are characterized by the limenitoid shape of the valve provided in the middle of the extremity with a more heavily chitinized elongate spine of a peculiar, distally flattened cylindrical shape; tegumen with membranous scaphium. Penis short, moderately broad. The earlier stages are unknown. All the *Prothoë* inhabit solely the forests, each species diffing in their manner of flight. With the exception of the Papuan forms, all are extremely shy, but are attracted by the sap oozing from wounded tress and by rotting fruit. When frightened, they generally seek out some high prominent branch or limb, but constantly return to their old place where one may patiently await them. The typical species belong for the most part to the Papuan Region, *calydonia* and *franckii* being hitherto only found in the Macromalayan Archipelago, in Farther India and the Philippines.

Two groups may be distinguished:

Discocellular in the forewings strongly curved: **Prothoë** *Hbn.*

Discocellular in the forewings almost straight: **Agatasa** *Moore.*

Group A: **Prothoë** *Hbn.*

P. regalis *Btlr.* A prominent species, representing possibly the Assam form of the Macromalay-Philippine *franckii*, which it resembles above, but with the blue band more than twice as broad and entirely devoid of all whitish markings, only on the forewings two white preapical dots. Hindwings with the anal lobes shorter than in *franckii*, but with a second, sharply pointed, inner appendage. Under surface much darker than in *borneensis* (121 b), having on the hindwings deep green subterminal blotches and more prominent black spots. Very scarce, only 2 ♂♂ being known, the type coming from Manipur, the other from Sadiya near Margherita (Upper Assam). *regalis.*

P. franckii is one of the most lovely day-butterflies of the Region where it is found. Upper surface with a blue transverse band, varying, according to the locality, in width and intensity, and mottled with more or less white. Forewings with three preapical spots, on the hindwings the costal border, especially of the ♀♀, with a distinct (Philippines) or blurred white costal border. Under surface with indescribably lovely colouring and markings. Forewings again with or without band, in the main land forms marked in the lower median *franckii.*

interspace with a distinct ≍ like figure. Hindwings with moss-grey or blue-green, proximally oblong submarginal spots and one or two reddish or brownish subanal lunules. Inhabitants of the forest, confined to the lower
angelica. plains and ascending on the lower hills to about 1500 feet. — **angelica** *Btlr.* (type from Tenasserim), resembles somewhat *franckii*, but has the white, blue bordered band not complete, but broken up into a series of 5 white isolated spots extending to the lower median. Under surface darker than in the insular races, with the black area broader, covering nearly the entire anterior third of the hindwings. According to Doherty sometimes rather common at the foot of the Karen Hills, met with once on the decaying carcass of a dead Python. Hauxwell states that it is extremely shy, alighting preferably on treetrunks, never more than two or three feet
nausikaa. above the ground. It flies from March till September. — **nausikaa** *Fruhst.*, a local race newly discovered in Tonkin distinguished by its large size, of which I only captured 3 ♀♀ during the rainy season. Its size is about ⅓ larger than *franckii* from Java or even West Sumatra; the white stripe within the blue band on the forewings more irregular on both sides, appearing, as it were, torn and frayed out. Forewings underneath with bluish-white median spots; hindwings with sharply defined, black elongate spots, embedded on grey ground.
vilma. The lunulate subanal spot deep redbrown, very narrow. — **vilma** *Fruhst.* differs from *uniformis Btlr.* of Perak in having the scent-hair on the hindwings grey instead of red-brown, and in the pale blue transverse band of the forewings; the white stripe but faintly indicated and scaled with blue. The upper surface of the hindwings is not dark, but dusted with pale greyish blue. From *nausicaa* of Tonkin with which *vilma* shares the unusually deep and broad black spots, the Siam form differs in the small size and the narrow white streak within the blue band on the forewing, characterizing *franckii* and its local forms. But on the underside of the forewings both *nausicaa* and *vilma* have a common, though insignificant characteristic which is not found in any other form of *franckii*, consisting in a transverse X mark embedded between the middle and lower median. ♂ forewing measures 48 mm. Muok-Lek (Central Siam), February (dry season) at an altitude of 1000 ft. —
uniformis. **uniformis** *Btlr.* is found in the Malay Peninsula, differing from the northerly forms in the unicolorous blue band on the forewings; according to Distant there occur also specimens with white mottling, forming a transition
nicostrate. to *angelica Btlr.* from Tenasserim and *vilma* of Siam. — **nicostrate** *Fruhst.* was discovered by Dr. Hagen on the island of Banka in May 1905. In contradistinction to *uniformis*, the blue area of the forewings is interrupted
irma. by broad blue mottling. — **irma** *subsp. nov.* refers to the large-sized form of western Sumatra. Although larger than *uniformis*, the very broad pale cobalt-blue band of the forewings is only marked with white in places, only the spots at the costal margins being clear white. Under surface characterized by the relatively large, dull reddish brown subanal spots. From near Padang-Pandjang, where it is not very scarce. 10 ♂♂, 6 ♀♀ in my collection. Specimens from Northeastern Sumatra are smaller, representing a transition to *nicostrate* from Banka, in the more conspicuous white spots within the blue band on the forewings. Hagen reports about the Sumatra form of *franckii* that it generally is only encountered in the deepest woods, where it may be observed in the morning and evening sipping the sap of trees, with the wings extended or alternatingly opening and closing, generally together with *Amathusia*, *Kallima* and *Neorina*. They also alight with their head downwards and the wings closed, on tree trunks at about man's height, being well protected by the moss-green and grey colouring
niasica. of their under side. — **niasica** *Röb.* is by its author compared with *borneensis* (121 b), but somewhat smaller, with the white spots on the forewings sometimes very much blurred. Underneath easily recognized by the much larger brown anal spot on the hindwings and the increased brown spots in the submarginal and outer median areas, also by the peculiar yellowish-grey tinge of the basal zone of the hindwings. Island of Nias, only ♂♂
cephalinia. are known. — **cephalinia** *subsp. nov.* has on the forewing the white band narrower, more richly suffused with blue than *niasica*. The subapical spots on the forewings, however, larger than in the Nias form. Under surface with a broader violet oblique band. Hindwings with a complete row of dark green, uniform anteterminal
franckii. spots, approaching *irma* from West Sumatra. Batu Islands, type in the British Museum. — In **franckii** *Godt.* (121 b) the white bands reach among the true Macromalayan races their maximum development, displaying in the ♀ only a feebly blue tinge at the outside. Also on the under side the blue-white band and paler yellow apical area of the forewings differ from those of *irma Fruhst.* East and West Java, especially in the East, where I could capture large series of this lovely species on hung-up fruit, in the then existing beautiful forests of the Zuider Mountains to the South of Malang at about 1000—1600 ft. of altitude. Unless attracted by some bait, *franckii* is met with only singly, being extremely shy, and appearing as a rule only during the hours of the forenoon, hiding during the afternoon in the shade of the woods. Occasionally it alights on treetrunks, always with the head downwards, like the American *Prepona*, and loves to sip the sweet or fermenting sap. It is easily scared and may only be captured with the utmost care. Its flight is uncertain, jerking. But like all *Prothoë*, they return

to their old locality, alighting on high and prominent branches, where they can only be approached with difficulty. Doherty discovered *franckii* also on the island of Bali. — **borneensis** *subsp. nov.* (121 b) closely follows *uniformis* of Perak, resembling in the well developed white markings of the band on the forewings *angelica Btlr.* of Tenasserim. ♂♂ above less richly blue than ♀♀ of *uniformis Btlr.* of Perak, but paler grey green beneath. ♀ underneath representing a transition between *irma Fruhst.* of Sumatra and *franckii Godt.* of Java. Forewing with the band smaller than in the Java form, but more distinct than in the Sumatra form. From North Borneo; one ♀ from the South of the island in the Fruhstorfer collection. — **aphrodite** *Fruhst.* represents a retrogression to the Java form *franckii* which it absolutely resembles, also in the pale greenish-grey irroration of the basal area of the upper surface of both wings and the but slightly narrower, but more sharply defined white band. Under surface with the inner portion of the hindwings paler grey, the pointed arches grey instead of green, the anal spots brillant green. Palawan (January), very scarce, only 2 ♀♀ in the Fruhstorfer collection. — **semperi** *Honr.*, a distinct insular form, from Mindanao, has in either sex on the forewings the same narrow, clear white, but sharply cut off longitudinal band, only very faintly bordered with deep violet blue. The basal half of the upper surface steel-blue, without the greenish admixture of *aphrodite* and *frankii*. Also the black costal area of the hindwings more sharply bordered, as in all the Philippine forms. Under surface of the forewings with heavier black spots than in the Macromalayan and continental races. The pointed arches on the hindwings, particularly between the radials, longer, dusted with pale green. Inner half of the hindwings just as pale grey as in *aphrodite* from Palawan. Semper received specimens taken in East Mindanao in October and November, from the South-East of the island between January and March. Doherty took one ♀ contained in my collection in February, and one ♂ was observed in Panaon during May. — **plateni** *Semp.* may be recognized by the broad distally irregular band on the forewings which latter has moreover the black spot before the apex of the cell larger. Under surface with yellowish instead of reddish-brown terminal spots on the forewings, with 3 pale yellow blotches at the inner angle of the hindwings, not found in *semperi*, and with the submarginal arches bluish-green instead of grey. Mindoro. Structurally all the forms of *franckii* have one characteristic in common, namely the very close proximity of the first subcostal to the costal vein, which almost seem to anastomose. *calydonia* and *australis* have the subcostalis free.

borneensis.

aphrodite.

semperi.

plateni.

P. australis and its numerous allies inhabit the Papuan Region and North Moluccas and Buru. All the forms belonging here are, in contradistinction to the West Malay *franckii* and *calydonia*, in the process of evolution, displaying, with the exception of the shape of the wings, no constant characteristic outside of their persistant variability which affects both sexes in almost even measure; indeed we observe in *Prothoë australis* the very rare case (*Euthalia*, *Charaxes* and *Hypolimnas* excepted) that also the monomorphic ♂♂ may differ widely in colouring and markings. But on a close examination of the *Prothoë* forms of New Guinea, we find, nothithstanding all their variability, certain characteristics predominating within certain geographical limits, which imprint upon the particular subspecies a certain character more difficultly expressed and described than recognized by the eyes. Northern Dutch as well as German New Guinea have a very large-sized form in common. The ♂♂ are either black, or have the forewings adorned with a broad yellowish contiguous median band. The ♀ has on the forewings white elongate median intranerval streaks scaled with violet all around. In British New Guinea we encounter a dwarf race of darker colour, lacking on the forewing the contiguous longitudinal band and, in the ♀♀, the violet irroration. But in their place there exists a form with an almost always complete submarginal row of small yellow dots on the forewings, hardly ever seen in *hewitsoni* ♂♂. But the median band is reduced, extending in 9 of my specimens only from the middle of the wings to the submarginal line. Moreover, there are always 2 spots in the middle of the costal border of the forewings, which are not found in 9 of my German New Guinea specimens, although present in 12 from British New Guinea. — **mulderi** *Voll.* (121 b) has also ♂-like ♀♀, spotted with greenish-yellow, with 3 isolate yellow discal blotches on the forewings, and in addition ♀♀ of a third form, dusted with yellowish between cell-wall and submedian of the forewing. Batjan, Halmaheira. — **dohertyi** *Holl.* is a smaller form of the island of Buru, recognised by the deep yellow spots on the under surface of both wings. Of the ♀ I only possess the form with white upperside, like *mulderi* ♀. — **australis** *Guér.*, the name-type, came probably first from Waigeu. Here the predominating form of the ♂ has on the forewing the yellowish median band contiguous (4 out of 5 specimens) and a submarginal row of 4—7 yellowish dots; these are very prominent in one ♂, the median band on the forewing being clear white, very broad, and the basal area of the hindwing broadly and richly scaled with blue (= ♂ **menodora** *Fruhst.*). The under surface darker than in the mainland form, on account of the feeble development of the white spots, which on the hindwings almost disappears (melanotic

australis.

mulderi.

dohertyi.

australis.

menodora.

insular character). This melanotic character commencing to show itself in *australis* becomes intensified in the form of the island of Mysole, where the ♂♂ lack every vestige of yellow dotting, and have the underside quite faintly dusted with white. On the hindwing the yellow discal spot narrower on both sides, higher than broad, and
decolorata. more broadly sprinkled with green scales on the outside than ♂♂ from other localities (= **decolorata** *Fruhst.*)
westwoodi. (121 a). — Specimens from the Aru Islands, described as **westwoodi** *Wall.* have, as far as known, in the disk of the forewings only some fragments of a yellowish band. The under surface, according to Wallace and from specimens of my collection, distinguished by the broader, pale yellow discal spots on both wings which are traversed by very fine nerves. The blue subanal lunules confluent and more distinct than in the other forms. Another form, very similar to *westwoodi* underneath, I possess from southern Dutch New Guinea; above resembling *hewitsoni*, with the median band contiguous, the submarginal dots absent; the under surface of the hindwings with conspicuous, large, pale blue lunules, confluent as in the Aru form. But it is on Humboldt Bay and in Kaiser Wilhelmsland, the species is best developed. This form is **hewitsoni** *Wall.* ♂♂ either with the forewings completely black, adorned with a few yellow costal and submarginal dots, or with an
hewitsoni. uninterrupted, sulphur-yellow, broad longitudinal band: fa. **hewitsoni** *Wall.* (121 c); this form may or may not be accompanied by terminal dots. ♀♀ are known with altogether ♂-like markings. Forewings with or without yellow discal dots as in *adua* (121 c). Besides these we know also a larger form with slight yellow or white transcellular strigae and greenish squamation of the submedian vein. This may be increased to such an extent that almost the entire outer half of the forewings is covered with large bluish-white strigae:
schönbergi. = fa. **schönbergi** *Honr.* Rarer are ♀♀ in which the bands are arranged as in fa. *hewitsoni* (121 c), which are always found in connection with distinct terminal dots. — As *dohertyi Sm.* (121 c) a particularly lovely form was introduced, with white patches and streaks on the forewings and either a white or yellowish-green discal spots on the hindwings. That name was given to ♀♀ from Humboldt Bay, but must be abandoned since it was
guilelmi. already used by Holland for another form, for which reason I change it to **guilelmi** *nom. nov.*, from the first name (William) of my courageous friend and collegue Doherty who succumbed to the African climate. According to Hagen *Prothoë australis hewitsoni* are true forest-butterflies which never are found in the open, poor fliers and much less alert than *P. franckii* from Sumatra. Hagen never saw *hewitsoni* sit with its head downwards
mafalda. on the bark of trees, but always on branches and leaves of shrubs. — **mafalda** *Fruhst.* (121 b) refers to the form from British New Guinea *). Of somewhat smaller size than the forms from Kaiser Wilhelmsland, the ♂♂ have
adua. always yellow terminal points or similar discal spots (fa. **adua** *Fruhst.* 121 c). But of much greater frequency are ♂♂ with a yellow semiband on the forewings (fa. *mafalda*) which, however, never reaches the costal margin; I do not know the fa. *hewitsoni* from Eastern New Guinea. Of the ♀ we know a ♂-like form as well as specimens with greenish-white median area extending to the cellwall, and with similar transcellular spots. Common on Milne Bay and on the islands of the d'Entrecasteaux and Kiriwina Groups. Spe-
schulzi. cimens of *australis* are said to occur also in Neu-Pommern. — As **schulzi** *Ribbe* a form was described having the yellow marginal spots on the forewings widened so as to form regular bands. Neu-Lauenburg (Mioko). Ribbe found only a few ♂♂, in Neu-Pommern and Neu-Lauenburg also specimens representing the forms
layardi. *hewitsoni*, *schönbergi* and *guilelmi* (= *dohertyi*). — **layardi** *Godm. a. Salv.* replaces *australis* in Neu-Mecklenburg. Since I do not possess such specimens, I can only judge this lovely form from Grose-Smith's figure. In size it surpasses *australis-hewitsoni* by one third. Ground-colour dark brown. Forewing with 4 preapical greenish-yellow stripes, hindwings with an anally green, in front sulphur-yellow area touching the cell. Underneath the markings of *australis* are repeated, without any white or yellow discal spots.

ribbei. **P. ribbei** *Rothsch.* resembles a large *schulzi Ribbe*; forewings with the submarginal spots placed close to the termen, and united to a longitudinal bluish-green band, on the hindwings a narrow median band traversing the entire length of the wing. Underside of the forewings with yellow anteterminal lunules, of the hindwings without any unusual discal markings. At the tail and in the interspace above the upper me-
praesignis. dian a chrome-yellow marginal spot. From Bougainville (Solomon Islands). — **praesignis** *subsp. nov.* surpasses *ribbei* in size, being as large as *layardi*. Forewings distinguished by yellow, elongate spots placed far apart between the subcostal veins. Forewings of ♂ with 3 greenish submarginal longitudinal stripes between the median nervules and submedian; the ♀ has only two of these, one above the submedian very distinct, the other intramedian almost obsolete. Hindwings in both sexes traversed by a regular. compact longitudinal band, greenish in ♂, more yellowish in ♀, much narrower than in *ribbei* from Bougainville. Under surface as in *ribbei*, but with only 5 yellowish anteterminal spots on the forewings instead of a complete series as in *ribbei*. The white spots in the basal area on both wings diminished, in consequence of which praesignis appears to be

*) Cf. the supplementary notes.

a melanotic extreme of *ribbei*. From Choiseul (Solomon Islands). Type in the FRUHSTORFER collection. — **necopinata** *subsp. nov.* lacks, like *ribbei*, the apical spots on the upper surface of the forewings, following also on the under surface *ribbei* rather than *praesignis*, in the well developed marginal spots on the forewings and the clearer white basal spotting. Upper surface with a peculiar rudimentary submarginal band, which, although resembling that of *ribbei*, hardly is one third as wide as the median band of *ribbei*. Hindwings with a pale greenish-yellow, complete longitudinal band, rather narrower than the name-type from Bougainville. Of *necopinata* I possess two ♂♂ from the Solomon Islands, locality not given. All three forms of *ribbei* differ from the forms of *australis* by the presence of a long band on the upper surface of the hindwings, in the presence of a broad area in *P. australis*. The under surface has in the anal angle of the hindwings between the internal vein and the lower median a closed lunule, whereas all the forms of *australis* display there two parallel lines; these lines continue in *P. mulderi* and *dohertyi* from the Moluccas as far as the costal margin, whereas in the Papuan *australis* at least the intramedian striae are united to lunules. *necopinata.*

Group B: **Agatasa** *Moore.*

P. calydonia, undisputedly the most beautiful of all diurnal butterflies of Tropical Asia, was discovered in the Malay Peninsula by WALLACE, who wrote as follows upon his find: "One afternoon, when strolling along my favorite trail through the woods, with my rifle in the hand, I saw a certain butterfly sitting on the ground; it was good-sized, beautiful and quite new to me; but on my approach it flew away. Later I discovered that it had been sitting on the ordure of some carnivorous animal. Hoping that it would return again, I took on the following morning after breakfast my net, carefully approached the spot and was delighted to find the same butterfly on the same bit of excrement, and I succeded in catching it". WALLACE never saw another specimen of this species, and it was not until 12 years after, that another ♂ came from Northwest-Borneo to England. — **calydonia** *Hew.*, the name-type, has on the forewings the apical spots somewhat smaller than appears in our figure of the ♂. Under surface easy to recognize by the, for an Asiatic butterfly quite unique, combination of wine-red, black, chrome-yellow and greenish spots and bands; in this form the black median spots distinguishing the hindwing are most pronounced. — **mahasthama** *subsp. nov.* inhabits Borneo, whence I possess specimens both from the North and the South-East. Of smaller size than *calydonia*; the hindwings with the black distal margin very much narrower, especially in the specimen from the south-eastern part of the island. — **auricinia** *subsp. nov.* (120 d as *calydonia*) surpasses *calydonia* both in beauty and size; having the pale yellow preapical spots on the forewings larger, but the black border of the hindwings narrower; under surface less conspicuously dotted with black in the median area than in the Perak type, the red distal border paler, the yellow subbasal band of a clearer shade than in either *calydonia* or *mahasthama*. Type from the western part of the island, from near Padang-Pandjang; 7 specimens in the FRUHSTORFER collection. Was taken as a great rarity also in Northeast-Sumatra. Dr. HAGEN discovered in May 1905 a similar form also on the island of Banka. — **belisama** *Crowl.*, an interesting form having, in contradistinction to the broad-bordered *calydonia*, altogether the appearance of belonging to a region with dry climate, which indeed it does. Hindwings with very narrow border, underside of the forewings paler yellow, on the hindwings the black spots less conspicuous, the terminal border wider and paler yellow. Discovered by DOHERTY near Petichaung at the foot of the Karen Hills, not far from Toungo in Tenasserim; flies from March till April. Later on several ♂♂ were captured by HAUXWELL, a forester, in March, April and June, by means of a very high scaffolding of bamboo, from the top of which he was able to reach the butterflies that were flying to and from between three huge forest-trees. *calydonia.* *mahasthama.* *auricinia.* *belisama.*

P. chrysodonia *Stgr.* is a distinct representative of *calydonia* in south-eastern Mindanao where it was first discovered by Dr. PLATEN. In size inferior to the Macromalayan *calydonia*, the forewings more richly and delicately dotted with yellow. The hindwings lack the leaden grey proximal shading of the much frayed terminal border. Underside of the forewings very much the same as in *mahasthama Fruhst.* from Borneo, but with the black spots on the anal margin of the forewing even less marked. On the hindwings the black spots more prominent, the submarginal spots reddish instead of green, narrower, more rounded proximally. — **heterodonia** *Semp.* stands intermediate between *chrysodonia* and *calydonia*. The black outer border of the hindwings broader than in the Mindanao type. But according to SEMPER the hindwings lack underneath the brown-red spots. Mindoro; very scarce. ♀ not known as yet. *chrysodonia.* *heterodonia.*

Tribus Charaxidi.

Cf. Vol. 1, Pages 168—169.

61. Genus: **Eriboea** *Hbn.*

The species of this almost exclusively Indo-Australian genus, only a few of which are also known to advance into South- and West-China (Vol. 1, p. 139), are among the most sought after Lepidoptera of the entire tropical Asiatic and Austromalayan Regions, many being exceedingly scarce and confined to a very limited area. Thus *E. dehaani* is only found on a certain vulcano in western Java, and other forms again are confined to a certain small island. Of many species only the ♂♂ are known, which may be even quite abundant, whereas of some quite common species the ♀♀ are either unknown so far or count among the greatest rarities. All the species are subject to local variation even to a greater extent than the allied genus of *Charaxes*; thus f. i. the island of Singapore harbours a form which is very different indeed from the mainland form. On the continent, moreover, it is subject to seasonal Dimorphism, two species there occurring in three quite differently marked broods. But the sexes do not vary very much, compared with the often heteromorphous *Charaxes*. The caterpillar is only known of a few species; duration of the pupal state 11—13 days. Imago distinguished by the serrate costal margin; in the hindwing the cell open; in the forewing the middle discocellular shorter than in *Charaxes*.

Sexual organs with uncus short and valve broader, differing as a rule in the structure of the extremity. But the most interesting characteristic of all the *Charaxidi* (*Eriboea*, *Charaxes*, *Euxanthe*) is, according to Dr. Jordan, the grooved penis which is not observed in the other allied genera such as *Palla*, *Anaea*, *Prothoë*, *Prepona*; together with the penis proper, this groove affords an excellent means of distinction on account of the more or less distinct dentation characterizing the various species.

The *Eriboea* species which occasionally congregate in enormous swarms, prefer wet spots in the roads and the borders of rivers, but fly, with the exception of *E. athamas* and *eudamippus*, always singly. In Ceylon I once saw *E. athamas* sitting on a crocodile skull that was being transported on an ox-cart; they also are attracted by the perspiration of natives. They are found from Ceylon as far as the Fiji Islands, and from Kulu to the Liu-kiu Islands, Australia and New Caledonia.

athamas. **E. athamas**, the best-known among the whitish-green species, enters also the Palearctic Region, and was therefore already described in Vol. 1, p. 169. On the mainland we find 3 seasonal forms: **athamas** *hamasta.* *Dru.* (Vol. 1, p. 169, pl. 61 a) and **hamasta** *Moore* (Vol. 1, pl. 52 c); the third form is **bharata** *Fldr.* (134 a) *bharata.* from Sikkim, Kulu, the Naini Valley, Kangla (Northwest India); mentioned also from the Khasia Hills and the Shan States by Rothschild and Jordan in their famous monography on *Charaxes* (1898). The rarest is *hamasta Moore*, originally discovered at Dharmsala at an altitude of 6200 ft. (March till June); presumably a product of the influence of a dry and cold period. The name-type *athamas* came originally from southern China, it is as yet extraordinarily rare in collections. In Hongkong the species flies the year round. — Egg, according to *Kerschaw*, semiglobular, smooth (?), yellow. Caterpillar on Albizzia milletti Bensh., a well-known Chinese shrub. Green with yellowish anal line and yellow lateral spots. In Tonkin *athamas* begins to get more abundant, occuring here in a good-sized form, whereas I found in South Annam in February only un- *agrarius.* commonly small specimens of the dry season. Pavie found *athamas* at Luang-Prabang. — **agrarius** *Swinh.* inhabits southern and central India, differing but slightly from the northern name-type; apparently always the forewings have two greenish-yellow subapical spots, the hindwings the white submarginal spots more distinct. Larva on Grewia, a Tiliacea; also on Caesalpinia, Poinciana, Acacia and Alsicia; very shy, feeding only at night *madeus.* and lying motionless during day-time. Pupa green with delicate white lines. — **madeus** *R. a. J.* refers to the Ceylon race, distinguished by smaller size, but with broader median area on both wings. Caterpillar dark green, on each segment a pale yellowish-white stripe, below which a row of small white dots; feeds on Caesalpinia. The ♂♂ are generally seen flying around high locust trees, but in the beginning of the rainy season frequent *andamanicus.* wet spots in the road. — **andamanicus** *Fruhst.* is a large form, the forewings measuring 38 mm, surpassing my largest Sikkim and Java ♀♀ by 2—4 mm, although 4 mm smaller than my largest Assam ♀♀. Both wings with the greenish median band narrower than in mainland ♀♀, broader than in *fruhstorferi Röb.* ♀ from Java, equally broad as in *sumbaensis Swinh.* from Sumbawa and Sumba, resembling in the black sharp border *arja Fldr.* ♂♂ from Assam. Both wings more broadly bordered with black than in *athamas* and *arja* and, at least in the hindwings, almost as much as in *arja* forma *röberi Fruhst.* (Assam). On the upperside of the hindwings the whitish, elongate submarginal dots stand out clearly from the dark ground, whereas the yellow-

ish-brown antemarginal spots are reduced. The upper tail long, the point rounded, not sharp as in *athamas* and *arjı*. Forewings with a small round subapical dot and a large, nearly circular spot between the radials. Under surface very characteristic, quite different from that of the other *athamas* forms, in having on the hindwing the median band narrower than above and bordered distally along its entire length from the costa to the anal angle by a broad, black undulate line. The brown submarginal lunules accompanying this black bordering line, are much larger than in the allied *athamas* forms and even *arjı*, being margined distally by most conspicuous, unusually broad, black lunules. Also on the under surface the forewings have the submarginal lunules more broadly bordered with black proximally than in *athamas* or *arjı*. Taking it all together, *andamanicus* is the darkest by far of all *athamas* forms. Compared with India, Ceylon and the Macromalayan Region, *athamas* seems to be very scarce in the Andamans, for Rothschild in his Monography on Charaxes does not mention at all its occurrence there, and Moore just says: "S. Andamans", without telling from what source he had that information, nor even without having any specimens to compare, which was not at all his wont. — **uraeus** *R. a. J.* A common butterfly of Borneo, also from the Natuna Islands, lacks, like *faliscus* (134 a), *uraeus.* on the forewings the small anterior subapical dot, but has the median bands on the upper surface larger. The early stages were worked out by Dr. Martin in southern Borneo. Larva on Albizzia stipulata Boist., the Singon tree of the Javanese; of sap-green colour, fullgrown 5 cm in length. Head green, with 4 prongs or horns bent backward, the middle, frontal pair of which is twice as long as the lateral pair. The horns are finely serrate, the teeth pointing down and inwards. The very strong mandibles are yellow, with a short, comma-shaped black streak to the right and left in the place of the eyes. On either side a whitish festooned lateral line, above which white dots indicate the openings of the tracheae. Above the middle segments two streak-like whitish transverse bands. When pupating, the suspended larva forms almost a complete ring, the head touching the anal extremity. Pupa stout, smooth, rounded, green with dull gloss and shaded with white, or rather white with green markings; a fine green dorsal line, to the right and left of which two broader green lateral stripes; wing-cases more green costally; altogether the front end and venter more green, back and anal end more white. The trachaeic openings represented by brownish-yellow dots; cremaster surrounded by 6 glossy rufous tubercles. After 11 days the pupa appears in the morning discoloured, the white discal band of the forewings shining plainly through; but only between 1—2 o'clock in the afternoon the imago appears. — **faliscus** *subsp. nov.* (134 a) is not so large as *uraeus* of Borneo, which also influences the width of the me- *faliscus.* dian band, particularly on the under surface. The subapical spot likewise smaller than in *uraeus*, but sometimes accompanied by a second one, approaching the mainland form. ♀ not yet known, although the ♂♂ are in the lowlands of northeastern Borneo not at all scarce in wet places or where excrements are exposed. The West-Sumatraform is very different from *faliscus*, approaching in size rather *uraeus*, but retaining, in contradistinction to the Borneo-form, the narrow band on the under surface of the hindwings. — **kanne-** *kannegietcri.* **gieteri** *Lathy* was lately discovered in Nias, and described from 8 specimens in the Adams collection of the British Museum. It is distinguished by the conspicuous black stripes on the underside, especially the black subanal spot on the forewings being more distinct at the submedian nervure, and the redbrown lunules are absent between the median nervules on the hindwings. Very scarce and local, since among ca. 20 000 specimens brought to Berlin within 10 years by Prof. Thieme, *athamas* was not represented. From the western form *kannegieteri* is easily distinguished by the narrower green median band. If the form of the Malay Peninsula can be at all separated from *faliscus* and *uraeus*, it would have to receive the name **samatha** *Moore* which was *samatha.* created for the Tenasserim form which greatly resembles ♂♂ from Perak and Renong as well as Petjaburi (Siam). The small preapical spot on the forewing apparently always present, the median band somewhat narrower than in *uraeus*. A most interesting form, on account of its close approach to the North Indian race and the existence of two sharply separated seasonal forms, is the Javanese **attalus** *Fldr.*, of which the rainy *attalus.* season specimens approach *uraeus*, but with a larger subapical spot on the forewings and the white submarginal spots on the hindwings more prominent. ♀ somewhat like the figured f. *bharata* (134 a). Common in the West of Java up to altitudes of about 3000 ft.; larva figured 1828 by Horsfield. Pupa largely green, with white wingcases and delicate white subdorsal and lateral stripes. — **fruhstorferi** *Röb.* (134 a) is the form of *fruhstorferi.* the dry season, confined, according to my experience, to the coast-range and lower mountains throughout Java up to elevations of about 1600 ft. ♂ always with 2 distinct, ♀ with 3 preapical blotches on the forewings. Under side with a nearly white narrow median band. Both wings have the basal and distal portions underneath suffused with a whitish violet lustre. — **phrixus** *Röb.*, originally referring to a ♀ form from the Teng- *phrixus.* ger Mts., may be transferred to the rainy season form of Eastern Java. In size rather smaller than *attalus*, the median band about midway between this and *fruhstorferi*. ♂♂ up to an altitude of about 3000 ft. quite

stratiocus. common. ♀ very scarce; I found in the course of years only 4—5 specimens. — **stratiocus** *subsp. nov.* inhabits the island of Lombok from the shore to an elevation of about 2500 ft. Also here it is not difficult to recognize the influence of the seasons, in as much as the ♂♂ of the dry season approach *fruhstorferi*, those of the wet season *attalus*. But both surpass in size their Javanese cousins and also in the greater width of the preapical spots, the transcellular one being always divided. On the hindwings the submarginal stripes larger than in *attalus*, although barely half as wide as in *sumbaensis Swinh.* The islands of Sumba,
sumbaensis. Flores, Adonares and Pantar are inhabited by a rather homogeneous race, **sumbaensis** *Swinh.*, easily recogniseable, particularly the ♀, by the unusually large yellowish-green submarginal spots and the broad red-brown border of the hindwings. ♀♀ from Alor, contained in my collection, are hard to separate from those of Sumba,
menaius. whereas **menaius** *subsp. nov.* of Sumbawa is a transition from *stratiocus* to typical *sumbaensis*. ♂♀ larger than
alphius. Sumba ♂♀, but with the preapical spot on the forewings smaller. — **alphius** *Stgr.* has the transcellular yellow spots on the forewings likewise divided, otherwise resembling small specimens of *fruhstorferi*. The discal band on the upper surface more intensely yellow-green throughout than in the allied forms. Hindwings with small
oitylus. dots, but with distinct, brown terminal margin, as in sumbaensis. Timor, Alu. — **oitylus** *subsp. nov.*, not scarce on the island of Wetter, rather smaller than *alphius*, upper surface with the median bands paler green,
palawanicus. the brown border of the hindwings less distinct. — **palawanicus** *R. a. J.* closely follows *uraeus R. a. J.* of Borneo, differing from it in the more distinct apical spot on the forewings and the more prominent white submarginal lunules on the hindwings. The discal band on the under surface paler and rather yellow than blue-
acutus. green. Island of Palawan. — **acutus** *R. a. J.* is distinguished by the very long and narrow hindwings and more pointed tails; median area of the hindwings narrower than in *palawanicus*. Type from Mindanao; also from Mindoro; specimens also from Luzon in my collection, and Semper reports it from Bohol and Sarangani. — A closely allied, but probably very large form was discovered by Dr. Piepers at Bonthain in southern Celebes.

E. arja is an exclusively continental species of pronounced seasonal Dimorphism, distinguished from *E. athamas* by the peculiar pale greenish white discal blotches on the upper surface. Underneath the black submarginal striae are surrounded by a broader, pale greyish-white shade. The transcellular spot on the fore-
vernus. wings always larger. — **vernus** *R. a. J.* (134 a) refers to the extreme dry-season form, in which the pale colou-
roeberi. ring prevails, whereas **roeberi** *Fruhst.* (134 a) designates the larger-sized, extreme rainy-season form with broadly
arja. black border. — **arja** *Fldr.*, the commonest (intermediate) form, with the median area broader than in *roeberi*. The latter I only know from Assam, whereas *vernus* and *arja* are found from Sikkim to Tenasserim. May till October, according to Nicéville throughout the year in the hot valleys. I myself took several specimens at Chiem-Hoa (Tonkin) in August. Recently I also saw some small-sized specimens from Petjaburi (Siam).

E. moori is one of those Macromalay species which, besides in the Larger Sunda Islands, also occur in the Malay Peninsula, whence they have advanced as far as Burmah where they may be occasionally
sandakanus. met with as great rarities. The name of **sandakanus** *Fruhst.* which was given to the Assam and Burmah form, was unfortunatelychosen in consequence of a mistake as to the locality made by a dealer who sold to me specimens from Assam as coming from Borneo. Characterized by the very regular black bordering of the upper side of the hindwings, whereas the other *moori* forms have the band on the hindwings much broader costally, frequently interrupted in the middle and only again more or less distinctly appearing close to the tails. *sanda-*
marginalis. *kanus* is presumably the dry-season form, whereas **marginalis** *R. a. J.* refers to the smaller-sized specimens of the wet-season, differing in the less pronounced white scaling of the cell in the forewings. Naga-Hills,
moori. Khasia Hills (Burmah), presumably also Tonkin. One ♀ is said to have been taken in Sikkim. — **moori** *Dist.* (134 b) inhabits the Malay Peninsula, Singapore and the lowlands of Sumatra. We figure the under surface which is distinguished from *E. hebe*, by the extraordinarily broad; pale green median band. Above it differs from all the forms of *hebe* in having the black border of the hindwings constricted in the median region, and accompanied between the upper radial and the first tail by a green or yellowish, distally black margined terminal
khaba. line or band. — **khaba** *Kheil*, from the island of Nias, has the black spots on the distal border of the whitish-green median area of the hindwings underneath more marked and contiguous. ♀ somewhat like hebe ♀ (134 b), but with the preapical spot on the forewing larger and on the hindwings the lunules filled with white and
javanus. larger. Moreover the yellowish median area broader distally. Very scarce. — **javanus** *Röb.* is closely allied to *moori moori*, but may possibly be separated on account of its smaller size and the more intensely yellow colour of the median band on the upper surface of the hindwings. Enormously scarce, only one ♀ being known, from Java, collected by me at Palabuan on the south-coast, and near Sukabumi in West Java at an
chalazias. elevation of about 2000—2500 ft. — **chalazias** *subsp. nov.* is of much smaller size, but has the black distal border wider, the preapical spot on the forewing smaller, in proportion to the lesser size of the species. From the island of

Bali. Type in the Coll. Dr. Martin at Diessen. Occurring beside *Eriboea hebe* in the island, very rare. — **heracles** *Röb.*, a melanotic insular form, is met in the northern and southern parts of Borneo. ♂ deviating from *moori* by increased black submarginal spotting on the upper surface of the hindwings as well as on the distal boundary-band of the green median area of the under surface. The ♀ having hitherto not yet been described, from North Borneo, is in the Coll. Fruhstorfer and differs considerably from *moori moori*-♀ by large coniform resp. wedge-shaped black marginal spots of the hindwings, enclosing sharp white little streaks. On the Natuna Islands a still more darkened form occurs, being, however, missing in my collection. *heracles.*

E. hebe. A species with many forms, inhabiting the whole of Macromalayana and parts of Micromalayana. *hebe* is especially beneath easily distinguishable from *moori* by the greenish median band being very much narrowed especially on the hindwings. The upper surface is characterized by the uniform black marginal zone of the hindwings, being never interrupted by yellow or greenish median marginal decorations as in *moori*. — **chersonesus** *Fruhst.*, the continental form, hitherto known only from Perak, deviates from *hebe* *chersonesus.*
hebe by an increased black marginal area on the upper surface of the hindwings. Rare in the collections; known from Perak, Wellesly and the Island of Penang. — **plautus** *Fruhst.* (134 b, 137 a where it is denoted as *falculus*) *plautus.*
forms one of the most striking examples of insular isolation; for in spite of the short distance from the continent, it is in the Island of Singapore, the home of the race, where the most differentiated vicarious type of the total species has developed. ♂ as well as ♀ exhibit the most extensive and most densely closed black margin of the hindwings. *plautus* will probably be yet discovered also in the islands of the Riouw Archipelago. — **ganymedes** *Stgr.* resembles *plautus*, though the terminal margin of the hindwings, especially in the ♀, is somewhat more broken up, whereby it appears proximally distinctly dentate. The green area of the under surface of the hindwings narrower than in *plautus*. North and South Borneo. — **hebe** *Btlr.* (134 b) denotes the Sumatra *ganymedes.* *hebe.*
race characterized by the retrogression of the black submarginal spotting in both the sexes. *hebe* seems to be rather common in West Sumatra, and ♂♂ from Padang Pandjang surpass somewhat in size those from Deli in the north of the island. ♀ very rare, not discovered by Dr. Martin in spite of having been most successfully collecting for 13 years. — **fallacides** *Fruhst.* (134 b) of which also only ♂♂ have been found hitherto, approximates rather the Javanese than the Sumatran vicarious type and is the most abundantly scaled in bluish-green within the submarginal lunae of the hindwings. The ♀ which is known to me by the Adams collection of the British Museum, has more strongly developed marginal spots of the hindwings and exhibits a larger subapical spot of the forewings. Island of Nias, both the sexes rare. — **fallax** *Röb.* described according to the *fallacides.* *fallax.*
specimens I collected in Java, occurs in West Java at elevations of up to 800 m. The specimens are smaller than those from West Sumatra and Borneo, but nevertheless they exhibit a more prominent greenish preapical spot of the forewings. The hindwings are uniformly broad bordered in black with distinct, small white intranerval streaks. The rare ♀ differs from the ♂ chiefly only by the larger transcellular spot of the forewings. Both my ♂♂ from East Java, however, have this spot again greatly reduced and are, furthermore, recognizable by the more reduced median band of the under surface of the hindwings. The butterflies are met in wet places near crossings of rivers. — **baweanicus** *Fruhst.* distinctly shows that Bawean is inhabited by a subspecies of *baweanicus.*
hebe which may be separated from the Javanese *fallax*. First of all the greenish subapical spot of the forewings is much larger than in any other race of *hebe*, whereby it approches *hebe kangeanus Fruhst.*, the subapical spot of which is also very much developed, though beaten in extent by *baweanicus*. The black distal marginal bordering of the upper surface of the hindwings is much narrower than in *fallax*, somewhat narrower than in *kangeanus*. The greenish median bands of the under surface of the wings appear broader than in equally large specimens from Java, their brown border fainter, so that *baweanicus* represents one of the lightest forms of *hebe*. Bawean, July till September. — **kangeanus** *Fruhst.* ♂♂ of a well defined local form from the Island of Kangean *kangeanus.*
form about the medium between *hebe fallax Röb.* from Java and *hebe lombokianus Fruhst.* from Lombok. In common with the Javanese they have a much larger green apical spot of the forewings and the somewhat narrower black bordering of the forewings than the Lombok-♂♂. Margin of hindwings of *kangeanus* is, however, narrower than in *hebe* from Java and Lombok. The under surface of the hindwing differs from the ♂♂ from Java and still more so from Lombok by the narrower, hardly bent-up reddish-brown submarginal spots bordering distally the green median band, and being distinctly crescentiform in the two said local races. Island of Kangean. — **nikias** *subsp. nov.* is inferior to *fallax* in size, having therefore also a smaller apical spot on *nikias.*
the forewing and more delicate white little streaks in the black marginal zone of the hindwing. *nikias* is mentioned already by Rothschild and Jordan who state that the ♂♂ are the most nearly allied to the darkest Java-♂♂, whereas they approximate the Lombok-form beneath. According to specimens of Staudingers collection in the Berlin Museum and of the Coll. Martin, the distal margin of the upper surface of the hindwings is considerably broader than in *fallax*, and the apical spot of the forewings smaller than in East Javanese ♂♂. Island of Bali, very rare. — **lombokianus** *Fruhst.* bears above on both wings a more extensive black marginal *lombokianus.*
area and beneath a considerably narrower green median area appearing distally bordered more brightly and extensively in brown than in the allied races of *hebe*. Lombok up to an altitude of about 800 m, only ♂♂ known collected by Doherty and myself in May and June 1896 on Lombok. — **arnoldi** *Rothsch.* exhibits a broader *arnoldi.*
green band of the under surface of the hindwings than the Javanese *fallax*. Island of Sumba, very rare, only 1 ♂ in the Coll. Pagenstecher.

E. jalysus inhabits Macromalayana except Java and occurs northward as far as Tenasserim and Tonkin. Three geographical forms are to be mentioned: **triphonius** *subsp. nov.* (134 b) differs from the first described race from the Malayan peninsula by its larger size, the broader yellow and reddish-brown distal margin of the upper surface of the hindwings. The apical spot of the forewings grows larger than in specimens from Sumatra, the brown of the under surface darker than in *jalysus* and specimens from Tonkin. North Borneo, rare. — *triphonius.*

jalysus *Fldr.* (137 a) depicted according to a ♂ from Sumatra, is inferior to *triphonius* in the habitus exhibiting. therefore, also a smaller preapical spot than the specimens from Borneo. Perak, North East Sumatra. — *jalysus.*

ephebus *subsp. nov.* has a whitish-green instead of black cell of the forewings. Upper surface: the dark terminal margin of the hindwings is sometimes extinct and is interrupted in all the specimens. The reddish-brown submarginal band of the under surface of the hindwings also more effaced. Type from Birma in the British Museum. Similar specimens also in the Tring Museum. Discovered by myself as new for Tonkin near Chiem-Hoa in August. *ephebus.*

E. narcaea is one of those *Eriboea*-species being divided into remarkably differentiated temporal forms. **narcaea** *Hew.* (Vol. I, p. 170, table 52 d), the name-type, was described by its author to originate from the Province of Chekiang. It flies from April till June, when it is replaced by **mandarinus** *Fldr.* (Vol. I., p. 170, t. 52 d), a form of the rainy period being bordered by broad black with a bluish-green median area. — **thibetana** *Oberth.* (Vol. I., p. 170, t. 52 d) is a local form confined to the mountains of West China, furthermore a very small form of the dry period, **menedemus** *Oberth.* from Tseku, in my collection. Range of the Chinese races from Shanghai and Ningpo to Mupin; the southern confines of the range not yet known. Rothschild and Jordan presume that *narcaea* might advance as far as Tonkin where it was indeed discovered in the last years. In the British Museum there is a large series and among them specimens of the extremest dry period-form from Shanghai. Most interesting are some other specimens denoted: North China. They bear minute submarginal dots of the upper surface of the hindwings and the most intensively reddish-yellow longitudinal band of the under surface. In the ♀ the blue subanal band extends as far as to the anterior median. This ♀ from North China excels also all the others in size and the under surface of the hindwings exhibits the most extensive yellow submarginal band. Sauter has recently taken the species on Formosa where it forms an insular race as **megadhuta** *Fruhst.* (135 a) which is allied to the fa. *narcaea* in the colours, but which exhibits just as distinctly separated yellowish submarginal spots of the forewings as the fa. *mandarinus Fldr.* Time of flight June at an elevation of about 1000 m. ♀ still unknown. *narcaea.* *mandarinus.* *thibetana.* *menedemus.* *megadhuta.*

E. posidonius *Leech* (Vol. I, p. 170, t. 52 d) occurs only in the mountains of West China. *posidonius.*

E. eudamippus, the most considerable species of the genus, inhabits the district from Nepal to Tenasserim, Siam, Annam, and from Yunnan to the Liu-Kiu Islands, Formosa and Hainan. The upper surface resembles that of *formosanus* (134 c), though the cell in the Indian races is light yellow during the dry period, being but slightly darkened in ♂ and ♀♀ of the rainy period, while on the way towards east, it is gradually covered more with black scales. — **eudamippus** *Dbl.* (134 d) of which we figure a ♂ of the rainy period, is of a much smaller size during the dry period, showing beneath no dark bordering at all of the yellow submarginal band of the hindwings, and besides an entirely light cell of the upper surface of the forewings. Common in the hot valleys of Sikkim; observed by Doherty in the Kumaon-Himalaya; known also from Bhutan, the Naga and Khasia Hills. — **jamblichus** *subsp. nov.* ♂♂ from Tenasserim in my collection are smaller than ♂♂ of the dry period from Sikkim and do not show any blue bordering at all on the proximal part of the submarginal catenary band of the hindwings, which is copiously provided with very large pupils. To this race may belong 2 ♂♂ of a winter-form which I discovered in January near Hom-Gom in South Annam. The ♀♀ are extremely rare; Moore knew only two specimens which are interesting for having distally rounded tails instead of pointed ones as in the ♂♂. One ♀ from Sikkim, another from Assam of the Coll. Fruhstorfer have an entirely yellow cell of the forewing, being in a third ♀ from Assam, however, overdusted with blackish. — **nigrobasalis** *Lathy,* a darkened eastern race, originates from Siam, being reported by Rothschild and Jordan also from the Shan States and extending to the east as far as Pnom-Penh in Cambodja. ♂ above with entirely blackened cell and a more extensive black apical area of the forewings than *eudamippus* from India and Tenasserim. Submarginal band of the hindwings decorated only with small white lunular spots. I collected it in numbers near Muok-Lek (Siam) during the dry period in January and February. The type in the Coll. Adams is also of the dry period. Mr. Godfrey showed me also two specimens from Petjaburi to the south of Bangkok. — **celetis** *subsp. nov.* forms a regression to the name-type from India because of the dry period-form having again a yellow cell on the upper surface of the forewings. *celetis,* however, differs from *eudamippus* by a broader black submarginal band of the hindwings. Collected by myself in January in South Annam. Type in the Tring Museum. — **cupidinius** *subsp. nov.* agrees with *celetis* in the uncommonly broadened black longitudinal band on the upper surface of the hindwing, besides all the other black places are also more extensive compared to *nigrobasalis.* Yunnan, type in the Coll. Adams of the British Museum. — *rothschildi Leech* (Vol. I, p. 169, t. 52 c) is found in Central and West China. — **formosanus** *Rothsch.* (134 c) has a lighter and more extensive yellowish median band, but smaller yellow submarginal spots of the forewings than the Chinese vicarious type. ♀ about one third larger than the ♂, with extensive blue and yellowish-green dusting in the anal angle of the upper surface of the hindwings and a very broad olive-green longitudinal band of the under surface of the forewings. *eudamippus.* *jamblichus.* *nigrobasalis.* *celetis.* *cupidinius.* *formosanus.*

Formosa, rather rare near Chip-Chip and Polisha in the Ili. — **weismanni** *Fritze* is described according to 3 ♂♂ from Okinawa of the Liu-Kiu Islands. Judging from the figure of Fritze, *weismanni* is nearly allied to *formosanus*, but the yellow spot between the anterior and middle median of the forewings is absent and the submarginal lunae are considerably larger. 1 ♀ of the Coll. *Plessen* in Munich is far more than one third larger than ♀♀ from Formosa of my collection. — **whiteheadi** *Crowley* finally forms an interesting transition from *nigrobasalis* to *formosanus*. Forewing like in the Formosa-race. Hindwing, however, analogous to that of *nigrobasalis*, only distally more extensively and brightly bordered in bluish-green. Island of Hainan, very rare. ♀ still unknown. *weismanni.* *whiteheadi.*

E. nepenthes occurs exclusively in Indo-China being everywhere a rarity. Habitus of the ♂ about the same as of the *eudamippus*-♂, though without the prominent black delimitation at the cell-end, and with smaller anteterminal spots of the forewings. The difference from *eudamippus* is to be noticed on the upper surface of the hindwings, varying according to the locality and showing, in the Tonkin-form not a complete black submarginal band, but only a double row of small black spots, the proximal series of which seems to be less prominent than the distal one. Two areal forms: **nepenthes** *Sm.*, originally described from Siam, was first ascertained by Butler to occur also in the Shan States on the Salwin River. — **fugator** *subsp. nov.* exhibits smaller yellowish submarginal maculae of the forewings than *nepenthes* and a more abundant black bordering of the submarginal part of the under surface of the forewings than depicted by the author. On the hindwings the macular series are unequal, and sometimes the proximal row disappears, as for instance in the ♂ of a dry period-form figured by Rothschild and Jordan in their *Charaxes*-Monography. ♂ of the rainy period-form as I observed them near Chiem-Hoa in Central Tonkin, are recognizable by more prominent black markings of the upper surface of both the wings *). The ♀ discovered by myself is superior to the ♂ in shape and displays still more extensive black areas and spots on both the wings. ♂♂ of *fugator* were known already before my expedition to Tonkin. Oberthür mentions already in 1893 specimens having been collected by Prince Henry of Orleans. *nepenthes.* *fugator.*

E. dolon, an exclusively continental species, of which temporal forms are not known. Neither do we know anything about its early stages, nor about those of *E. nepenthes* and *eudamippus*. The under surface resembles that of *jalysus*, but the forewings have also yet a brown oblique band passing through beyond the cell from the costal margin to the hinder angle. **dolon** *Westw.* (Vol. I, p. 170, table 61 a) was described according to specimens from the Malwa Valley. Occurring also in Cashmir, in the Kumaon-Himalaya, Culu. Time of flying April, May, observed up to altitudes of about 2400 m. ♀ not yet described. — **centralis** *R.* and *J.* is confined to Nepal Bhutan and Sikkim and exhibits smaller and shorter submarginal cuneiform spots on the forewings. The ♀ was discovered only in 1892 resembling the ♂ in every respect except that it has distally rounded tails like the ♀♀ of *E. eudamippus*. It flies in April and May in the hot valleys occurring in but one generation. **magniplagus** *Fruhst.* (134 c) not rare on the Khasia-Hills in Assam. The cuneiform spots of the forewings somewhat larger still than even in the Cashmir form, the black longitudinal band of the hindwings narrower than in Sikkim specimens and set with less developed, blue, minute lunae. Specimens of a *dolon*-form occurring in Tenasserim where the species was found in December and February, are absent in my collection. Analogous to other butterflies from Birma and Tenasserim, as for instance also *E. eudamippus*, their habitus is probably less developed than *dolon magniplagus*, and they may exhibit a paler colouring. In the Shan States, however, we meet a luxuriant geographical race, **grandis** *R.* and *J.*, distinguished by more sharply serrated hindwings and more prominent blue submarginal lunular spots on them. Shan States, without exact habitat. Hereto may belong also specimens discovered by Pavie near Luang-Prabang, the Laos countries, which will certainly be found yet in Tonkin. — **carolus** *Fruhst.* (= sinica *Oberth.*), however, is smaller than *dolon*, but it has a much broader black margin of the forewings and black submarginal band of the hindwings almost again as broad as that of the Indian races. The apex of the forewings is more pointed, the tails are much shorter than even in Sikkim-specimens. The submarginal spots of the forewings are roundish and distally not running to a point, growing very much smaller in the wing-centre. *carolus* thereby approximates *grandis Rothsch.*, but it is smaller and has a much broader black submarginal band on the upper surface of the hindwings. ♀ with more extensive black marking and bordering of the wings than the ♂. Very rare. ♂ from Siau-Lu (Szetchuan) in the Coll. Fruhstorfer, the only ♀ that has come to Europe, was figured by Oberthür. *dolon.* *centralis.* *magniplagus.* *grandis.* *carolus.*

E. delphis, a predominantly Macromalayan species, advances to the north as far as Assam. — **delphis** *Dbl.*, the name-type, originates from Silhet. ♂ very similar to *concha* (134 c), but the subapical spot is, as a rule, more distinctly pronounced and the black apical margin of the forewings proximally more distinctly dentate and decidedly narrower than in *concha*. The under surface distinguishable from that of *delphis delphinion* (134 c) only by somewhat finer blue discal lunular spots. A ♀ from Tenasserim deviates from the ♂ only by the more imposing light ochre-yellow submarginal band of the under surface of the hindwings. It seems to fly all the year through, although the butterflies are always rare. Specimens which I collected near Bangkok in the dry period, are smaller than those from Tenasserim and exhibit above a darker greenish lustre. Pavie also observed *delphis* near Bangkok. — **concha** *Voll.* (134 c) which I have at hand in numbers from West Sumatra, the surroundings of Padang Pandjang, considerably excels in size all the vicarious types. Apical macula of the forewings either very small or absent. The posterior submarginal lunae of the upper surface *delphis.* *concha.*

*) In specimens from Canton where *fugator* was recently found, the darkening of the upper and under surfaces is still more pronounced.

of the hindwings unnoticeably filled with white. The anterior tail longer than in *delphis*. ♀ still unknown; the ♂♂ never common, preferring wet places on roads through the woods and on river-crossings, often in *othonis.* the midst of swarms of Pierides and *Pap. antiphates*. — **othonis** *Fruhst.* resembles *concha* above, but it also remains smaller; the black apical margin somewhat narrower. Under surface characterized by a very broad greenish-ochreous submarginal band extending distally to the very slender light blue anteterminal streaks, appearing thus still broader than in the ♀ described above from Tenasserim. A ♀ in the Coll. Adams in the British Museum is superior to the ♂ in size, and at the same time the yellow band so characteristic of *othonis* appears as a twice as broad submarginal band, compared to the ♂; Island of Nias, very *cygnus.* rare. — **cygnus** *R.* and *J.*, an excellent race the most nearly allied to *delphis* from Assam by its habitus and by the mostly large apical spot of the forewings. Under surface distinguished by the smaller blue circles and the indistinct, more greenish than ochreous bands of the hindwings. East and West Java. very rare. The ♀ lying before me in one specimen from the promontory of the Tengger Mountains in East Java, together with another ♀ in the Adams-Collection captured by myself in East Java, form the only specimens known. ♀ about one third larger than the ♂♂; under surface of hindwings with somewhat more distinct, yellowish-green bands. *delphinion.* — **delphinion** *Fruhst.* is smaller, more intensely yellow than *concha*, with more blurred black and green submarginal lunae on the upper surface of the hindwings. The tails are shorter, the yellow bands of the under *niveus.* surface darker. North and South Borneo. — **niveus** *R.* and *J.* has a still more receding black apical margin than *delphinion* and beneath narrower, but darker ochreous longitudinal bands of the hindwings. Very rare; Island of Palawan.

E. schreiber numbers among the species being the easiest recognizable by the white median band of the upper surface, being richly decorated with blue and replaced on the under surface of the hindwings by a band of silvery lustre. The hindwings exhibit besides at the terminal margin a series of ochre-yellow crescents being absent in the ♂♂ of some insular races, though existing presumably in all the ♀♀. Larva on Nephelium lappaceum L., as well as Rourea santaloides W. and A., and Wagatea spicata Dalz. In Java besides yet on Cynometra cauliflora. The full-grown, dark velvety-green larva of about 7 cm length is fusiform, the thickest over the central segments, tapering towards head and anus. The likewise green, flattened head appears somewhat broader on account of the horns projecting posteriorly from it and being flat-appressed to the body. These horns forming quite respectable antlers are stretched backward in about such a way as we often see it on illustrations of a drinking stag or when it troats in the rutting-time; they are backwards and downwards roughly dentated, the strongest, brown-coloured tooth standing in the notch between the inner and outer horn of each side, but belonging with its base to the inner horn. The two median, frontal horns are straight, whereas the two outer, temporal ones appear bent concave inwards. The ends of the otherwise green horns are obtuse and coloured brownish yellow. Between the two median, frontal horns there are yet two short black dents likewise turned backwards, and before the rising of the temporal horns there are yet at each side of the head three green obtuse teeth, increasing in size from the mandible towards the horn. The head with its copious arming would form a magnificent, phantastic sight in a miniature collection of larval antlers. The second segment of the body is separated from the first one following immediately after the head by a white ring round the neck, thus separating the body like a decorative neck-band. On the fifth segment, right across the back of the larva, there is a finely dotted, brownish-yellow crescent with rounded points concave towards the head; this crescent is bordered by a light greenish-yellow line and a black one following outwardly. The anal segment exhibits above the anus a concave excision, so that the last segment forms to the right and left a short tooth which however, have not the least connection with the anal spikes of the larvae of the Satyrids, for they are not appendages or protuberances, but only a change of form in the last, twelfth segment. The skin of the larva when examined under a magnifying glass appears decorated with fine, yellowish dots, similar to the oil-glands of the orange-skin. The larva had strongly spun over the upper half of a Rambutan leaf, and on this place it kept its rest and digested, from here it visited other leaves of which it ate most irregularly now here, then there from the rims, without ever eating hardly half the leaf. The pair of feet of the anal segment, the anal feet, seem to be incompletely developed and, when the larva is at rest, they are not used at all, but kept drawn in, so that the anal end of the larva stands away from the leaf, but parallel to it, in a similar way as the stern of an unloaded steamer lies high above the surface of the water. After three days, the larva grew restless, leaving its spun-over resting-place and beginning to run about aimlessly and quickly, so that it had to be put into a box where, after a few hours, it suspended itself on a branch of the food-plant for its pupation, turning its head quite round to the anus so that it forms a ring, just like the larvae of *E. athamas Drury*. Discolouring into a lighter, dirty greenish tinge, the larva pupated only after 36 hours. The pupa is, like that of *athamas*, of a stout, rounded shape without any protuberances, but is of nearly double the size and coloured in a lustrous green with whitish, cloudy shades especially on the proximal margin of the wings, to be compared with hoar-frost or vapour on fruit. On both sides of the ventral segments the mouths of the tracheae are indicated by 7 brown, prominent dots reminding us of the chocolate-icing of a confectioner. The entirely

blunt extremity of the head of the pupa is brown and crusty over eyes and palpi, and behind each sheath of the antennae we notice a small, pointed brown wart. Around the end of the anus, the cremaster, there are, like in *athamas*, six brownish-yellow, glandular protuberances. The pupal stage lasts 13 days and the imago appeared between 9 and 10 in the forenoon, after the pupa had turned dark in the evening before and the discal white band of the forewings had been shining through in the morning. The food-plant was Nephelium lappaceum L., but the large species yielding finer fruit which the Javanese call „Rambutan Atjeh" (Dr. Martin). The butterfly occurs from the coast up to an elevation of about 1200 m. It flies swiftly and does not fear even the proximity of human beings, for I saw it flying in large gardens near Sukabumi and both Dr. Hagen and Doherty have come across it in the streets of Singapore and Tungo. It is also frequently stated that single wings were found from which we may conclude that *schreiber* is very much pursued by birds. The butterfly, however, is everywhere extremely rare except in Java, of some races even only the one sex is known. Range: Macromalayana, to the north as far as Assam, observed by myself in Siam and Tonkin, one race mentioned also from the North Philippines. It is presumably found yet in Palawan and in other islands of the South and Central Philippines. — **wardi** *Moore* is considered one of the most beautiful and rarest day-butterflies of South India. Upper surface extensively bordered in ochreous also in the ♂, cell of the forewing with two elongated maculae instead of a white spot as in insular races. The white median band on both the wings peripherically richly bordered in light blue. The butterfly is fond of fluttering round isolated trees on rocky ledges of rocks during the hottest hours of the day. Larva on Wagartea spicata the thorns of which make it rather dangerous to hunt for the larva. As in all the large species, the development from the larva into a pupa takes a long time, and a larva which had crept out on the 25th of October, pupated only on January 26th. Larva dark green with a yellow lateral stripe. Horns rust-brown as well as the sides of the head. — **assamensis** *R.* and *J.* White median band of the forewings brought nearer to the cell than in the Malayan forms. ♀ very much like *schreiber schreiber* from Java, though more pronouncedly margined by ochreous. Very rare, only few ♂♂ and one ♀ known from the Naga and Khasia Hills. — **tisamenus** *subsp. nov.* approaches *schreiber* vom Java (135 a). The ♂♂, however, are considerably larger than the ♂♂ of the other insular vicarious types. The small white subapical spots of the forewings either absent, or to be noticed only as minute dots. White median band of the hindwings distinctly broader than in Borneo-♂♂. Type from the Malayan Peninsula or from Singapore, in the Museum of which I also found it among the stock of duplicates. In the Tring Museum there are ♀♀ from Penang and Perak. Maybe also specimens from Birma and the Riouw Archipelago belong to *tisamenus* and presumably also the specimens I observed near Muok-Lek in Central Siam, as well as a specimen which was taken near Chiem-Hoa (Tonkin) in August and which is now in the Tring Museum. — **entheatus** *subsp. nov.* is known to me from a ♀ in the collection of the British Museum. Habitus superior to that of the ♀♀ from North East Sumatra, showing also a broadened white band of the upper surface of the hindwings, an entirely paler total colouring and beneath more considerable brown spots. Billiton, in a nearly allied form also in Banka. — **valesius** *subsp. nov.*, undoubtedly one of the rarest day butterflies of Sumatra, lies before me from Padang-Pandjang, the west of the island. ♂ smaller than the ♂♂ of the Malayan Peninsula; ♂, like in *schreiber schreiber*, with a very large white subapical spot and a supplementary macula in the cell of the forewing. Discal stripes of both wings broader than in *tisamenus*. The bordering of the band on the hindwing lighter blue and more extensive than in *tisamenus* and *malayicus*. In spite of having collected in North East Sumatra for 13 years, Dr. Martin did not find it, but Dr. Hagen got in about the same period, a ♂ from the Gaju-Districts from natives in January 1892, as well as two ♂♂ from the Island of Banka. ♀ according to the material of the British Museum larger than the ♀ of *tisamenus* from Singapore with more extensive white bands. — **niasicus** *Btlr.*, according to the ♀ lying before me and being hitherto not yet described, differs from the ♀ of *schreiber* from Java by the more undulated white band of the forewings, a somewhat narrower median stripe of the hindwings exhibiting at the same time more pronounced white submarginal lunae. The subbasal band of the under surface much broader than in Javanese ♀♀, of a greyish-green colouring and bordered more intensely black; Island of Nias, very rare. — **schreiber** *Godt.*, the name-type, is of the smallest habitus. The small preapical spots of the forewings are always distinct. Median band more strangulated than in the allied forms, but sharply defined and bordered either by light-blue or violet. ♂ with indistinct, ♀ with distinct reddish-brown terminal band of the hindwings. A ♂ from East Java has a broader white median area and a larger white transcellular spot of the forewings, but a more reduced white silvery band on the under surface of the hindwings, than my West Javanese specimens. Butterflies not very rare in the Monsun period especially in Sukabumi (West Java) and its surroundings, the most numerous at elevations of about 6 to 800 m. Larva, according to Dr. Piepers, on Cynometra cauliflora. — **malayicus** *R.* and *J.* lies before me only from South East Borneo, while the type originates from the lowlands of the northern part of the island. ♂ about of an inferior shape compared with *tisamenus*, median area considerably narrower, the small white submarginal spots of the hindwings decidedly larger. Under surface of the hindwings decorated with more pronounced reddish-brown crescents than the other neighbouring races. — **luzonicus** *R.* and *J.* is described according to a ♂ from Mariveles (Luzon), unknown to me in nature. Hindwings with an uncommonly narrow white band, but the light-blue periphery more extensive than in *malayicus* from Borneo.

wardi. *assamensis.* *tisamenus.* *entheatus.* *valesius.* *niasicus.* *schreiber.* *malayicus.* *luzonicus.*

E. cognatus *Voll.* (135 a) replaces *schreiber* in Celebes and agrees with it in the rare chromatic symphony of black, blue and white. The white median band of the forewings broken up into single spots, in addition *cognatus.*

a submarginal series of small white streaks being absent in the *schreiber*-forms. Median area of the hindwings shorter but more extensively encircled by a blue tinge than in the Javanese race of E. *schreiber*. Tails with their points nearer to each other. Under surface characterized by a pronounced net of black stripes surrounding and defining two silvery white spots of the cell of the forewing and the median band of the hindwing. *cognatus* is rare in all the parts of the island, but seems to occur the most numerously in August in the north, as for instance near Palu, as well as in the south of Celebes. The ♀ not yet discovered.

E. dehaani, more popular by the name of „*kadeni*" and as „circular butterfly" („Zirkelschmetterling"), numbers among the oriental butterflies most in demand since Wallaces report in his „Malayan Archipelago". But since 1861 till my expedition to Java in 1891/94, only one or two good specimens have come to Europe. Only during my stay at Sukabumi, in 1892, Javanese hunters succeeded in capturing a number of ♂♂. In 1896, the collector Prillwitz succeeded in taking also the ♀. *dehaani* is beneath remarkable for a silvery white basal area exhibiting on the forewings a series of black streaks and on the hindwings a peculiar triangular area densely dotted with black, traces of which are also noticed in *E. cognatus*. Hindwings furthermore distinguished by a black, V-shaped band and three reddish-brown crescents being proximally dusted with violet and extending within the tails, between the anterior median and the anal angle, in the shape of a demi-bow. — **dehaani** *Dbl.* (= kadeni *Fldr.*) (137 a) with a blackened cell of the forewing, a broad black distal margin of the hindwings and a relatively narrow and dark blue crescentiform hue at the base of the tails likewise dusted with blue. ♀ considerably larger than the ♂ with a double yellow transcellular spot and a narrower black bordering round the forewings. Hindwings likewise more extensively scaled in yellowish, the predominant yellow part sends forth a long tooth, between the anterior and middle median, towards the origin of the anterior tail. The tails are broader and therefore also more extensively covered with blue. Beneath like the ♂♂, but the three crescents dusted harmoniously with purple and whitish violet and embedded in the submarginal zone in a fine curve, are much narrower. Habitat exclusively the Megamendong, the northern ridge of the Gede Volcano, 1480 m, being easily reached from Buitenzorg. Wallace got there his specimen which a Javanese boy had surprised and captured in an undamaged condition on its feeding on the moisture from a pool near the road. The occurrence of the butterfly is rather limited there, and if one day larger tea or coffee plantations or other cultivations should expand there, the noble butterfly will be destined to die out. *dehaani* is extremely constant, and judging from the 15 ♂♂ of my collection, only the colour of the cell of the forewing varies, being quite black in the rarest cases, but oftener lightened in its apical part being strewn with bluish-green scales. Only

dehaani.

2 ♀♀ are known to me: the type in my collection and a specimen in the Tring Museum. — **sulthan** *Hag.* of a smaller shape than *kadeni*, one of the few forms being exclusively common to Java and Sumatra. *sulthan* exhibits remarkably lighter colours than the Javanese ally, while otherwise the Sumatrans appear not only larger, but also darker than the Javanese vicarious types. Cell of the forewing nearly throughout light yellowish, quite thinly scaled in green. Preapical spot only punctiform. Black distal margin narrower, the blue of the hindwings much lighter, more extensive. The orange anal spot of the hindwings more distinct. Under surface with finer black stripes of the forewings. The magnificent tripartite submedian bow of the hindwings, the elegant appearance of which reminds us of the crescents of *Papilio paris* and *arcturus* group, is about one third narrower. Sumatra from the Gaju-Districts and the Battak-Platcau; I obtained it also from the Padang-Boven country (West Sumatra). A ♀ is in the collection of the British Museum, differing from the ♂ by the considerably larger orange spot and a somewhat lighter blue of the upper surface of the hindwings.

sulthan.

E. pyrrhus, the most multiform species of the genus, being the most widely distributed in the Malayan Archipelago and forming the most characteristic example of insular differentiability. The two extremes of the colouring on the upper surface are exhibited by our figures 134 d (*sempronius*) with preponderantly yellowish green colours and uncovered basal region of the upper surface, and (*jupiter*) (135 a) with predominantly black bordering and the basal zone covered with black. The former group of forms is confined to Australia and Micromalayana, the latter group to the subregion of the Moluccas and Papuans. Both are united by transitions as for instance the proper *pyrrhus* from Amboina. The under surface also shades off from one island to another by the increase or reduction of the black and reddish-brown spots as well as of the white median areas of which especially that of the hindwings may increase or decrease in extent and also in length. ♀ always larger than the ♂, of a most variable development of the orange terminal margin of the under surface of the hindwings. Larva only known of one race, on Albizzia and Medua ferrea, the iron-wood tree. Pupa of the usual sacciform shape of the pupae of the Charaxides, broad, rounded off with some tubercles on the cremaster, pale-green with snow-white stripes and spots. The flight of the butterflies is rapid, what we may guess already from the appearance of the imago being frequently known only in the ♀ form. ♂ sometimes on blossoming trees where they rest for some moments opening and closing their wings with a scratching sound similar to that of *Prepona*. — With **jovis** *Stgr.* the series of insular races approximating *sempronius* (134 d) begins. ♂ with a black apical covering of the forewings extended somewhat further towards the wall of the cell, enclosing on the whole four preapical spots instead of two as in *sempronius*. Under surface

jovis.

considerably darker than in the Australian vicarious type, with a narrow and shorter white median band of the hindwings. Very rare in Sumbawa, only few ♂♂ in the collections. — **scipio** *R.* and *J.* is superior to *jovis* in the extent of the yellow submarginal maculae of the upper surface, but it has beneath about the same course of the discal band of the hindwings. ♀ much larger than the ♂ of *sempronius*, separated by the obsolete discal series of reddish-brown crescentiform spots on the under surface of the hindwings. Island of Sumba, rare. Flying from November till February. According to Doherty, *scipio* in contrast with *E. eudamippus* being fond of flying near the ground, always flies above high trees. In Flores *pyrrhus* has hitherto not been noticed. But we may be sure to expect it yet from there, for the neighbouring Alor has already a representative as **aloranus** *R.* and *J.* ♀ differs from *scipio*-♀ by smaller yellow spots of the upper surface and a somewhat narrowed white median band of the under surface of the hindwings. ♂ the most closely allied to the vicarious type of *galaxia* from Timor, but with somewhat more pronounced submarginal spots. Only one couple known: the ♂ in the collection of Dr. Pagenstecher, the ♀ in the Tring Museum. — **galaxia** *Btlr.* flies in May in the Island of Timor. Forewing with a broad black margin and insignificant submarginal spots, the median band of the hindwings very thin. — **pyrrhulus** *Fruhst.* was also collected in May by W. Doherty in the Island of Wetter. ♂ differs from *galaxia Btlr.* by the larger subapical and ultracellular spots on the upper surface of the forewings and the broader black distal margin of the under surface of the hindwings: The transcellular white spots of the forewings are larger, the submarginal row of small lunae, however, finer than in *galaxia*, to what Rothschild has already called our attention. Under surface of the hindwings: In all the specimens the white discal band reaches as far as to the posterior median, it is besides much broader and runs more regularly. — **lettianus** *R.* and *J.* forms the natural continuation of *galaxia*. There is only one ♀ known separable from the ♀ of *galaxia* by much larger yellow submarginal spots and a more extensive yellowish green part of the forewings and hindwings. Flies in July. — **babbericus** *Fruhst.* ♀. Differs from Rothschilds figure 30 of *E. pyrrhus lettianus* (in Nov. Zool. Dec. 1898 p. 588) by a broader black marginal edge of all the wings and by somewhat smaller submarginal dots, the shape and succession of which resemble otherwise more those of *pyrrhus seitzi Rothsch.* (l. c. table 5 f 1). The round whitish submarginal dots are also on the under surface of the forewings much smaller than in *lettianus*, the black submarginal line is also less sinuate inwards, but resembles rather that of *seitzi*, though it is somewhat more concavely bent inwards. The two small, almost square subapical spots on the upper surface of the forewings are somewhat smaller than in the ♀ from Letti, the transcellular ones touch, in one specimen, the basal white, as in *Rothschilds* figure, in another specimen they are quite isolated in the black distal margin. All these spots are altogether absent in *seitzi*. The basal yellowish white of the forewings does not extend into the black margin of the wings so pointed as in *seitzi*, or more plainly expressed, the black marginal band runs more rectilinearly towards the anal angle. On the under surface of the forewings, however, all the white discal markings are more extensive than in *seitzi*, the silvery submarginal band reaching only as far as to the centre of the wing, in one specimen only to the middle median. The discal maculae of the under surface of the hindwings are of a looser cohesion and are somewhat broader and not so exactly sickle-shaped. All the rest like in *sitzi* except two subanal blue lunets on the upper surface of the hindwings, being absent in *pyrrhus* from Tenimber and Letti. This considerable *Eriboea* is just as large as *seitzi* and my largest ♀ of *scipio Rothsch.* from Sumba, and therefore one of the largest races of *Eriboea* known. — **antigonus** *Fruhst.* is very closely allied to *babbericus Fruhst.* from which it differs by the larger submarginal yellow spots on the upper surface of the forewings. The hindwings are lighter between the tails and with a broader bluish green margin, and the elongated admarginal spots between the subcostal and the second median vein are very much longer. The hindwings are analwards broader margined in black. The under surface differs from *babbericus* by the larger yellowish submarginal spots which do not form a coherent band, but stand isolated. The black submarginal band is more curved and bent further inwards so that the submarginal spots are more remote than in *babbericus*. The white discal band of the hindwings is longer, the subanal reddish-brown spots are smaller, moreover, the hindwings are darker than *babbericus*. *antigonus* is much larger than *lettianus Rothsch.* and differs by the larger submarginal spots of the forewings and the smaller, nearly quite obsolete submarginal spots of the hindwings. The subapical spots of the forewings are more uniform and all the wings much broader margined in black. Under surface: The submarginal spots of *antigonus* are isolated, while in *lettianus* they are coherent. The black submarginal band runs more rectilinearly. The yellowish-white discal region of the forewings is narrower, the blackish-brown postdiscal zone, however, very much broader. Hindwings: the subbasal whitish band much narrower, the white discal band, however, broader, as well as the discal band of blue lunets. *antigonus* differs from *seitzi Rothsch.* by the submarginal spots of the forewings being at least three times as large. The black bordering of the wings is narrower and there appear ultracellular and subapical yellowish maculae on the forewings being absent in *seitzi*. The blue lunets of the hindwings are more greenish. Under surface: the median and lower submarginal spots are larger, more helmet-shaped; the ultracellular spots broader. The black-curled brown spot at the apex of the cell is narrower. Hindwings: the whitish subbasal-discal bands like in *seitzi*. The discal black band is curved more outwardly. The yellow admarginal spots narrower, but more rectilinear; the blue admarginal spots are missing at the radials. Thus *antigone* resembles 3 races of neighbouring islands, but differs so considerably from each of them that an expert notices the differenees at once. Island of Dammer. — **romanus** *Fruhst.* forms the transition to *babbericus* from which it is, however, easily distinguishable by nearly again as large yellow spots of the

scipio. *aloranus.* *galaxia.* *pyrrhulus.* *lettianus.* *babbericus.* *antigonus.* *romanus.*

forewings. The median band of the under surface of the hindwings shorter, narrower than in *babbericus*. Island
kalaonicus. of Roma, only ♀♀ collected by H. Kühn. — **kalaonicus** *R.* and *J.* approximates much rather the Sumbawa- and Sumba-race, is of a smaller habitus than *scipio* with less considerable submarginal spots of the forewings, but according to the authors' figures with larger spots of the hindwings on which they are also beneath more
sempronius. sharply defined. Island of Kalao, four ♀♀ discovered by Everett in December 1895. — **sempronius** *F.* (134 d) is the last among the light forms. ♀ more imposing than the figured ♂ with very large elongate transcellular stripes and submarginal spots of the forewings. The hindwings with a large reddish yellow anal spot. ♀ beneath with slight marks of a brown bordering round the forewings. The hindwings, however, traversed by a considerable light brown subbasal band, a discal band being anteriorly light brown, posteriorly reddish-brown, and by an ochreous terminal band. An uncommonly light form (therefore presumably of the dry period)
australis. has been denominated **australis** *Swains.* (tyrtaeus *Fldr.*). Occurs in Queensland, North West Australia, New South Wales and Lord Howe-Island. The ♂♂ are fond of drinking from the emanating sap of trees where they sit as if drunk and are easily captured. *sempronius* often flies in plantations of orange-trees in order to fly across them and to escape into the woods. It has also been met on the sweet-smelling blossoms of Bursaria spinosa,
pyrrhus. and it was noticed producing a scratching noise when opening the wings. — **pyrrhus** *L.* forms the transition from the series of *sempronius-jovis* to the Papuan races. Having been described by Linnaeus in 1758, it is the longest-known member of the *Charaxidi*. Upper surface very similar to *jupiter*, hindwings, however, more copiously dusted with bluish-green, and the marginal spots of the hindwings preponderantly blue instead of greenish. Under surface distinguished from all its allies by the strongest black boundary-lines of the brownish-
bandanus. green and white bands. ♀ very rare. Amboina, Ceram. — **bandanus** *R.* and *J.* was discovered by Doherty. There is again only one ♀ of it in the Tring Museum which can be separated from *pyrrhus* beneath by somewhat fainter black longitudinal stripes. All the submarginal spots somewhat more reduced than in the nomen-
buruanus. clatural type. — **buruanus** *R.* and *J.* denotes, however, a lightened pygmean race of which two ♂♂ collected
obiensis. in November served as types. Cell of the forewing not blackened like in *pyrrhus*. Island of Buru. — **obiensis** *R.* and *J.* of somewhat larger shape than *buruanus*, above remarkable by a more extensive greenish hue of the hindwings. White median band of the under surface of the hindwings shorter than in the form of the North Moluccas. Island of Obi; September. ♀ unknown. Only one ♂ in the Coll. Fruhstorfer, single specimens
gilolensis. in the Tring Museum. — **gilolensis** *Btlr.* lies before me in corresponding ♂♂ from Batjan and Halmaheira. Cell of the forewings, contrary to *obiensis* and *pyrrhus*, dusted greenish in its distal part. Marginal area of
chlorus. the hindwings less broad than in the Amboina-race. ♀ very rare. — **chlorus** *subsp. nov.* unites the races of the North Moluccas with the Papuan *pyrrhus*-branches. Above very closely allied to *jupiter*, the ♂♂ are of a smaller shape and exhibit also reduced small apical spots of the forewings. Median band of the under surface appreciably narrower than in the form from Dutch New Guinea. ♀ with more intensely yellow areas in the median part of all the wings, approximating the ♀ of *keianus* in the colouring. Island of Waigiu, very rare, only 2 ♂♂
jupiter. 1 ♀ in my collection, 2 ♂♂ in the Tring Museum. — **jupiter** *Btlr.* (135 a) described from Dorey in Dutch New Guinea, distributed over the whole of Dutch and German New Guinea. According to Rothschild and Jordan, there belong also specimens of the Aru, Trobriand and d'Entrecasteaux Islands to *jupiter*. My six ♂♂ from Friedrich-Wilhelmshafen and Finschhafen are somewhat more considerable than ♂♂ from Dorey and Kapaur, with more green on the expanded yellow median bands. They fly, according to Hagen, from
kronos. December till April. — **kronos** *Honr.* from New Pomerania, New Lauenburg has the small spots of the forewings somewhat more blurred than *jupiter* from the continent of New Guinea. Very rare. In New Hannover there exists another, geographical race, but slightly modified and with somewhat less intense and more yello-
attila. wish than reddish-brown subanal crescents on the under surface of the hindwings. — **attila** *Sm.* originates from Guadalcanar of the Salomons. There are altogether only 4 specimens known. The ♀ is characterized by the complete and isochromatic submarginal spots of the upper surface of the hindwings which do not exhibit any
editha. reddish brown anal spot. — **editha** *Ribbe* founded upon a ♀ from Bougainville, is much larger than *jupiter* and
keianus. the under surface provided with a more prominent terminal band. — **keianus** *R.* and *J.* is that branch of *pyrrhus* which has come the most frequently to Europe in the last years. Upper surface, especially of the ♀♀, intensely yellow, nearly lemon-coloured with a greenish hue. Submarginal spots of both wings relatively small, but very uniform. Under surface easily distinguishable from the Micromalayan vicariants by a wedge-shaped long, silvery-white median band running through as far as to the posterior median. Larva on Albizzia and
seitzi. Medua ferrea. Pupa broad, roundish, light green with snow-white small stripes and spots. — **seitzi** *R.* and *J.* an excellent transition from *keianus* to the inhabitants of the islands of the Timor Group, exhibits a magnificent green ring along the distal margin on the upper surface of the hindwings, and on the forewings but minute submarginal dots. Median area of the under surface of the hindwings extremely narrow, short, embedded in deep dark brown surroundings. It flies from March till July. From Larat of the northernmost Tenimber
watubela. Island in my collection, discovered by Doherty also in Selaru, the southernmost island of the Group. — **watubela** *Rothsch.*, finally, approximates *keianus* from which it differs by the parted median band of the forewings, the anterior spot of which stands isolated. The blue dusting of the hindwings more extensive, as well as the anal marginal spot of the hindwing. From Kissui of the Watubela Group, situated to the east of Banda and between Goram and the Key Islands. Only one ♂; flies in March.

clitarchus. **E. clitarchus** *Hew.* replaces *pyrrhus* in New Coledonia. Upper surface similar to *jupiter*, cell in its anterior part, however, with yellow bands. Hindwing with an almost uniform distal margin, exhibiting 3

bluish-green bands the middle one of which consists of isolated maculae, the proximal one being incomplete. Under surface distinguished by the dark brown basal region being sharply defined and advancing as far as to the end of the cell. The yellowish-white median band extended as far as to the posterior margin, distally decorated by a compact undulate series of brown crescents. Terminal margin like in *sempronius*. ♀ similar to the ♂, but larger. Rare in the collections. New Caledonia and Lifu in the Loyalty Islands.

E. epigenes *Godm.* and *Salv.* becomes interesting by the unlikeness of the sexes, as is never noticed in a similar way in the *Eriboea*, but only in *Charaxes*. ♂ above purple and with a blackish hue over it. Forewing with indistinct, yellowish submarginal and transcellular small streaks. Hindwing with a series of blue spots of the same appearance and distribution as in *E. pyrrhus jupiter*. Under surface reddish chestnut-brown. ♀ larger by more than half. Upper surface with a steep vertical whitish longitudinal band being repeated beneath, though softened down and darkened. Salomon Islands. Very rare. But few specimens discovered so far. *epigenes.*

E. aristophanes *Fruhst.* ♂ above similar to *E. gamma Lathy*, but with a more distinct yellow spot in the cell of the forewing. Beneath differing from *E. gamma* by the absence of a blackish postdiscal band being replaced by partly indistinct reddish-brown crescents. ♀ above similar to *E. epigenes Godm.* and *Salv.* ♀, however, with more pronounced yellow submarginal spots of both wings. The yellow cellular spot and the two transcellular spots of the forewings more imposing than in the ♀ of *epigenes*. The median band of the hindwings yellow only in its anterior part as far as to the posterior radial, then somewhat tapering with a peculiarly reddish hue. Under surface without the yellowish cellular spot of *E. epigenes*, which is replaced by a reddish-brown stripe. Hindwing with a yellow band on a grey ground being only noticeable as far as to the posterior radial. Presumably from the Salomon Islands, 2 ♂♂, 1 ♀ Coll. Fruhstorfer. I once bought these three specimens in Paris, among a series of Amboina-butterflies being intermixed with species from the Shortland Islands. *aristophanes* may one day turn out to be a local race of *E. gamma* the patria of which is likewise not exactly ascertained. Certainly it is an interesting form which undoubtedly differs from *E. epigenes* with respect to the species. ♂ similar to the ♂ of *epigenes*, ♀ considerably smaller than the ♀ of *epigenes* figured by Rothschild and Jordan. *aristophanes.*

E. gamma *Lathy*, the smallest *Eriboea*. Above blackish-brown with a short narrow cream-coloured median band and some indistinct, diffuse submarginal spots. Under surface with bands of vandyke-brown and blackish colour and shades. Only two ♂♂ known, now in the British Museum. Patria probably New Caledonia or the New Hebrides. *gamma.*

E. caphontis *Hew.* (135 b), the only species of the genus with a reddish-brown double-row on the upper surface of the hindwings. The under surface of the ♂ is dark chestnut brown, of the ♀ greyish-brown. The markings of the upper surface are repeated, except the greenish band of the hindwings, which, moreover, in the ♀ consists only of a thin line on the upper surface. Flying time according to Woodford in November, the rainy period, in the Fidji Islands. According to Rothschild and Jordan there are also ♂♂ with a yellowish median band being distinctly pronounced also on the under surface of the hindwings. *caphontis.*

2. Genus: **Charaxes** *O.*

The species of *Charaxes* are distributed over the whole eastern tropics, though Africa is their proper home where more than two thirds of them occur and where they number among the most prominent characteristic butterflies of the country (cf. Vol. XIII, p. 124—140, t. 30—33). From here they expanded as far as to the Indo-Australian districts, and one species reaches also the southern confines of Europe. South America does not possess any genuine *Charaxes*, but near allies in *Prepona* and *Agrias*. The Indian species may be reduced to 3 or 4 forms which are rather different from the Africans in colours and markings. One of the most numerous is represented by the *Polyxena*-group, butterflies of a brown ground-colour, with or without lighter bands across the forewings, which are most nearly allied to *Ch. varanes*, according to Dr. Jordan. Ch. *eurialus Cr.* from Amboina and Ceram is remarkable for its size, its ♀ being even one of the largest Nymphalidae and standing quite isolated with respect to the colouring of the wings. The eggs are, according to Doherty large, roundish, hard, less high than broad with dark ribs and lines at the apex. The longitudinal ribs are united by fine transverse lines and exhibit, even when seen only under a good magnifying-glass, small projecting dots. Larva and pupa resemble entirely those of the European *jasius*, the habits of the Indo-Malayan species being likewise the same as in *jasius*. We know that all the *Charaxes* are great fliers which, by the aid of the powerful, vigorous wings, dart along with the greatest swiftness or encircle perpetually the crowns of their favourite trees. From time to time they rest on a projecting branch and obstinately return to their place just like their American allies *Agrias* and *Prepona*. One species, *Ch. fabius*, lives also in open districts, while the others are confined to the presence of woods, where the roads through them, being not too sunny and bordered by bushes, form the chief rendezvous of this genus. Wet pools during the hot hours of the day, animal and human excrements, also rotting fruit and chewed sugar-cane are likewise great attractions. Thus these royal butterflies are unfortunately most antiroyal in the choice of their food (Hagen). They are real necrophagous animals and very often the smell of their food is still on them even after their death, whereas on the other hand *Zeuxi-*

dia, *Discophora* and particularly the Malayan and Indian *Eusemia* emit a sweet scent, especially the magnificent *Eusemia bisma* from Java, which cannot be replaced by any of our most expensive perfumes. Similar as the carrion kite among the birds, the pugnacious *Charaxes* are among the lepidopters. Their dead body is easily subject to putrefaction, probably owing to the food containing yeast-plants, so that their bodies must be dried with the utmost precaution. On account of their timidness and unruliness, *Charaxes* are difficult to capture, and when taken in the net, they dart about so furiously that their wings are immediately mutilated. Very rarely one will succeed in taking a specimen which one saw sitting before one in all its splendour, undamaged from the net. Sometimes, however, they suck so fast on to their favourite food that they are blind and insensible and can be easily seized with one's fingers, just like Wallace captured his historical *E. kadeni*.

Range from India with 5, Birma 7 species as far as to South China where but one species occurs. Sumatra has 5 species, Borneo 4, Palawan 5, and the other Philippines 3. The small Nias is inhabited by three species, whereas Micromalayana only by one. Celebes has again 4 species, the Moluccas, except Buru, only one. Australia and the Salomons are without any representative of the genus, although Dr. Jordan presumes that the New Guinea-species might eventually be yet discovered there.

C. fabius, the most insignificant species of the genus, occupies parts of India, Ceylon, Macromalayana except Java, then again Celebes and the Philippines. The species was recently ascertained by myself in Southern Annam. *fabius* chiefly inhabits the plains, though it has been noticed in South India even at altitudes of 1000 m, in Birma of 1500 m. Larva on Tamarindus indicus L. and Wagatea spicata Dalz., oblong, bluish-green, with four horns on the head being red at their tips. On the back of the larva two black dots and a white crescent on the seventh segment. Stigmata dotted in white. Pupa like that of *Eriboea athamas*, though with a more pointed head. Imago flying especially in the cold season, found by Nicéville on date-palms where it was drinking the dripping sap, also at the sap exuding from injured apple-trees. Larva occasionally also noticed on Cardenia and the butterfly near pomegranate-shrubs and on them. The butterfly is extremely sensitive to grographical influences; even in India proper divided into different races which, however, have not yet been thoroughly studied owing to the insufficiency of the material accessible. On the continent there are two temporal forms distinguishable, which have hitherto not been paid attention to: The generation of the dry period is, especially in the ♀ sex, on the under surface of the hindwings almost entirely ash-grey without
fabius. a mark of a median band and even without or nearly without any yellow submarginal spots. — **fabius** *F.* (135 a) depicted according to a stray ♂ from South India, is also found in Ceylon slightly varied. Ground-colour of the median band dark maize-yellow. Under surface grey with a whitish median band and light yellow submarginal spots. From Bombay and Calcutta to South India. Met also in the Sikkim-Terai as stray wan-
solon. derers from May till July. The form of the dry season may be denominated by **solon** *F.* or *epifabius Lucas* i. l., for by the latter name there is a ♀ in the Paris Museum with an entirely grey under surface. In the
cerynthus. British Museum there are also specimens of the extremest winter form from Poona. — **cerynthus** *subsp. nov.* from Ceylon differs from the South Indian specimens by narrower and darker ochre-yellow median areas of both the wings. The ochreous submarginal spots of the under surface are stronger. In the north of the island, I also found ♀♀ with an under surface analogous to f. *epifabius*, with pale-yellow indications of a median band of the forewing and a greyish-violet hue over the median band of the hindwings. On the latter only the anteterminal yellow spots are yet pregnant, the postdiscal ones, however, very much blurred. I frequently met *cerynthus* in the north of Ceylon at the skirts of thin woods under high trees and especially in places which had been defiled by monkeys. The butterflies sat there together in groups of 20 to 30, greedily contending
sulphureus. about the trickling wet. — **sulphureus** *R.* and *J.* exhibits more extensive and almost sulphur-yellow spotting and besides, a profuse more yellowish hue at the terminal margin of the hindwings than *fabius*. Very rare; ♀ unknown. Founded upon 3 ♂♂ from Tenasserim and the Shan States; but the material of the Tring Museum I was able to inspect, has now greatly increased. Among others there is also a dry period form analogous to the f. *epifabius* in the Museum. In the Coll. Fruhstorfer there are three ♂♂ of the rainy period from Assam. —
cunctator. **cunctator** *subsp. nov.* was found by myself in South Annam during the dry period. The ♂♂ from there differ from all the vicarious types by their small size as well as by the lightest yellow median band of the upper surface of both the wings, which, however, does not reach in width the most extensively banded ♂♂ from
echo. India Proper. Flying time January, type in the Tring Museum. — **echo** *Btlr.*, a bodily stunted insular race occurs in Borneo and Singapore, at times also found on the continent of Malacca. ♀ with nearly orange-yellow, sharply defined median band of the hindwings showing beneath only reddish-brown spots, but no yellow
sumatranus. fragmentary bands. — **sumatranus** *R.* and *J.* has an obsolete white discal band of the under surface of the
lampedo. hindwings. Very rare, only two specimens discovered by Dr. Martin. — **lampedo** *Hbn.* an excellent race of which Semper once got 13 ♂♂ from Mariveles in Luzon, caught in May. The ♀ figured by Hübner, according to Semper, fits excellently to his Luzon specimens. Median band lighter and more extensive than in continental and Macromalayan vicarious types. Under surface of the forewings chrome yellow. Hindwings with a pronounced reddish-brown discal longitudinal band. In the Tring Museum there are also ♂♂ and ♀♀ from Mindanao and a ♀♀ from Mindoro. Semper, furthermore, mentions Cebu as another habitat. —

orchomenus *subsp. nov.* forms the transition from *lampedo* to *hannibal* from Celebes. Its median white band of the under surface of the hindwings is more distinctly pronounced than in the specimens from Mindoro and Mindanao of the Tring Museum. In the island of Palawan. Very rare. — **zephyrus** *Btlr.* is a deviation or insular race without the white band on the under surface of the hindwings and extremely narrow median area of the upper surface. Habitat the Philippines; the place, where it was found, not exactly ascertainable. — **catulus** *subsp. nov.* was discovered by Doherty in Sangir. There is only one ♀ in the Tring Museum, with a broader discal band composed of reddish-brown spots, on the under surface of the hindwings. Flying time February and March. — **mangolianus** *R.* and *J.* is a considerably darkened satellite-insular race. Submarginal spots of the forewings white instead of yellow, as in *lampedo*. Sula-Mangoli, one ♀ in the Tring Museum, one or two ♂♂ in the Coll. Staudinger. — **hannibal** *Btlr.*, an extremely rare butterfly from the north of Celebes, was founded by its author upon 2 ♀♀ from the north and south of the island, which were taken to be the two sexes of one species by Butler. ♂ from the Minahassa with hardly half as large preapical spots of the forewings, as in the southern race figured by Rothschild and Jordan (Nov. Zool. V, table 7, f. 1). The yellow band of the hindwings narrower, shorter, distally not bordered by blue. Under surface brownish-grey. Forewing without a trace of red spots and with entirely darkened or vanished apical spots. Hindwings with a much narrower white longitudinal band and extraordinarily large brown spots in the submedian area. Very rare, occurring always but singly. The ♀ (Butlers type) in the British Museum, the only specimen known hitherto, hardly differs from the ♂, except the somewhat broader bands. The under surface blackish-grey, with a slight purple hue over it. — **jordani** *subsp. nov.*, the race from South Celebes, for the first time depicted by Rothschild and Jordan, extraordinarily well differentiated. ♀ much larger than the ♀ of *Ch. fabius hannibal*, with a much broader yellow band than the northern form. Hindwing above with yellow anteterminal spotting being absent in the ♀ of *hannibal*. ♀ beneath white-grey the median band expanded. Across the whole upper surface a peculiar light waxy gloss. South Celebes, collected by Doherty in both sexes near Maros in August-September. I saw a specimen sitting at the bank of a brook on the way to the Peak of Bonthain, at an altitude of about 800 m, in the eastern part of South Celebes. The ♀ in the collection of the British Museum (my type) is of a more imposing shape and beneath much lighter than the ♀ figured in Nov. Zool. V. They are presumably temporal forms. Another form allied to *hannibal* is found in the Talaut Islands from where Doherty sent a ♀ to the Tring Museum.

orchomenus. *zephyrus.* *catulus.* *mangolianus.* *hannibal.* *jordani.*

Ch. polyxena is the most common and at the same time most multiform species. Distinguished by the heteromorphism of the sexes, the polychroism of the ♀♀ and in the continental races also of the ♂♂. In the Himalaya the areal races are, besides, subject to the influence of the seasons. The most interesting fact is the occurrence of specimens with a white band of the forewings, beside those of a plain brown ground-colour, which variability formerly caused the founding of many species, until Rothschild and Jordan united all the dubious forms into one collective name. Early stages figured at first by Moore, hardly distinguishable from those of the South Indian species *Ch. imna*. If, however, the original figure of 1857 is not recorded, the larva of *polyxena hierax* has longer horns on the head than that of *Ch. imna*, and the pupa is somewhat more slender. Larva snail-formed, the broadest in the middle, posteriorly somewhat tapering. Ground-colour beautifully green, beneath yellowish, with a pink-speckled, yellow lateral line. On the back a pink, large round spot with white ringlets, and on both sides three more, smaller pink spots being absent in *imna*. Pupa green with red ventral dots. *polyxena* is a butterfly of the lowlands inhabiting, according to Nicéville, the low valleys of Sikkim. We little know what altitudes it reaches. The Javanese insular race does not go higher than 800 m, from Sumatra the Battak Mountains are mentioned as habitat, where the Sumatran race goes up as far as about 1200 m, while the Tenasserim form is reported to occur up to 6000 feet. An interesting fact is the increased darkening of the species towards the east, and the disappearance of the light-banded forms towards the south. I do not remember of having captured white-banded ♂♂ in Siam, and on the Malayan peninsula there exist only brown ♂♂, while very rarely there occur yet now and then white-striped ♀♀. The maximum of the development is attained by *polyxena* in Sikkim and Assam. Further to the west and east, the specimens grow rather scarce, and crowds, such as were observed on the river-banks in Sikkim and Assam, have no more been noticed at the periphery of the range. — **polyxena** *Cr.* (Vol. I, p. 171, t. 61 a, b) represented in the white-banded form, occurs also without the white median area being replaced in the ♀ by a dull yellow brightening (f. **sinensis** *R.* and *J.*). *polyxena* is generally darker than Indian specimens and the black apical area penetrates as far as into the cell of the forewing, in the white-decorated ♂♂. Rare in Hongkong and in the Province of Kwangtung. According to Rothschild also in the Yangtse Valley and according to Leech on the Omei-shan and near Mupin in West China *). — **mahawedi** *subsp. nov.* was discovered by myself in July near Than-Moi and in August-September near Chiem-Hoa in Tonkin, and by Pavie near Luang-Prabang. It forms a transition from the Chinese *polyxena* to Indian *hierax*; the black marginal area of both the wings, however, more extensive than in *hierax* and vicarious types, both in the white-banded and unicolorously brown forms. Rare and very local. Type in the Tring Museum. — **agna** *Moore* is the oldest (reliable) name of specimens from

polyxena. *sinensis.* *mahawedi.* *agna.*

*) Larva according to Kershaw on Acronycha laurifolia Bl. on the upper surface of the leaves. Imago flying in Hongkong all the year round. Egg hemispherical, smooth (?), yellowisch, deposited singly on the foodplant.

Birma and Tenasserim. I admit that the Indo-Chinese areal race is entitled to be regarded as a subspecies, because it exhibits almost only brown ♂♂, while white-banded ones occur exceptionally. Owing to the black apical area it much rather resembles the Micromalayan branches than the forms from Assam and Sikkim; the under surface of the ♂♂ remains darker and is more variegated. To *agna* belong presumably also the brown ♂♂ which I found in January—February in Siam near Muok-Lek, while specimens from the Naga Hills figured by Moore (Lep. Ind. II, table 178, f 1 b and c) are more closely allied to the Tonkin race. *agna* is reported to occur in Tenasserim up to altitudes of 2000 m. According to Moore, specimens were also collected in the
hierax. Mergni-Archipelago. — **hierax** *Fldr.* (136 b) is the most variable local form. It exhibits already more frequently white-banded ♂♂ than monotonous brown ones, and specimens of both sexes surpass all the allies in the size and beauty of colours. Besides, the Assam race is peculiar of certain varieties: such as ♂♂ and ♀♀ with a bluish-grey dusted basal region of the upper surface of both wings and ♀ with blackish-blue proximal half and the most extensive greyish-violet submarginal part of both wings. This geographical offshoot has naturally
corax. also been the most variously denominated. ♂♂ without a white band of the forewings were called **corax** *Fldr.*,
harpax. and ♂♂ with somewhat more divided black apical covering **harpax** *Fldr.* If the white band of the forewings
hipponax. is extended as far as to the submedian and proximally bordered by black streaks, we have f. **hipponax** *Fldr.*
jalinder. In case these subbasal discal black small stripes be absent, we have **jalinder** *Btlr.* — But the white area may also traverse the whole forewing as far as to the inner margin and the forewings may exhibit white or yellow
khasianus. intranerval, anteterminal maculae (= **khasianus** *Btlr.*), or these submarginal spots may be absent: **pleistoanax**
pleistoanax. *Fldr.* (= khimalara *Btlr.*). On our table 136 the names have been mixed up: fig. a 1 and 2 are to be changed into *pleistoanax* and fig. 3 and 4 into *khasianus*). In the ♀ all the variants of the ♂♂ are repeated, except that the form being above brown or yellow-banded, analogous to f. *sinensis R.* and *J.*, is absent. Except the deviations figured by us there exist still more extreme variants, such as ♀♀ with the broad black submarginal band traversing the whole hindwing, appearing still more extensive than in our *pleistoanax*-♀. Our figures show the two possibilities of expansion of the white area of the hindwings: only to the second median (*pleistoanax*) or to the anal angle (*khasianus*). The ♀ of *khasianus* is rare. To it belongs only one of the 25 ♀♀ of my collection, whereas ♀♀ with pronounced white or yellow submarginal spots of the forewings are the
rossa. rule. The under surface exhibits three differently-coloured principal types: *α.* **rossa** *form. nov.* Under surface reddish-brown, only with yellowish indications of the median bands being white above. Forewing above also with a relatively broad red-yellow distal margin. Presumably an extreme dry period form. β. reddish-brown with very broad pale-yellow areas chiefly in connection with the upper surface being coloured as in f. *pleistoanax.* γ. with blackish-grey imposing bands and whitish or cream-coloured repetitions of the bands of the upper surface, especially in connection with f. *khasiana.* Assam, Khasia- and Naga Hills. In Sikkim we meet
hindia. a geographical vicarious type of a smaller habitus, denominated **hindia** *Btlr.* (134 d as *jalinder*) and here mentioned as a special subspecies. Both the sexes are above throughout lighter yellowish-brown and the relatively narrow whitish band of the forewing of the ♂♂ not very rarely with a yellowish hue. Besides, ♂♂ with yellow submarginal spots of the forewings are much more common than in Assam and, judging by the under surface, a much greater percentage of Sikkim-♂♂ belongs to f. *rossa* than we are able to ascertain in Assam specimens. Monotonously brown ♂♂, however, are either very rare or do not occur at all, at least they are not in my collection. Beside hazy reddish-brown ones we meet also ♂♂ with quite white narrow median bands of the under surface of both wings, being composed of cubiform spots. The most common ♀ is that of f. *pleistoanax.* Blackish-grey or violet-grey bands on the under surface as in *khasiana*, seem not to occur in the ♀♀ of *hindia.* But I possess from Assam not one ♀ with such purely white areas of the upper surface, as the ♀ 136 a 4 from Sikkim. According to Nicéville flying all the year round, but only on low elevations. One of the most common Sik-
hemana. kim butterflies. — **hemana** *Btlr.* is found from Nepal to Masuri and the Kumaon-Himalaya. ♂ above characterized by a reddish-brown distal margin of the forewings. Upper surface generally resembling more the *Ch. imna* (136 d) than *polyxena*, but the black distal band in the anal angle of the forewings tapers off and the ground-colour appears throughout lighter brown-yellow. Only one ♀ form is known with a conspicuously dull-yellow upper surface. Forewing with yellow margin like in the ♂, besides with a whitish median band and ochre-yellow postdiscal spots between the posterior radial and the proximal margin. Very rare in the collections.
crepax. — **crepax** *subsp. nov.* is in the male sex closely allied to *polyxena agna Moore* from Tenasserim, exhibiting a black distal margin being especially in the anal angle of the forewing much broader than in the other Macromalayan races. The costal part of the black marginal area of the hindwings more expanded than in ♂♂ from Sumatra or Borneo. The normal ♀ resembles that of *ajax* (136 d), but with a narrower yellowish area of the forewings and considerably smaller black submarginal dots being also more indistinctly bordered by white,
parafervens. on the hindwings. f. **parafervens** *form. nov.* much rather resembles in the ♂ that of *fervens* than of *polyxena*, exhibiting a narrower black apical area of the forewings than the normal specimens. The reduction of the black marking coincides with a more considerable shape and a lighter shaded under surface, as well as with a more extensive greyish-violet submarginal stripe of the forewings. ♀ likewise considerably larger, with a cream-coloured median band being costally nearly of a pure white. Hindwing with more considerable black tears. Under surface preponderantly sand-coloured whitish-grey, without the light-yellow violet bands of the
phlegontis. normal female form. The ♂ of *parafervens* was known already to *Distant.* Malayan peninsula. — **phlegontis** *subsp. nov.* A melanotic insular race. The black apical margin of the forewings considerably broader than

in *ajax Fawc.* from Sumatra, the black costal spot of the hindwings enlarged, as well as its submarginal spots. Island of Banka, rare. — **ajax** *Fawc.* (136 d) is in the ♂ sex the most nearly allied to *parafervens*. Habitus very large with somewhat more extensive black apical area than in *fervens* (136 d). Like in the Nias species, on the upper surface of the hindwings there is also only the costal spot imposing, the others stand isolated. Under surface most variable, of a bright red-brown as in the ♂ of *parafervens*, as Distant figures it. Beside red-brown ♂♂ there occur also olive-green ones. ♀ sometimes still larger than the figured specimen, with increased black bands. Under surface in three shades of colours: α. preponderantly red-brown, β. with predominant straw-yellow, γ. with brownish violet bands. Chiefly confined to mountainous districts; described from the Battak Mountains, in my collection from Padang Pandjang, Western Sumatra, where *ajax* is not rare. — **acolus** *subsp. nov.* inhabits the forests of the lowland of North East Sumatra. ♂ with narrow black marginal zone of the forewings, which nearly always exhibits yellowish-brown transcellular small spots. Hindwings as far as to the anal angle with coherent tear-shaped submarginal spots. Under surface preponderantly brownish grey with dull olive bands; generally less variegated than *polyxena ajax* from West Sumatra. ♂ common, but ♀♀ very rare. Dr. Martin found only 2 or 3 specimens during many years. — **mitschkei** *Lathy* is a magnificent discovery of the latest times. ♂ approximates *enganicus Fruhst.* from which it differs beneath by a darker brown submarginal zone of the hindwings and by a distinct black terminal line of both the wings which is absent in *enganicus*. Besides, in *mitschkei* the blue intranerval dots of the hindwings are more reduced. ♀ not yet discovered. Island of Nias. In consequence of the discovery of this real *polyxena*-race in the island, *Ch. fervens Btlr.* is eliminated from the collective species and raised again to a proper species, as which it eventually represents *Ch. imna* in Nias. — **enganicus** *Fruhst.* The ♂, compared to the Sumatrans, has narrower black marginal bands of the forewings. The black apical spot of the hindwings is likewise more reduced, whereas the white dotting is much more distinct on most of the specimens. The under surface is of conspicuously light colouring and never of a reddish or greyish brown ground-colour, but of a light yellowish-brown total colouring. On the forewing a sharply angled submarginal band attracts our attention, of reddish-brown colour, being distally, especially in the anal angle, bordered by greyish violet. The hindwings bear a very broad, light yellowish brown marginal band set with large white spots. These white spots are distally bordered by black crescents which are proximally bordered by light blue. The ♀ does in no way exhibit the character of the satellite-island. It shows relations to *ajax* (136 d) the black marginal band of which, however, remains narrower, the submarginal spots of the hindwings being also reduced. The total colouring is entirely lighter, the lighter yellow area of the forewings more blended with the ground-colour. Under surface dull yellow with prominent golden brown submarginal band and very large white intranerval lunets. Island of Engano, rare, time of flying from April till July. Not found by Doherty during his visit to the island in September 1890. — **varenius** *Fruhst.* (134 d). This pronounced satellite island race stands between *pol. baya Moore* from Java and *enganicus Fruhst.* from Engano approximating beneath more *enganicus*, above more *baya*. *varenius*, however, is immediately distinguishable from both by the darker brown-red ground-colouring of the upper surface of the wings and the extent of the black marginal bordering on all the wings, resembling almost that of *plateni Stgr.* from Palawan. The apical part of the forewings is so broadly bordered in black that the black oblong spot before the apex of the cell, which is isolated in *baya*, *enganicus* and *repetitus Btlr.* etc., is confluent with the distal bordering. The black marginal band of the forewings appears almost as broad again as in *baya*. On the under surface we are struck by the prominent dark reddish-brown submarginal band on all the wings, like in *enganicus*, and by the copious, prominent submarginal white and black dotting of the hindwings. ♂ length of forewings 40 mm. Bawean. Very rare, only 1 ♂ known. — **baya** *Moore* (135 d), the extraordinarily differentiated geographical branch of the Island of Java is here for the first time depicted (according to a ♂ from the west, to a ♀ from the east of the island). Specimens from the southern mountains and the promontory of the Tengger Mountains, East Java, are somewhat darker chestnut-brown, beneath decidedly duller and more uniformly red-brown and on an average smaller than specimens from West Java. The ♀ may exhibit costally still narrower, but also considerably broader median bands of the forewings, than the ♀ figured by us. And the preapical spot of the forewings may almost disappear (135 d) or be very large. As a rule, the west of Java has lighter ♀♀ than the east, and in one specimen the band of the forewing discolours almost into white. The most interesting characteristic of *baya*, however, are the very much projecting tails of almost the same length and aproaching each other with the tips, as we find them similarly only in the Philippine species. The ground colour of the under surface of the ♀♀ may be greenish-brown, red-brown and faded yellow with brownish violet patches. ♂♂ not very rare at elevations of up to about 800 m, near Sukabumi and Lawang, ♀ extremely scarce, 5 from the east, 4 from the Preangers in my collection. Doherty discovered *baya* also in the Island of Bali. We may probably expect a homogeneous form from Kangean. — **cybistia** *subsp. nov.*, a darkened insular race, recognizable by the greatly broadened black apical bordering of the forewings the black of which reaches as far as the end of the cell, and a more variegated, though preponderantly red-brown, under surface, than we notice in Borneo specimens. Natuna Islands. — **repetitus** *Btlr.* was founded upon a certain, rare and deviating ♂-form from Sarawak, with a whitish band-like brightening of the anterior median part of the forewings. The other ♂♂ of the *polyxena*-ramification from Borneo, which in some places occur in large numbers, belong to those two types of habitus and colours we have already mentioned from the Malayan peninsula and from Sumatra. The most common are relatively small ♂♂, which replace *acolus*, with an almost coherent band of

ajax. *acolus.* *mitschkei.* *enganicus.* *varenius.* *baya.* *cybistia.* *repetitus.*

the hindwings consisting of strong submarginal spots. The under surface is mostly reddish-brown with a pregnant, brown submarginal band of the hindwings, which is bordered by bluish-black and more prominent than
pseudofervens. in *acolus* from Sumatra. — **pseudofervens** *form. nov.* is a very large ♂ form of light yellowish-brown total colouring and of a black apical margin of the forewings resembling *Ch. fervens Btlr.* The hindwings like in *fervens*, only sometimes quite finely dotted in black. Under surface more variegated, the black bands distally mostly bordered by yellowish. ♀ of the larger form on both sides of a paler yellow with a large yellowish-brown preapical spot of the forewing and quite isolated white intranerval dots of the hindwing. North and South East
bajula. Borneo. In some places very common. — **bajula** *Stgr.*, an insular race of a pygmean shape. Forewing with a strangulated median part so that the apex is projecting. Distal margin of the forewing uncommonly narrow; hindwing, however, with relatively broad black bands and distinctly prominent white dots between the radials. ♀ according to ROTHSCHILD and JORDAN of a paler yellowish-brown than in the Borneo race, the under surface likewise lighter, tails short, not spatulate as in *baya Moore*. Island of Palawan, very rare 2 ♂♂ in the Coll. FRUHSTORFER; January.

C. psaphon forms the southern branch of the *polyxena*-race, and it is most probable that this can also be united with *polyxena*, in case there are transitions found from *Ch. polyxena-hemana* to *psaphon* or the early stages are identical with those of *polyxena*. According to the sketches existing, the horns on the head of *psaphon* are somewhat shorter, the ground-colour of the larva darker green, and on the back there is a crescent-shaped, instead of spherical pink spot; besides, the 5 lateral yellow spots of *polyxena* are absent in *psaphon*. Food-plant Aglaia roxburghiana Miq. and Saccopetalum tomentosum Hooker. The pupa is stout, with a strongly curved back, head obtuse. Colour light green with red stigmatic dots. Imago known to be a strong flier usually appearing towards ten in the forenoon. It is fond of resting high up on trees, on the shining leaves of projecting branches. After having been chased away by stones, it most obstinately returns to its place after a short flight round. In case another butterfly approaches it, C. *psaphon* chases it away most contentiously. The ♀ is sometimes found on the sap emanating from damaged acacias, or it may be baited with rice-brandy. Imago darker chestnut-brown than *polyxena* with a broader marginal band of both wings. There exists only one ♀ form with a considerable snowy white median area of the forewings extending on the hindwings as far as to
imna. the anterior radial. Two geographical races: **imna** *Btlr.* (136 d) with a somewhat narrower black band of the upper surface than Ceylon-specimens. The white area of the forewings of the ♀ occasionally darkened yellowish. Larva macrobiotic. A larva, some days old on Oct. 6th, yielded the pupa only at the end of November. The imago crept out on December 6th. South India, to the north as far as Kanara and on the eastern
psaphon. coast to Calcutta. Scarce. — **psaphon** *Westw.* (♀ = serendiba *Moore*) inhabits Ceylon where it is not very rare near Kandy. I observed ♂ and ♀ near Dambulla, and MOORE knows beside Trincomali a number of other places in the north of the island, where the butterfly flies all the year round. Under surface of the ♂♂ monotonous, without the whitish or yellow discal band of the hindwings of the South-Indian *imna*. The forewings also with fainter black lines.

fervens. **C. fervens** *Btlr.* (136 d), an interesting species. ♂ resembling *polyxena*, ♀ *psaphon*. ♂, however, surpassing both the vicarious types in the shape, characterized by a conspicuously narrow black marginal area of the forewings. ♀ above the most nearly allied to the ♀ of *khasianus* (136 a), though with a still more extensive white area, especially of the hindwings, where the median band terminates at the second (middle) median. The black submarginal spots like in the ♀ of *psaphon*. Under surface of the ♂ red-brown with cinnamon-brown and yellow bands, that of the ♀ predominantly yellowish with a cocoa-brown subbasal band. Distal margin of both wings likewise brown with a purple lustre. Not very rare in Nias. We may expect yet allies from the Mentawej and the Island of Simalur, possibly representing further transitions to *psaphon* and *imna* as relicts of the two countries Engano-Ceylon.

C. amycus inhabits exclusively the Philippines where it represents *Ch. polyxena*. The ♀ greatly resembles the ♀ of *Ch. polyxena baya Moore* from Java, the ♂, however, shows an entirely different marking. The ♂ above peculiarly light chestnut-brown with a dark brown narrow submarginal band of the forewings which are traversed by a black undulate median band. ♀ either with a light straw- or sulphur-yellow zone of the forewings, being always more extensive than in the ♀ of *baya* and accompanied by a series of bone-yellow submarginal crescents. Hindwings with distinctly white-pupilled submarginal lacrymiform spots. Their distal
amycus. margin either red-brown or light yellowish-brown, according to the insular habitat. — **amycus** *Fldr.* described from Luzon, exhibits the broadest black distal margin of the forewings. The median band especially
georgius. distinct. The ♀ not yet known. — **georgius** *Stgr.* has ♂♂ the under surface of which resembles that of *Ch. polyxena enganicus Fruhst.* from Engano and of *mitschkei Lathy* from Nias, by the bright cinnamon-brown submarginal zone being set with blue intranerval dots and small white streaks. ♀ above dull buff with pale yellow median band. The under surface is greenish-yellow with a cream-coloured band. Mindoro, occurring up
myron. to altitudes of 5000 feet, flying from November to January. — **myron** *subsp. nov.* occurs in the Island of Polillo. ♂ darker than the ♂ of *georgius*, with more pronounced black median lines of the forewings. ♀ very nearly allied to the ♀ of *georgius*, but more uniformly greenish-grey. A similar race inhabits the Island of
carolus. Guimaras, according to SEMPER. — **carolus** *R.* and *J.* is considerably different. The ♂ retains the scheme of markings of the northern races, but beneath the colouring changes into a fiery red-brown being covered with a dark purple lustre. The ♀ loses the yellowish median zone and exhibits a light monotonous yellowish-brown of

the upper surface. The under surface approximates the brown Macromalayan *polyxena*-♀♀ by a dull reddish-yellow ground-colour with blue-black lines and purple bands. Mindanao, in a nearly allied race of a somewhat smaller habitus in Camiguin de Mindanao.

C. affinis replaces *Ch. polyxena* in the subregion of Celebes. It has hitherto been known only from Celebes and the Island of Buton, but it will surely be yet discovered in other satellite-ilsands. ♂ as well as ♀ are extremely constant, even the characters between the northern and southern races are not always distinctly noticeable. ♂ remarkable for a black terminal line of the hindwings. The oblong intranerval maculae of the hindwings are always isolated and without a white pupil. Early stages unknown. — **affinis** *Btlr.* *) (= parmenion *Fldr.*, wallacei *Btlr.*), originally described from the south of the island, is in the ♀ sex beneath somewhat paler yellow than ♀ from the north. Butler figured as *wallacei* the normal ♀ from the environs of Makassar, with two distinct black transcellular spots and three median spots on the upper surface of the forewings. ♂ and ♀ are rare near Patunuang Asoe (South Celebes); flying all the year round. The butterfly is found near wet river-beds and on excrements behind the houses of the natives. — **demonax** *Fldr.* (135 d) is a name transmissible to the northern form of Celebes. The ♂ has come in great numbers to Europe in the last years, while the ♀ has remained rare. The ♂♂ vary in such a way that one or two transcellular, red-yellow spots may be present which are very rarely placed nearer to the distal margin. The hindwings have sometimes a marginal band extended as far as to the centre of the wing, but as a rule there is only one costal spot consisting of two components, and which may be white-dotted or unicolorously deep black. Under surface ochre-yellow with a pale purple lustre. Of the ♀ we have figured an aberration from Toli-Toli (North Celebes) with almost obsolete median spots of the forewings. Occurring from Toli-Toli to the northern extremity of Celebes. *affinis.* *demonax.*

C. latona forms the natural continuation of *Ch. polyxena* and *Ch. affinis* in the Moluccas and the Melanesian region. ♂ with — according to the insular habitat — differently broad, black marginal band on the upper surface of both wings and always a black streak covering the cell-apex, on the forewing. ♀ still very similar to the ♀ of *affinis*, but without a spatulate anterior tail which in its turn may be differently long according to the habitat. The black median spots of the forewings being in *affinis* sometimes indistinct, are always pronounced, mostly running through as far as to the submedian. Submarginal band likewise always distinct. The intranerval spots of the hindwings white-pupilled and the terminal band of the hindwings more extensive than in *affinis*. Under surface of the ♂♂ dark brown with a purple lustre and golden brown submarginal bands. Both sexes with beautiful blue eye-spots being proximally striated with white or violet. — **artemis** *R.* and *J.* Hindwings of the ♂♂ with a somewhat narrower black marginal band than *latona* (135 c) from Batjan. Under surface paler than *latona*. ♀ still somewhat paler than the ♀ of *brennus* from Halmahaira. Habitat: Sula-Mangoli; only 1 ♂, 3 ♀♀ found hitherto. — **latona** *Btlr.* (135 c) from Batjan varies somewhat in the ♀ sex. One of the ♀♀ of my collection (flying time August) has still more pronounced black undulate bands on the upper surface of the forewings than the figured specimen. The paler, less black-shaded ♀♀ are beneath pale ochre-yellow with red-brown patches, those of the darker form preponderantly yellowish with brown-violet bands. Batjan, not very rare. — **brennus** *Fldr.* is the race from Halmaheira being in the ♀ sex above always less covered with black. The median and submarginal bands almost obsolete, the anteterminal ocelli of the hindwings more uniform, proximally more pointed than in *latona*. — **ombiranus** *R.* and *J.* is found as a great rarity in the island of Obi. Flying time September. ♂ with a somewhat broader black marginal area of the hindwings than in the ♂ of *latona*. The ♀ differs considerably. Ground-colour lighter yellow, the black roundish maculae of the forewings smaller, those of the hindwings shorter. The median band more prominent, the submarginal band of the forewings, however, just as delicate as in *affinis*-♀ from North Celebes. Under surface the most nearly allied to the dark ♀♀ from Batjan; the greyish-violet submarginal zone more extensive . — **aruanus** *Btlr.* one of the rarest Charaxids. ♂ not yet described at all, ♀ resembling that of *latona papuensis Btlr.*, but on the whole somewhat more variegated with lighter yellow parts. The black median spots of the forewings replaced by yellowish ones. One ♀ in the Oxford Museum. — **papuensis** *Btlr.*, described from Dorey, has a somewhat more narrowed black marginal bordering of the forewings of the ♂♂ than *latona*, and a paler under surface. The ♀ shows more reduced white fringes than the Batjan-♀♀. According to Rothschild and Jordan also near Kapaur, Dutch New Guinea and in Waigiu. — **cimonides** *Sm.* is an areal form of the Humboldt Bay, forming a transition from *papuensis* to *stephanus* (135 c). The black median spots of the forewings placed nearer to the distal black undulate band than in *papuensis Btlr.* from Dorey. — **stephanus** *R.* and *J.* (135 c) is a well differentiated race of the Astrolabe Bay. Most of the ♂♂ exhibit a much less extensive black marginal area than our figure. ♀ with a very fine submarginal line placed quite close to the very large black terminal spots of the forewings. The terminal margin of the hindwings nearly as broad again as in the ♀ of *latona*. German New Guinea, Astrolabe Bay. ♂ not very rare. According to Hagen presumably every second month a new generation. — **gigantea** *Hag.* is a further proof of the fact that in New Guinea two strictly separated areal races may develop at a short distance. *gigantea* differs from *stephanus* by the shape of the black band of the forewings, which approximates again *latona* and advances as far as near to the cell. Marginal area of the hindwings in the costal part much broader than in *stephanus*. Under surface of a brighter steel-blue lustre, the ocelli of the hindwings proximally with an extensive steel-blue area. Chief flying time apparently December, January. *latona.* *brennus.* *ombiranus.* *aruanus.* *papuensis.* *cimonides.* *stephanus.* *gigantea.*

*) Confer the Additions.

meridionalis. Type from Simbang in the Huon Golf. — **meridionalis** *R.* and *J.* from the Milne Bay, flying time December till March, has a considerably differentiated ♀. Compared with the ♀ of *stephanus* from Friedrich-Wilhelmshafen of my collection, the forewings have a distinctly defined, paler yellowish-brown distal zone with much smaller, more isolated black marginal spots. The submarginal band extremely thickened. Hindwing with more reduced black tears. Under surface lighter yellow with a more extensive brown-yellow submarginal zone of the hind-

leto. wings. — **leto** *R.* and *J.* is the most closely allied to *gigantea*, though it shows a darkened under surface, as an influence of the insular melanism. D'Entrecasteaux Islands, Goodenough and Fergusson, very rare, only one

layardi. ♂ of each discovered hitherto. — **layardi** *Btlr.* originally described from New-Pomerania, occurs also in the other islands of the Bismarck Archipelago. ♂ very similar to the ♂ of *stephanus*, but the submarginal spots of the upper surface of the hindwings more isolated. ♀ beneath paler than in the other races of the principal

diana. island of New Guinea. — **diana** *R.* and *J.*, an excellent insular race from New Hannover, only 1 ♂, 2 ♀♀ found hitherto. ♀ prominent by two broad, whitish longitudinal bands of the forewings traversing as far as to the inner margin. Hindwing darker brown than in the ♀ of *stephanus*, with nearly again as extensive, oblong intranerval spots. Under surface with predominant blue-violet bands and a bluish-white median band of the hindwings. ♂ approximating that of *latona*, but beneath considerably darkened.

C. marmax, a continental Indian species, distributed from Sikkim to Tonkin and by way of Birma as far as to the Malayan Peninsula. ♂ above light red-brown with a narrow black marginal zone. Distal from the cell-end a black crescent and before the cell-apex a black spot. The wedge-shaped submarginal spots of the hindwings are united to a loose band. *marmax* varies according to the season. Specimens from Sikkim of March—April are small, pale yellowish-brown, above with a reduced series of spots of the hindwings in both sexes. Beneath blurred, monotonous and pale ochre-yellow, often without any trace of longitudinal bands or dark patches. Specimens of the same country of the Monsun period of June and July are larger, covered broader with black. Under surface in both sexes variegated with red-brown, lilac and white patches. From Assam, wherefrom I have no ♀♀, I also possess ♂♂ with extreme dry period colours and such with pronounced rainy

marmax. period colours. We figure of **marmax** *Westw.* (136 b) a ♀ of the dry period from Sikkim. — **philopator** *subsp.*

philopator. *nov.* I collected three ♂♂ near Chiem-Hoa (Tonkin) in August—September. Pavie found the race near Luang-Prabang. The eastern melanism is distinctly noticeable by broadened black margins of the upper surface and

philosarcus. a darkened, more variegated under surface. — **philosarcus** *subsp. nov.* inhabits the Malayan Peninsula and is the absolute contrary of the preceding race owing to its extremely pale upper surface and reduced black margins. Malayan Peninsula, types in the Tring Museum.

C. aristogiton has above the black spotting at the cell-apex and distal from the cell-end in common with *marmax*; the marginal area, especially also that of the hindwings, is more extensively covered with black. Forewing besides characterized by a red-brown submarginal band dissolving the distal margin into two unequal parallel bands. In the rainy period form, the proximal one of these two black bands increases in extent, and the red-brown intercalar band decreases in extent towards the East. Like in *marmax*, the under surface of the winter-form is blurred, almost unicolorous, in the generation of the rainy period somewhat more variegated. Especially the submarginal band of the hindwings grows more extensive and the point of the apex of the forewings more distinctly white. Occurrence like in *marmax*, though *aristogiton*

arislogiton. has not yet been reported from the Malayan Peninsula. — **aristogiton** *Fldr.* (136 d) has, in the dry period form, sometimes a still more distinct yellow distal margin than our figure of a ♂ from Sikkim. ♀ lies before me only from Assam. It is considerably larger than the ♂ and differs from the *marmax*-♀ from Sikkim by more fused anteterminal spots of the forewing being united to a more pronounced band. The median and anal ocelli of the hindwings considerably reduced. Under surface more uniform, darker red-brown with more sharply pronounced blue-black submarginal stripes. ♀ common in Sikkim beside *Ch. marmax*; ♀ extre-

desa. mely rare. — **desa** *Moore* was founded on large specimens of a magnificent dry period form, with an uncommonly light yellow upper surface appearing, however, costally covered more prominently with black than

adamsoni. in specimens from Sikkim. — **adamsoni** *Moore* is a darkened extreme winter form, collected in February in Upper Tenasserim, with an almost obsolete black submarginal line of the forewings. *desa* was found near Moolai,

peridoneus. Upper Tenasserim at an altitude of 1000 to 2000 m. — **peridoneus** *subsp. nov.* is proved here as a novelty for Tonkin. In the Tring Museum there are 11 ♂♂ which I collected in Chiem-Hoa (August—September), in my collection another ♂ from Than—Mai (June—July). ♂ of the Monsun period above darker brown than the ♂ of the rainy period from Sikkim, with nearly obsolete red-brown band of the forewings. The black spot distal from the cell is absent (maybe only individually). Under surface more variegated. Forewing intensely red-brown with bright yellow-patches in the median region of both wings. The submarginal band of the hindwings more irregular, more extensive and lighter red-brown. The bluish-white intranerval crescents more pronounced.

kahruba. **C. kahruba** *Moore* (136 b, c) resembles above *Ch. marmax*, but beneath it is the most easily distinguishable from the other yellowish-brown *Charaxes* by the bright red-brown bands and whitish or greyish-violet submarginal stripes of both wings. The ♀ is but little lighter than the ♂ and above hardly separable from the *marmax*-♀ (136 b), but the black transcellular spots of the forewings of *kahruba* are somewhat less distinct. Beneath paler yellow than the ♂, with a more extensive yellow distal zone of the hindwings. *kahruba* goes in North India further to the west than *marmax* and *aristogiton* und was observed even in the Kumaon-Himalaya

by Doherty. From Tonkin, however, it is not yet known and seems to extend in the east as far as Tenasserim, from where Moore reports some few specimens from Pegu and the Toungyeen Forest.

C. distanti inhabits the Macromalayan district, going in the north as far as to South Tenasserim; it does not occur, however, in Java. Upper surface like in *thespius* (136 c), the brown marginal band being more pronounced in the ♂♂ from Perak and Sumatra. Under surface typical by a white stripe starting from the base and extending somewhat beyond the cell-end. — **thespius** *subsp. nov.* (136 c), founded upon specimens *thespius.* from South East Borneo, excelled in size by the nomenclatural form from Perak. The submarginal spots of the hindwings are smaller, hardly ever with white pupils. A ♂ from the Natuna Islands is beneath even somewhat paler than my specimens from South Borneo, which peculiarity was also observed by Rothschild and Jordan in a ♂ from Bunguran, Natuna. In a ♀ from Borneo in the Adams Collection of the British Museum the black submarginal spots of the hindwings are more pronounced, the postmedian oblique band of a dark blue colour, and it has a more extensive violet, silver-glossy anteterminal zone which, on being compared with ♂♂ from Perak and Sumatra, gains in extent also in the *thespius*-♂♂. — **distanti** *Honr.* exhibits a less broad *distanti.* red-brown margining of the upper surface of the forewings than the ♂♂ from Sumatra. Habitat Perak, once also found in the Dawnatrange, Tenasserim, in March. — **phlegmone** *subsp. nov.* is based upon West Sumatran *phlegmone.* specimens excelling in size even those from Perak and exhibiting a progressive development of the red-brown marginal band of the forewings as well as of the white pupils of the black intranerval spots of the hindwings. Surroundings of Padang Pandjang, observed also by Dr. Martin in North East Sumatra, but only in the lowland.

C. harmodius may replace *C. aristogiton* in Macromalayana. Apex of the forewings, however, more distinctly projecting than in *aristogiton*, the marginal area of the forewings more reddened, the black spots, particularly also those of the hindwings, receding, hindwings with more prominent white dots. Under surface of a brighter red-brown, with nice prominent white margins of the small black zigzag bands. Penis and penis-canal, according to Dr. Jordan, like in *Ch. aristogiton*. Occurring also in Palawan; the race of the Malayan Peninsula is still undiscovered. — **harmodius** *Fldr.* (136 c as *martinus*) differs from the vicarious types by a *harmodius.* broader black band of the forewings and the enlarged double spot at the apex of the hindwings. The white dotting of the hindwings fainter than in *martinus* from West Sumatra. ♀ with a somewhat lighter yellow submarginal band of the upper surface and a paler costal spot of the hindwings. The oval maculae more prominently pupilled than in the ♂. The foremost point of the tail drawn out very long, but also the posterior one of the ♂ hardly prominent, more distinctly projecting. Distal half of the under surface lighter than in the ♂, with a pale reddish median band extending on the hindwing as far as to the anterior median. Length of forewings: ♂ 40 to 42, ♀ 45 mm. I observed it exclusively in West Java to the south of Sukabumi at altitudes of up to about 500 m. — **martinus** *R.* and *J.* (136 c as *harmodius*) described from North East Sumatra, *martinus.* the Battak-, Gayu- and Karo-Mountains, lies before me in 13 ♂♂ from Padang Pandjang, West Sumatra. The under surface is somewhat duller red-brown than in the specimens from Java, and the hindwings are more beautifully adorned with white stars. — **infernus** *Rothsch.* is an extremely rare geographical species described *infernus.* according to a ♂ sent by me from the district of the sources of the Mahakam River. Under surface paler than in *martinus*, though somewhat darker than in *harpagon* from Palawan. The white margins of the under surface less prominent than in *martinus* and *harmodius*. — **harpagon** *Stgr.* lies before me in a couple from the Island *harpagon.* of Palawan. The total colouring of this insular race is in both sexes so light that we easily conceive Staudinger's mistake in placing this form near *Ch. marmax. harmodius*, however, was not known to Staudinger, for it had been lost since Felder's times and became known again only by my expedition to Java. ♀ distinguished by a broad light straw-coloured median band of the upper surface. The hindwings with large black tears being prominently pupilled in white.

C. antonius *Semp.*, a species peculiar of the Island of Mindanao, without any Macromalayan allies. *antonius.* Upper surface of a peculiar olive brown with a very broad black marginal area passing gradually over into the brown basal colouring. Hindwings with purely white dots in small black maculae. ♀ above similar to the ♀ of *Ch. amycus georgius* from Mindoro, basal half of both wings somewhat paler than in the ♂, with a white band covered with yellowish and extending as far as to the submedian. Hindwing with a bright yellowish costal region and a yellow anal spot, as well as larger black eye-spots than the ♂. Under surface blackish brown with white margins of the dark longitudinal bands. Tails like in *Ch. amycus*, the anterior one spatulate, the posterior one somewhat shorter and anteriorly curved.

C. plateni *Stgr.* resembles above somewhat *Ch. psaphon*, but the black apical spot extends as far *plateni.* as to the margin of the cell, and in the anal angle of the hindwing, the brown distal border is noticeable only as far as to the anterior median and is further in front covered by the black marginal area. Only one ♀ is known belonging to Staudinger's collection, distinguished by lunular, distal, very distinct discal spots from all the other *Charaxes*. The under surface is silvery white with a grey basal part and a greenish-brown area in the submarginal zone. Palawan, time of flying January.

C. borneensis, a Macromalayan species which, however, like many species of this subregion, does not go over to Java. ♂ of all the forms recognizable by a white or quite faintly yellowish transversal band of the

forewings, which is somewhat variable and, as a rule, appears the broadest in Borneo-specimens. ♀ larger than the ♂, with more imposing, more prominently white-pupilled tears of the hindwings and a whitish median band of the under surface. The under surface of both sexes is most characteristic and the darkest of all the *Charaxes*-species of the Indo Australian range. — **borneensis** *Btlr.* (135 c), according to Rothschild and Jordan, has a ♀ being above darker than the ♂♂. Before me there are 11 ♂♂ from West Sumatra varying somewhat in the width of the band, although none of them is so entirely without any white pupils of the hindwings as my ♂ from Borneo. The ♀ decidedly lighter than all of my ♂♂, the hindwings yellowish-brown with an extensive white brightening in the median part of the costal area. Eye-spots of the hindwings with large white pupils. In the Lampongs of Sumatra there occurs a form with a very narrow oblique band of the forewings exhibiting the most pregnantly the narrowing of the white band generally observed in Sumatra-specimens. — **daemoniacus** *subsp. nov.* Type in the collection of Dr. Martin. — Another race having hitherto not been considered inhabits the Malayan Peninsula, **praestantius** *subsp. nov.* ♂ beneath much darker than even in the ♂♂ from Borneo. Upper surface more intensely red-brown, the white band more sharply defined; narrower than in the average Sumatrans. Hindwings immediately noticeable by the much larger black, faintly white-dotted eye-spots In the Tring Museum there is a ♀ of the Perak-race exhibiting likewise more imposing ocelli of the hindwings than the ♀ from Borneo. According to Dr. Hagen, *praestantius* flies also in Singapore. — **vandepolli** *Lathy* is one of the most magnificent discoveries of late. There is only one ♂ known with a nearly twice as broad white band of the forewings compared with Sumatra-♂♂. Hindwings conspicuously light yellowish-brown with a light-yellowish distal margin. Under surface with a greenish-yellow, instead of olive, longitudinal band. Island of Nias.

borneensis. *daemoniacus.* *praestantius.* *vandepolli.*

C. bupalus is characteristic of the Island of Palawan just like *Ch. plateni* and replaces *Ch. borneensis* there. ♂ resembles the ♂ of *borneensis* (135 c), the band of the forewing, however, is more sharply defined, the submarginal spots of the hindwings are longer. Under surface less distinctly bordered in white. ♀ with a more imposing median band than *borneensis*-♀, the under surface of both wings in the basal half just as blackish as in the *borneensis*-♀, the distal part, however, lighter, more cinnamon-coloured.

bupalus.

C. durnfordi, a typical Macromalayan species which has spread to the north as far as Birma, and one of those species which represent the most obviously the geographical variability, for each area has its race with so greatly modified characteristic marks that they might almost be looked upon as species. In fact, the single subspecies were also nominated as highly qualified species. ♂ above chestnut-brown or cinnamon-coloured, always with a submarginal double row of white crescentiform spots separated from each other by a black band. Hindwing with a uniform white zone decorated with black, white-pupilled ocelli. In the ♀ all the white patches are widened and on the hindwings we notice another median, sometimes band-like brightening. Under surface in all the races and sexes rather analogous, predominantly greyish-white with brown patches. — **nicholi** *Sm.* has the most indistinct white submarginal spots of the forewings, but the most extensive white area and, at the same time, the smallest ocelli of the hindwings. The under surface considerably darker than in the other vicarious types. ♀ not yet found. Of the ♂ but few specimens have hitherto got into English collections from Upper Birma, the Khasia-Hills and the Dawnat Range, Tenasserim. Flying time March, April. According to Nicéville also in a larger shape, with more prominent ocelli at the same place in October. — **durnfordi** *Dist.*, the nomenclatural type, originates from Sungei Ujong of the Malayan Peninsula. There has so far only one ♂ been ascertained, the type (now in the Tring Museum). ♂ with slightly larger white spots of the forewings, but a somewhat broader white marginal zone of the hindwings than Sumatran specimens. — **connectens** *Nicév.* (137 a) described according to 5 ♂♂ and ♀ from North East Sumatra. The ♀ was first depicted by myself in the Int. Ent. Zeitschrift 1908, p. 365. It occurs in two forms: α. as we reproduce it with isolated ocelli of the hindwings, and β. a more rarely occurring form with coherent eye-spots. Near Padang Pandjang sometimes met in numbers, from where 6 ♂♂ and 7 ♀♀ are in my collection. — **staudingeri** *Rothsch.* was first discovered by me in January 1891, near Palabuan on the southern coast of West Java, where the butterflies are to be found on the sands and on rocks in mountain-brooks rushing down from the wooded hills of about 100 m in this district. ♂ darker than the Sumatran race (occurring rarely in the colouring of the day-butterflies of the two islands) and reduced white proximal crescents of the forewings. The ♀ was described by me in 1897. It is above paler, with closely coherent rows of white spots on the forewings. Ocelli in the broader white area of the hindwings, longer than in the ♂, prominently white-pupilled. Marginal area of both wings beneath almost white. Known only from West Java. In the last years, numbers of series of *staudingeri* have been brought to Europe by a collector Primawesi. — **everetti** *Rothsch.* occurs in North Borneo from where I have in my collection a ♂ captured by its discoverer near Lawas. Pagenstecher mentions a ♂ from Kutei near Samarinda, East Borneo. Shelford recently succeeded in taking a ♀ near Kuching in Sarawak, by means of a bait consisting of rotting bananas. *everetti* is the lightest geographical off-branch with dull yellowish-brown upper surface and very long, proximally tapering ocelli of the hindwings.

nicholi. *durnfordi.* *connectens.* *staudingeri.* *everetti.*

C. ocellatus which I captured in Lombok, was later on discovered successively by Doherty and Everett in the neighbouring islands of Sumbawa, Sumba and Flores. There are altogether only six specimens known,

all of which are in the Tring Museum. Upper surface chestnut-brown. Forewing in both sexes with a band extended from the costal margin to the submedian and composed of almost square white spots. Hindwing resembling *durnfordi* with a relatively narrow white area enclosing oval, closely adjoining, black ocelli being distally white-pupilled. Hindwing, moreover, with traces of a white median macular series. Under surface of a silvery grey, with a grey — instead of white as above — marginal zone of the hindwings. Tails very long, the anterior one somewhat broader and the posterior one little shorter and more pointed. The butterflies rise from the coast up to about 600 m. — **ocellatus** *Fruhst.* Upper surface: base of the forewing light cocoa-brown; *ocellatus.* the disk is traversed, from the costal margin to the submedian, by a purely white, rather rectilinear band which, however, is particularly proximally sharply indented like an angle. The whole other distal part of the wing is black, except an obsolete diffuse spot below the costal margin. In the discal band between the third and fifth subcostal vein there is one black dot to each of them. The apex is extended; ciliae white. Hindwing above somewhat lighter brown than the forewing, the costal border, except the outermost part, without scales, greyish white and dull. The distal margin is bordered round by a blackish-brown band filling up also the tails almost to their points; from the tails it turns lighter extending towards the anal angle. In the anterior part of the hindwing four oblong black, white-pupilled submarginal spots standing together like a band and being proximally bordered round by yellowish lunular spots. Tails very long, above dark brown, beneath greyish-brown; tips whitish, the upper ones projecting in a straight line, the lower ones proximally curved. Two white-pupilled, black spots edged with a yellowish macula, are between the tails and separated from the tails by the distal border mentioned above. In the anal angle a similar double-spot bordered by the grey proximal margin. From the costal to the 2nd median, in the discal part of the hindwing there runs an irregular, whitish-yellow band of square spots, which is proximally separated from the brown basal part by a black border. Under surface of all the wings silvery grey. On the forewings the white band is repeated, though it is proximally bordered by brown. In the cell there are small, curved brown bands. The distal margin of the wings whitish with similarly scaled ribs. The wings are traversed by a submarginal band consisting of oblong outwardly pointed spots the upper 5 of which are coloured in grey with brown dots, the two last ones jet-black with a grey enclosure. On the under surface of the hindwings the marginal band is brownish-grey, bordered by a narrow yellowish submarginal band, which is pupilled in blue and black between the ribs and borders on 7 light grey subdiscal spots. These spots are proximally helmeted in black and yellow and each of them ocellated with a white dot, except the last in which there stand 2 dots in conformity with the upper surface. The helmet-spots are bordered by a narrow light-brown band. The disk is traversed by a broad white band proximally margined in red-brown. In the basal part of the wings there are, furthermore, 3 brown zigzag stripes. Antennae black with brown tips. Body above brown, beneath grey. Length of wings 42 mm. This most conspicuous species is distantly related to *Charaxes orilus Btlr.* from Timor. Lombok, May—June, but one specimen captured at an altitude of 2000 ft. — **sumbawanus** *Rothsch.* with 50 mm length of forewings is somewhat larger than *ocellatus.* Forewing with *sumbawa-* a broad white costal streak distal from the white band. Sumbawa, Bima, February. Only one ♀ discovered *nus.* by Doherty. — **sumbanus** *Rothsch.* Type a ♀ likewise flying in February, with a shorter white band of the *sumbanus.* forewing than the allied races. Everett discovered the sole ♂ reported hitherto, in November 1896. — **florensis** *florensis.* *Rothsch.* was collected in two ♂♂ to the south of Flores, in November 1896. The median band of the forewing more curved than in the other *ocellatus*-branches; the submarginal spots of the hindwings are larger than in *sumbanus.*

C. orilus replaces *Ch. ocellatus* in the islands of the Timor Group, though it agrees with it only in the shape of the tails and its rare occurrence. *orilus* differs from *ocellatus* by being more plainly marked and by the sexes exhibiting no essential differences. Upper surface dark velvety-brown, in the ♀ generally somewhat lighter. The places that are not brown, are covered by cream-coloured bands. Hindwings with some black submarginal spots of different and altogether small size. Under surface according to the insular habitat grey or whitish with beautiful red-brown longitudinal bands and a lighter whitish-yellow area than on the upper surface. The submarginal spots of the hindwings still more reduced than above, bordered by blue atoms. Proximally to the yellow submarginal area another longitudinal row of median crescentiform spots. Habitat Timor, Wetter and Kisser, but we may certainly expect some more forms from the other, eastern satellite-islands of Timor. — **orilus** *Btlr.* inhabits Timor where ♂♂ were found in November, ♀♀ in May. *orilus* ex- *orilus.* hibits more extensive yellow areas of the upper surface than **kissericus** *Fruhst.* (135 b as *orilus*) an insular race *kisserieus.* distinguished from orilus particularly by the whitish -grey under surface and a white, instead of yellowish marginal area of the hindwings. Kisser, only one ♂ in the Coll. Fruhstorfer. — **wetterensis** *R.* and *J.* was *wetterensis.* discovered by Doherty in May 1892. Hindwing with smaller black spots than in the Timor-race and with a darker under surface of both wings. The ♀ was first described by me in the Berl. E. Zschr. 1903, p. 95. Without counting the somewhat lighter brown velvety covering of the upper surface it differs from the ♀ by more extensive yellow areas and broader tails. Island of Wetter, very rare.

C. nitebis, a species characteristic of the Island of Celebes, passes also over to the Sula Islands in the east, so that we have to deal with three geographically split branches: **nitebis** *Hew.* (135 b) ♂ beneath light *nitebis.* greyish brown with black lines, almost obsolete, small red-brown submarginal spots, as well as blue intranerval

dots. ♀ with whitish bands in the median part of both wings. The butterfly is very local and rare in the collections. I observed quite a number of *nitebis* near Toli-Toli, the unparalleled trysting place where the primeval forest approaches the sea-coast. ♂♂ and ♀♀ sat there on the rocks projecting into the ocean, around which they were fluttering in order to settle down for a rest on the sands beneath. I was able to collect day by day
luscius. a number of specimens, and ♀♀ were in November nearly more frequently found than ♂♂. — **luscius** *subsp. nov.* from Southern Celebes where *nitebis* occurs near Maros, are beneath paler than those from the north. ♀ with intensive yellow spots of the forewings and more pregnant white dots on the upper surface of the hindwings. On the under surface the white median band of the hindwings is more distinctly prominent, the yellowish distal border appears brighter. Flying time from August to December. Found by Doherty near Maros in about 18
sulaensis. specimens and by myself a greater number in November 1895. — **sulaensis** *R.* and *J.*, a darkened insular race with more extensive black spots of the under surface. ♀ with more prominent and lighter cream-coloured discal spots of the forewings. Sula-Mangoli, October—November; Sula-Besi in October.

C. mars represents one of the species deviating the most conspicuously from the general habitus of the *Charaxes*. It occurs as a great rarity in North and South Celebes and was discovered also in Buru in a greatly modified insular race. It is not quite unlikely that *mars* occurs also in the Sula Islands and maybe
mars. Obi. **mars** *Stgr.* has hitherto reached Europe only in two specimens one of which, the type, is in Staudinger's Collection in Berlin; the other specimen, from the Honrath Collection, embellishes now the Adams Collection in the British Museum. Forewing black with a magnificent dark steel-blue reflection. Hindwing dull-brown with a very broad black costal margin and a narrow distal margin behind the rather long tail. Under surface
dohertyi. dark, greenish black with lighter transverse lines. Minahassa. — **dohertyi** *Rothsch.* Upper surface with a still more extensive blue reflection than *mars*, the tails longer than in the northern form. Captured by Doherty near Maros in August and September. The ♀, a single specimen, is in the Coll. Oberthuer and, according to a figure in the Bull. Soc. Ent. France 1897, p. 194, it has two whitish bands of the forewings and a similar brightening of the hindwings in the middle of the costal area. Under surface paler than in the ♂ with white discal spots, tails broader than in the ♂. The ♀ was also discovered by Doherty and found in July 1896
madensis. near Patunuang Asuwe and Tjamba. — **madensis** *Rothsch.* from Mount Mada in Buru, at an altitude of about 900 m, was taken by a collector by the name of Dumas in August 1898. ♀ above blackish-brown with a broader white discal band than in the ♀ of *dohertyi*. Hindwing with a more sharply defined white band. Under surface with a more extensive white scaling, but more prominent submarginal black spots. ♂ not yet discovered.

eurialus. **C. eurialus** *Cr.*, one of the Amboina-butterflies the most sought after and, at the same time, the giant among the eastern *Charaxes*. ♂ above black with a slight brown tinge. Hindwing with a blue postdiscal band bordered by a white distal margin and black white-pupilled ocelli between the veins. ♀ considerably larger, the white area of the hindwings often overpowdered in yellowish. Forewing either with a broad ochreous
nisus. longitudinal band running through as far as to the anal angle (f. **nisus** *Cr.*), or with an interrupted or shortened
abrupta. band (f. **abrupta** *Fruhst.*). On the under surface all the bands, being above white or ochreous, are uniformly dark yellow, the distal margin of the forewings and a submarginal band of the hindwings red-brown, the other parts brown with a peculiar purple or steel gloss. Amboina, apparently numerous in February. Also in Saparna and Ceram, but very rare there.

Tribus: **Acraeidi.**

The morphology and biology of this group has been dealt with in Vol. I, p. 243—244, Vol. XIII, p. 239 and Vol. V, p. 359, in such a detailed way that only the sexual organs are yet to be mentioned here, being of the plainest structure, according to the sole species (*P. vesta*) I examined, and having a strong slender uncus resembling somewhat that of the genera *Athyma* and *Euthalia*. The valve is likewise limenitoidal, but extremely narrow and shorter than the uncus. Scaphium-formation missing, penis very short.

Egg, according to Doherty, resembling that of the *Danaidi*. Larva cylindrical with 6 spines of almost equal length on each segment, but only from the 4th to 11th. Colouring generally variegated. Larva with a disagreeable smell. Imago with closed cells of both wings; eyes naked. Every butterfly, on being in the least pressed, secretes a pungent sap which seems to protect it against the persecutions of the birds. The few Indo-Malayan species start their flight rather slowly, whereas the Austro-Malayan species exhibit an immensely swift and persevering flight. The former are generally very common, though in some countries local. On the Continent and probably also in Java, the imagines are subject to the influence of the seasons.

1. Genus: **Pareba** *Dbl.*

Palpi narrow, the second segment only slightly swollen, densely scaled and haired. The first subcostal vein of the forewings branched off before the cell-end. Discoidal vein of the hindwing bent off from the subcostal vein before the latter ramifies (Doubleday). According to Nicéville, the first subcostal of the hindwing separates distally from the cell for a short distance. This is, however, only rarely the case in the ♀♀; as a rule, the two branches bifurcate far beyond the cell which is noticeable with the naked eye. The chief characteristic,

in contrast with all the other genera of the *Acraeidi*, is the uncommonly long, narrow cell of the hindwings. Peculiar of the *Pareba* is a ventral appendage tilted over the last segment and appearing as if pasted on. It consists of a red-brown, dull-lustrous case out of which two dense tufts of long, yellowish bristles come forth. In *Acraea andromache F.* from Australia and the Small Sunda Islands, these bristles are absent and the base of the appendices is black, very glossy, and only the tips and sidewalls are red-brown. Elwes has first observed these appendices and is probably right in his opinion (Trans. Ent. Soc. Lond. 1888, p. 334) that they appear only after the copulation, analogous to the ventral appendices of the Parnassies. In the African *Acraeidi* these cases are also present and very different in the single groups of species. Aurivillius does not take notice of them in the Rhop. Aethiopica, but future systematizers will probably find in their formation hints for a morphological grouping of the species.

With regard to **P. vesta** cf. Vol. I, p. 244 and t. 71 d. Their range extends from West and South China, Formosa to the south as far as Annam. From Kulu to Birma and Tonkin. Sumatra, Java and Bali. They chiefly inhabit mountainous districts, though they seem not to occur beyond 7000ft. — **formosana** *subsp. nov.* *formosana.* In the shape inferior to continental *vesta*, but in spite of all specimens before me having been collected in the rainy period, both sexes exhibit above less black spots than *vesta* from Tonkin, Tenasserim and Sikkim. On the under surface, in ♂ and ♀, the reddish-yellow, black-bordered submarginal band of the hindwing is considerably narrower than in the other allies of *vesta*. Chip-Chip and other mountainous regions of Formosa; flying time chiefly in July at altitudes of about 1200 m. Apparently not very common. The race from the Philippines may approximate *formosana*. — **anomala** *Hüg.* from Mussuri is absent in my collection, but I do not doubt *anomala.* that the name can be maintained for specimens of North West Himalaya. In Kulu in wet ravines at altitudes of 3 to 4000 ft. Also in the Kumaon-Himalaya. — **vesta** *L.* (Vol. I, t. 71 d) with the name-type from South *vesta.* China was observed by me in great numbers especially on rainy days at the southern slopes of the Manson Mountains in North Tonkin. I presume that Tonkin-specimens will be identical with specimens from South China, just like the Sikkim-*vesta* are hardly separable from those from Tonkin. According to Elwes they are found in great numbers in Sikkim, in teaplantations and in the open country at altitudes of 2 to 7000 ft., from April to November. Fresh virgins, ♀♀, had no anal appendage yet, so that Elwes presumes that the latter is formed only after the copulation. Larva on Boehmeria salicifolia and all sorts of other weeds. According to Nicéville during winter, beginning from October, in colonies of several hundreds together. Eggs are, according to Young, deposited in September and creep out after about 20 days. The larvae are at first black, cast their skin and hibernate in order to appear again only in April hereafter. Then they cast their skin once more in May and have now a red head. Third skinning in the beginning of June at the end of which month they hang their anal end to small trunks and twigs in order to pass over into the pupal stage. The imago appears after a fortnight. — **sordice** *subsp. nov.* ♂ with a broader black bordering than the Sikkim- and Tonkin-specimens, *sordice.* the small terminal intranerval spots are more insignificant than in *vesta vesta.* ♀ with peculiar short red-brown arrows between the veins in the submarginal zone of the hindwings. Under surface of both sexes without the white areas which are peculiar of *vesta* from Sikkim. Tenasserim, collected by me near Tandong at an elevation of about 4000 ft., in May at the end of the dry period. Local also in other places of Upper Birma, the Chin-Hills and the Shan States. Maybe that the specimens from Mupin, Ta-Tsien-Lu and other parts from West China, and those reported by Leech from Chang-Yang and Kiukiang belong also to this race. According to Leech, the Chinese *vesta* are extremely variable. The one extreme of the variation is formed by ♀♀ with almost entirely black forewings and only some indistinct yellowish spots and the hindwings with a broad black margin. The other is formed by ♂♂ of a pale yellow, with a narrow black costa and only slightly blackened veins. — **vestalina** *Fruhst.* is an areal form of a small habitus approximating the Macromalayan races by glassy, lacteous *vestalina.* or bluish-white patches of the forewings of the ♀♀ surrounded by broad black margins. ♂ pale buff. I captured *vestalina* on the grassy Plateau of Dran, covered with pines, in South Annam at an altitude of about 1100 m; it is very local, for I did not come across it anymore somewhat higher up on the Plateau of Lang Bian (about 14 to 1500 m). — **vestoides** *Nicév.* deviates from *vesta* by a more roundish wing-contour and a broader black *vestoides.* distal margin of both wings. ♀ with fine black bands of the forewings. From an altitude of about 2500 ft. throughout the whole mountainous North East Sumatra, everywhere common. Flight weak, slow, low in open spaces, fields, on the edges of roads where the *vestoides* sit in dozens on the bedewed blades of grass, with their wings closely folded together, in the morning until about 9 o'clock. The larva live in big crowds of hundreds and often even thousands partly on Osbeckia linearis, partly on a shrub-like Urticacee which they strip altogether by their voracious appetite. — **alticola** *Fruhst.* (138 a) differs from *vestoides* in the ♂ by the narrower *alticola.* black distal margin of all the wings, the appearance of light yellowish strigae between the subcostal veins of the costal margin and distinct yellowish admarginal dots. The forewings are more spotted in black, the reddish submarginal band of the hindwings shines more intensely through above. The ♀ is besides more spotted in black and yellowish-white on the forewings, so that the maculae are often confluent. The reddish submarginal band of the under surface of the hindwings proximally narrower, distally broader margined in black, and its spots do not form a coherent mass, but they are separated by yellowish adnerval streaks. Padang Bovenlanden, West Sumatra. — **vestoides** *Moore* occurs in Western Java. ♂ above as a rule more intensely red-yellow *vestoides.*

than continental vesta-♀, with a generally still more progressive black spotting than *alticola*. Two ♂ forms: α. Forewing without a pronounced black median macular band of the forewing, and β. with such a band. —
narona. **narona** *subsp. nov.* is the local form of East Java being above paler buff. There are no specimens with a prominent median band of the forewing. ♀ lacks the submarginal band being above red-yellow in *vestoides*, the yellow or whitish strigae of the forewings are shorter. Of a rare occurrence are specimens with two jet-black
arsa. submarginal dentate bands linked together without being separated by a red-yellow filling. — **arsa** *form. nov.* In Java both *vesta*-races are, beside *Lethe arete*, the first butterflies the traveller comes across on having left the hot lowlands and on reaching the cool mountainous region. *Pareba* will nowheres be met at elevations below 4000 ft., while according to the season, on the edges of roads, hundreds of butterflies or colonies of larvae are to be seen which Horsfield observed already in 1829 living on an Urticacee, being denominated by the Javanese „Latungan". Moore figured (Lep. Indica V, t. 387 f 1—1 c) the West Javanese race *vestoides* without mentioning this in the text, he copied the magnificent larva according to Horsfield (1829, t. 111 f. 27). Doherty found a *Pareba vesta* in Bali. According to Staudinger, *vesta* occurs also in the Philippines; a very natural patria which has, curiously enough, not been confirmed by Semper. Presumably *vesta* will also be found yet in Celebes; *Argynnis hyperbia* with which it is always seen flying, has already been reported from Central Celebes.

2. Genus: **Telchinia** *Hbn.*

Differentiated from *Pareba* by a shorter cell of the hindwing showing a considerably longer anterior discocellular so that the two radials do not rise from a common base, but far remote from each other at the cell wall. Shape of the wings more roundish than in *Pareba*. Larva red-brown with an oil-gloss. Pupa slender, cream-coloured with black stripes and orange spots.

violae. **T. violae** *F.* (138 a) has beneath paler red-yellow hindwings being decorated with larger yellow terminal spots than above. Both sexes exhibit moreover whitish dusting near the distal border between the slightly blackened veins. Nicéville threw *T. violae* to Mantids and stated that this was the only butterfly which was not eaten by these carnivorous Orthoptera. Larva on Modecca palmata Lam., a Passiflore, especially in July to September. The butterfly prefers the plains, though it goes up the foothills of the Himalaya as far as about 1000 m and it is met in all the rainy parts of Continental India and also in Ceylon.

3. Genus: **Acraea** *F.*

The sole Australian species of this genus differs in the veins so little from any kind of species from Uganda which I bathed in chlorine for the sake of comparison, that a generic or subgeneric separation appears unjustified. We have to mention the very weak cell-end of the forewings by a thin, stunted posterior discocellular and an extremely short cell of the hindwings resembling *Planema*. This cell exhibits a very distinct anterior discocellular by which it differs from *Pareba*. On the whole, the veins approximate those of *Telchinia* to such an extent that we cannot decide whether *andromacha* is to be united with *Telchinia* or *Telchinia* is to be abolished and considered as *Acraea*. Range: Australia to the east as far as Samoa, to the west as far as Sumbawa and Sumba. Nothing is known about the early stages.

A. andromacha *differs* beneath only by a brighter white of the hindwings and the more imposing
andromacha. yellow marginal spots before the upper surface. ♀ somewhat larger than the ♂. **andromacha** *F.* (138 b) inhabits Australia from the Cape of York to Sydney. The butterflies vary somewhat in size and eventually in the shape of the black dotting. Semper mentions *andromacha* also from New Caledonia and New Georgia. In the Coll.
polynesiaca. Fruhstorfer there are specimens from Roma, Wetter, Sumbawa. — **polynesiaca** *Rbl.* is in the female larger than ♀♀ from Australia, it exhibits somewhat longer, more strigiform, yellowish small intranerval spots of the upper surface of the hindwings in the black distal border and somewhat smaller black discal spots. Samoa Islands at an altitude of about 500 m, not very common, but it flies, as I have observed this in *Pareba vesta* in Tonkin, also in rainy weather which very often sets in in its patriae. Flying time particularly May and June. It flies slowly so that many specimens may be grasped with one's hand. A similar race flies also in the
agema. Fidji Islands. — **agema** *Fruhst.* (138 b) described according to a specimen of my collection without its habitat
sanderi. being mentioned, may be identical with **sanderi** *R.* and *J.* frow New Guinea. ♂ apex with a slight black hue, cell blackish, all around encircled by bownish dots and diffuse spots showing partly through from beneath. Hindwings with a broad black border, an imposing, proximally graduated, yellowish submarginal band traverses the whole wing. Base of the wing as far as beyond the cell black, the black spotting dissolves distally into small squares. Beneath like above, except that the distal border is set with small indistinct yellowish dots.
oenone. According to Hagen not in the Astrolabe Bay, but near Simbang, the hinter-land of the Huon Golf. — **oenone** *Kirby* forms the transition from Australian *andromacha* to the race from New Guinea. From the south-east
indica. island, St. Aignan, and other satellite islands of British New-Guinea. — **indica** *Röb.* is a neat diminutive form of *andromacha* with, according to its small size, also reduced black spots of the hindwings. The small yellow spots in the black distal border but as large as a stitch. From the remote Island of Kabia to the south of Celebes.

4. Genus: **Miyana** *gen. nov.*

Cell of the forewing uncommonly long, the posterior discocellular sharply angled distally, the cell-apex, therefore, very pointed, projecting distally much more than in the other *Acraea*-groups. Anterior and middle discocellulars like in *Acraea andromacha*; the first subcostal vein branching off before the cell-end.

The chief characteristic is formed by the hindwings with their conspicuously long middle discocellular which, in its upper part, is very much bent proximally. Moreover, the first subcostal vein and the two radials arise from a common base by which *Miyana* deviates from all the other Acraeids of three continents. The posterior discocellular is normal like in *Acraea andromacha*, the posterior one, however, absent whereby a relationship with *Pareba* is indicated. Range: from Celebes and the North and South Moluccas, New Guinea with the eastern satellite islands, the Bismarck Archipelago and the Salomon Islands. Only two species known. Type: M. *moluccana Fldr.*

M. moluccana, a multiform species of a considerable size. Forewing almost diaphanous except the marginal area of the basal submedian region and a spot at the cell-apex, which are densely scaled in black. In the ♀ and in damaged specimens, however, this covering is even reduced, so that the forewings appear almost entirely hyaline. Hindwing with a white or yellowish median area, under surface of the forewings with black or yellowish-grey intranerval spots parallel to the distal border. Hindwings with pronounced, likewise white or cream-coloured, proximally roundish spots being separated by the black veins. Body black with white lateral dots. — **dohertyi** *Holl.*, an excellent race discovered by Doherty in South Celebes and later on found also by myself near Toli-Toli in the north of the island. ♂ with a complete white median band of the hindwing being interrupted in the middle at the lower cell-wall; in the ♀ this band sometimes assumes more of a yellowish tinge. Under surface of the forewings black, hindwings with white marginal spots which are occasionally tinged yellowish. In the larger ♀ exhibiting a rounder contour of the forewings, the white median area of the hindwing is interrupted by a black cellular streak. The butterfly has an impetuous flight and was observed by me as a great rarity in the north of Celebes, where the ♀♀ came sailing across the ocean over from the small Island of Lutungan to the chief island, flying not very high above the waves and also on the continent gliding along only some feet above the soil. But on being chased up, they rose rapidly with a sudden jerk, in order to disappear in a frantic speed about 8 to 10 m above the soil. I cannot remember of having noticed day-butterflies moving on at a similarly tearing pace, except *Pap. kühni* and *P. priapus.* — **parce** *Stgr.* from Sula-Mangoli has already all the characters of the allies of the Papuan region. Upper surface of the ♂♂ black, only occasionally with some ochre-yellow, small spots of the hindwings. The under surface of the forewings already with the yellowish marginal spots being common to all the other vicarious types. Hindwing with a broad cream-coloured costal area and a narrow subanal area. Marginal spots ochreous. — **moluccana** *Fldr.* is one of the rarest butterflies of Amboina from where recently only one ♂ got known from the Coll. Staudinger. Just as rare is an insignificant insular race **nebulosa** *Hew.* from Ceram of which altogether only the type is ascertained, collected by Wallace. The yellowish median area of the hindwings darkened blackish in its anterior parts. Under surface with pale yellow marginal spots. In Batjan there occur similar specimens. — **fumigata** *Honr.*, described first from New Pomerania, was also found in New Lauenburg and Mioko, always at those places where the creeper Granadilla, so very much liked by the Europeans for its fruit, has been planted. Ground-colour faintly smoke-brown, the forewings generally without any marking. The hindwings less diaphanous than the forewings, with traces of a broad whitish median band fading away towards the costal margin, growing distinctly prominent white towards the proximal margin. Under surface with a greenish gloss. Distal area with white marginal spots, besides two white, small basal spots. — **pollonia** *Godm.* and *Salv.*, described from Guadalcanar, from Bougainville and the Shortland Islands in my collection. The ♂ has above a yellow median area consisting of two parts. The anterior part is considerably inferior to the median part. Marginal spots of the under surface of the hindwings of a dull straw-colour. — **pella** *Fruhst.* (138 a). ♀: a darker edition of *fumigata Honr.* and a connecting-link from *dohertyi Rothsch.* and *parce Stgr.* to *pollonia Godm. pella* differs from *pollonia* by more roundish wings, the forewing being bordered darker in the apical part, the distal border of the hindwings broader black, the yellowish spots in and above the cell being diffuse, the yellowish spot in the anal area of a more triangular and more pointed shape. Under surface: the basal black part greatly reduced, consisting of single roundish spots. The yellowish spot at the submedian long, pointed (instead of round). Distally before the cell-apex a round black dot, which is absent in *pollonia.* The yellowish submarginal spots elongate, their proximal black bordering much more extensive, broader than in *pollonia.* Island of Woodlark.

dohertyi. *parce.* *moluccana.* *nebulosa.* *fumigata.* *pollonia.* *pella.*

M. meyeri *Kirsch* (138 a) a very rare species with the name occurring so frequently! Distinguished by a dark lemon-(sometimes also orange-)yellow median band of the hindwings, being costally somewhat broader in the ♂ than in the ♀. Under surface distinguished by a magnificent green reflection like in the dragon-fly in the basal and submedian area of the forewings. The hindwings with very large intensely sulphurous or orange-yellow marginal spots. Type from the Geelvink Bay, Dutch New Guinea, lying before me from the Astrolabe Bay, according to Hagen more common near Simbang from where a ♀ is in my collection. Larva is said to live on a Cycadea according to the statements of natives.

meyeri.

Additions and Corrections

to the Indo-Australian Nymphalidae.

P. 464: *Penthema adelma Fldr.* was recently found in Kwantung. Specimens of my collection belong to a special form with a parted spot before the apex and larger transcellular and submarginal spots of the forewings.

zosima. P. 470: *Cupha madestes* **zosima** *subsp. nov.* It differs from *C. madestes Hew.* by the duller yellowish-brown median band of the forewing projecting convex between the middle and posterior median, as well as by the hindwings being brightened up in the submarginal area, which make the black postdiscal spots of the under surface distinctly visible. The red-brown marginal area of the under surface is divided by more imposing pale loam-yellow spots. The light ochreous median zone narrower, proximally bordered by a more intense reddish yellow. Island of Woodlark. Quite a number in the Coll. FRUHSTORFER.

P. 472: NICÉVILLE confines the occurrence of *Atella alcippe cervina Btlr.* to the Yule Island. I have now received similar specimens from the Island of Woodlark. The race from the Humboldt Bay was separated as *ariel Nicév.* Ground-colour above somewhat paler and the wing-contour shorter than in *arruana Fldr.*

agatho. P. 483: *Cynthia arsinoë* **agatho** *subsp. nov.* Approximating *melena Fruhst.* from New Mecklenburg, but of a smaller habitus, the white patches of the forewings more extensive, less dull. The hindwings more intensely red-yellow with much broader black submarginal spots. Under surface of the forewings again of a purer white, the hindwings, however, throughout darkened. New Hannover.

lando. P. 484: *Cynthia sapor* **lando** *subsp. nov.* ♂ on both surfaces darker red-yellow than *C. obscura Ribbe*, the black dots more prominent, as well as the whitish-violet subapical spots of the under surface of the forewings. The upper surface of the hindwings with more intensely yellow intraradial spots, but reduced white parts in the anal angle. ♀ still more subject to melanism; the yellowish-green macular bands of the forewings almost covered by blackish shades. The white filling between the black undulate bands of the hindwings more extensive. Under surface entirely altered, of a rich purple red-brown, instead of greenish yellow. The white median band of the hindwings narrowed, the red-brown stripes, however, more extensive. Island of Choiseul of the Salomons.

blachieri. P. 493: *Terinos terpander* **blachieri** *Fruhst.* ♂♀ above slightly approximating *T. terpander natunensis Fruhst.*, though with a less extensive intramedian red-yellow submarginal band of the hindwings, which is generally more darkened and, in the ♀, reduced to a rudimentary stripe. Ground-colour of the upper surface dark bluish-violet, approximating more the *T. clarissa*-forms than those of the *terpander*-branches. ♀ above about like the ♀ of *terpander teos Nicév.* from Sumatra, but the distal band of the forewings longer, more extensive; the basal area of the hindwings, however, confined to a roundish macula before the cell-apex. ♂ beneath decidedly more approximating the *teos*-♂ from Sumatra than *T. terpander robertsia Btlr.* from Perak. The ground-colour as well as the longitudinal striping, however, considerably darkened, the greyish-violet parts of the basal zone of both wings in *teos* are changed into a dull smoke-brown. The red-brown submarginal dots of the hindwings smaller, the violet bordering of the two anteterminal undulate bands of the hindwings of a more intense violet blue and particularly the proximal one greatly narrowed. — *blachieri* is the most intensely coloured branch of the collective species, which we were hitherto able to ascertain on the Continent only from the Malayan Peninsula. Thus we may almost positively expect another race from Siam, which, of course, is then going to form an intermediate form from the lightest and large-spotted *robertsia* to the most poorly coloured *blachieri*.

P. 493: *Terinos terpander Hew.* 1862 is synonymous to *T. nympha Wall.* (1869). For *T. nympha Fruhst.*
praestigiosa. having been enumerated on p. 495, another name must be substituted. I propose *Terinos* **praestigiosa** *nom. nov.*

P. 495: *Terinos militum* is a proper species, not a local race as it was erroneously dealt with on p. 495. In the Museum of Geneva there are *T. militum*-specimens from Cochin China.

P. 506: Place *Cethosia cydippe L.* instead of *C. chrysippe L.* as the oldest name.

Cethosia cydippe salwattensis Fruhst. The white oblique band of the forewing about like in *claudilla Fruhst.* and *lucina Fruhst.* from Jobi, narrower than in ♂♂ from Mysole. Hindwing with a series of pronounced yellow submarginal spots appearing beneath as an enlarged white periphery of the black lunae. The black marginal area of the hindwings throughout more reduced than in Mysol-♂♂. — Salwatti. Type in the British Museum.

P. 486. For *Cirrochroa anijra More* read anjira.

P. 505. *Cethosia gabinia* **nigrescens** *Eecke.* ♂ beneath chiefly differing from *C. gabinia Weym.* by exhi- *nigrescens.*
biting little strokes where there are spots in *gabinia*. Sexual organs not differing from *gabinia* and thereby in connection with *C. hypsea*, whereas Dr. van Eecke has ascertained that on the other hand the organs of *C. cyane* and *C. penthesilea* do not greatly differ from each other. Sinabang in Simalur.

P. 515. *Argynnis hyperbius* **centralis** *Mart.* Hindwings beneath without a green lustre and with a *centralis.*
great reduction of the areas with a mother-of-pearl gloss. The transverse band of the cell of the hindwing without a white pupil. Described according to a ♀ from the district of Bada in Central Celebes, from an altitude of about 1000 m. The butterfly is not very rare there, according to the discoverer.

P. 508. *C. cydippe thymbrasa Fruhst.* (misprinted into *tymbrasa*) occurs in Gisser, a small island in front of the south east extremity of Ceram.

P. 509. *Cethosia cydippe* **mysolensis** *Fruhst.* Of a smaller habitus than *salwattensis Fruhst.* White *mysolensis.*
spotting of the forewings more reduced than in specimens from Dutch New Guinea, the blue marginal area more extensive, covered with a more intense blue. Mysole. Type in the British Museum. — *Cethosia cydippe* **antianeira** *Fruhst.* Apparently a mountainous form of *cydippe praestabilis Fruhst.* (111 a, b), lying before me *antianeira.*
from German- and British New Guinea (Milne Bay). Size inferior to *praestabilis*; the forewings show a remarkably narrow white macular series. The blue bordering of the hindwings, however, considerably expanded, with a more intense reflection than in the sister-races of the other British and German part of the chief island of New Guinea. British New Guinea, particularly in the mountains, such as on Mount Kebea from 3600 to 6000 ft., on Mount Segooda at 8000 ft., Dinawa at 4000 ft., furthermore near Epa and Ekeikei from 500 to 1500 ft. Flying all the year round; in the British Museum there are specimens with the flying time of January to August. In a transition from *C. praestabilis Fruhst.* to *C. antianeira* in a large series of specimens from Kumusi, British North New Guinea, in the Coll. Fruhstorfer.

C. cydippe **xerxene** *subsp. nov.* is found in the Yule Island. ♀ the most closely allied to *C. claudilla* *xerxene.*
Fruhst. (111 b), but the white subapical band of the forewings appears towards the costal somewhat broadened, while the white intranerval submarginal dots are almost obsolete. Beneath scarcely different from *claudilla*. The ♂, however, shows great differences and is in no way allied to the races of the chief island of New Guinea, but it forms a decided transition to *C. cydippe woodlarkiana Fruhst.* from the Island of Woodlark. Above all, it exhibits already the magnificent dark emerald-green median and basal bands of the under surface of the hindwings to be found distinctly prominent only in *woodlarkiana*, *cenchrites Fruhst.* and *alkmene Fruhst.* The *xerxene*-♀ is, however, easily distinguishable from *woodlarkiana*-♂ by the light yellowish-green basal area of the upper surface and the broader white oblique band of the forewings. Of *xerxene*-♀ there exists an excellent figure in Tijd. v. Ent. 53, t. 13, fig. 2 by Mr. J. Lindemans.

Cethosia cydippe **doxata** *Fruhst.* ♂ the most approximating *alkmene Fruhst.* from the neighbouring *doxata.*
Fergusson Island. The white band of the forewing, however, somewhat narrower, though not so dissolved as in *cleanthis Fruhst.* from Kiriwina. ♀ appears above almost entirely black, only the base of the wings powdered with greenish. The white band of the forewings keeping midway between *alkmene* and *cleanthis*. Goodenough Island (Dauila) of the d'Entrecasteaux Group to the north of British New Guinea.

P. 510. *Cethosia obscura* **hormisda** *subsp. nov.* ♂ differing from *C. obscura antippe Sm.* by a smaller *hormisda.*
habitus and especially on the forewings by narrowed white components of the submarginal longitudinal band. On the under surface the basal red of the hindwings is much more reduced than in *antippe*. New Hannover, common. A large series in my collection.

P. 511. *Melitaea* **balba** *Evans* is just as magnificently marked as *M. balbita Moore* (Vol. I, t. 67 e) *balba.*
from Cashmir, but of a smaller shape, only the discal band appears more complete. From Chitral.

P. 511. *Melitaea* **mixta** *Evans* approximates *persea Koll.* and *trivia Schiff.*, being still more variable *mixta.*
and more brightly coloured than *persea*. Evans supposes that *mixta* belongs decidedly to a particular species, since it occurs beside *M. didyma chitralensis Moore* and both can impossibly be *didyma*-races. According to a report from Mr. Riley, a considerable series of *M. mixta* is in the British Museum.

P. 514. *Argynnis aglaia* **ashretha** *Evans* is a large form with magnificent yellow ♂♂ and greatly darkened *ashretha.*
♀♀ as having been described and figured by Nicéville in the Journ. Bomb. Nat. Hist. Vol. XIV, p. 236. It occurs in the valleys of South Chitral, especially in the Ashrelt Valley between 6 and 8000 ft., whereas the smaller, paler *A. aglaia vitatha Moore* inhabits altitudes of 10 to 13 000 ft. in Cashmir and Chitral.

P. 516. *Argynnis laodice* **cydrana** *subsp. nov.* ♂ uncommonly large, analogous to the ♀♀ of *A. laodice* *cydrana.*
rudina Fruhst. (Vol. I, p. 228) from West China. The black spotting of the upper surface stronger, whereby a transition is formed to *rudra Moore* (Vol. I, t. 70 e) from Assam and Burma. Under surface recognizable by an intensely red-brown and considerably broader median zone of the hindwings than in *rudrina*, whereby it much more approximates the Japanese *A. laodice ariana* (Vol. I, t. 70 c). Kwangtung.

kuangshüi. *Argynnis nerippe* **kuangshüi** *subsp. nov.* resembles *A. nerippe nerippina Fruhst.* (Vol. I, t. 69 f) from Tibet and West China, though the black spotting of the upper surface appears somewhat reduced. Under surface remarkably differentiated: first of all of a peculiar dull-yellow, whereby it reminds us of some forms of *A. nerippe Fldr.* from Japan, also on the hindwings resembling *nerippe* from which, however, it deviates again by a more pronounced submarginal silvery band. The basal and median silvery spots, however, compared with *nerippina*, extremely reduced. Upper surface approximating more *nerippina*, but by the larger shape and the intenser yellow immediately discernible from the Japanese vicarions type. Kwangtung. Denominated according to the unlucky reform-emperor, Kuangshü, who was slowly put to death for political reasons by the „old Budda" of the Empress Tsu-Hsi.

P. 516. *A. childreni caesarea Fruhst.* was recently found also in numbers in Kwantung.

P. 521. *Precis erigone tristis Fruhst.* (117 b) is not identical with *P. erigone tristis Misk.*, but it represents an areal form differing more from the *erigone*-type than from *P. tristis Misk.* The genuine *tristis* exhibits on the forewings a broad white band being absent in the race figured by us, to which I herewith give the new
himera. name of **himera** *nom. nov.*

P. 537. *Mynes schönbergi Röb.* coincides, as I presumed according to the diagnose, with *M. cottonis Sm.* The types of Röber (2 ♂♂ 1 ♀ from the Coll. von Schönberg) are now in the Coll. Fruhstorfer.

bateia. P. 546. *Hypolimnas alimena* **bateia** *subsp. nov.* Approximating *libisonia Fruhst.* from the Milne Bay, but considerably smaller and with narrower blue bands of the upper surface of both wings, the result of the satellite-island melanism. Yule Island.

P. 559. *D. montrouzieri Btlr.* does not originate, as stated, from the Island of Woodlark, but according to the original diagnose of Butler, from Vanna-Levu of the New Hebrides.

P. 560. *D. gurelca Sm.* is to be eliminated as a local race of *D. bisaltide* and to be inserted as a species before *D. australis Fldr. D. orthagoria Fruhst.* is likewise not a form, but a highly qualified local race.

P. 561. For *D. noorua* read *noorna.*

donus. P. 562. *D. hexophthalmus* **donus** *subsp. nov.* It differs from *D. demades Fruhst.* from the Milne Bay by its smaller shape, reduced white subapical spots of the forewings and a larger yellow area distal before the apex of the forewing-cell. The black transverse stripe in the cell itself, however, strangulated. Island of Woodlark, apparently rare.

P. 562. *D. crameri sinda Fruhst.* was also found in the Yule Island.

anicetus. P. 563. *D. dascylus* **anicetus** *subsp. nov.* ♂ the most closely approximating *D. phalinus Fruhst.* from Waigiu, but the habitus still smaller, though with just as minute subapical and submarginal punctiform spots of the forewings. The black part of the forewings like in *D. eudascylus* and *D. dascylus*, though extending still farther towards the base of the wing, whereby the red-yellow basal area is still more confined than in the forms of the chief island. Yule Island. *anicetus* is one of the most surprising discoveries of recent times and shows once more what variations may be effected by a narrow arm of the sea. Analogous to *D. dascylus* and particularly *D. comrii* it was supposed that Yule would be inhabited by a large light-blue spotted *D. dascylus*-form; instead of this, the island supplies us with the smallest-dotted of all the side-branches known of the collective species.

eumelus. P. 577. *C. maenalis* **eumelus** *subsp. nov.* exhibits on a bluish-white ground extremely thin black longitudinal stripes, so that *eumelus* on being compared with *maenalis*-specimens from Luzon and Zambales of the Coll. Semper make the impression of a distinct species. Babuyanes, type in the Coll. Semper.

P. 578. *Cyrestis maenalis subsp. nov.* Another transition was found to *C. irmae* and *C. maenalis* in Simalur, mentioned by Dr. R. van Eecke (Notes Leyden Museum 35, p. 246). The black longitudinal stripes and generally also the other black markings of this insular race appear more extensive than in *C. irmae* from Sumatra.

P. 579. Of *C. heracles*, originally described from the Sula Islands and Tonkean (East Celebes), also material from the Minahassa is lying before me now, and according to a letter from Dr. L. Martin, the species is very common in the surroundings of the Bay of Palu, Central Celebes.

P. 587—591. As a collective species *C. acilia Godt.* has to be considered; not, as was stated on p. 587, *C. strigata Fldr.* To *acilia* some more local races are to be added: *C. ceramensis Mart., C. nitida Math.*, besides all the forms from *C. dola Fruhst.* to *C. bassara Fruhst.* (p. 591). *C. eximia Oberth.* from Sangir, however, must probably be regarded as a distinct species. The reason, why so many mistakes have occurred in this genus, is that on account of an expedition in North China, no corrections could be re-forwarded.

P. 591. *C. acilia* **gades** *subsp. nov.* Approximates *C. acilia dola Fruhst.* from Fergusson, but it exhibits still more extensive white bands, so that *gades* may be considered the *Cyrestis* with the widest bands. From *dola* as well as *tervisia Fruhst.*, *gades* can be distinguished besides by a reduced red-yellow anal area of the hindwings. Type from the Aroa River, British New Guinea, an entirely similar race also in the Yule Island. *gades.*

P. 593. *Chersonesia sanna Fruhst.* originates from the Batu Islands. A similar race was discovered also in Pulo-Babi, while *Chersonesia peraka* (p. 594) was found in Simalur.

P. 610. *Neptis nycteus Nicév.* is not a race, but only the ♂ of *N. manasa Moore.* Evans has ascertained the identity of the two forms.

P. 615. *Phaedyma columella* **kankena** *Evans* is a darkened, small race of the Nicobares. *kankena.*

P. 618. *Neptis shepherdi* **ahas** *subsp. nov.* is closely allied to the Australian name-form, though all the spots and bands, particularly those of the hindwings, are narrower. Yule Island. *ahas.*

P. 619. *Neptis* **melba** *Evans.* Upper surface similar to *N. narayana Moore*, but a spot is absent at the base of the third interval. Beneath it is pale ochreous, but the apical marginal lines of the forewings and the discal bands of the forewings are almost extinct. Sikkim, very rare, 1 ♂ in the British Museum, 2 more in the Coll. Evans. *melba.*

P. 625. *Pantoporia pravara* **tamesa** *Fruhst.* ♂ the most allied to *esra Fruhst.* from Java, but of a smaller habitus. Claviform spot of the forewing narrower, the subapical spots, however, in spite of the small size of the specimens larger than in specimens from Java. Island of Bali, type in the Coll. Martin. Flying time August. Very nearly allied to *tamesa* is the *pravara*-race of East Java which I introduced as *Pantoporia pravara* **caprotina** *Fruhst.* It agrees with *tamesa* in the small size as well as the considerable transcellular spots of the forewings. But *caprotina* differs from *esra* from West Java by its paler under surface and the considerably narrowed, white submarginal bands of the hindwings. East Java. Type ♂♀ from the Tengger Mountains, about 800 m, collected by H. Fruhstorfer. *tamesa.* *caprotina.*

P. 626. *Pantoporia perius* **hiërasus** *subsp. nov.*. Specimens from West Sumatra differ from these of the name-type from Kwangtung by shortened though broadened white spots of the forewings. The median band of the hindwings more than a third broader. *P. perius* **avitus** *subsp. nov.* A melanotic insular race, recognizable by the reduction of all white spots and bands. The components of the submarginal band of the hindwings are, on account of their small size, greatly isolated. On the under surface of both wings the black anteterminal line appears twice as broad, the white waves accompanying it considerably narrowed. Island of Lombok, flying time May-June, at an elevation of about 600 m. Very rare, only one ♀ in my collection. *hiërasus.* *avitus.*

P. 627. *P.* **euloca** *Shelf.*, described from Sarawak, might be placed near *P. asura* from which it differs by a narrowed white band, exhibiting a double instead of single row of submarginal spots of the hindwings. *euloca.*

P. 632. *Pantoporia selenophora* **gitgita** *Fruhst.* ♂ closely allied to *jadava Felder*, but it differs from this Javanese race by the widened white median band of both wings, as well as by the more imposing white subapical spots of the forewings. Island of Bali. *gitgita.*

P. 634. *Pantoporia nefte* **yasana** *Fruhst.* ♂ the nearest to *nefte Cr.* from Java, but with still more extensive white bands of the upper surface of both wings. ♀ remarkably different. The median band of the red-brown ♀ scarcely half as broad as in the *nefte*-♀ from Java. Another form being analogous to the ♀-form of *gandara Fldr.* differs from the latter by the lighter greyish-brown bordering of the nearly whitish transverse bands. Island of Bali. *yasana.*

Pantoporia marguritha **balina** *Fruhst.* ♀ differing from *marguritha Fruhst.* by more purely white and broader bands of the upper surface as well as the entirely duller under surface. Bali, flying time August. *balina.*

P. 639. *Limenitis* **houlberti** *Oberth.*, an interesting, entirely isolated species from Tseku, North Yunnan. ♂ upper surface brown with a reddish-brown, black-streaked submarginal band and a broader loam-yellow median band being interrupted beyond the cellule. Under surface with a faded marking, an extensive bluish-green basal zone of the hindwings as well as a black submarginal cucullate-band on both wings. *houlberti.*

P. 641. *Limenitis aemonia* **vicina** *Eecke*, from Simalur, one of the forms of the satellite islands of Sumatra forming the connection between *L. procris L.* and *L. aemonia Weym.* The black spotting resembling more *procris* than *aemonia.* *vicina.*

P. 646. *Parthenos sylvia* **theriotes** *subsp. nov.* An intermediate form between *P. guineensis Fruhst.* (120 b) and *P. pherekides Fruhst.* (120 a), though it is more closely allied to the latter race than to that from Finschhafen. ♂ to be separated from ♂♂ of the Milne Bay by the darker ground-colour of the upper surface, but more extensive and more stretched spots of the forewings. The intranerval striation of the postmedian zone of the hindwings neater than in *P. pherekides.* The black submarginal band of the under surface narrower, *theriotes.*

the basal zone of both wings light blue instead of greenish-yellow. Kumusi River, Collingwood Bay in British North Guinea. Common. A larger number in my collection.

cynailurus. P. 647. *Parthenos tigrina* **cynailurus** *subsp. nov.* (Cynailurus, the cheetah or hunting-leopard) is the easternmost subspecies of them and differs above only insignificantly from *P. tigrina Voll.* from the Wandesi Bay and the Etna Bay. The hyaline spots, however, are of a purer white, the last spot of the discal row between the middle and posterior median without the reddish hue. Under surface lighter, preponderantly yellowish instead of greenish. Aroa River. A similar form also on the Eilanden River in Dutch New Guinea.

candida. P. 648. *Abrota pratti formosana* ♀-forma **candida** *Wilem.* exhibits whitish spots on the upper surface of the forewings, instead of the normal yellowish spots.

gustavi. P. 678. *Euthalia irrubescens* **gustavi** *Fruhst.* ♂ smaller than *E. irrubescens Sm.*, on both surfaces much darker, the red spots more intense and more reduced than in the nomenclatural form from the Omeishan in West China. Formosa. Type, 1 ♂, in the Coll. von Plessen, Munich.

attenuata. P. 679. *Euthalia franciae* **attenuata** *Tyfl.* was based upon a dark areal form of the Naga Hills where it is not rare from August to October at elevations from 5 to 6000 ft. The whitish median bands are narrower than in Sikkim-specimens.

agosthena. P. 688. *Adolias dirtea* **agosthena** *Fruhst.* ♀ the most closely allied to *A. dirtea javana Fruhst.* (127 a, c) ♀, in size, however, inferior to the Javanese race. By the greatly expanded yellowish-white transcellular spots of the forewings the Cochinchina-form deviates from *javana* as well as from all the other Macromalayan *dirtea*-races and approximates *khasiana Swinh.*, but without assuming the colouring resembling more *cyanipardus* (127 c). *agosthena* quite naturally exhibits the closest affinities to *nephritica Fruhst.* from Tenasserim, and it is most interesting to notice how in some ♀♀ from that district the anterior spots of the median macular series of the forewings begin to brighten up, at first only in the ♀♀ of the dry period, and how then the whitish discoloration increases in the ♀♀ of the rainless period from Siam and begins to predominate gradually on the way towards east, so that ♀♀ of the rainy period from Central Annam also show light spots of the forewings, the progression of the albinotic tendency reaching its zenith in *agosthena* from Cochinchina. ♀ flying time September, end of the Monsun period. Type in the Museum of Geneva.

exarchus. P. 693. *Adolias cyanipardus* **exarchus** *Fruhst.* ♀. Contrary to *dirtea agosthena*, we notice in *A. cyanipardus* from Cochinchina a melanotic tendency of colouring. A ♀ lying before me exhibits not only considerably reduced whitish spots of the upper surface, but the crescents in the submarginal and intranerval parts of the hindwings being in *albopunctata Crowley* from Siam of an almost pure white, appear darkened, in bluish. On the under surface of the hindwings the submarginal white spots distinguishing *albopunctata* are entirely absent. ♀-type in the Museum of Geneva.

florenciae. P. 700. *Apatura* **florenciae** *Tyfl.* was discovered on the Naga Hills in Assam at an altitude of about 5000 ft. It was met in May and then again in September and October. *florenciae* approximates *A. ulupi Doh.* from which it is differentiated above by the darker ground-colour and a more sharply defined black median band between the two yellowish-brown longitudinal stripes of the forewings. The under surface is preponderantly greenish, resembling more the West Chinese *A. pallas Leech* (Vol. I, t. 51 a), and it exhibits a more strongly angled whitish median band than *A. ulupi Doh.*

chitralensis. P. 700. *Apatura ambica* **chitralensis** *Evans* is considerably larger than *ambica Koll.* (Vol. I, t. 50 a, 55 d) from the West Himalaya. The ♂ exhibits a white spot at the costa of the forewings, and the ♀ has uncommonly large though diffuse submarginal spots. From Chitral.

albina. P. 701. Of *Sephisa chandra Moore* two more ♀-forms are described: **albina** *Evans* with white hind-
chandrana. wings, and **chandrana** *Evans* with a white preapical band of the forewings and dark hindwings.

aorsa. P. 709. *Euripus consimilis Westw.* ♀-forma **aorsa** *Rhé-Philipe.* Upper surface of the forewings of an intense bluish black, at the cell end a white spot and then another broad white subapical oblique band. Hindwing cream-coloured with black veins. When flying it resembles *Euploea diocletiana.* Bhutan.

dexippus. P. 719. *Eriboea athamas* **dexippus** *Frühst.* ♂ of an uncommonly small habitus whereby it approximates the ♂♂ I collected in South Annam. The greenish bands of the upper surface, particularly those of the hindwings, not only remarkably narrowed, but also more sharply defined. The small submarginal spots of the hindwings only as large as a stitch whereby they remind us of those in *acutus R. and J.* from Luzon. Tai Ninh, flying time September. ♂-type in the Museum of Geneva.

aemiliani. P. 722. *Eriboea narcaea forma* **aemiliani** *Fernandez.* Of the character of a quite extreme dry period form. Forewing with two cellular spots and one median spot. Hindwing with a small triangular spot in the

anal angle and above it a compact band in place of the macular series of *narcaeus*. Ya-Lan, in the low hill-country of North Hunan, China, discovered in the summer of 1911.

P. 730. *Charaxes fabius* **raidhaka** *Rhé-Phil.* Shape of the wings shorter and more pointed than in *Ch. fabius* (135 a). Median band of the hindwings narrower, paler. The upper surfaee of the forewings nearly quite blaek, only with a submarginal series of eream-coloured spots growing smaller towards the apex, but altogether more pronounced than in *fabius*. Under surfaee of a purple grey. Discovered in June, at about 600 m, on the Raidhak River at the frontier between Sikkim and Bhutan. *raidhaka.*

P. 732. *Char. polyxena* **naganum** *Tyfl.* is a good areal form reeognizable by a broadened black distal border of both wings and a darkened yellowish or whitish median band of the forewings. There are small specimens known from the dry period (April) and larger ones from the monsoon period (August). *naganum.*

Alphabetical List

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