

# Societas entomologica.

Gegründet 1886 von Fritz Rühl, fortgeführt von seinen Erben unter Mitwirkung bedeutender Entomologen aller Länder.

Toute la correspondance scientifique et les contributions originales sont à envoyer aux Héritiers de Mr. Fritz Rühl à Zurich VII. Pour toutes les autres communications, paiements etc. s'adresser à l'éditeur Alfred Kernen, Stuttgart, Poststr. 7.

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Die Societas entomologica erscheint monatlich gemeinsam mit dem Anzeigenblatt *Insektenbörse*. Bezugspreis laut Ankündigung in demselben. Mitarbeiter erhalten 25 Separata ihrer Beiträge unberechnet.

57.89 Dryas

## Dryas Hübner.

(A revision<sup>1</sup>) of the former omnibus group "*Argynnis* F.", continued from antea: "*Yramea* m., nov. gen.").

By T. Reuss.

*Dryades* — *Dryas* HÜBNER, 1805, Tentamen, IV, Type: *paphia* (Nymphales). An unmistakable *Nymphales* species as type is a more than sufficient indication according to the rules of nomenclature, which expressly state that a name first published with an "indication, definition or description" is valid. In the German edition of the "Rules" all three words are unfortunately united in the one word "Kennzeichnung".

Definitions to *Dryas paphia*: FABRICIUS, Syst. Gloss., translated by ILLIGER in Illiger's Mag. 6, 1807; under "Argynnis": "Palpen — das zweite Glied vor der inneren Spitze erweitert" is really = "Palpi — articulo secundo ante apicem dilatato". This is the original latin text from the one printed, unpublished example (of the first 112 pages of) "Syst. Glossatorum" in Dohrn's library, now Stettiner Museum, sent to me by the kindness of the Museum authorities. The rest of the MSS. was lost. ILLIGER translated: "Palpi — das zweite Glied vor der inneren Spitze erweitert". This perhaps is misleading, the apex is the "äußere" Spitze. This fits *paphia* exactly. Details of feelers and legs (Putzfüße) mentioned.

HÜBNER, "Verzeichnis", p. 32, 1816, under "*Argyronome*": "Flügel ziemlich groß; unten glänzend wässerig gestreift".

FELDER, "Neues Lepidopteron", 1861, under "*Argynnis* Ochs." (Ochsenheimer as author was copied from "Genera of Diurn. Lep.", Doubleday & Westwood): Two subcostals emitted before end of cell in the forewings. Section II: Second and third median nervure of forewings "sehr genähert". The well-known general details of the *Dryadinae*<sup>2</sup> are mentioned, excepting those of the legs and of the palpi.

MOORE, Lepid. indica, 1899, *Dryas*, Type: *paphia*. MOORE re-mentions most details, also taking account of the androconia as far as visible to the naked eye.

1) In "Archiv für Naturgeschichte" 1921/22. "Eine Androconialform von *Arg.*" *niphe* L. etc. Mit einer Revision der Gattung *Argynnis*". J published a full revisional sketch.

2) Modernised from *Dryades*, Borkhausen, 1788.

I add further details, especially those of the armature, which bring *hyperbius* (= *niphe*, in MOORE, Lep. indica, 1899, Type of *Acidalia*) to this genus.

*Dryas* is a group of ten species in which the differences between species and species — even between species and subspecies — is great enough "to be convincing". The differences lie less in the facies — some forms are much alike in this respect — than in the genital armature<sup>1</sup>), which latter in all other genera of *Dryadinae* show almost identical detail throughout. This also is the only group in which the 2 kinds of androconia occurring in the northern temperate hemisphere, twocolored, arrowshaped American A-<sup>2</sup>) and monocolored, more hairlike Asian B-<sup>4</sup>) scales, are to be found together on the forewings and even together on an identical vein. The latter detail escaped AURIVILLIUS in his "Secondary sexual characters of northern Rhopalocera", 1880, Bihang till R. Svenska Vet. Handlingar, vol. 5, No. 25, where how-

1) The above was written in april 1921. Since then J was able to do some work on the variation of armatural detail. A most interesting phylogenetic teguminal var. of *Dryas paphia*, was found by me in an outwardly normal ♂ from Reichenhall, captured by Mr. Mell. The tegumen of this ♂ *paphia* with its uncus showed intermediate details between *paphia* and *sagana*, compounding a primitive form of both, from which both the extremely different specific forms could have developed.

The spiked comb of *paphia* and the Double wattle of *sagana* are both absent, the back of the tegumen (uncus) is rounded simply, serrated by very short rudimentary spikes. The profile shape of the hook is exactly that of *sagana*, looking like a birds foot with projecting claw-entirely different from the wholly claw-shaped, elegantly curved, thin uncus (hook) of *paphia* in the normal state. The phylogenetic value of these morphological variations is so evident (while at the same time such variation in the degree described may be unique up till now), that I hope I am right in thinking it necessary to add this supplementary note, especially as the *Dryas*-group of species is the only one of the *Dryadinae* genera, in which every species normally shows a really characteristic armature, which can be recognised as specific at a glance, while in all other cases only the generic characters are recognisable at once. Bernau, 21. 8. 22.

2) For the sake of convenience I will introduce these terms for the scales in question. The B androconia are not found in America, where only A scales occur. The latter are however not exclusive there, as the B androconia are in Asia and its peninsula, Europe. Indeed the origin of the A scales evidently dates from the central parts of Asia. To — day the primitive forms of A scales were found by me on the forewing veins of *Brenthis hecate alnica* (cf. Ent. Mitt., 1921, Plate I).

ever on pl. I both kinds of Androconia here summed under A and B are excellently figured in their common forms.

*Sex. Armature. a) Tegumen.* This in all species terminates in an unclawed hook, but in some the hook-point is like a short claw protruding from a bird's foot, or a feline paw (*zenobia* Leech, *sagana* Dbldy. & W.). The whole projecting cover is with one exception (= *kamala* M.) ornamented above by a double mane of hair (*childreni* Gray, *zenobia* Leech, *ruslana* Motch. with S-curved projection, *hyperbius* Joh. and *castetsi* Obth. with a straight hook like hawk's beak), by a chitinous crown like a cock's comb, spiked (*maja* Cr., six or seven spikes; *paphia* L., four to six spikes, with subsp. *neopaphia* Stgr., and the generally six spiked *dives* Obth.); by a double-wattled comb, not spiked, but with a few spikes below it (*sagana* Dbldy. & Hew.). Or it is long and thin, bent slightly inwards, the whole looking like a wasp's or bee's sting (*anadyomene* Feld., *laodice* Pall. and subsp. *rudra* Moore).

*b) Valvae.* These are loosely curled and shaped as in *Boloria* Moore and *Clossiana* m. (*Boloria* part.), Type: *selene* with scarcely developed inner armour, or better folded and flattened as in *Rathora* and in these cases well-armed in different ways with outer upper marginal armour such as spikes, hooks, spiked chitinous "cushions" and chitinised projecting points of the upper and lower marginal folds themselves, where the edges of these folds meet against the inner surface of the valvae. The saw-like harpe also develops on the edges of the aforesaid folds in *paphia*, *childreni*, *zenobia*, *hyperbius*, *kamala*, *maja*, *anadyomene* (only on lower fold in the last species). An exception is made by *kamala*, which has the valvae much like those of the palaearctic genus *Fabriciana* m. (sketched out in the Gubener I.E.Z., 1921, No. 1, as the *niobe* = *cydippe* = *nerippe*-group<sup>1)</sup>) and the tegumen of *Rathora* Moore. The penis of most species is armoured partially by a mantle of chitinous scales — this is not the case in other genera. The two (in all genera except *Fabriciana*) leaf shaped chitinous plates on both sides and at the base of the penis are very strongly chitinised, curved, with slightly serrate edges curled upwards.

*Androconia.* The six forewing veins on which these may occur are termed  $m_1$ — $m_3$ ,  $cu_1$ ,  $cu_2$ ,  $ax$  successively, ( $ax$  = axillaris being the innermarginal vein). The androconia are of two kinds, A and B, already mentioned. Then "AB  $cu_2$ ,  $cu_1$ ," would mean that both kinds of scales are present on those veins together. In this case the B-scales always occupy the raised parts, visible to the naked eye, and the A-scales are distributed (in a small scale variety) beside the ridge of prominent scales and on the distal parts of the vein (cubitus) nearly to the margin.

"*Kamala* 3 B" shall denote that *kamala* has B-scales only on 3 forewing veins, counting from  $ax$  upwards and always including  $ax$ , unless marked "ax not".

1) Now the *palleseens*-group, consisting of *pallesens* Btl., *nerippe* Fld., *taliana* m., nov. sp., from Tali, Yunnan, and *taliana stoetzneri* m., nov. subsp., from Setchwan, China (Types in the Berlin Museum).

In this way the distribution of the androconia can be denoted as follows:

Section 1. Species only with B-androconia.

*Dryas anadyomene* B  $cu_2$ , or rarely B  $cu_1$ ,  $cu_2$  (= also expressed by 2 B,  $ax$  not); *kamala* 3 B, *maja* 4 B.

Section 2. Species and subspecies with A- and B-androconia.

a) B-scales only on  $cu_2$ :

*Dryas laodice*, A  $ax$ , AB  $cu_2$ ; *paphia*, *neopaphia*, *dives*, etc. A  $ax$ , AB  $cu_2$ , A  $cu_1$ ,  $m_3$ ; *sagana* (with mimetic ♀) and *ruslana*, 5 A, AB  $cu_2$ ; *hyperbius castetsi* (♀ non-mimetic) the same, 5 A, AB  $cu_2$  (the armature is identical with *hyperbius*, sect. 3!).

b) B-scales on  $cu_2$ ,  $cu_1$ :

*Dryas laodice japonica*, A  $ax$ , AB  $cu_2$ ,  $cu_1$ ; *zenobia*, the same; *childreni*, 4 A, AB  $cu_2$ ,  $cu_1$ .

Section 3. Species and subspecies only with A = androconia.

*Dryas hyperbius*, 6 A (♀ mimetic); *laodice rudra*, 2 A (the armature is identical with *laodice* and *laodice f. japonica*).

*Larvae.* In this genus the thorns of the full grown larvae are longer than in any other. The full grown larvae are *hairless*, smooth on the back. Before accepting this as final for all 10 species, the Asian forms will want describing — J have seen only European larvae. *Brenthis*-larvae are similar in markings, they still, however, show hairs *and* thorns *together* in the fullgrown state.

*Pupae.* In *paphia*-pupae the large protuberances of the back and head are evidently generic. The pupae remind of *Brenthis*-pupae (= *daphne*, *ino*, *hecate*) most of all<sup>1)</sup>.

57. 96: 15. 1

## Zur Bionomie der Insekten.

Von Wilhelm Götz.

### III. Die Geistesfähigkeiten der Ameisen.

(Fortsetzung aus Heft 10, Bd. 35.)

Instinkt ist nach WASMANN die spezifisch zweckmäßige Anlage des sinnlichen Erkenntnis- und Begehrungsvermögens im Tiere, die ihre organische Grundlage in der Anlage des Nervensystems hat und sich mit letzterem vererbt. FOREL definiert Instinkt als organisiertes, systematisiertes, automatisch gewordenes Denken. Noch eine Reihe anderer Definitionen liegen vor von den verschiedensten Psychologen. Da uns aber vor allen die Insekten und deren Geistesleben interessiert, so wollen wir uns mit diesen beiden Definitionen des Instinkts, begründet auf langjährigen vergleichenden Studien über die Tierpsychologie, begnügen. Auch ist der von verschiedenen Seiten geführte Streit illusorisch, allein durch das Wort Definition. Während man bisher fragte, was ist Instinkt, so fragt man jetzt, oder wenigstens soll man so

1) One has become so accustomed to read: *Brenthis selene*, *Brenthis euphrosyne* etc. etc., that it may be well once more to remind that the genus *Brenthis* Hübner Type: *hecate*, consists only of the 3 species, *hecate*, *ino*, *daphne* and their subspecies.

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