1. Subfam.: **Brephinae.**

1. Genus: **Brephos** *Zinck.*

(see Vol. 4, p. 1 and Vol. 8, p. 5.)

B. parthenias L. (Vol. 4, p. 1, pl. 1 a) ab. **dilutior** *Heinrich* is small, with the white markings much reduced. — ab. **unicolor** *Heinrich* is still more extreme, the white markings entirely suppressed, except in the chequered fringes. — ab. **brunnea** *Closs* is described as having the forewing above and beneath unicolorous brown. All the above were described from Berlin. — ab. *nigra Tutt* (Vol. 4, p. 1) has as a synonym **extrema** *Rbl.* (1910), the types respectively from the Dale and Mazzola collections. — ab. **muliercula** *Stephan.* Hindwing pale reddish yellow, with the black markings much reduced, cell-mark very small, well isolated. Described from the Erzgebirge, but occurs occasionally in many localities. A modification of *muliercula*, with the forewing of *unicolor*, is figured from a Paris ♀ in Ann. Soc. Ent. Fr. (3) Vol. 6, pl. 14, fig. 6. — ab. **szymanskii** *Isaak* is at most another slight modification of *muliercula*, black bands of hindwing almost entirely lost, the black shade on inner margin very much reduced, the markings of the forewing also weakened. Zawiercie, Poland. — ab. **luteata** *Hennin* has the hindwing above and both wings beneath pale clear yellow. — ab. **flava** *H. W. Wood* (1 a) is perhaps synonymous, but the forewing lacks the usual reddish suffusion, and no mention of this change is made in Hennin's description; *flava* is a recurrent form at Wimbledon. — **sajana** *Prout* (1 a) seems to be diverging not only in shape (see Vol. 4, p. 1) but also in the somewhat less projecting joints of the ♂ antenna. Perhaps an incipient species, but I can see no difference in the genitalia.

dilutior. *unicolor.* *brunnea.* *extrema.* *muliercula.* *szymanskii.* *luteata.* *flava.* *sajana.*

B. notha Hb. (Vol. 4, p. 1, pl. 1 a). ab. **laeta** *Rbl.* (1 a). Forewing white-grey with broad black-grey median band which is more extended outwards, and with the hindwing uniform bright orange-yellow except for a weak darkening at the inner margin. — **suifunensis** *Kardakoff* (1 a). Hindwing pretty typical, perhaps with extension of the dark markings costally; forewing darkened, with a whitish central patch nearly as in *parthenias*. A local race from Ussuri to the Chingan Mountains.

laeta. *suifunensis.*

B. puella Esp. (Vol. 4, p. 2, pl. 1 a). ab. **latevirgata** *Kitt* (1 a) has the proximal band of the median area of the forewing strongly darkened. — ab. **inversa** *Nitsche.* Forewing somewhat darkened, with a curved black postmedian band, which forms an angular projection outward between the radials.

latevirgata. *inversa.*

B. ussuriensis *Moltrecht* (1 b) is said to be intermediate between *B. puella* and *L. middendorfii*. Very hairy. Forewing slate-grey, subterminally becoming darker; basal band sharply black, excurved behind the cell; distal dentate band black, externally bordered with yellowish white, behind the end of the cell with very strongly projecting tooth. Hindwing white, basal area dusted with grey, no discal spot, a broad grey-black distal border. Found in the snows of March, in forest 300 km north of Vladivostok. Should perhaps be referred to *Leucobrephos*; Dr. Wehrli suggests that *middendorfii nivea* may be synonymous with it.

ussuriensis.

2. Genus: **Leucobrephos** *Grote*

(see Vol. 4, p. 2.)

L. middendorfii Mén. (Vol. 4, p. 2, pl. 1 a). **nivea** *W. Kozhantchikov* is a smaller form, the forewing darker, the hindwing with more extended basal darkening and considerably broadened black border. Founded on 5 ♂♂ from the Sajan Mountains, taken on 7 April. Perhaps sinks to *ussuriensis* (see above).

nivea.

2. Subfam.: **Oenochrominae.**

(see Vol. 4, p. 2; Vol. 8, p. 6; Vol. 12, p. 5 and Vol. 16, p. 3.)

Since the publication of Vol. 4, various modifications in the composition of this heterogenous subfamily have been proposed or would seem desirable. The genitalia of *Aplasta* and some other characters should certainly refer it to the *Hemitheinae*, as had already been suspected. *Phyllometra* (= *Egea*) is considered by

some good observers to be better placed in the *Geometrinae*, on account of the obsolescence of the 2nd radial of the hindwing, and a tendency in the same direction is observable in *Phthorarcha*; probably none of the *Alsophila* group can remain permanently in the *Oenochrominae* (see Vol. 8, p. 7). *Odezia* possibly and *Palaeomystis* certainly should be associated with the *Larentiinae*. On the other hand *Eumeyethes Stgr.* must needs be placed here, as also *Drepanopterula Hedicke*.

1. Genus: **Alsophila** *Hbn.*

(see Vol. 4, p. 2 and Vol. 8, p. 6.)

brunnea. *A. aescularia Schiff.* (Vol. 4, p. 3, pl. 1 a) ab. **brunnea** *Hannemann* is darkened with blackish brown.

umbrata. *A. quadripunctaria Esp.* (Vol. 4, p. 3, pl. 1 b) ab. **umbrata** *Heinrich* has the median area of the forewing distinctly darkened with blackish grey. Described from Berlin.

3. Genus: **Phyllometra** *Bsd.*

This name, adopted by Boisduval in 1840 from Rambur's manuscript, is the oldest for the genus which has since been known as *Egea Dup.* (Vol. 4, p. 5), and although the descriptions of the genus and of the species *(gracilaria)* were combined and very brief, it is evident that the names will have to be restored.

Dr. A. Djakonov has made a study of the venation and genitalia and considers the affinities to be quite definitely with *Narraga*, *Isturgia*, *Psodos* and *Pygmaena*. Actually there is no "vein 5" on the hindwing, its position being occupied by a strong, scaled fold, as in a good many so-called *Geometrinae*, though not specially in those with which he associates it. More weighty, probably, is the evidence from the genitalia, which may ultimately be made a basis for re-classification.

culminaria. **Ph. culminaria** *Ev.* The ♀, which is rarely taken, has been recently redescribed and figured from Hungary by Dr. A. Schmidt, under the impression, apparently, that it was previously unknown. It was, however, known to Guenée and is briefly referred to in the generic description in our Vol. 4. The first record of the species for Hungary was made by Prinz in 1913.

gracilaria. **Ph. gracilaria** *Bsd.* (= cacuminaria *Rmb.*) (Vol. 4, p. 4, pl. 1 b). According to Boisduval (Gen. et Ind. Meth., p. 193), Rambur originally named this species *gracilaria*, but we owe the brief diagnosis, with indication of the locality, Andalusia, to the work just cited.

argentaria. **Ph. argentaria** *B.-Haas.* We have no further information about this *Phyllometra*, which was described from Foume Tatahouine, Tunis, but it seems highly probable that it is a weakly marked example of the following. The name *argentaria* will in that case take priority.

planaria. **Ph. planaria** *Chrét.* (1 b). We figure a ♂ from Guelt-es-Stel; *planaria* is distributed in Algeria in April and early May, and is probably nothing more than a large race of *gracilaria*, with sharper white markings. Unless the Tunisian form is really different (see above), the correct synonymy will then be "*gracilaria argentaria B.-Haas* (= planaria *Chrét.*)".

3a. Genus: **Autotrichia** *nom. nov.*

This genus, which obviously required to be separated from the preceding, was named *Orthotrichia Wehrli* (1927), but as that name had already been employed in Zoology (Wingate, 1886) it is necessary to supply it with a new name. Scaling quite different from the normally and appressed scaled *Phyllometra*; surface of the wings covered with oblique or perpendicular scales of t h r e e f o r m s: (1) normal broad ones in varying quantity; (2) very narrow, hair-like scales with their tips two-pointed; (3) ordinary simple hair-scales. Venation not uniform, varying and sometimes asymmetrical; hindwing with costal free or anastomosing, 2nd subcostal connate to remote (in *Phyllometra* more or less stalked), "2nd radial wanting, the fold simulating a vein." (But it cannot be said to be really "wanting" in *lysimeles*.) The scarcely perceptible markings quite different from *Phyllometra*. Genotype: *heterogynoides Wehrli*.

pellucida. *impellucida.* **A. pellucida** *Stgr.* (Vol. 4, p. 4, as *Egea*) (1 d) differs from the other species in possessing a noticeable, though weak, postmedian line. We figure the type from the Elwes collection. — **impellucida** *Djakonov* is more densely scaled and better marked, the ground-colour deep chocolate-brown, the lines brighter, more ochreous. Central Altai: Ongudai, Kreis Bijsk.

lysimeles. **A. lysimeles** *Prout* (1 b). Closely related to *pellucida*, larger and somewhat longer winged, greyer, the markings entirely obsolete, though the costal and distal margins of the forewing look slightly more coloured than the rest, on account of the somewhat less sparse scaling of these areas. Antennal pectinations somewhat more slender and lax than in *pellucida*. Central Altai.

heterogynoides. **A. heterogynoides** *Wehrli* (1 d). Antenna of ♂ with 24 joints pectinate (in *pellucida* 26, in *lysimeles* at least 28). Further distinguishable from *lysimeles* by the smaller size, the still greyer (not brownish) tone, per-

haps greater transparency of the wings, darker body and some differences of venation: in *lysimeles* the first 2 subcostals of the forewing arc stalked, the subcostal of the hindwing from, or close to, the apex of the cell; in *heterogynoides* the former are coincident throughout, the latter well separate at its origin from the 1st radial. Sajan Mountains, 2300 m altitude, 2 ♂♂ taken in June.

4a. Genus: **Eumegethes** *Stgr.*

This genus, erroneously described as Noctuid, belongs here. Build rather slender, scaling smooth and glossy. Antenna in the ♂ with fascicles of long cilia. Hindleg slender, with all spurs. Forewing short, in the ♀ somewhat more acute than in the ♂; 1st subcostal anastomosing at a point or connected with the costal, 2nd from near 3rd, sometimes stalked with it, always anastomosing with the 1st and afterwards with the 3rd—4th. Hindwing with the second subcostal not stalked, the 2nd radial rather slender, midway between 1st and 3rd. Probably related to *Myinodes*, which differs in shape and has the 2nd subcostal of the hindwing stalked. Genotype: *tenuis Stgr.*

E. tenuis *Stgr.* (1 b). White, tinged in places with rather pale drab-grey, the forewing with firm, straight antemedian and weaker, curved postmedian, both strengthened on the veins. Described from E. Tunis, known also from Central Algeria, Cyrenaica and Egypt. *tenuis.*

E. picta *Trti.* (6 c). Pearly brownish. Antemedian of forewing different in direction from that of *tenuis*, oblique outward rather than inward, postmedian nearly as in that species but more slender and with its pale distal edging more noticeable against the brownish irroration of the ground-colour; a well-marked dark cell-dot, which is wanting in *tenuis*; black terminal dots. Hindwing lighter, with black cell-dot; traces of a semi-circular row of dots, pale-edged distally as on forewing; terminal dots black, distinct, well separated. Founded on two specimens taken at Porto Bardia, Cyrenaica in November, together with *tenuis*. *picta.*

4b. Genus: **Drepanopterula** *Hedicke*

Described by Turati under the preoccupied name of *Drepanoptera*. Antenna of the ♂ finely pubescent. Forewing different from that of *Eumegethes* in the falcate apex and non-anastomosis of the costal vein. Most characters much as in that genus. Also founded on a single N. African species; this was originally placed in *Hypoplectis (Hypoxystis)*.

D. zanoni *Trti.* (1 b). A small, glossy species, with the two lines of the forewing rufous, somewhat approximated, one on either side of the cell-dot, a more luteous outer shade, more oblique than distal margin, and a subterminal shade from apex to inner margin near tornus. Hindwing with the median line consisting of rufous dots, both the outer shades weak. Broader-winged than *Hypoxystis henricaria*, much more glossy, hindwing less devoid of markings, etc. Bengasi (Cyrenaica). *zanoni.*

6. Genus: **Sarcinodes** *Guen.*

(see Vol. 4, p. 5 and Vol. 12, p. 28.)

S. mongaku *Marumo* (1 c). Rather smaller than *debitaria Walk.* (Vol. 12, p. 28), much suffused with pink, the costal margin of forewing deeper reddish, the veins whitish. Underside whitish mixed with pink, the distal half of the hindwing and a more restricted posterior part of the distal area of forewing greyish olive, nearly as in some *debitaria*. Japan, the type from Nachi, Kii, discovered on 28 July 1916. *mongaku.*

7. Genus: **Epirranthis** *Hbn.*

(see Vol. 4, p. 5).

E. diversata Schiff. ab. **fasciata** *Sälzl.* Forewing with median area narrowed, more brown than the ground-colour, forming a differentiated band. Hindwing with a blackgrey postmedian band, 1½ mm in width. Founded on a ♂ from Brantlberg, near Regensburg. *fasciata.*

8. Genus: **Aplasta** *Hbn.*

(see Vol. 4, p. 6.)

A. ononaria *Fuessl.* Rometsch (Ent. Zeitschr., Vol. 45, p. 299) has found the larva single-brooded at Pforzheim, hibernating in that stage and growing very slowly. — ab. **monotonia** *Stauder.* A sub-aberration of the dark red form *rubraria Prout*, differing in the suppression of the lines. — ab. **trifasciata** *Stauder* (1 b) has the shading of the distal area condensed into a more or less definite t h i r d l i n e (or stripe) just outside the subterminal. — ab. **squamata** *Stauder* denotes extreme aberrations with the pale ground-colour of *berytaria*, strong dark-red dusting and complete obsolescence of the usual, transverse lines. — **spinosaria** *Dannehl* from the Etschtal, is treated by its author as a geographical form, but with doubtful justification. Light yellow- *ononaria.* *monotonia.* *trifasciata.* *squamata.* *spinosaria*

grey. the irroration brown-grey, not reddish, the lines diffused, but mostly distinctly present. We figure *faecaturia.* a ♀ from Meran. — **faecaturia** *Hbn.* (1 b) seems to be a good local race (Cyprus, Syria and the Taurus), characterized especially by its small size. As our original figure (Vol. 4, pl. 4 c) is of doubtful authenticity, we figure a ♀ from Haifa, Syria; *berytaria* is merely a less reddish aberration.

9. Genus: **Heliothea** *Bsd.*

(see Vol. 4, p. 6.)

Forbes (*Psyche*, Vol. 32, p. 106—112) has published an outline of the result of his researches on "Pectinate Antennae in the Geometridae", and places this genus amongst those in which he has been unable to find any trace of cones, or at most a few on the simple terminal segments, so that it is "impossible to group them unambiguously". An artificial group, with "Pectinations naked, basal on segments, apical setae normally distinct", consists of *Heliothea*, *Egea* (no terminal setae), *Nychiodes* and *Eurrhanthis*.

iliensis. **H. iliensis** *Alph.* (Vol. 4, p. 6, pl. 1 c). On account of its broader wings. shorter pectinations (?), more oblique discocellulars, etc., this has been made the type of a new genus *Apetovia Krul.* The following new *murina.* aberrations were at the same time described from the Kuldsha district: — ab. **murina** *Krul.* (1 d). Both wings *striata.* uniform grey. — ab. **striata** *Krul.* Similar, but the forewing with yellow longitudinal streaks at base and *radiata.* before distal margin. — ab. **radiata** *Krul.* Both wings similarly yellow-streaked between the veins.

10. Genus: **Odezia** *Bsd.*

(see Vol. 4, p. 7.)

perfusa. *O. atrata L.* ab. **perfusa** *Dannehl* has the black ground-colour sprinkled over with light yellowish-grey atoms. A similar or still brighter (golden-brown tinted) aberration from Burnley, England, is recorded in Ent. *denigrata.* Monthl. Mag., Vol. 54, p. 113. — ab. **denigrata** *ab. nov.* is a remarkably pale form, described (Entom. 21, p. 22 *dalmatina.* to 23) as "nearly white". — **dalmatina** *Stauder* is a dwarf form from Dernis, Central Dalmatia, which on account of its geographical isolation is considered to be probably a good local race. Apart from its small size, it perhaps shows a reduction of the white apical scaling, but the types are not in very fresh condition.

11. Genus: **Palaeomystis** *Warr.*

(see Vol. 4, p. 7.)

That this very distinct and decidedly specialised genus belongs to the *Larentiinae* is manifest from the venation of both wings. In the forewing the areole is (at least in normal specimens) double, not simple as in Hampson's figure and our diagnosis, though the proximal areole in sometimes very small. In the hindwing the bar between the costal and subcostal stands at about the middle of the cell, thus more proximal than in most of the *Lobophora* group (Vol. 4, p. 185), but evidently brought about in the same way and not homologous with the subbasal bar of some *Oenochrominae*; the variation in the discocellulars (merely sinuous in the ♀, but biangulate and with the 2nd radial from the hindangle in the ♂), together with the abortion of the inner area in the ♂, is definite indication of the general affinities. Shape of hindwing a slight exaggeration of that of *Schistostege* (Vol. 4, p. 171), but the smooth face and short palpus bring it nearer to *Naxidia* or the Indian *Pseudeuchlora.*

mabillaria. **P. mabillaria** *Pouj.* (Vol. 4, p. 7, pl. 1 c). Occurs also in Japan (Karuizawa, Shinano) whence Wileman has recorded 3 ♀♀. These are perhaps somewhat more greyish than the Chinese type and seem to lack the sharp black dots of the fringe, but are in poor condition.

11a. Genus: **Doratoptera** *Hmpsn.*

(see Vol. 12, p. 29.)

This little-known Indian genus, characterized by the produced apex of the forewing, unformed anal angle of the same and produced hindwing at 2nd subcostal, is possibly represented in the Palaearctic Region by the following species, but the generic reference is highly uncertain.

virescens. **D.** (?) **virescens** *Marumo.* "♀. Body rather robust. Head and thorax hairy. Palpi porrect, clothed with long hair and not reaching beyond frons, proboscis well developed. Antennae minutely ciliated; vertex of head with a high erect crest of hair. Legs rather stout, hind tibiae with 2 pairs of spurs. Forewings with the apex acute, but not so extremely produced as in *D. nicevillei Hmpsn.*; anal angle rounded off; venation as in *nicevillei*. Hindwings with the apex arched and pointed at end of vein 7; venation as in *nicevillei*. Palpi, frons, and the face of crest of vertex brownish orange. Thorax and forewings greenish yellow, the former streaked with orange at middle. Wings satiny. Hindwings white faintly tinged with yellowish." Expanse 54 mm. Founded on 2 ♀♀ from island of Yakushima and 1 ♀ from Tanegushima, S. of Kiushiu.

13. Genus: **Orthostixis** *Hbn.*

(see Vol. 4, p. 8).

O. opisodisticha *Wehrli* (1 e). Nearest to *cribraria* in size and markings and in most structural characters; antennal ciliation considerably shorter. More glossy winged, the round cell-spots larger; of the differences in the markings the most striking is the presence of 2 rows of dots on the hindwing outside the cell-spot (in *cribraria* one only). W. China: Tatsienlu and Siaolu, only ♂♂ yet known. *opisodisticha.*

O. cribraria Hbn. **amanensis** *Wehrli* (1 e), from the Amanus Mountains, is a very small and delicate race, the forewing slightly less broad, the postmedian of both wings running somewhat more basad. *amanensis.*

O. cinerea *Rbl.* (= impura *Prout*) (1 f). Recognizable at a glance by the grey ground-colour; antemedian row of dots on the forewing strongly curved. Cyprus. *cinerea.*

14. Genus: **Centronaxa** *Prout*

(see Vol. 4, p. 8.)

C. contraria *Leech* (Vol. 4, p. 9, pl. 1 d). This species occurs not only in Central China but also in Szechuan. *contraria.*

15. Genus: **Naxa** *Walk.*

N. angustaria *Leech* (1 e). We figure one of the ♂♂ which were bred by Mr. M. Barry, of Chung-king, from collected pupae, as already noticed in our account of the genus (Vol. 4, p. 9). No further information has been received about the early stages or food-plants. *angustaria.*

3. Subfam.: Hemitheinae.

1. Genus: **Archaeobalbis** *Prout*

(see Vol. 4, p. 1 and Vol. 12, p. 45.)

A. sordida *Wehrli* (1 e). Expanse 44 mm. Nearest to *farinosa*, but easily distinguished by its relatively longer forewing, much more strongly dentate antemedian line, and complete absence of the white lines of the forewing and of the posterior stripe of the hindwing. Yarkand, only the type ♂ known. *sordida.*

A. farinosa *Warr.* (Vol. 12, pl. 8 c) has been characterized in Vol. 12, p. 46, but as the type was taken at Lahul, N. W. Himalayas, at the high altitude of 12,300 feet, it has at least as good a claim to be considered Palaearctic as Indian. The greyer colour and the absence of reddish markings distinguish it from most *Archaeobalbis*. *farinosa.*

A. usneata *Feld.* (= hypoglauca *Hmps.*) (Vol. 12, pl. 5 g) is another border-line species, known from Kashmir Valley as well as Sikkim. Differs from most of the green *Archaeobalbis* in shape (hindwing less elongate at abdominal margin), admixture of small whitish glaucous patches on the upperside, and absence of a dark submarginal band on the underside. *usneata.*

2. Genus: **Pingasa** *Moore*

(see Vol. 4, p. 11, Vol. 12, p. 47 and Vol. 16, p. 10.)

P. alba Swinh. **brunnescens** *Prout* (Vol. 4, pl. 1 e, as alba). This form from Japan and E. China, notwithstanding some minor variability, has proved to be a good race, even if not a separate species, distinguished from the typical *alba* of the Khasis (vol. 12, pl. 8 b) by its ochreous-brownish irroration and the intensely black postmedian line; the latter is also discernible on the underside, as a black proximal boundary to the grey-brownish submarginal band. — **albida** *Oberth.* (1 f) will perhaps prove synonymous with *brunnescens* but the type, here figured, is perhaps rounder-winged, scarcely so brown, and lacks the subterminal band of the hindwing beneath. Tse-kou, Chinese Tibet. — ab. (?) **alboapicata** *Sterneck*, founded on a ♂ from Tatsienlu, was named from the presence of a white apical spot on the forewing beneath, about as in *pseudoterpnaria*; but as this is never entirely wanting in any form of *alba*, the name is perhaps unnecessary. *brunnescens.* *albida.* *alboapicata.*

P. aigneri *Prout* (1 f). 3rd joint of palpus a little longer. Cell-marks about as in *brunnescens* or slightly narrower; postmedian fine and sharp, the lunules not so deep as in *pseudoterpnaria*, forewing beneath less clouded proximally than in that species, genitalia very different. Japan: Takao-San, only the type ♂ known. *aigneri.*

P. lahayei *Oberth.* (Vol. 4, pl. 1 g). The early stages have been made known by Chrétien, who found larvae at Gafsa, feeding on the leaves of Rhus oxyacantha in October and November and Zizyphus lotus in May. Larva short, rugose, thickened on the 3rd—5th abdominal segments, tapering anteriorly and posteriorly, segmentation *lahayei.*

distinct; green, with some oblique yellow striae, the yellow lateral line with some rosy marks above the spiracles. Pupa much attenuated posteriorly, surface rugose and shagreened, yellowish-brown or grey, spiracular spots yellowish or orange, some large black lateral spots on abdomen. The species is distributed from Morocco to Cyrenaica; see also Vol. 16. p. 11.

multispurcata. **P. multispurcata** *Prout* (1 g). Closely similar to *lahayei* (Vol. 4, pl. 1 g), but with the postmedian of both wings somewhat more strongly bulged, the subterminal dark band beneath less strongly broken (in the type pretty complete). N. W. India, the type from Rawal Pindi; ♂ still unknown.

2a. Genus: **Epipristis** *Meyr.*

(see Vol. 12, p. 47.)

Near *Pingasa* but with the antenna simple in both sexes, the thorax not, or scarcely, hairy beneath, etc. The venation is generally very similar, but the Chinese species (see below) shows a tendency to lose the base of the 2nd subcostal of the forewing. so that the 1st and 2nd appear to be long-stalked together; on this peculiarity Sterneck founded a genus *Pingarmia*.

transiens. **E. transiens** *Sterneck* (1 f). Palpus, even in the ♂, with long terminal joint; ♂ antenna somewhat lamellate; abdomen (as in *minimaria*, Vol. 12, p. 47, pl. 8 a) not crested. Forewing somewhat narrower and more pointed than in the Indian species (Vol. 12, p. 47), median area narrower, postmedian line more incurved behind middle, antemedian only weakly sinuous. Underside with strong postmedian but without dark marginal band. Pekin.

3. Genus: **Metallolophia** *Warr.*

(see Vol. 4, p. 12 and Vol. 12, p. 54.)

arenaria. **M. arenaria** *Leech* (= danielaria *Oberth.*) (1 g). Oberthür has figured Leech's species as new, under the name quoted above; we give a copy of a paratype of *danielaria*. The species inhabits W. China and Burma.

4. Genus: **Terpna** *H.-Sch.*

(see Vol. 4, p. 12 and Vol. 12, p. 54.)

abraxas. *T. amplificata Walk.* ab. **abraxas** *Ob.* (1 h) is an ample-winged ♀ with the larger dark spots and especially the subterminal band rather well developed, but with few of the irregular small spots. In view of the variability of this type of pattern, it is probably not worthy of a separate name. Moupin, 1 example.

ectoxantha. **T. ectoxantha** *Wehrli* (1 h). Probably related to *amplificata* but very distinct in the arrangement of the dark grey markings and especially in the broad yellow marginal band. Founded on a ♀ from Bahand, Yunnan, but may perhaps be expected from the Palaearctic Region.

costiflavens. **T. costiflavens** *Wehrli* (1 h). Larger than *ectoxantha* and more robust, distinguishable by the absence of black on the yellow face and palpus, stronger yellow abdominal crests and broad yellow, blackish-spotted costal area of forewing. Founded on a ♀ from Siaolu, W. China.

superans. **T. superans** *Btlr.* (Vol. 4, pl. 1 g). To the range of this species Corea is to be added, omitted by oversight in Vol. 4.

iterans. **T. iterans** *Prout* (1 f). Somewhat paler than *superans*, the markings of upperside at first sight more suggestive of *vigens Btlr.* (Vol. 12, pl. 8 g) or of the *erionoma* group; postmedian more distally placed than in *superans*, less punctiform. Underside less suffused with ochreous proximally than in *superans*, the cell-spots less large and round, the heavy longitudinal blackish streaks wanting, etc. Shanghai district.

subnubigosa. imitaria. *T. erionoma Swinh.* **subnubigosa** *Prout* (1 g) is a very dark race from W. China, much more unicolorous than name-typical *erionoma* as figured in Vol. 12, pl. 5 c. — ab. **imitaria** *Sterneck* is less extreme in coloration than the type, but probably need not be separated; it was founded on a specimen from Ta-tsien-lu.

differens. **T. differens** *Warr.* (1 g). Distinct in the extremely oblique antemedian line, the pinkish subapical patch and in having the hindwing paler than the forewing. See further Vol. 12, p. 57. Only known from Kulu (the type) and Masuri.

thyatiraria. **T. thyatiraria** *Oberth.* (= thyatiroides *Sterneck*) (Vol. 12, pl. 8 g). Near *differens* (1 g) but with the pink markings more extended, the postmedian line of the forewing more deeply incurved, that of the forewing less distally placed, etc. W. China.

leopardinata. **T. leopardinata** *Moore.* There was formerly some confusion between this species and *mölleri Warr.* (Vol. 12, p. 57) and the specimen figured on pl. 1 g of Vol. 4 is really the latter. Neither, however, is properly Palaearctic; see Vol. 12, p. 57.

davidaria. **T. davidaria** *Pouj.* (1 h). I have now seen specimens from Kunkala Shan, Szechuan. Dark markings above and beneath much less extended than in *mölleri*. Both wings beneath predominantly yellow in distal area, whereas in *mölleri* they become whitish, with dark markings.

T. vigil *Prout* (1 g), founded on a ♂ from Upper Burma, occurs also at Tsekou. The forewing is somewhat like that of *davidaria* but without the heavy brown cloudings; hindwing with postmedian anteriorly more as in *euclidiaria*, but its white (not dark-grey) abdominal area is very distinctive. *vigil.*

T. euclidiaria *Oberth.* (Vol. 12, pl. 8 h). Similar to *leopardinata* (Vol. 12, p. 57) but differing in the reduction of the black markings. Underside clear yellow, with the dark subterminal band narrower than in *leopardinata*, interrupted. Tse-kou. *euclidiaria.*

6. Genus: **Sphagnodela** *Warr.*

(see Vol. 4, p. 13 and Vol. 12, p. 59.)

S. lucida *Warr.* This species, and therefore the genus of which it is the sole exponent, is only yet known from Sikkim and Indian Tibet and should not be reckoned Palaearctic. We have figured it in Vol. 12, pl. 8 i. *lucida.*

7. Genus: **Pseudoterpna** *Hbn.*

(see Vol. 4, p. 13.)

Ps. pruinata Hufn. — ab. **pallida** *Rocci* (= candidata *Stauder*) (1 h) is white, hardly tinged with greenish, the dark lines wanting, as in ab. *agrestaria*. Rocci described it from Piedmont; Stauder took 2 fresh ♀♀ at Triest, where the prevailing form is said to be *agrestaria*. — ab. **albescens** *Schwingenschuss* is also white, but retains the lines, which are brown. — ab. **grisescens** *Reutti* (1898), redescribed as new under the same name by Hannemann in 1917, is a grey form closely similar to *coronillaria*. Its incidence has not been thoroughly worked out and it is possible it may have considerable geographical importance. — Of the ab. **fasciata** *Prout* (Vol. 4, p. 14) we now figure (pl. 2 a) a very typical example from the Senckenberg Museum. — **nigrolineata** *Schwingenschuss*, founded on Brunswick material, is said to be, in its black lines, characteristic of nearly the whole series, whether green or grey-green. As this darkening of the lines is also characteristic of the Atlantic Region of N. W. Europe, Heydemann adopts this name for that race in preference to — **holsatica** *F. Wagn.* (6 c), an extreme development of *nigrolineata* in S. Holstein and Hanover, light or darker grey, culminating in blue-grey; underside, especially of the forewing, grey-brown to blackish. — ab. **albolineata** *F. Wagn.* is an aberration of *holsatica*, with the subterminal line very sharply white. — On the islands of Amrum and Sylt, the form *holsatica* is unknown and even *nigrolineata* very rare; the weakly-marked forms, like *agrestaria Dup.*, predominate and develop in over 20 per cent a pretty, unicolorous grass-green form, ab. loc. **viridisquama** *Heydemann* (= syltica *B.-Haas*, M. S.) (2 b). *pallida.* *albescens.* *grisescens.* *fasciata.* *nigrolineata.* *holsatica.* *albolineata.* *viridisquama.*

Ps. *coronillaria Hbn.* **algirica** *Wehrli* (2 a). Very large (expanding 32 mm from tip to tip), very sharply marked, postmedian line intense and more deeply dentate than in the type, subterminal also rather strongly dentate. North Africa, described as a race; although the size there varies as strongly as in Europe (forewing 13—19 mm) and the ground-colour from whitish to decidedly dark grey, I have accepted the designation for the forms from N. and E. Algeria and Tunis. — **lesuraria** *D. Luc.* "♂ 30 mm, ♀ 36 mm." Near f. *armoraciaria*, both wings above almost unicolorous, irrorated with very pale greyish brown; subterminal little marked; postmedian distinct and angular (? dentate), as also the antemedian of the forewing. Said to be constant in the Sefrou district, Morocco. *algirica.* *lesuraria.*

Ps.corsicaria *Rmb.* Extremely variable, from quite white to almost black. — ab. **ramburaria** *Ob.* (= alba *Bubaček*) (2 a). Ground-colour as far as the postmedian line chalky white, markings sharply expressed. — ab. **obscura** *Bubaček*. The direct antithesis of *ramburaria*, uniformly dark-scaled, iron-grey, the black markings much finer and less distinct; even the subterminal more or less weakened. *corsicaria.* *ramburaria.* *obscura.*

8. Genus: **Gnophosema** *Prout*

(see Vol. 4, p. 14 and Vol. 12, p. 60.)

G. isometra *Warr.* (2 a). This interesting species is still very little known, but seems evidently to belong to the Palaearctic rather than to the Indo-Australian fauna. We figure the type specimen. *isometra.*

9. Genus: **Agathia** *Guen.*

(see Vol. 4, p. 14; Vol. 12, p. 68 and Vol. 16, p. 12.)

A. lycaenaria *Koll.* The type of this species was not, as stated in Vol. 4, p. 15, pl. 1 h, from "Kashmir"; with the exception of one species, which was not exactly localised, all the Geometrids collected by von Hügel on his expedition are definitely stated to have come from Masuri. *lycaenaria* (on which see Vol. 12, p. 67) is evidently not truly Palaearctic and the only record for West China which I can trace is the one specimen from Huang-mu-Chang (N. W. of Wa-shan) cited by Leech, a ♀ with the markings rather slender for that sex (possibly racial). *lycaenaria.*

A. hilarata *Guen.* (Vol. 12, pl. 9 d). Type locality doubtful. The species which appears to agree with Guenée's type (see Vol. 12, p. 70) reaches N. W. India and is a little smaller than most of the similar *Agathia*, *hilarata.*

the purple markings not broad, not strongly variegated and rarely enclosing any green colouring near the anal angle of the hindwing. Hindtibia of the ♂ with a hair-pencil.

currifiniicns. **A. curvifiniens** *Prout* (2 a) was formerly mixed among *carissima*, but is really very distinct. Hindleg structure as in *hilarata*. Antemedian band more sinuous and less oblique than in *carissima*, a darker cell-mark on its distal edge or just beyond it, a cell-dot also nearly always conspicuous on the hindwing; proximal edge of outer purple band more sinuous than in *carissima*, at least on forewing. E. China, Corea and Japan.

siren. *A. quinaria Moore* **siren** *Prout* (Vol. 12. pl. 9 e). Hindleg of ♂ about as in the two preceding. Larger; superficially almost exactly like an overgrown ♀ *carissima*, but with the antemedian band widening triangularly before losing itself in the costal stripe. Chinese Tibet.

carissima. **A. carissima** *Btlr.* (Vol. 4, pl. 1 h) differs from all the above in the absence of the ♂ hindtibial hair-pencil. Further distinctions have already been noted; see also Vol. 12, p. 70.

9a. Genus: **Chlorodontopera** *Warr.*

(see Vol. 12. p. 74.)

An Indo-Australian genus of only 3 or 4 species, different from *Agathia* in the much more strongly and irregularly dentate margins (each wing with an excision between the radials), the quite different coloration and scheme of markings. Antenna of ♂ pectinate or lamellate, probably never so simple as in *Agathia*.

mandarinata. **Ch. mandarinata** *Leech* (1 a). Very distinct from all other Palaearctic species but very similar to *chalybeata Moore* (Vol. 12, pl. 10 b). The ♂ antenna, however, is lamellate, while in *chalybeata* it is pectinate. Hindwing with tooth at 2nd subcostal stronger than that at the 1st radial (especially in the ♀), and with stronger dark shading anteriorly than in any other *Chlorodontopera*. Kiukiang, E. China (Leech's type) and Szechuan; *taiwana Wileman.* from Formosa (Vol. 12, pl. 10 a) may be a race of it.

10. Genus: **Aracima** *Btlr.*

(see Vol. 4, p. 15 and Vol. 12, p. 74.)

muscosa. **A. muscosa** *Btlr* (Vol. 4, p. 15, pl. 1 h). Although this species in everywhere variable, it will almost certainly prove susceptible of racial differentiations. The heavily marked forms, prevalent in Japan, are al-
vestita. most entirely supplanted elsewhere by forms with more or less reduced maculation. — **vestita** *Hedem.* (2 b), from the Chingan Mountains, has the cell-spots and the incomplete median band reduced, the borders fairly well
privata. developed. Probably much of the Amurland material belongs here. — **privata** *Warnecke*, the prevailing form at Nikolajefsk on the Amur Gulf, should probably sink to *sachalinensis*; in addition to the reduction of the markings of the median area (as given for *vestita*), it has the characteristic terminal band quite fragmentary.
sachalinensis. Average size small. — **sachalinensis** *Matsumura*, from Saghalien, is possibly a separate species, but the description and figure rather point to a modification of *vestita* with postmedian markings slightly better developed, tornal patch of forewing much reduced, terminal band of hindwing replaced by a series of small and weak subterminal spots.

10a. Genus: **Xenozancla** *Warr.*

(see Vol. 12, p. 74.)

Differs from *Aracima* in its much smaller size, much longer ♀ palpus, simple ♂ antenna and less dentate wing-margins, that of the forewing concave in anterior half, without the tooth at the 1st radial which characterizes both the preceding genera. Only one species (see Vol. 12, p. 74).

versicolor. **X. versicolor** *Warr.* (2 b). Still less greenish than *A. muscosa*, the strigulation copious, reddish-grey, the cloudings indefinite; postmedian line well developed posteriorly on the fore- and anteriorly on the hindwing, otherwise punctiform. Pekin; the type was from the Naga Hills, Assam.

12. Genus: **Tanaorhinus** *Btlr.*

(see Vol. 4, p. 16 and Vol. 12, p. 76.)

reciprocata. **T. reciprocata** *Walk.* (= dimissa *Walk.*) (Vol. 12, pl. 10 b). An examination of the genitalia has confirmed the specific identity of *confuciaria* with this Indian species. The armature of the valves is strongly asymmetrical and shows only some very slight variability, which seems, however, to be in part geographical; the highly chitinized part ("harpe") of the left valve is produced into a long, pointed process, of which the free part is decidedly slenderer in the name-typical race than in the Japanese. *r. reciprocata* (judged by the genitalia) probably enters the Palaearctic Region in N. W. India, Tibet and Szechuan, though in somewhat
confuciaria. *confuciaria*-like forms. — **confuciaria** *Walk.* Better distinctions than those heretofore given (though still not

absolutely constant) are afforded by the underside; *confuciaria* very seldom has the subterminal spots well developed and scarcely ever the dark terminal marking in front of the 1st radial of the hindwing, which is quite commonly developed or at least indicated in the Sikkim-Assam race. The larva, according to Matsumura, feeds on oak.

13. Genus: **Hipparchus** *Leech.*

(see Vol. 4, p. 16 and Vol. 12, p. 74.)

H. symaria *Oberth.* (2 c). Apparently near *papilionaria* but with more strongly dentate distal margins and more variegated, especially beneath, where the large cell-marks are strongly developed and the white shades broader than above. The unique type came from the eastern frontier of Tibet. *symaria.*

H. papilionaria L. ab. **obsoletaria** *Osthelder* lacks both the white lines, as well as the subterminal spots; thus a more extreme form than ab. *deleta* and ab. *subobsoleta* (Vol. 4, p. 17). — ab. **diffluata** *Marschner* has the ground-colour paleabout the veins, somewhat as in some of the Asiatic *Hipparchus*. — **herbacearia** *Ménétr.* (2 c). I believe this is a differentiable race, or even a species, as the practised eye scarcely ever fails to discriminate it. Termen of hindwing somewhat less strongly crenulate, colour somewhat duller green, lines generally slender, the postmedian of the forewing with the lunule at the fold rarely accentuated, subterminal white dots small or obsolete. East Siberia and Saghalien. — **subrigua** *subsp. nov.* (2 c). Generally larger than *papilionaria*, in shape (at least in the ♀) nearly agreeing with *herbacearia* and with the postmedian of the forewing (as in that form) rarely much curved subcostally. The white markings, on the other hand, tend to be as strongly developed as in European *papilionaria* and on the underside of the hindwing acquire additional strength, at least as regards the band outside the postmedian line, which gives quite a characteristic appearance to this race. Japan, chiefly on Yezo, but reaching Tokio. *obsoletaria.* *diffluata.* *herbacearia.* *subrigua.*

H. rana *Oberth.* (2 c). Recognizable by the strongly brown-spotted fringes and the absence of the lines, excepting the postmedian. Underside almost unmarked, the fringes as above. Antennal pectinations very short. Tse-kou (loc. typ.) and Yunnan. *rana.*

H. sinoïsaria *Oberth.* (2 c) has nearly the markings of a sharply-marked *papilionaria* but the shape of a broad-winged *smaragdus* (2 d). Underside more yellowish green, with very faint darker markings. Tse-kou and Ta-tsien-lu. *sinoïsaria.*

H. flavifrontaria *Guen.* (= mutans *Walk.*) (Vol. 12, pl. 10 b). Said to have originated from "Central India" (compare *Agathia hilarata*) but seems to be really confined to the North-West, chiefly in the N. E. corner of the Punjab and reaching Kumaon. Known by its slightly produced apex, grey-green colour and fine, non-crenulate lines; the lunulate-dentate subterminal is generally traceable, but never strong. *flavifrontaria.*

H. pratti *Prout* (2 d; Vol. 4, p. 17). We figure the type ♀, from Ichang, which remains the only example known. *pratti.*

H. fragilis *Oberth.* (= ovalis *Sterneck*) (2 d). Readily known by its slender abdomen and relatively enlarged hindwing. It was by an oversight stated in Vol. 12, p. 75, that the weak white subterminal dots are "not shown in the figure". Underside plain green, almost as bright as upper, only at the hindmargins whitish. Chinese Tibet and Szechuan. *fragilis.*

H. sigaria *Oberth.* (2 d) differs from *flavifrontaria* in its shorter, non-falcate forewing, fine brown terminal line and more variegated underside — both wings with whitish subterminal line and postmedian band, the latter on the hindwing not defined proximally, as the ground-colour here remains almost equally whitish. Tse-kou. *sigaria.*

H. sponsaria *Brem.* (= mandarinaria *Leech*) (Vol. 4, pl. 1 i, as *mandarinaria*). I have explained elsewhere (Nov. Zool., Vol. 35, p. 291) that errors of determination in the British Museum misled me into describing the wrong species as *sponsaria*. Recognizable from our figure and description, but generally shows in addition very small brown costal dots at the beginning of the lines and minute fringe-dots opposite the veins, besides indications of a very slender, irregular white subterminal line. Range: W. China to Amur, Corea and Japan. — **promissaria** *Th.-Mieg* is a small 2nd-brood form from Japan. *sponsaria.* *promissaria.*

H. ussuriensis *Sauber* (= sponsaria *Prout*, nec *Brem.*, herbeus *Kardakoff*) (2 d). As our figure (Vol. 4, pl. 1 h, as *sponsaria*) is not satisfactory, we replace it by another. The wing-shape, the more vivid colour and the brown dots in the fringe distinguish it easily from *dieckmanni*; in the ♂ also the non-dilated hindtibia. Ussuri, Amur and Japan. *ussuriensis.*

H. dieckmanni *Graes.* (2 e). Here again we replace the former figure (Vol. 4, pl. 1 h) by a more satisfactory one. *dieckmanni* seems to be commoner and more widely distributed in Japan than either of the two preceding; when Wileman (Trans. Ent. Soc. 1911, p. 339) failed to record any captures of his own from that country, this was because he had them misidentified as "*sponsaria*", under which name he has mentioned the larva as similar to that of *valida*. The distribution of *dieckmanni* reaches to the Chingan Mountains. *dieckmanni.*

H. valida *Feld.* (Vol. 4, pl. 1 i). To the range should be added W. China. The larva feeds (at least in *valida.*

Japan) on Quercus serrata and bears dorsally small paired processes on the metathorax and long paired spines on abdominal segments 1—5 and 8 which harmonize wonderfully with the young leaf-buds of the foodplant. Pupa green, dorsally marked with sparse black dots.

latirigua. *H. albovenaria Brem.* **latirigua** *Prout* (Vol. 12, p. 75). Rather more uniform green, with the white postmedian stripe appreciably broadened, this and the antemedian not edged with yellow-green in the median area, the subterminal line decidedly nearer to the distal margin than to the postmedian. Represents *albovenaria* in Szechuan.

verjucodumnaria. **H. verjucodumnaria** *Oberth.* (2 e). General scheme of markings as in *vallata* (Vol. 4, pl. 1 h); larger, the tail of the hindwing slighter, the colour much paler and more glaucous, the costal spots strong, the fringe beneath spotted. Tse-kou.

vervactoraria. **H. vervactoraria** *Oberth.* (2 e). Much brighter green than *verjucodumnaria*, thus nearer to *vallata* in colouring, but of nearly the size and shape of *verjucodumnaria*, underside with the white parts more extended than in *vallata*. Distributed in Szechuan.

glaucochrista. **H. glaucochrista** *Prout.* The name-typical form, from Vrianatong, Tibet, is closely similar to the race (or aberration) here figured, but has the subterminal spots less developed, the hindwing beneath greenish.

grearia. — **grearia** *Oberth.* (2 f), from Tse-kou and Yunnan, is unlike any other Palaearctic species, its nearest representative being the Indian *variegata Btlr.* (Vol. 12, p. 76, pl. 10 a). Hindwing beneath whitish, with well differentiated green border.

hypoleuca. **H. hypoleuca** *Hmpsn.* (= flaminiaria *Oberth.*) (2 f), described from Burma, was received in a quite similar from from Tse-kou by Oberthür. Apex of forewing and tail of hindwing sharper than in *grearia*, lines wanting on both surfaces, the dark cloudings stronger and browner beneath than above, the hindwing beneath wholly white excepting a terminal band.

vallata. **H. vallata** *Btlr.* To the range should be added Corea and West China.

14a. Genus: **Chlororithra** *Btlr.*

(see Vol. 12, p. 78.)

This Indian genus (see Vol. 12, p. 78), where it is by oversight ascribed to Warren was not described in Vol. 4, although we gave a figure of the type species. It differs greatly in shape and pattern from *Iotaphora* (Vol. 4, p. 18), but shows few structural differences, although the ♂ hindtibia has a strong hair-pencil which is wanting in that genus.

fea. **Ch. fea** *Btlr.* (Vol. 4, pl. 1 g). Unlike any other known species; the row of spots proximally to the white subterminal is generally stronger than in our figure and is in part reproduced beneath; there is also on the underside a large black-brown subterminal spot at the costa of the hindwing, usually discernible (though weaker) on the upperside. — ab. **missionaria** *Oberth.* (2 f) is a somewhat frequent form in the Tse-kou series of *fea* which was collected by Dubernard, less sharply marked on the underside than typical *fea* and in particular lacking the black subapical spot. Oberthür united the whole series under the one name, but in order to conserve the name we have assumed his first figure to be the type. — The larva feeds on Quercus alba and is so much like the flower of this tree as to be difficult to distinguish from it.

missionaria.

14b. Genus: **Louisproutia** *Wehrli.*

This genus, which appears to me to be a somewhat specialised offshoot of the *Hipparchus* group, has been made known since our manuscript of that group in Vol. 12 went to the press. It agrees with *Hipparchus* in general habitus, shape, pattern (white subterminal line indicated), 4-spurred hindtibia, non-stalking of the 2nd subcostal of the hindwing and some other features, but differs in the non-pectinate ♂ antenna and the short palpus in both sexes. Moreover the ♀ frenulum shows a tendency to obsolescence and perhaps even that of the ♂ is beginning to foreshadow that of the succeeding group (see Vol. 4, p. 21, footnote). Only one species is known.

pallescens. **L. pallescens** *Wehrli* (2 g). Recognizable by the structural characters and the pale colouring; the lines, though pale, are not intensely white, but are rendered a little more conspicuous by a dark edging in the median area. Szechuan and Chinese Tibet.

15. Genus: **Chloromachia** *Warr.*

(see Vol. 4, p. 18 and Vol. 12, p. 85.)

C. (?) gavissima Walk. Either as an aberrant *Chloromachia* or *Anisozyga*, or a link between these two Indo-Australian genera, may be regarded this remarkable species (see Vol. 12, p. 85). — **aphrodite** *Prout* (1 c) is a more heavily marked form from W. China and Chinese Tibet.

aphrodite.

C. infracta *Wilem.* (3 f). Both sexes are now known. We give a figure. From *O. difficta*, (Bd. 4, pl. 2 b), the only Japanese species with which it could be confused, it differs in shape and in the reduction of markings on the forewing, particularly at the anal angle. *infracta.*

C. augustaria *Oberth.* (1 c). Probably related, as its author intimates, to *aureofulva Warr.* (Vol. 12, pl. 10 i), from the Khasis but with better-defined green, white-bounded-median area of the forewing, smaller red-brown postmedian costal patch and reduced green and brown markings on the forewing beneath, which is here predominantly white or whitish. Tse-kou, Chinese Tibet. *augustaria.*

15a. Genus: **Lophomachia** *Prout.*

(see Vol. 12, p. 86.)

Typically differs from *Chloromachia* in the crested abdomen and the dentate, non-fasciculate ♂ antenna, but there are some intergradations and it would perhaps be better to regard it as a subgenus. Entirely Indo-Australian.

L. monbeigaria *Oberth.* (1 c) approaches the confines of the Palaearctic Region in Chinese Tibet (Tien-tsuen) and may be mentioned here. Larger than the Indian *albiradiata* (Vol. 12, pl. 10 e), the antemedian and subterminal lines of the forewing less oblique inward, the postmedian more sinuous, the underside more weakly marked. *monbeigaria.*

16. Genus: **Ochrognesia** *Warr.*

(see Vol. 4, p. 18.)

O. difficta *Walk.* (Vol. 4, pl. 2 b). The early stages have been described by Nagano and by Wileman. The larva feeds on Salix and presents a beautiful mimicry of the unexpanded leaf-buds of the foodplant; the body rests along a twig and large pointed lateral processes (showing affinity with *Anisozyga*, Vol. 12, p. 80) simulate the buds and expanding leaves. *difficta.*

17. Genus: **Rhomborista** *Warr.*

(see Vol. 12, p. 89.)

I have now (Vol. 12, p. 90) sunk *Spaniocentra Prout* as a section of this Indian genus; the sole distinction is the loss of the proximal spurs of the ♂ hindtibia.

Rh. incomptaria *Leech* (2 b). Of this species (or race of *megaspilaria Guen.*? [Bd. 12, Taf. 11 c]) I now know several good specimens. It differs from the related forms in its slightly more bluish green colour and the reduction of the terminal marking; antemedian of forewing obsolete. Only known from West China. *incomptaria.*

18. Genus: **Comibaena** *Hbn.*

(see Vol. 4, p. 19; Vol. 12, p, 91.)

C. pictipennis *Btlr.* (Vol. 12, pl. 11 b) may perhaps be regarded as a Palaearctic species, being recorded from Kashmir, though the type was from Sikkim. The arrangement of the reddish markings is quite distinctive. — **superornataria** *Oberth.* (6 c) has the white patch outside the postmedian of the forewing better developed and a terminal green patch bounded by the irregular outer line of the hindwing. Siao-lou, Chinese Tibet. *pictipennis.* *superornataria.*

C. dubernardi *Oberth.* (1 d). Smaller than *superornataria* and *ornataria* (Vol. 4, pl. 2 e), the forewing with no red marking, the hindwing with a small reddish patch at anal angle only, the fringe of this wing spotted as in the allies, the apical region mixed with white. Tse-kou. — ab. (?) **rectilineata** *Sterneck*, founded on a ♀ from Sumpanting, W. China, has the postmedian line of the forewing straighter, becoming thicker and yellower posteriorly, the fringe of the hindwing perhaps redder. Perhaps the normal ♀ to *dubernardi*. *dubernardi.* *rectilineata.*

C. latilinea *Prout* (= chlorophyllaria *Leech.* nec *Hedem.*, theodoraria *Oberth.*) (1 d). Different from all the preceding in the red terminal line of both wings, the fringes spotted with red. Both wings beneath are green with a dark cell-dot. West China. *latilinea.*

C. cenocraspis *Prout* (Vol. 12, pl. 12 d). At least as small as *dubernardi*, entirely devoid of red markings. The white lines of the forewing are present (or at least the postmedian) on the underside, where the hindwing also has a white outer line, curved almost parallel with the margin. The originals were from Hparé, Kachin Hills, but I have since seen specimens from Omei Shan and its vicinity. *cenocraspis.*

C. hypolampes *Prout.* Lines broader than in *cenocraspis*, more as in *latilinea*, but with the postmedian somewhat curved near the costa and well developed on the underside; hindwing with a very fine white line close to distal margin, as in *Euchloris smaragdaria* (Vol. 4, pl. 2 f) and *chlorophyllaria* (Vol. 4, pl. 3 b). Vrianatong, Tibet, only the type known to me. *hypolampes.*

C. obsoletaria *Leech* (Vol. 4, pl. 2 a). Hori (Insect World, Vol. 29, p. 4—7, pl. 1) has given, in Japanese, *obsoletaria.*

an account of the life-history and anatomy. The larva has the habitus of *pustulata*; without a translation I can give no detail.

quadrinotata. **C. quadrinotata** *Btlr.* (Vol. 4, p. 21, pl. 5 b) may not improbably prove to be an ab. of the variable *cassidara* of North India (see Vol. 12, p. 92, pl. 12 e) with rather different dark blotches and slightly more proximally placed postmedian line.

stigmatisata. *C. pustulata Hufn.* ab. **stigmatisata** *Stauder*, founded on a small ♀ from Trieste, is said to be of a very vivid green colour, the spot at the inner angle continued to the middle of the wing, both wings with distinct cell-dot as in *neriaria* (Vol. 4, pl. 2 b).

pseudoneriaria. **C. pseudoneriaria** *Wehrli* (2 b) from the Sierra Nevada, differs from *pustulata* (Vol. 4, p. 19, pl. 2 b) in the very distinct white strigulation of both wings and the great reduction of the marginal spots, which recall those of *neriaria* but are even smaller; *neriaria*, however, is distinguished from the new species by the strong angulation of the postmedian line of the forewing and by the red cell-dots, those of *pseudoneriaria* being green-grey. The unique type was beaten from scrub-oak on the steep slopes of the Upper Genil Valley at about 1600 m altitude.

subprocumbaria. **C. subprocumbaria** *Oberth.* (1 d). Near *procumbaria* (Vol. 4, pl. 2 b) but distinguishable by the larger spots, the one at the apex of the hindwing sharply cut by dark streaks on the veins. Siao-lou, Chinese Tibet.

nigromacularia. **C. nigromacularia** *Leech* (= eurynomaria *Oberth.*). We have pointed out in Vol. 12 (p. 93) that we had mixed two different species, or at the least two constant geographical forms, under the above name. Both our figures (Vol. 4, pl. 3 b ♂, pl. 2 c ♀) represent the true *nigromacularia*, which is fairly common in W. China. It shows little variation and the apical patch of the hindwing is always purple-blackish.

delicatior. **C. delicatior** *Warr.* (= nigromacularia *Oberth.*, nec *Leech*) (2 b). Red spot at hind angle of forewing rather larger and lighter than in *nigromacularia*, the spot at apex of hindwing definitely red, not blackish. Japan was the source of Warren's type, but the form from Manchuria, here figured, agrees with it.

argentataria. **C. argentataria** *Leech.* (Vol. 4, pl. 2 b). In this species and the following, besides a few other *Comibaena* both Oriental and African, the antenna of the ♀ is pectinate as well as that of the ♂. Its range extends across China, besides Corea, Japan (except the North) and Formosa.

subargentaria. **C. subargentaria** *Oberth.* (2 g) is apparently a race of *signifera Warr.* (Vol. 12, p. 93, pl. 12 e), but as the latter is only known from a single example from Burma, and that not in very perfect condition, the exact relationship is still somewhat uncertain. The chief distinction is that in *subargentaria* the green colour of the median area of the forewing extends also over the basal area and a part of the distal. Eastern frontier of Tibet.

pulchra. **C. pulchra** *Stgr.* (Vol. 4, pl. 3 a) will probably have to be made the type of a separate genus, as the hindtibia has only the terminal spurs. It would seem, like a few other Palestinian species (*Scopula donovani Dist.*, the *Coenina* species, etc.) to be of African origin (see Vol. 16, p. 15).

19. Genus: **Culpinia** *Prout.*

(see Vol. 4, p. 21.)

prouti. **C. prouti** *Th.-Mieg* (= feroniaria *Oberth.*) (2 g). Described as a *Thalera*, but as the ♂ has a frenulum I have removed it to *Culpinia*; the ♂ hindtibia, however, has no hair-pencil and I cannot say whether that of the ♀ — which is unknown to me — has 4 spurs. Lines exceedingly faint or even obsolete, so that the wings appear uniform green with red terminal line and a whitish line at base of fringe. Variable in size. Only known from Syria.

20. Genus: **Gelasma** *Warr.*

(see Vol. 4, p. 22; Vol. 12, p. 93; Vol. 16, p. 20.)

submacularia. **G. submacularia** *Leech* (2 h). Of this species (Vol. 4, p. 22), which has not yet been figured, we give a figure of the underside of Leech's type, a ♂ from Moupin.

chromatocrossa. **G. chromatocrossa** *Prout* (Vol. 12, pl. 12 f). This Burmese species, distinguishable by pink costal edge and pink, dark-spotted fringes, should be looked-out for in Szechuan, as I have seen specimens — too worn to be certainly determined without dissection — which I believe to belong to it.

vinosifimbria. **G. vinosifimbria** *sp. n.* (2 g). Larger than *chromatocrossa*, face duller dark-brown, scarcely at all reddish, pectinations longer, continuing almost to apex (extreme tip unfortunately lost), wings slightly broader and smoother-margined, tail of hindwing fairly well developed; terminal line very slight, the vinaceous fringe scarcely dark-spotted. Ta-ho, Chinese Tibet, 1 ♂ in the British Museum (ex coll. Oberthür).

habra. **G. habra** *Prout* (Vol. 12, pl. 12 f). Delicately built, with glossy and not very opaque scaling, in shape

and in the very slender, lunulate-dentate postmedian line recalling an *Iodis*, but with the frenulum present and with the blackish face which is characteristic of several *Gelasma*. Palpus moderate, antennal pectinations very long. Kwanhsien, Szechuan, only the type ♂ known.

G. lucia *Th.-Mieg.* Unknown to me and the type is lost or mislaid. "23 mm." Face black. Wings green, probably as in *H. aestivaria*, lines white, waved; cell-spots and proximal edging of postmedian line darker green. Forewing more rounded at apex than in *H. aestivaria*; hindwing with the angle at the 3rd radial weak. Japan, 1 ♂, in poor condition. *lucia.*

G. immunis *Prout* (2 g). Also founded on a single faded ♂, this may probably be synonymous with the preceding species, a possibility which I overlooked when I described it. Slightly smaller and without any dark edging to the postmedian line. Its most distinctive character is the very short pectination of the antenna; Thierry-Mieg gives no indication of this in his description. Takao-San, W. of Tokyo. *immunis.*

G. dysgenes *Prout* (Vol. 12, pl. 12 f) is another black-faced species, but very much larger than *immunis*, with normal (long) pectinations, more angular grey-green wings and dark grey, whitish-tipped fringes. Vriana-tong, Tibet. *dysgenes.*

G. glaucaria *Walk.* (Vol. 4, pl. 2 c). It is doubtful whether this species, in its typical form, has been found in any truly Palaearctic locality. Similar Szechuan *Gelasma*, unfortunately very difficult to obtain in good condition, are probably the following, which may possibly prove to be a local race of *glaucaria*. *glaucaria.*

G. flagellaria *Pouj.* As this is said to have "rounded denticulations" in addition to the central angle of the hindwing, the previously given synonymy is incorrect (see *albistrigata*, below). If my present determination is correct, *flagellaria* has somewhat less joints of the antenna pectinate than *glaucaria*; other distinctions seem less constant. West (? and Central) China. *flagellaria.*

G. albistrigata *Warr.* (3 a). The true habitat of this species (Japan) was given in the corrigenda to Vol. 4 (p. 415), but the correction was incomplete, as doubts had not at that time arisen regarding the synonymy. As a matter of fact, I am not aware that this opaquer, greener and often larger *Gelasma* occurs in China. We give a figure which will assist in elucidating the species. *albistrigata.*

G. saturatior *sp. n.* (2 h). Somewhat smaller than *glaucaria*, the antennal pectinations rather less long, the tail of the hindwing a little more pronounced, its termen otherwise only faintly undulate, certainly not denticulate. Ground-colour much more densely irrorated with grey-green than in *glaucaria*, the wings in consequence almost as dark as the band-like shades of *glaucaria*, with no indication of whitish strigulation, the whitish postmedian line not very conspicuous, its proximal dark shade very inconspicuous. Face reddish, perhaps a little brighter than in *glaucaria*. Ta-tsien-lu (type and allotype) and Tchang-kou, Chinese Tibet, in coll. Brit. Mus. *saturatior.*

G. brachysoma *sp. n.* (2 h) has about the size of *saturatior*, the wings at least as broad, the abdomen, on the other hand, remarkably short and slender. Further distinctions are the non-dilated hindtibia of the ♂, the pale yellowish-olive ground-colour and the almost straight postmedian line, particularly on the hindwing; in the latter respect it recalls no other *Gelasma* excepting the round-hindwinged Indian *convallata* (Vol. 12, pl. 11 g), to which also the cell-marks perhaps relate it, being whitish, faintly dark-ringed, but extremely inconspicuous. Forewing beneath with basal part of costal region strikingly differentiated in colour (more yellow and more opaque than the rest). Szechuan: Ta-tsien-lu, type ♂ and a paratype, both in the British Museum; Tu-pa-keo, 7400 feet, 1 ♀; Kunkala-Shan, 1 ♂, this and the preceding in the Tring Museum. *brachysoma.*

G. thetydaria *Guen.* (Vol. 12, pl. 11 h). Of this Indian species I have seen a pair from W. China, the ♂ from Che-tou, the ♀ from Moupin, both in poor condition, so that it is impossible to decide whether a separate race should be founded on them. *thetydaria.*

20 a. Genus: **Thalassodes** *Guen.*

(see Vol. 12, p. 99 and Vol. 16, p. 21.)

It was overlooked in Vol. 4 that one species of this very widely distributed Indo-Australian genus had been taken in Japan, though only (so far as I know) in two examples, see below. It is related to *Gelasma*, the pectinations of the ♂ antenna always long and weak, the 3rd joint of the ♀ palpus always moderate or elongate, but best distinguished by the cell of the hindwing, which is short anteriorly, much less so posteriorly, the discocellular being unusually oblique. See further Vol. 12, p. 99.

Th. quadraria *Guen.* (Vol. 12, pl. 11 h). A ♀ from Yoshino (Yamato) and a smaller one from Kagoshima were collected by Mr. A. E. Wileman and erroneously recorded (Trans. Ent. Soc. Lond. 1911, p. 342) as *marinaria Guen.* They appear to be duller and greyer-green than the type, but I think this is due to their age and condition; the weak angulation of the hindwing (but not the large size) suggests (form?) *semihyalina Walk.* (Vol. 12, p. 99). Dr. Wehrli has recently shown me a brighter ♀ from Shanghai, as well as one from S. China (Canton). *quadraria.*

22. Genus: **Hemithea** *Dup.*

(see Vol. 4, p. 23; Vol. 12, p. 114.)

It is doubtful whether any Palaearctic species except *aestivaria Hbn.*, *marina Btlr.* and *stictochila sp. n.* really belong to this genus, sens. str. Neither the abdominal crests not the details of wing-shape give satisfactory groupings and the best alternatives would be either to merge *Chlorissa* in *Hemithea* or to separate them by the formation of the 8th sternite of the ♂ abdomen. In *Chlorissa* the posterior edge of this sternite is produced centrally into a lobe or prong of varying length. By this criterion *nigropunctata*, *distinctaria* and *confusaria* (Vol. 4, p. 23) would be *Chlorissa*, a change which is supported by their brighter green colouring, generally finer scaling and manifest affinity with *amphitritaria* and *pretiosaria*. For *ussuriaria*, see *Diplodesma*.

marina. **H. marina** *Btlr.* (3 a ♀) remains scarce and no fresh specimens are yet available. We figure a faded but otherwise fairly good ♀ from Satsuma (S. W. Kiushiu). In the Aigner collection I determined as *marina* (see Nov. Zool., Vol. 30, p. 293) the deeper green insect with similar markings which I at one time supposed to be *ussuriaria*, but which I have now found it necessary to describe as a new *Chlorissa*. But a more careful study shows that the true *marina* is a *Hemithea* closely allied to, if not indeed a race of, the *H. costipunctata Moore* of the Indo-Australian Region (Vol. 12, p. 115). To the differentiation from *aestivaria* it may be added that the face is green, not red, the hindwing a little less narrowed, the terminal line wanting; the red anterior tergites of the abdomen bear white central spots. Yokohama (type), Yoshino, Nagasaki, etc.

inornata. **H. (?) inornata** *Matsumura.* Pale olive green, without any markings; costa of forewing at base narrowly infuscated; fringes whitish, not chequered. Vertex white, face brown. 1 ♂ from Ichinosawa, S. Saghalien, in June. I have not seen it.

stictochila. **H. stictochila** *sp. n.* (2 h). Intermediate between *aestivaria Hbn.* (Vol. 4, pl. 2 d) and *insularia profecta* (Vol. 12, p. 114, pl. 13 k). Antenna not quite so markedly dentate as in *aestivaria*, but with the ciliation a little shorter than in *profecta*. Face and palpus slightly less dark and more reddish than in the latter, but not of the bright red of *aestivaria*. Wing-margins scarcely sinuous, shaped about as in *profecta*, but the hindwing slightly less narrow. Lines fine and weak, in part punctiform on the veins, not strengthened at hindmargin of forewing; terminal line interrupted by larger white spots than in *profecta*, spots on fringe weaker; underside of hindwing without dark apical blotch. Tse-kou (R. P. Dubernard), type in Mus. Brit.

23. Genus: **Diplodesma** *Warr.*

(see Vol. 4, p. 23 and Vol. 12, p. 117.)

The abdominal crests are generally, but not invariably wanting. The distinctive characters are found in the subcostal venation of the forewing: 1st subcostal always well stalked, anastomosing with, or generally running into the costal, 2nd subcostal sometimes normal, sometimes running into the costal, sometimes stalked beyond the 5th, sometimes wanting. On the Indo-Australian species see Vol. 12, p. 117.

mundaria. **D. mundaria** *Leech* (Vol. 4, pl. 2 e) is well distributed in W. China, or in any case not confined to Tatsien-lu; furthermore I have been unable to separate from it forms from the Khasis and Formosa. It is perhaps a race of the following; in both, the 1st subcostal generally runs into the costal, though I have seen two or three ♀♀ in which it merely anastomoses.

ussuriaria. **D. ussuriaria** *Brem.* (= eluta *Wileman*) (Vol. 4, pl. 2 d). I believe that this is the correct synonymy and that the *Hemithea* described under the name *ussuriaria* on p. 23 (though not the specimen figured) was *Chlorissa tyro*, described below as a new species. This confusion is all the more regrettable because it has misled Dr. Sterneck in his valuable working-out of the Stötzner *Hemitheinae*; his "*Hemithea marina*", with dark terminal line, is evidently *tritonaria Walk.*, his "*H. ussuriata*" probably the said new species. The present species belongs chiefly to Japan, E. Siberia and Corea, but reaches Central China; I have not seen it from W. China. Better crested than *mundaria*, the postmedian line more sinuous.

planata. **D. planata** *Prout* (Vol. 12, pl. 13 l). Very closely like large *mundaria*, possibly a form of the same but with more specialised venation: 2nd subcostal in the ♂ running into costal. Forewing very straight-margined, hindwing much elongated. Punjab, scarcely truly Palaearctic; see Vol. 12, p. 117.

24. Genus: **Chlorissa** *Steph.*

(see Vol. 4, p. 24; Vol. 8, p. 61; Vol. 12, p. 116; Vol. 16, p. 27.)

On the suggested extension of this genus, see under *Hemithea*.

obliterata. **Ch. obliterata** *Walk.* (Vol. 4, pl. 2 e). To the range are to be added Saghalien, Shantung and W. China.

draudti. **Ch. draudti** *Andres & Seitz* (2 h). Nearest to *pulmentaria* (Vol. 4, pl. 2 e) in markings, but with the lines more dentate, the proximal on the hindwing less regular; at once distinguishable (even in the living, fresh

insect) by the yellowish sand-grey colour, weakly tinged with reddish. Larva in April on Ochradenus baccatus, green, with the incisions reddish, the last two segments with broad white lateral stripe. Egypt.

Ch. pulmentaria **palaestinensis** *Fuchs.* Dr. Wehrli, in his valuable working-out of the Geometridae of Marasch, considers this to be the 2nd and 3rd generation in the East and explains Püngeler's reference of the types to *faustinata* by the existence of some aberrations which have the white lines bordered with darkened green. *palaestinensis.*

Ch. faustinata *Mill.* (Vol. 4, p. 25, pl. 2 e). A further synonym is *rhoisaria Chrét.* (Vol. 4, p. 414), to which therefore belongs the biological detail which we have given under the latter name. The correction was made by the author himself in his collection and communicated to me by my kind correspondent M. Lhomme. Chrétien's full account of his supposed new species is found in "Le Naturaliste", Vol. 31, p. 30. *faustinata.*

Ch. (?) **sachalinensis** *Matsumura*, the type of a supposed new genus *Aoshakuna*, is entirely unknown to me but may well be a *Chlorissa*, possibly however a small *Gelasma*, the ♂ being unknown. Resembles *Hem. aestivaria* (Vol. 4, pl. 2 d) but not crested, the angle of the hindwing very weak. Olive-green (but probably faded), antemedian line indistinct, wavy, postmedian of both wings distinct, excurved in middle; fringe whitish. Face brown. 3rd joint of palpus not elongated. S. Saghalien, 1 ♀, 30 July 1924. *sachalinensis.*

Ch. anadema *Prout* (3 a). Described as *Hemithea*; close to the following, but with the crown of the head purple, not white, the antennal shaft also dull purple, the hindwing scarcely angled. Hindtibial process well developed, tarsus short. The white lines are very slender. Takao San, 1 ♂. *anadema.*

Ch. tyro *sp. n.* (= marina part. *Prout*, nec *Btlr.*, ussuriaria part., nec *Brem.*) (3 a). In endeavouring to match the faded *Hemithea marina* (see above) with fresh specimens, I fell into error; *tyro* is not even a *Hemithea* as now defined, but a near relative of *amphitritaria* (Vol. 4, p. 25, pl. 2 e). Smaller, wings more opaque, deeper green, the white lines more sinuous, conspicuously edged in the median area with brownish olive. W. China to Manchuria and Japan; type from Omei-shan in the British Museum. *tyro.*

Ch. pretiosaria *Stgr.* (3 a). I have now seen a specimen from the type locality, Transcaucasia (Helenendorf), and find sufficient differences in the genitalia to believe it is a different species from the Indian *gelida*, or at the least a different race. Wings a little broader, scarcely so blue, otherwise extremely similar; antemedian line of forewing very slight or — as in Staudinger's type — wanting. — **gigantaria** *Stgr.*, from Transalai, may belong with this, as described, or (perhaps more probably) with the following. "Considerably larger" than *pretiosaria*, with a "complete, rather broad, segment-formed excurved" antemedian line, colour less sap-green, more bluish. I suspect that the blue-green specimens from Margelan, referred (on account of their size) to *pretiosaria* really belong here or to *gelida*. *pretiosaria.* *gigantaria.*

Ch. gelida *Btlr.* (= anomala *Warr.*) (3 b). In place of the reproduction of the badly-coloured type figure, given in Vol. 4 (pl. 2 c, *pretiosaria*), we figure a good ♂ from Srinagar, Kashmir. The line of the hindwing is generally, though not always, well proximal at the costa to the posterior end of the corresponding line of the forewing. Fairly common in the Punjab and Kashmir, described from Dharmsala. — **exsoluta** *form. nov.* is a giant form (38—39 mm) or closely related species from Kulu, the type locality of *anomala Warr.*, with the line of the hindwing forming an exact continuation of the postmedian of the forewing. In both the known examples, the antemendian of the forewing is obsolescent. Until I can compare *gigantaria Stgr.*, I cannot say positively that it may not sink thereto. *gelida.* *exsoluta.*

Ck. amphitritaria *Oberth.* (Vol. 4, pl. 2 e) connects *tyro* with the Indian *nigropunctata Warr.* (Vol. 12, p. 16). The Nikko "*nigropunctata*" mentioned in Vol. 4 and a few other specimens from Japan which I have since seen seem to be really an aberrant form of *amphitritaria* with blacker cell-dots; the process of the 8th sternite of the ♂ is considerably shorter than in *nigropunctata*. *C. confusaria Stgr.* (Vol. 4, p. 23), if not a synonym, must be a very close ally. *amphitritaria.*

Ch. distinctaria *Walk.* (Vol. 4, pl. 2 d). Opaquer green than *amphitritaria*, the dorsal spots or crests more blackish, the postmedian line less sinuous, etc. Chiefly N. Indian, but occurs also in W. China. *distinctaria.*

26. Genus: **Microloxia** *Warr.*

(see Vol. 4, p. 26; Vol. 12, p. 119 and Vol. 16, p. 36.)

M. herbaria Hbn. ab. **monotona** *Reisser* lacks both the white lines. — **virideciliata** *Bubacek*, from Corsica (Calacuccia), is rather larger and deeper green, the fringe entirely green, not (as in *herbaria*) tipped with white. As the apices are somewhat more rounded, it is possibly a distinct species. Typical *herbaria* also occurs in parts of Corsica. *monotona.* *virideciliata.*

M. stenopteraria *Turati*, recently described from Barce, Cyrenaica (as *Eucrostis*), may — to judge from the figure and description — be a large, very feebly marked *halimaria* or *herbaria*- ♀, or their Aethiopian representative *ruficornis Warr.* (Vol. 16, pl. 4 d). Palpus, antenna and legs reddish. Forewing acute at apex, somewhat as in *Eucr. simonyi*. Greenish (the unique type somewhat faded), mixed with whitish scales; a faint wavy postmedian line visible, on hindwing parallel with termen; costa of forewing slightly ochreous. *stenopteraria.*

halimaria. **M. halimaria** *Chrét.* (Vol. 4, pl. 2 e). To the distribution should be added Morocco, Tunis, Tripoli and Egypt.

polemia. **M. polemia** *Prout* (3 a). Palpus in ♀ fully twice as long as diameter of eye, 2nd joint with less strongly projecting scales above than in *herbaria*, 3rd joint about twice as long as 2nd. The ♂ is unknown; ♀ antenna not pectinate. Forewing rather broad, the lines extremely fine and weak, sometimes not traceable, the postmedian more proximally placed than in *herbaria*. Mesopotamia: Kut al Amara.

menadiara. **M. menadiara** *Th.-Mieg* (3 b) has latterly been received from several localities in Morocco, Oran and Alger and we are able to give a figure. Doubts regarding the sex of the type specimen, aroused by Thierry-Mieg's inaccurate statement that its antennae are crenulate rather than pectinate and Oberthür's still more erroneous statement that it is a ♀, have been set at rest by my good friend Dr. Wehrli. It is a ♂, the pectinations somewhat longer than in *saturata*. The ♀ is also, as in that species, shortly pectinate and I no longer doubt that Püngeler's example mentioned in Vol. 4 (p. 27) belongs here. *menadiara* varies greatly in size, the first brood, especially in the ♀, much larger than the later emergences.

therapaena. **M. therapaena** *Prout* (3 b). Near *menadiara*, palpus rather shorter, antennal pectinations of the ♂ shorter, the inner series scarcely longer than the diameter of the shaft, the outer scarcely over twice that diameter. Forewing with distal margin very slightly more oblique than in *menadiara*, not at all bent in the middle; costal edge whitish, cell-dot discernible in some lights, postmedian line less punctiform than in *menadiara*. Hindwing with termen bent in middle, though hardly noticeably, cell-dot discernible though weak, postmedian indicated by slight dots on the veins. Gafsa, Tunis, only the type known. The scaling on the basal part of the antennal shaft in this group is long and usually overhangs, sometimes almost hiding, the pectinations of the inner series; in *therapaena*, however, the said "pectinations" are, as far as about the 6th joint, mere teeth.

ephedrae. **M. ephedrae** *sp. n.* (3 b) can scarcely be a form of *therapaena*. Palpus scarcely so short, its 3rd joint more red-brown. Proximal pectinations perhaps scarcely so rudimentary. Colour deeper green, costal edge of forewing tinged with vinaceous, cell-dot wanting, postmedian line more punctiform, except near hindmargin, hindwing with cell-dot fainter, postmedian more sinuous. Genitalia evidently similar; the armature of the valve (harpe) looks less highly chitinised, perhaps also a little broader and less sharp-tipped, but without dissection it is not possible to decide whether the differences are more than racial. Bekrit, ca. 2000 m, Middle Atlas (26 km S. of Timhadit), 1 ♂ bred from larva found on Ephedra nebrodensis, emerged 2 August 1924, type in the British Museum, ex coll. Oberthür.

atlagenes. **M. atlagenes** *sp. n.* (3 b). ♂ 28 mm, ♀ 36 mm. Very similar to *menadiara*, with which I first identified it. The palpus in the ♀ and its terminal joint in both sexes seem to be slightly longer, the antennal pectinations in the ♂ scarcely as long (but longer than in *therapaena* and *ephedrae*), in the ♀ little longer than diameter of shaft. Forewing with distal margin not at all sinuous, in the ♀ therefore very distinct from that of *menadiara*; greyer green than the other species; cell-dot very faintly indicated; postmedian line about as in *therapaena*, but with the inward curve approaching that of *ephedrae*. Hindwing with distal margin not appreciably bent; postmedian intermediate between those of *therapaena* and *ephedrae*. ♂ genitalia with the valve somewhat more narrowed distally than in the other species, its armature (harpe) more ample. Tinmel, Great Atlas, 20 May 1927, 2 ♂♂ and 1 ♀ collected by Le Cerf and Talbot for the Hill and Paris Museums.

saturata. **M. saturata** *B.-Haas* (Vol. 4, p. 27, pl. 2 f) occurs also at Albarracin, where it has been taken in some numbers in June and July, and in Catalonia. As the palpus of the ♀ also is very short, it probably calls for generic separation from *Microloxia*; ♀ antenna shortly pectinate. In North Africa its range extends from Morocco at least to Lambèse.

26a. Genus: **Hemidromodes** *Prout.*

Tongue wanting. Antenna short and stout, pectinate, though in the ♀ only slightly. Hindtibia of the ♂ strongly swollen, with the terminal spurs very short; in the ♀ with the proximal spurs short or wanting. In the hindwing venation near *Hierochthonia*. See further Vol. 16, p. 38; for the sole Indian specimen yet known, Vol. 12, p. 120, pl. 12 k. A form recently received from Palestine is so closely related that it may be assumed to be a subspecies.

hessa. *H. sabulifera Prout* (Vol. 12, pl. 12 k) **hessa** *subsp. nov.* (6 b). Larger than the type from Deesa (♂ 18–22 mm, ♀ 25 mm), perhaps somewhat whiter, the postmedian line incurved between the radials as well as between the 2nd median and the submedian. Ghôr el Safieh, S. of the Dead Sea (M. Aigner) 3 ♂♂, 1 ♀, in Mus. Tring, all unfortunately faded.

27. Genus: **Hierochthonia** *Prout.*

pulverata. **H. pulverata** *Warr.* (Vol. 4, pl. 2 i). Pfeiffer's collecting has shown that this is not rare as far northward as Marasch. Wehrli points out that, apart from the structure, it is distinguishable from *X. beryllaria* by the more oblique lines of the forewing.

H. petitaria *Christ.* (Vol. 4, pl. 2 f). I believe this to be a form of the following, but I am still unac- *petitaria.*
quainted with the ♂, and have not been able to compare specimens with the type of *graminaria*. In any case I think both should probably be assigned to the same genus.

H. (?) **graminaria** *Koll.* The type of this species, which was left without a name-label, is identifiable *graminaria.*
by the locality, the name of the collector and the published description. It is unfortunately damaged, but I made a moderately detailed description of it. Face green. (Palpi and tongue lost.) Pectinations long. (Abdomen and 5 legs lost.) The single remaining leg — obviously a hindleg — bears terminal spurs only. Wings narrow, elongate. No sign of a frenulum discovered (therefore probably *Xenochlorodes* rather than *Hierochthonia*). Forewing with discocellulars deeply inbent; 1st subcostal arising from cell, anastomosing shortly with costal, 1st radial stalked, 2nd from quite near apex of cell, 1st median connate. Hindwing with 3rd discocellular angled inward anteriorly, then oblique, costal anastomosing to near end of cell, 1st median shortly stalked. Green, without markings, fringes paler, costal edge of forewing buff. Schiraz, S. W. Persia (Kotschy).

28. Genus: **Euchloris** *Hbn.*

In Vol. 4, p. 27, it was indicated that this genus contained also a few Indian species. This statement was due to faulty taxonomy. The anomalous *quantula Swinh.* (Vol. 12, p. 132, pl. 141), which was long considered a *Euchloris,* is now definitely excluded and *Iulops* (Vol. 12, p. 121) is an independent development. Even the single African representative (see Vol. 16, p. 39) stands well apart from the typical Palaearctic group.

E. smaragdaria *F.* (Vol. 4, pl. 2 f). This species and its closest relatives have recently been revised *smaragda-*
by Schawerda. Of the name-typical European race, Lass writes that the larva loves open, sunny places. *ria.*
prefers tansy to yarrow (Achillea millefolium), sits in curved posture among the leaves and is easy to find. — The British form, with its restricted food-plant (Artemisia maritima) and habitat, seems to be of a slightly more bluish tone, the lines generally slender (intermediate towards *gigantea*, Vol. 4, p. 28) and with a strong tendency to become obsolete anteriorly, and deserves a special name: **maritima** *subsp. nov.* — **anomica** *subsp.* *maritima.*
(? *sp.*) *nov.* (3 b). Forewing with the postmedian line direct or nearly so (i. e. without the inward curvature *anomica.*
at the folds which — or at least the posterior — characterizes the other forms), only slightly crenulate, its distal edge (except in the most slender-lined aberrations) almost straight. Very remarkable on account of the retention of a frenulum in the ♂, at least in the typical series from Issyk-kul and several other examined specimens; were it not that this is extremely slender, evidently in process of extinction, it would not be possible to retain this form under the same species, or even the same genus. The genitalia have revealed no differences. Issyk-kul, common, the type in the Tring Museum from Bir-Basch, S. of the lake. Also from the Alexander Mountains, Naryn-kol, Yuldus and Thian-Shan and doubtless other mountain districts of Central Asia.

E. volgaria *Guen.* (= prasinaria *Ev.*, nom. praeocc.). (Vol. 4, p. 28, pl. 2 f). As with *anomica* (3 b), we *volgaria.*
still lack morphological evidence of the distinctness of this assumed species, but I am loth to sink it without more intensive investigations. — ab. **obsoleta** *nov.* Cell-spots wanting above, minute beneath, corresponding to the ab. *obsoleta.*
of *smaragdaria* to which Burrows gave the same name. Uralsk, 1 ♂, among a typical series. — **mongolica** *Stgr.* *mongolica.*
The type ♂ has been examined and figured by Dr. Schawerda. It is small (24 mm from tip to tip), the postmedian not dentate, strongly oblique, unusually near the antemedian at fold. — **amurensis** *subsp. nov.* The form *amurensis.*
from Amurland, mentioned here in Vol. 4, is large, not extra deep green, the lines less extremely broad, the postmedian slightly curved anteriorly. It has been distributed by Bang-Haas and Bartel under the trade-name which I have here adopted. The type is a ♂ from Blagowetshensk in my collection.

E. sardinica *Schawerda* (= prasinaria *Trti.* et *Krüger*, err. det., nec *Ev.*) (3 c). This fine form, briefly *sardiniea.*
mentioned in Vol. 4, p. 415, is now demonstrated to be a separate species. The larva, according to Krüger, is confined to Santolina and seems to differ from that of *smaragdaria* in its olive-green head, prothoracic shield and dorsal line, the latter black-edged. The moth is generally larger than *volgaria*, ♂ antenna more strongly pectinate, further characterized by the stronger, more dentate lines, generally strong and nearly circular white cell-spots (particularly strong on the hindwing beneath), the hindwing sometimes less whitened proximally. The ♂ genitalia appear less strongly chitinized, the valves slightly less broad, the arms of the gnathos somewhat longer, almost parallel to the median line, etc. Sardinia: Aritzo, 1000 m, in June and July. — ab. **bytinskii** *Schawerda* has the veins strongly whitened in the distal area of the forewing; intermediates *bytinskii.*
occur and the whitening of the veins distally is also noticeable on the hindwing in some examples.

E. serraria *Stgr.* must be restored to its position near *smaragdaria*, although it is manifestly not ac- *serraria.*
tually a form of that species. Dr. Schawerda has examined and figured the type and shows it to have very much more deeply dentate postmedian line than *sardinica* (3 c); moreover this line is in *serraria* more oblique and more direct, in these respects resembling *anomica* (3 b). which has the postmedian exceptionally n o n - d e n t a t e.

E. chlorophyllaria *Hed.* (Vol. 4, pl. 3 b). To the given range of this species, Sterneck has added W. *chlorophyllaria.*

China. It was founded on a series from the Isle of Askold, published almost simultaneously with *jankowskiaria Oberth.* from the same locality, also founded on a series. As the Askold specimens which I have seen, though somewhat variable, all belong to a single species and as it seemed highly improbable that two species so closely allied should occur together in this restricted area, I examined all the material accessible to me; still unable to find any line of demarcation, I consulted my good friend Dr. Wehrli, the possessor of Oberthür's type. His experience confirms mine; inexact figures (especially the exaggerated white area on the hindwing of that of *jankowskiaria*) have obscured the identity, but unless Hedemann's type specimen was aberrant in having the hindwing beneath "zeichnungslos", *jankowskiaria* must be sunk as an absolute synonym.

atyche. **E. atyche** *sp. n.* (3 c). 28—30 mm. In general scheme of coloration near *chlorophyllaria* but more mixed with white, the hindwing in costal and proximal parts definitely whitish green, becoming more greenish distally, the green itself slightly bluer than that of *chlorophyllaria*. Palpus and antenna formed about as in that, genitalia apparently stumpier, valves a little broader and more curved, uncus-spikes notably shorter. Forewing with apex slightly less sharp (termen more inclined to curve anteriorly), lines extremely slender in the type, evidently at least as variable as in *chlorophyllaria*, in the second specimen (here figured) less slender, more approximated, especially posteriorly. W. China (P. Dejean): the type ♂ from Siao-lou, the paratype ♂ "Frontière orientale du Thibet", both in the British Museum, ex coll. Oberthür.

powellaria. *E. plusiaria Bsd.* (Vol. 4, pl. 2 f) ab. **powellaria** *Oberth.* (= simplificata *Schleppnik*) (3 c) has the white bands strikingly broadened, the enclosed green area containing no white ring. The type, a small 2nd-brood specimen, was taken at Lambèse, Algeria, by H. Powell. The other known examples were bred or captured
confluens. at Albarracin. — ab. **confluens** *Schleppnik* is similar to the small form of *powellaria*, but has the median area narrowed so that its green centre has only room to develop as a narrow patch in the anterior half of the wing; green band outside the white postmedian widened. Albarracin, bred with *powellaria*.

29. Genus: **Aglossochloris** *Prout*

(see Vol. 4, p. 28 and Vol. 12, p. 121).

correspondens. **A. correspondens** *Alph.* The range reaches westward to Transcaspia.

crucigerata. **A. crucigerata** *Christ.* The British Museum has received an extremely small ♂, in poor condition, from
euryrithra. Kandahar (ab. or race?). — **euryrithra** *subsp. nov.* (3 c). Forewing with the transverse white bands twice as broad, cell-spot also broadened, the longitudinal white dashes of the median area, on the other hand, reduced, though those of the terminal area remain broad. Green postmedian line of hindwing well developed, rather straight. Transjordania: Amman (H. St.-J. B. Philby), a ♀ in the British Museum collection.

radiata. **A. radiata** *Walk.* (3 c). We figure a ♀ specimen from Scind Valley. Occurs also in Afghanistan (Kabul).

30. Genus: **Holoterpna** *Püng.*

(see Vol. 4, p. 29).

pruinosata. **H. pruinosata** *Stgr.* has subsequently been found at Trieste, the larva feeding on Ferulago galbanifera. It is gaily coloured (yellow with purple-red transverse bands and fine longitudinal lines of the same) and is without either prothoracic or anal points. Larva in August, moth in June.

32. Genus: **Thalera** *Hbn.*

(see Vol. 4, p. 30 and Vol. 12, p. 121).

fimbrialis. **Th. fimbrialis** *Scop.* A pathological aberration has been described and figured by Reisser, from Oberweisen, small, bleached, with the lines of the forewing approximated, close to the hindmargin confluent.
obsoleta. — ab. **obsoleta** *Skala.* White lines of upperside almost entirely obsolete, of underside also much less distinct
magnata. than in the type form. Nikolsburg, Moravia. — **magnata** *A. Fuchs* (= major *Warnecke*) (3 c). This Asiatic race was briefly noted in the Addenda to Vol. 4, p. 415, but the size was not given and the only locality specified was Transcaspia; thus it seems to have been overlooked by Warnecke, who re-named it in 1930, specifying Issyk-kul, Alexander Mountains, Togus Tjurae and Aksu. Fuchs (Jahrb. Nass. Ver. Nat. Vol. 56, p. 53) adopts a trade-name *magnata* for such Asiatic forms as "durch besondere Größe hervorragen", gives the length of a forewing as 19 mm and mentions that his ♂ is from Tura. The best-known localities are those given by Warnecke. We figure a large ♂ from Issyk-kul.

chlorosaria. **Th. chlorosaria** *Graeser* (3 d). Warnecke is inclined to support Graeser's contention that this is a separate species, and this is likely to be right; the lines show less sinuosities and the postmedian of the forewing is not, or scarcely, curved inward to the costa; the forewing, moreover, is decidedly less elongate anteriorly than in *fimbrialis magnata*. To the localities given in Vol. 4 must be added N. China: we figure a ♂ from Tsingtau, Shantung.

Th. laceratariа *Graeser* (3 d). The true *suavis Swinh.* from Yunnan, cited as a synonym in Vol. 4, p. 30, seems to be a separate speeies, more approximating in shape to the Indian *aeruginata* (see Vol. 12, p. 121) but the mentioned form from Szeehuan probably remains here and may be referred to — **thibetica** *Wehrli* (in litt.) *subsp. nov.* (3 d). "Lines finer and cell-dots smaller." Type a ♂ from Taytuho, Tibet, kindly lent for figuring by Dr. Wehrli, to whom we owe the diagnosis. *laceratariа.* *thibetica.*

33. Genus: **Hemistola** *Warr.*

(see Vol. 4, p. 30; Vol. 12, p. 123; Vol. 16, p. 43).

H. chrysoprasaria Esp. **occidentalis** *Wehrli* (3 d) has the postmedian line of the forewing straighter, almost or altogether without the anterior curve of that of *c. chrysoprasaria*; the ground-colour is generally of a more intense, less bluish green. It shows slight anatomieal distinctions in that the patches of cornuti are less strongly developed and the ventral support of the penis more slender. This race is known from Andalusia, Algeria and Tunis. — **siciliana** *subsp. nov.* is very similar to the most yellow-green forms of *occidentalis* and will possibly prove untenable when more extensive material from various loealities has been compared, but according to the series before me (6 ♂♂ and 2 ♀♀, from the Ragusa eollection) has the distal margin of the forewing slightly less oblique, the postmedian line nearly parallel with it, sometimes (particularly in the 2 ♀♀) almost meeting the postmedian of the hindwing, as in *zimmermanni*, to which it also shows some superficial resemblance in that the line in question is generally more crenulate than in most forms of *chrysoprasaria*. Sicily: Taormina, Ficuzza, Busambra, etc.; also in S. Italy. *occidentalis.* *siciliana.*

H. intermedia *Djakonov.* Near *zimmermanni*, in some respeets transitional towards *chrysoprasaria*. Antennal pectinations appreciably shorter than in the former, but not nearly so short as in the latter; palpus also somewhat intermediate. In the genitalia very similar to *zimmermanni*. Hindwing angled, nearly as in *zimmermanni*. Groundcolour more intensive grass-green than in either of the allies, the white lines not dentate, in their course similar to those of *zimmermanni*. Minussinsk distriet. *intermedia.*

H. zimmermanni Hed. (Vol. 4, pl. 2 k) ab. **lissas** *Wehrli* (3 d) is an aberration (sport) with the hindwing rounded, not angled; thus parallel, in a measure, with *chrysoprasaria lissas*, but so much the more striking in that the angle of the hindwing is generally quite sharp and that Wehrli's specimen (a ♀ from Amur) comes from the headquarters of typical *zimmermanni*. — ab. **minutata** *Sterneck*, from Pekin, ereeted as a separate species, is a dwarf form with the postmedian line non-dentate, thus superficially resembling *intermedia*. — **pseudochrysoprasaria** *Wehrli* (3 d) seems to form a loeal race in the Ussuri distriet, otherwise the name of *minutata* would have covered it, sinee its ehief distinetion is in the non-dentate or only weakly dentate lines. It is, however, not neeessarily small and shows a slightly more bluish green colour than typical *zimmermanni*. It has been very frequently eonfounded with *chrysoprasaria*. — *zimmermanni* is very widely distribnted in Siberia and is also reeorded from W. China (Ta-tsien-lu). *lissas.* *minutata.* *pseudochrysoprasaria.*

H. dijuncta *Walk.* (3 e). We are now able to give a good figure of this species. In the spotted fringes, it comes nearer to *veneta* than to *chrysoprasaria*, but the strueture renders it readily distinguishable; other easily observable distinetions are the more elongate wings, absence of terminal line, darker fringespots and purple-red, not orange-red face. *dijuncta.*

H. veneta *Btlr.* (Vol. 4, pl. 27 c). If, as now appears probable, all the forms hitherto referred to this or to *insolitaria Leech* (Vol. 4, pl. 2 h) eonstitute a single species, it is more variable than was recognized in Vol. 4, p. 31. A series colleeted by Wileman, chiefly at Yoshino, Yamato, and determined by him as *insolitaria* has not the light *chrysoprasaria*-like eolour of typical *veneta* nor the intense green of Leech's type and the angulation of the hindwing varies a little. I incline to refer this series to *veneta*. — **insolitaria** *Leech* may best be regarded, until further material from Kiushiu is available, as a race of *veneta*, characterized by its vivid eolour and its strongly angled hindwing, perhaps also by the postmedian line, which in typical *veneta* is nearly always more or less wavy. — A possible further race, from W. China (Kwanhsien), doubtfully referred here by Sterneck, is unknown to me, but seems more likely to be a related species, as the postmedian line is "dentate", the abdomen noticeably crested, etc. *veneta.* *insolitaria.*

H. parallelaria Leech (Vol. 4, pl. 2 h) ab. **distans** *Sterneck* has the antemedian of the forewing nearer to the base and less straight, a weak inward bend at the median causing it to fall perpendicularly on the inner margin, the postmedian more distally placed: all the lines broader and more diffuse. Ta-tsien-lu, 1 ♀. *distans.*

H. inconcinnaria *Leech* (Vol. 12, pl. 14 d). Accidentally omitted from Vol. 4, but deseribed in Vol. 12, p. 124. Somewhat more slenderly built than any of the preceding and with the postmedian line formed of rather deep lunules and sharp teeth on the veins, much as in some *Iodis*. No terminal line or red fringe-spots. Antennal pectinations of the ♀ quite short. W. China. *inconcinnaria.*

H. euethes *Prout* (1 e). Smaller and shorter-winged than *inconcinnaria*, the scaling denser, a brown *euethes.*

terminal line and brown fringe-spots present, nearly as in *fuscimargo*. Hindwing with 1st median well stalked. Kwanshien. See further the original description in Vol. 12, p. 124.

nemoriata. **H. nemoriata** *Stgr.* (3 e). Not quite so small as *euethes*, pectinations of the ♂ considerably longer, wing-margins more rounded, though the hindwing shows a (very slight) elbow at the 1st radial besides the moderately developed one at the 3rd; 1st median of hindwing connate. Abdomen with small red-brown spots, or rudimentary crests. Spots on fringes rather strong. Only known from the Ussuri district. See also Vol. 4, p. 31.

tenuilinea. **H. tenuilinea** *Alph.* (3 e). In structure similar to *nemoriata* but with the ♂ antenna pectinate to the apex, 1st median of hindwing separate. Larger, more vivid green, lines more dentate, cell-rings recalling *detracta*. Corea, apparently very rare. — See also Vol. 4, p. 31, Note.

fuscimargo. **H. fuscimargo** *Prout* (Vol. 12, pl. 14 c). This species, not hitherto recorded as Palaearctic, was received by Oberthür from Siao-lou. The lines are formed nearly as in *inconcinnaria*, but the fuscous (really blackish with a slight admixture of reddish) cell-dots, terminal line and fringe-spots and traces of red vein-spots or dashes in the angles of the postmedian distinguish it. Antenna of ♀ not pectinate.

periphanes. **H. periphanes** *sp. n.* (3 e). Brighter and less bluish green than *fuscimargo*, palpus shorter (scarcely as long as diameter of eye), pectinations somewhat shorter, especially those of the inner series (in *fuscimargo* both series are at least twice diameter of shaft), cell-dots scarcely indicated (in dark-green), no red vein-spots, terminal line very slight, fringe-spots more reddish than in *fuscimargo*. Abdomen dorsally without reddish admixture. Tse-kou, type ♂ in the British Museum; Siao-lou, a smaller ♂ in the Wehrli collection, which also contains a larger, weakly marked, somewhat more bluish green ♂ of the same or a closely similar species from Tay-Tou-Ho, 1897 (R. P. Déjean).

cinctigutta. **H. cinctigutta** *sp. n.* (3 e). Smaller than *antigone Prout* (Vol. 12, p. 124), which it resembles in the pale-ringed cell-dots; brighter green, the forewing with costa less long and termen less oblique, the hindwing relatively broader, fringe cleaner, with the spots more sharply marked. (Antennae lost.) Hindtibia dilated. Underside paler green, with only the terminal line and fringe-spots. Ta-tsien-lu, type ♂ in coll. Wehrli.

acyra. **H. acyra** *sp. n.* (3 e). Distinguishable by its dull green colour (slightly greyer than the "pois green" of Ridgway, recalling *Gelasma* or *Hemithea*), the elongate, well tailed hindwing and the greyish, darker-spotted fringes. Face blackish; palpus moderate; pectinations moderately long. Markings extremely weak. Mt. Omei, 4000—4500 feet, July and August, 4 ♂♂, the type in my collection.

isommata. **H. isommata** *sp. n.* (3 f). Larger than *detracta* (Vol. 4, p. 31), hindwing rather more angled at 3rd radial (though still quite weakly), 3nd joint of palpus rather less short, antennal pectinations of the ♀ more rudimentary (in reality merely long teeth), only a few of the longest about as long as the diameter of the shaft, the white cell-ring of the hindwing small, about as that of forewing. Ta-tsien-lu, type ♀ in coll. Wehrli; Siao-lou, 2 ♀♀ in the British Museum.

ichinosawana. **H. ichinosawana** *Matsumura* is a very small species (20 mm) with the antennal pectinations of the ♂ long, yellowish. Head brownish. Palpus very small. Wings pale green, unmarked; forewing above narrowly, beneath more broadly, yellowish on costa, fuscous at its base. Hindwing rounded. Ichinosawa, S. Saghalien, 25 July 1925, only the type known.

loxiaria. **H. loxiaria** *Guen.* (= dispartita *Walk.*) (Vol. 12, pl. 14 c). On the synonymy of this species, see Vol. 12, p. 123. To the brief description in Vol. 4, p. 31 (as *dispartita*) it should be added that the antenna of the ♀ is noticeably serrate, not (as in the following species) simple. Probably confined to the Punjab and Kashmir, *cymaria.* the Sikkim *efformata Warr.* being a different species. — ab. **cymaria** *Hmps.* has the white cell-spots enlarged.

fletcheri. **H. fletcheri** *Prout* (Vol. 12, pl. 14 c). On an average larger (28—35 mm), of a somewhat more bluish *subcaerulea.* green, the cell-spots generally somewhat weaker or narrower. Gulmarg, Kashmir (8500 feet). — **subcaerulea** *Prout* is a small form (22—27 mm), perhaps seasonal, of a much bluer colour. Common about Srinagar in August and September.

malachitaria. **H. malachitaria** *Prout* (Vol. 12, pl. 14 c). Colour of *subcaerulea*, ♂ antenna with shorter pectinations, hindleg perhaps more slender, apex of forewing less pointed, the white line weaker. Only the type known, the locality given as "Kukli, N. W. India".

christinaria. **H. christinaria** *Oberth.* (1 e), founded on a unique ♂ from Chinese Tibet, is distinguishable at a glance by the strongly angulated postmedian line; antemedian present on both wings. Face white, with reddish band on upper part, palpus scarcely reaching beyond frons, antenna pectinate to about $^4/_5$, hindtibia slightly thickened.

34. Genus: **Iodis** *Hbn.*

(see Vol. 4, p. 32 and Vol. 12, p. 124.)

orientalis. *I. putata L.* **orientalis** *Wehrli* (6 a). As intimated by Leech (see Vol. 4, p. 32), specimens from E. Asia are darker than the European. Fresh specimens, according to Wehrli, are more deeply coloured, clear grass-

green, the strong posterior projection of the postmedian line wanting or much weakened. Mokanshan, Shanghai (loc. typ.), Corea and Japan.

I. urosticta *Prout* (3 f). Smaller than *sinuosaria* (Vol. 4, pl. 2 i), the ♂ expanding 20—24 mm, the ♀ 26 mm, the 3rd joint of the palpus in both sexes elongate. Forewing with 1st subcostal stalked well beyond 1st radial. White terminal vein-dots rather well developed, that of the tail of the hindwing enlarged. Takao-San, W. of Tokyo, discovered in 1926 by M. Aigner. *urosticta.*

I. argutaria *Walk.* (Vol. 12, pl. 14 e). This Indian species has been taken occasionally in W. China and Japan and — as has been stated in Vol. 4, p. 32 — it is probable that *sinuosaria Leech* (Vol. 4, pl. 2 i) is merely a large form of it with the white maculation outside the postmedian strengthened. The Japanese specimens which have been called *sinuosaria* should in any case, I think, be referred to *argutaria*. *argutaria.*

I. dentifascia *Warr.* (Vol. 4, pl. 2 i). Specimens apparently referable to this Japanese species have been taken in W. China (Kwanhsien). *dentifascia.*

I. niveovenata *Oberth.* (3 f) should be recognizable at once by the conspicuously white veins and lack of transverse lines. I have stated in Vol. 12 (p. 126) that I doubt whether it can be allowed to remain in *Iodis*, but it is only known from a single ♀, from Siao-lou. *niveovenata.*

34 a. Genus: **Berta** *Walk.*

(see Vol. 12, p. 126 and Vol. 16, p. 44).

This Indo-Australian genus, which differs from *Iodis* in the discocellulars, from *Comostola* in the wing-shape, scaling and pattern, has not hitherto been reported from the Palaearctic Region, but the common Indian species *B. acte Swinh.* (Vol. 12, pl. 12 i) has a representative in W. China which, having been noticed too late to include in Vol. 12, must be noticed here.

B. apopempta *sp. n.* (3 f). Close to *acte* (Vol. 12, pl. 12 i), of which it may well be a race, perhaps with the costal margin of the forewing slightly more rounded and the tail of the hindwing scarcely so strong. Forewing without the large white anterior patch which is found in many *acte*; but the more constant distinctions are in the distal region, where the thick white subterminal line (or row of spots) of *acte* is reduced to small inconspicuous lunules and the large white spots at apex of forewing and adjoining the tail-spot of the hindwing are entirely wanting. W. China, only a few examples yet known, the type a ♂ from Kwanhsien, Szechuan, in the British Museum collection. *apopempta.*

35. Genus: **Comostola** *Meyr.*

(see Vol. 4, p. 32 and Vol. 12, p. 129).

C. subtiliaria *Brem.* (Vol. 4, pl. 2 i). I have now had an opportunity of examining a few specimens of the name-typical (Ussuri) race of this species. It is certainly variable, though perhaps less so than the Japanese *nympha*; in any case the material from W. China which I provisionally referred to it is quite distinct (see below). From the Indian *maculata* (Vol. 12, p. 128), which I refer to *Comostolopsis*, it differs in shape and structure, although the discocellulars of the forewing have not the extreme shape of typical *Comostola*. Palpus in both sexes long. antenna of ♀ not pectinate. — **nympha** *Btlr.* (3 f) is extremely variable in size, but probably on an average smaller than *subtiliaria*. Beyond the (slight) difference in ground-colour and the tendency towards a stronger development of the red markings, whether terminal, discocellular or postmedian, I can see no distinction. The genitalia show no difference. It inhabits Japan and China; its exact range in the latter country has not been worked out — perhaps only eastern; some, at least, of the southern and western forms which have been confounded with it belong to other species. *subtiliaria.* *nympha.*

C. virago *Prout* (Vol. 12, pl. 14 h). At least as large as *subtiliaria*, often larger. Easily distinguished by the comparatively short palpus in both sexes and by the pectinate antenna of the ♀. It was described from N. India but is fairly common in W. China. — **pupillata** *Sterneck*, founded (as a species) on 2 ♂♂ from Ta-tsien-lu and differentiated from *subtiliaria* by its large size (length of a forewing 13 mm) and somewhat reduced markings, is obviously an aberration of *virago* without red scaling at the distal edge of the postmedian of the forewing. Should the Chinese race prove differentiable, this name will naturally be available for it. *virago.* *pupillata.*

C. francki *Prout* (3 f). At first sight very similar to small specimens of *virago*, which occurs with it at Kwanshien, Szechuan. 3rd joint of palpus less short, particularly in the ♀, pectinations of the ♂ somewhat less short (though much less long than in *subtiliaria*), the ♀ not pectinate: markings generally smaller, particularly the postmedian spots. See also Vol. 12, p. 130. *francki.*

36. Genus: **Comostolopsis** *Warr.*

(see Vol. 12, p. 128).

The single species which, in Vol. 4 (p. 33), I cited under *Pyrrhorachis*, belongs evidently to the group which I now refer to *Comostolopsis* (see Vol. 12, p. 128); that is to say, the allies of *Comostola* which show no

constant generic distinction thereform except in the simple discocellulars. Their taxonomy is somewhat difficult, on account of the variations in the point of origin of the 1st median vein.

rubripunctata. **C. rubripunctata** *Warr.* (3 g). Of this very rare species I now know a third example, in better condition than the other two, and am able to provide a figure of it. It comes from Arima (Hondo) and was received by the late Mr. Joicey from a Japanese collector.

37. Genus: **Eucrostes** *Hbn.*

(see Vol. 4, p. 33; Vol. 8, p. 71; Vol. 12, p. 134 and Vol. 16, p. 46).

simonyi. **E. simonyi** *Rbl.* (Vol. 4, p. 34, pl. 3 c). No further light has yet been obtained on the phylogenetic position of this isolated "*Eucrostes*". It was not absolutely correct to say that the larva was "undescribed", as Lord Walsingham recorded it as "a conspicuous red larva", but careful enquiries have shown that he left no manuscript notes on it. By an oversight the date of the larva was given as "16 March"; this should read "6 March". Besides Teneriffe, the moth has been taken on Fuerteventura and — a very interesting discovery — in Rio de Oro, whence Riggenbach brought a series of ♂♂ and one ♀, all faded but agreeing exactly with worn specimens from the Canaries. An unexplained variability of the Teneriffe ♂♂ was mentioned by Rebel; a series from Santa Cruz showed dimorphism in this sex only, some being large (length of a forewing 12 mm), with somewhat shorter pectinations, leek-green forewing and a pronounced reddish shading round the eye, on the palpus and on the forecoxa, while others agreed with the type (forewing length 9 mm, coloration whiter, pectinations rather longer). The genitalia show no difference.

38. Genus: **Xenochlorodes** *Warr.*

(see Vol. 4, p. 34).

olympiaria. **X. olympiaria** *H.-Schäff.* (3 g). It seems doubtful whether *cremonaria* is anything but a faded form, as the colour — like that of *Iodis lactearia* — is very fugitive and both colours have been found together (e. g. at Beirut). The figured ♂, from Haifa, was of a very decided green when received 13 years ago, and still retains a green tinge. To the geographical distribution is to be added Cyprus.

minor. *X. beryllaria Mann* f. **minor** *Schwingenschuss* is the small second-brood form, founded on examples from Gravosa, Dalmatia.

4. Subfam.: **Sterrhinae.**

It has been pointed out in Vol. 16 (p. 48, 61) that it is impossible to retain the names *Acidaliinae* and *Acidalia* in the Geometridae, on account of the laws of homonymy. *Acidalia Tr.* (Geometrid) was published in 1825 and so long as it was believed that no part of Hübner's "Verzeichnis" was actually p u b l i s h e d before 1826, we assumed that this well-known name had priority here; but the Hübnerian dates which are now established (see Sherborn, Ann. Mag. Nat. Hist., Ser. 8, Vol. 9, p. 179) fix *Acidalia Hbn.*, l. c., p. 31 (Rhopalocera) as 1818 and the name is in occasional use among workers at the butterfly-genus *Argynnis;* in any case, "once a homonym, always a hononym" is an inviolable principle of nomenclature. The non-availability of the subfamily name *Acidaliinae* of course follows from this and the substitution of *Sterrhinae* is now universally adopted among workers at the exotics.

Much valuable revisional work on the subfamily has been undertaken during the last 20 years and much of it is still in progress. White it is still regarded, for practical purposes, as a moderately "natural" group, intensive studies of the venation and especially the genitalia have shown it to be less homogeneous, and less easy to define rigidly, than was formerly supposed. On the one hand, there seem to be well-marked tribal distinctions within the subfamily; on the other, there are many links between it and the subfamily *Larentiinae* as at present understood; chiefly, though not exclusively, in the *Asthena* group of the latter, which might almost take rank as a third subfamily. No completely satisfactory new system is yet available, although the thorough-going studies on which Dr. J. Sterneck has for some years been engaged have brought us far in that direction and must be referred to in this place. Bearing in mind all the circumstances, I have reduced the changes of arrangement as compared with Vol. 4 to a minimum; *Cosymbia* has been brought forward to the vicinity of *Calothysanis* (= *Timandra*), evidently its more appropriate position; the recently established genus *Pylargosceles* will be found at the end of the *Rhodostrophia* group; *Cinglis* at the end of the *Scopula* (= *Acidalia*) group; otherwise the sequence is scarcely altered, although mention will be made occasionally of obvious affinities which will, sooner or later, necessitate further rearrangements.

My own view of the subfamily from the standpoint of genitalia studies, verified or modified by a consideration of other structures, was adopted in collaboration with Messrs. Burrows and Pierce about 15 years ago and forms the basis of the arrangement of my recent contribution to the „Lepidopterorum Catalogus".

We recognized 5 "tribes" (*Rhodostrophiicae*, *Cosymbiicae*, *Cyllopodicae* [Neotropical only], *Scopulicae* and *Sterrhicae*), besides a few outliers or doubtful links, the enigmatical *Asellodes* (Neotropical) and *Rhodometra* and perhaps the Asthenid element mentioned above. Dr. Sterneck, who has most kindly placed at my disposal a mass of valuable and highly suggestive notes, with free permission to publish so far as may be possible, has added another tribe by separating *Calothysanis* from the *Cosymbiicae*, though his studies have been confined to Palaearctic forms; in these the separation by subcostal venation of the forewing and perhaps by the formation of the valve is quite easy, but on a world-view there are many difficulties to face, particularly as regards *Anisodes Guen.*

The *Rhodostrophia* group (containing genera 1—9, with the exception probably of *Craspediopsis* and possibly of *Somatina*) is characterized by the soft, pedunculate uncus (often bilobed distally), presence of gnathos, special modifications of the 8th sternite and generally double areole; the *Cosymbia* group, sens. lat. (genera 10—14) by the generally truncate or divided uncus, absence of gnathos, generally divided valves, long pectinations of the ♂ antenna, etc.; the *Scopula* group (genera 15—22) by the substitution of two socii for the uncus. absence of gnathos, fused valves, development of mappa and nearly always cerata, complete armature of the hindtibia of the ♀ (except in *Glossotrophia*) concomitantly with various modifications of that of the ♂, etc.; the *Sterrha* group (genera 23—28) by the simple uncus and valves, retention of gnathos and loss of proximal spurs of the ♀ hindtibia.

Naturally, in this prolific but difficult subfamily, there are very many new species and races to register and corrections of determination and of synonymy. Of the biology of the species we have also learned something further; but there is still an enormous amount remaining unknown, especially as regards the Asiatic and some Mauretanian members.

1. Genus: **Rhodostrophia** *Hbn.*

(see Vol. 4, p. 36).

Rh. xesta *sp. n.* (3 g). May be placed between *terrestraria* and *dispar*, in any case belongs to the same structure-group. In the extreme weakness of the markings and in the pink tinge of costa and fringes similar to the ♂ of *dispar*, but entirely without the ochreous colouring. Considerably more weakly marked above than *terrestraria* (which, moreover, lacks the pink fringes, etc.), somewhat less weakly marked beneath, where the hindwing shows a complete though indistinct postmedian line; cell-dot of forewing above slightly less sharp than in *terrestraria*. Afghanistan: Logar Valley (H. Roberts), a fresh ♂ in the British Museum. *xesta.*

Rh. pudorata *F.* (3 g). It has been entirely overlooked that Fabricius, so long ago as 1794, gave a good description of the North African form of the species (or subspecies) which I named *quadricalcarata*. As his name has many years' priority over the others, it must be used to designate the collective species, with *sicanaria* as the Sicilian race, unless the structural difference in the ♂ hindleg be regarded of more than racial importance. We now figure a representative Algerian *pudorata*. — **perezaria** *Ob.* (3 g), is the oldest name for the Spanish race and, although it was founded on a rare aberration with the transverse markings obsolete, must take precedence of my *quadricalcarata*. Smaller, more weakly marked and less vividly coloured than the Moroccan and Algerian *pudorata*. — ab. **quadricalcarata** *Prout*, already figured in Vol. 4 (pl. 5 c), may stand for the commoner Spanish forms with the bands indicated, though often (as in my type) quite weak. *pudorata.* *perezaria.* *quadricalcarata.*

Rh. calabra. Although the great individual variability obscures, in some measure, the racial characteristics, an ample series reveals enough to warrant a more detailed analysis than has hitherto been given. A few of the outliers — or at least *tabidaria*, as Zeller and I already suspected — have proved to be separate species (see below), but we are still left with a considerable range of forms. — **calabra** *Pet.* (= trifasciata *Cyr.*, rubrofasciata *Dannehl*) from South and Central Italy, is the most brightly coloured form, with the red markings broad, the postmedian band of the forewing containing no pale central marking, the terminal shade developed, typically broad. The type figure, from Calabria, shows just such a specimen as Dannehl has recently described from the Majella Mountains as *rubrofasciata*. Cyrillo's bad figure shows a narrower-banded aberration, but his name was given solely as an emendation, because he opposed the use of the geographical name for a moth which occurred also in other parts of Italy. — The forms which occur occasionally among the type and become more general in the Tyrol, S. E. Europe, etc., distinguished by the presence of a pale line dividing the postmedian band lengthwise or at least indicated between the veins, which was assumed by Dannehl to be the name-type, may be designated **subseparata** *ab. nov.*, as they begin to approach the following race. — **separata** *Th.-Mieg.* (3 g) the type from Drôme, includes such a high percentage of the specimens from Spain and parts of France that I now consider it to have developed (or almost developed) into a race; in addition to the reduction of the red markings (including the red at base of costa), it very generally shows a more or less strong cell-dot on the forewing, which deluded Staudinger into recording *tabidaria* from Spain. — ab. **punctaria** *Carad.* designates the most *tabidaria*-like examples of the foregoing (very rarely occurring in other races), with developed cell-dot on the fore- and often even on the hindwing. — ab. *calabra.* *subseparata.* *separata.* *punctaria.*

taeniaria. **taeniaria** *Frr.* (=muscosa *Bastelb.*, 6 g). I accept Caradja's opinion that these dull-coloured aberrations should all *languida.* be united under the one name. — ab. **languida** *Dannehl* may possibly be maintained as separate from the preceding, on account of its rosy suffusions. "Groundcolour approaching light-grey, the band dull rosy-grey; in extreme specimens looking almost unicolorous". South Tyrol: Atzwang, Terlan, etc.; Mezzolombardo. — ab. *coacta.* **coacta** *nov.* (3 h). Antemedian and postmedian of forewing approximated, connected in the submedian area. *violettaria.* A ♂ from Mount Pacanaglia (Ob., Et. Lép., fig. 464 b). — ab. **violettaria** *Vorbrodt* is darker, more clay-yellow, the forewing and anal part of hindwing densely dusted with grey-violet, the markings violet-grey. Pte. Brolla. *cypriaria.* — **cypriaria** *Rbl.* (= cypria *Prout*) (3 h as *cipriata*) is the race from Cyprus, generally smaller, forewing with conspicuous cell-dot, though smaller than that of *tabidaria*, antemedian line nearly always slender, often obsolete, postmedian band narrow, hindwing without cell-dot. Ground-colour very variable, generally less bright than in *subsanguinea.* typical *calabra*. — ab. **subsanguinea** *nov.* has the forewing entirely suffused with purple from the base to the postmedian band, the hindwing more weakly suffused with the same in its posterior two-thirds. Aghirda, Cy- *transcaucasica.* prus, May 1916, a pair in Tring Museum. — **transcaucasica** *Prt.* is in general almost as brightly coloured as in normal *calabra*, the postmedian band not very broad, but rarely so narrow as in *cypriaria*, both wings with a sharp cell-dot, though smaller than in *tabidaria*. Transcaucasia, the type from Borjom.

cretacaria. **Rh. cretacaria** *Rbl.* (3 h), briefly mentioned in Vol. 4 (p. 38) under *calabra*, was subsequently described by Rebel as a race of *sicanaria*, but is certainly much nearer to *calabra* and *tabidaria*. Generally smaller, cell-dots present, lines on hindwing further apart than on forewing. In a ♂ which I saw in the Vienna Museum I noted that the club-shaped proximal spur of the ♂ hindtibia was similar to that of *calabra*, but less thickened; subsequently Caradja has independently made the same observation.

tabidaria. **Rh. tabidaria** *Z.* (Vol. 4, pl. 2 k). The genitalia are sufficiently distinct in some constant characters to stamp this as a separate species. The distinctions of the ♂ hindleg, first noted by Zeller, are slight, but they are quite appreciable in the material which I have examined. Dr. Sterneck tells me that among 15 ♀♀ in a Palestine consignment, 2 have only 3 spurs on the hindtibia, an interesting corroboration of Guenée. — *tenuistrigata.* ab. **tenuistrigata** *Carad.* has the postmedian band dissolved into two fine red lines, analogous to *calabra separata*. — *suavis.* ab. **suavis** *Carad.* is a large pale-yellow ♀, with glossy greenish-grey bands, analogous to *calabra* ab. *taeniaria* (6 g). This and the preceding aberration are from Roumania, the types in the collection of Prof. Ostrogovich.

vibicaria. **Rh. vibicaria** *Cl.* Heydemann has recently redescribed Clerck's type (Sweden) and matched it with normal Central European forms. He challenges the correctness of uniting the non-banded aberrations which *adulterina.* occur among this race with true *strigata*. — ab. **adulterina** *Heydem.* (Vol. 4, pl. 2 k, fig. 2) is erected for these nonbanded aberrations of Central Europe, which have the same bright coloration and sharp markings as the *strigata.* name-type. — **strigata** *Stgr.* (Vol. 4, pl. 2 k, fig. 3) is on an average larger, is of a more greyish yellow and more weakly marked, the markings more dulled with grey, the fringes not or scarcely mixed with pink, etc. *augustiniaria.* Andalusia (loc. typ.), N. Africa, Sicily and perhaps Transcaucasia and Central Asia. — ab. **augustiniaria** *Fernandez*, from Sierra Nevada, is banded from the median line to the postmedian and only a little less so from thence to the termen. In other words, it seems nearly to represent in *strigata* the aberration *intermedia* *rectilinearia.* *Kempny* of *vibicaria*. — ab. **rectilinearia** *Meves* is an ab. of the name-typical race with the red median line *roseata.* of the forewing straight, crossing the cell-spot. Värmdö, near Stockholm. — ab. **roseata** *Ersch.* (6 g). We give a reproduction of the figure of the type, a ♀ from Irkutsk. Even if the colouring is inexact, the suppression of the lines shows that it is quite different from the European forms which have been referred to it. The latter- are figured (3 h) from a specimen from Wehrli's collection, but as this European form claim a new name *rosans minuta.* we call it **rosans** *nom. nov.* — **minuta** *Heydem.* (3 h) is a dwarf race from the North Frisian Islands. Forewing 13—17 mm long, narrow and pointed, particularly in the ♀; tone slightly more olive, markings strongly carmine-red, basal of forewing always well expressed; underside on the whole with more red scaling than in the type. Founded on a series from Amrum, but the pretty form from Fanö, which has stood in my collection as *fanöensis* and is here figured, probably belongs to the same race. I am indebted for it to my friend Mr. Niels L. Wolff, of Copenhagen.

bicolor. **Rh. bicolor** *Warr.* (3 h). On account of the variability mentioned on p. 40 of Vol. 4 and the removal of *rhoda*, which I find intergrades with the previous form (the subspecies *borealis* of *cinerascens*) in the Kulu district, it is important to figure the actual type specimen of *bicolor;* this bore the label "Kukli", a name which I cannot find in any of the maps or gazetteers, but it is very accurately matched by examples from Thundiani (Kashmir).

plesiochora. **Rh. plesiochora** *Prout* (= pelloniaria *Leech*, nec *Guen.*) (3 i), from West China and Chinese Tibet, erroneously referred to *meonaria* in Vol. 4, has the antennal pectinations shorter than in that species (scarcely over twice the diameter of the shaft), the wings shorter, particularly in the ♂, the colour somewhat more ochreous and more glossy, the postmedian of the forewing rather less oblique and more proximally placed,

the corresponding shade of the hindwing broader, on the underside rounded anteriorly (in *meonaria* angulated). I only know the true *meonaria* from N. W. India.

Rh. grumaria *Alph.* (3 i). We give a figure of this very distinct species, drawn from a Koko-Nor ♂ in the Tring Museum. *grumaria.*

Rh. oxyntis *sp. n.* (3 i). Like *glaucofusa Hmpsn.* (Vol. 4, pl. 5 d) but much smaller (29 mm), wings more pointed, especially the hindwing, which has the termen straight from the 1st radial almost to the anal angle; colour much browner (drab or slightly more brownish), pale markings more slender, postmedian line of hindwing almost straight from its subcostal bend to the hindmargin. Afghanistan: Logar Valley (H. Roberts), a ♀ in the British Museum collection. *oxyntis.*

Rh. rhodospania *sp. n.* (3 i) belongs to the *calabra*-group by tibial armature and venation, though the single proximal spur is exceptionally short. Ground-colour nearly as in *cinerascens*, slightly more olive-tinged, wings somewhat less narrow; the characteristic pink colouring of *Rhodostrophia* shows itself only on the fringes and on the costal margin of the forewing. Hindwing above strongly marked, recalling those of *jacularia* (Vol. 4, pl. 3 e) and *glaucofusa;* beneath paler, without the dark terminal shade. Forewing beneath nearly as above. Beluchistan: Khan Mehterzai, 7000 ft. (Capt. D. Harrison), type ♂ in coll. British Museum. May be placed next to *glaucofusa.* - *rhodospania.*

Rh. erythema *Prout* (4 a) should be placed next to *praecisaria* (Vol. 4, pl. 3 d as *badiaria*), to which it is certainly very closely related, possibly a colour-form. Forewing less produced apically (shaped more as in *badiaria*), fawn-colour with a very decided tinge of vinaceous; antemedian of forewing angled at both folds, median rather near the cell-spot. E. Bokhara: Peter the Great Range. *erythema.*

Rh. inconspicua Btlr.. We figure a ♂ of the form **subconspicua** *Prt.* (3 i), which I now regard as only an ab. *subconspicua.*

Rh. cuprinaria *Christ.* (= phaenicearia *Hmps.*). The synonymy given in Vol. 4 (p. 42) is correct, although by oversight we altered the spelling of the synonym; I have now seen several specimens which were determined by Christoph himself. *cuprinaria.*

Rh. anchotera *sp. n.* (4 a). Very similar to *acidaria*, Vol. 4, pl. 3 d), but the hindtibia with only 3 spurs: cell of forewing relatively a trifle shorter, antemedian less sharply angled near costa, rather less oblique and almost straight behind the angle, postmedian with its outer line or shade more diffuse, subterminal more diffuse, no suffusion close to termen, hindwing a trifle more elongate anteriorly, paler, cell-dot minute. postmedian shade faint, subterminal less sinuous. S. of Muli (Szechuan) at 8850 feet, 29 March 1929 (Kelley-Roosevelt Expedition), 1 ♂ in Tring Museum. *anchotera.*

Rh. herbicolens *Btlr.* (4 a). We figure a typical ♂ from Kasauli. The known range of *herbicolens* only extends from the Simla district to Dalhousie. *herbicolens.*

Rh. peregrina *Koll.* (= rara *Btlr.*) was recognizably described nearly 90 years ago, from a Masuri ♂, but was referred to the genus *Aspilates* and was not determined by the early students of the Indian Geometridae. The type is still extant, but I had resuscitated the name long before I saw it. The Sikkim "race" *olivacea Warr.* (see Vol. 4, p. 43) must be regarded as a separate species. *peregrina.*

Rh. pelloniaria *Guen.*, of which the type-locality was given merely as "Indes Orientales", is identical with the purely Indo-Australian form which Moore re-described as *khasiana.* — **meonodes** *subsp. nov.* (4 a). from N. W. India (type from Kulu, in Tring Museum) is paler, more recalling *meonaria*, though still with an olive tint, crimson markings, subterminal line indicated. The specimen from Dalhousie, mentioned in Vol. 4 (p. 40) as an aberration of *meonaria* with the 2nd subcostal stalked with the 3rd—5th, clearly belongs to *meonodes*, in which this venation is normal. The ♂♂ which I have seen from Kumaon agree with this race rather than with that of Sikkim-Assam. *pelloniaria.* *meonodes.*

Rh. yunnanaria *Ob.* (3 i), from Tse-kou, Chinese Tibet, is said to be "very near *pelloniaria*" but is smaller, the wings more rounded, lines more parallel, notably on the underside of the forewing; ♂ antennal pectinations less long. There is a possibility that it may prove to be a more heavily marked form of *plesiochora* (3 i), unless *yunnanaria* is rounder-winged. *yunnanaria.*

Rh. bisinuata *Warr.* (= sinensis *Prout*) (4 b). In temporary ignorance of Warren's type, for which the given locality "Japan" was certainly erroneous, I re-described this species as *vinacearia sinensis;* see Vol. 4, p. 43 and, for a full correction of the synonymy, Novit. Zool. Vol. 24, p. 306. The type was really from W. China, but the distribution reaches from the Burmese frontier to Chang Yang and there is a local race (?) on Formosa. *bisinuata.*

Rh. tremiscens *Prout* (4 b), from Nanchuen (S. Szechuan), may be expected from the more distinctly Palaearctic parts of that province. Very similar to *bisinuata*, the wings broader, darker, the lines much finer *tremiscens.*

and more tremulous, the median line sinuous; 2nd subcostal of the forewing much more shortly stalked than any *bisinuata* which I have examined, but this character may be inconstant.

Note. — "*Phyletis*" *monbeigi Obth.* is a *Heterolocha* and will be discussed by Wehrli later.

2. Genus: **Apostates** *Warr.*

solitaria. **A. solitaria** *Christ.* (Vol. 4, pl. 7 a) I have seen several further specimens, from various parts of the Transcaspian Province, but am still unacquainted with the ♂, which has probably some different habits or times of flight. To the localities given in Vol. 4 should be added Bokhara. The peculiar subcostal venation is evidently constant.

3. Genus: **Tanaotrichia** *Warr.*

No new Palaearctic species of this genus has yet been discovered; that *orientis Prout* (Vol. 4, p. 44, pl. 7 a) has no close relationship to *Rh. bisinuata* (4 b) will be seen from the notes and figure now given of the latter.

4. Genus: **Discoglypha** *Warr.*

An Indian genus, or perhaps subgenus of *Organopoda Hmps.*, with most of the characters of *Somatina*, but with more *Rhodostrophia*-like ♂ genitalia (a long club-headed uncus, gnathos present, no true mappa, etc.) and *Organopoda*-like ♂ hindleg (the tibia with strong pencil and one or two spurs or spur-like processes, the tarsus proximally swollen and hairy). From *Organopoda* it differs in the rather short palpus, though with relatively well-developed 3rd joint, and in having the 2nd subcostal of the forewing (dividing-wall of areole) stalked with the 3rd—5th. "*Organopoda*" *atrisparsaria Wehrli* should be referred here rather than to *Organopoda*.

atrisparsaria. **D. atrisparsaria** *Wehrli* (= brunnearia *Ob.*, nec *Leech*) (4 b). Recognizable at once by its ground-colour, the black costal suffusion of the forewing, strong blackish median shade of both wings, etc. Described from E. China, it has since been taken in Szechuan (Kwanhsien and Omei-shan).

5. Genus: **Somatina** *Guen.*

Although this genus shows some characters in common with the *Rhodostrophia* group, it is probably misplaced here, and comes nearer to *Scopula* except in that the areole is generally double; in particular the ♂ genitalia show a well-developed mappa, though not the cerata of *Scopula* (see Vol. 4, p. 51). It can scarcely be regarded as Palaearctic and I know of no Palaearctic additions since the appearance of that volume. Even the little-known *centrofasciaria Leech* (Vol. 4, pl. 5 f) may well prove to be a *Discoglypha*, related to *atrisparsaria*.

6. Genus: **Craspediopsis** *Warr.*

This is also shown by the genitalia, as well as by the facies, to be nearer to *Scopula* than to *Rhodostrophia*. Both the mappa and the cerata are developed, there is no gnathos and only the uncus and its armature suggest that it may be a derivative of the *Rhodostrophia* group.

7. Genus: **Dithecodes** *Warr.*

(see Vol. 4, p. 46: Vol. 16, p. 49.)

pseudacidalia. **D. pseudacidalia** *Sterneck* (= pseudoacidalia *Sterneck*) (4 b). I have not seen the ♀ of this species, for which its author suggested the provisional subgeneric name of *Pseudacidalia* (nom. praeocc., 1894), chiefly on account of its yellowish-white, not green, ground-colour and its altogether *Scopula*-like facies. ♂ antenna with rather long fascicles of cilia, hindtibia with a very strong brown-red hair-pencil. Forewing with 2nd subcostal arising from very near (or at) apex of areole. "Expanse 26 mm. Aspect of the *nigropunctata* group of *Scopula*, but with scarcely bent margin of hindwing." W. China, the type from Ta-tsien-lu.

erasa. **D. erasa** *Warr.* (= vacua *Swinh.*) (4 b). A few further examples of this are now known and the synonymy is confirmed.

8. Genus: **Symmacra** *Warr.*

Characters nearly as in *Dithecodes* but with the areole simple; here, however, it is small and the first four subcostals are long-stalked beyond it, as in the *Cosymbia* group. Typically the ♂ hindtibia has 2 spurs, but in *solidaria* only one is developed. A small Indo-Australian genus.

solidaria. sinensis. **S. solidaria** *Guen.* (4 b), one of the most widely distributed Indo-Australian Geometridae, will be dealt with in Vol. 12. — **sinensis** *subsp. nov.* (4 b). All the Chinese specimens yet known to me are considerably larger than the typical forms (Ceylon, India, etc.) and in general still more weakly marked. Large forms occur again

in the Papuan Subregion (not yet named), but they are in general more s t r o n g l y marked than *S. solidaria*, with the costal margin of the forewing beneath more highly coloured. W. China, especially at Siao-lou.

9. Genus: **Pylargosceles** *Prout.*

Recently erected to accomodate *steganioides Btlr.*, which was described under *Acidalia* in Vol. 4, p. 54. A few structural characters were given in the place cited, and the suggestion made that it was "gen. div. ?" Subsequent study of the genitalia showed that it belonged unmistakably to the *Rhodostrophia* group, as is already suggested by the character of the markings. Both from this and from the Indian genus *Metallaxis* (Vol. 16, p. 46) it differs in the simple areole.

P. steganioides *Btlr.* (Vol. 4, pl. 4 m). Sterneck records this also from Pekin and a race or represen- *steganioides.*
tative species occurs on Formosa, where it was named *limbaria Wileman.* The larva of the Japanese race has been made known by Matsumura (Oyō Konchūgaku, 2nd edition, pl. 29, fig. 5), but I am unable to give any particulars as to its biology.

10. Genus: **Synegiodes** *Swinh.*

A small genus, predominantly Himalayan but extending into W. China and Formosa. Evidently related to *Calothysanis*, with which it has in common the strongly pectinate ♂ antenna, the fully developed hindleg in both sexes and often the venation-scheme. Differs in shape, coloration and pattern and has the subcostal venation much more inconstant; ♂ genitalia with the same essential structure as in *Calothysanis*, but without the long-extended sacculus-arm (fibula), the uncus in one or two of the species less specialised.

A. S e c t i o n. A r e o l e o f f o r e w i n g d o u b l e.

Unless perhaps by *S. hyriaria Walk.*, a common N. Indian species which has occurred in Yunnan, this section seems unrepresented in the Palaearctic Region.

B. S e c t i o n. A r e o l e o f f o r e w i n g s i m p l e.

S. brunnearia *Leech* (Vol. 4, pl. 5 f). Although somewhat divergent from the rest of the *Synegiodes*, *brunnearia.*
less brightly coloured and with simpler markings, this species is evidently better placed here than in *Anisephyra*, to which I previously referred it. The classification will be further considered in Vol. 12. It must be pointed out that the insect figured by Oberthür (Et. Lép. Comp., Vol. 12, fig. 3256) as *brunnearia* is wrongly determined and seems to be a large, brightly coloured ♀ of *D. atrisparsaria Wehrli* (4 b, see p. 26). Our figure was evidently overlooked, as Oberthür says that *brunnearia* had "never been figured". The crown of the head is brownish-tinged in *brunnearia*, never pure white.

11. Genus: **Calothysanis** *Hbn.*

We have learned since the publication of Vol. 4 that this genus (= *Timandra Dup.*) contains many more species than was at that time supposed. Chiefly through the study of the genitalia, which are extraordinarily interesting and diversified, it has been found that there are at least five Palaearctic or Indian species which are so closely like *amata L.* in shape, colour and markings as to have been very generally mixed among it in collections. Three are now described as new; a single specimen of each was known to me as long ago as 1917, but two of them were indefinitely localised and I thought it wiser to withhold publication until opportunity had been found for the examination of the genitalia of considerable numbers. With the valued collaboration of Mr. W. H. T. Tams as regards the British Museum material, this has now been undertaken and it is possible to give an orderly introduction to a knowledge of the principal Palaearctic representatives.

Calothysanis is divisible into two sections according to the character of the uncus; Section B contains so few species, and these so easily distinguishable, that no preliminary key is needed; for Section A, marked differences in the uncus, "costa" (chitinous dorsal part of valve), "sacculus" (ventral section of valve) and "fibula" (or harpe, here generally a long, free, chitinous arm, sometimes a shorter, only distally freed chitinous process) allow of the following tabulation, amongst others:

1. Sacculus short 2
   Sacculus long (reaching or nearing end of fibula) 4
2. Costa forked . . . . . *amata L.*
   Costa not forked 3
3. Appendage of uncus forming a long down-curved arm . . . . . *apicirosea* sp. n.
   Appendage of uncus forming a strong bifid plate . . . . . *dichela* sp. n.

4. Costa short (little over $^1/_2$ valve) . . . . . *convectaria* Walk.
   Costa equivocal (branching about middle of valve to enclose a large irregular spatulate expansion thereof) . . . . . *correspondens* Hmps.
   Costa $^3/_4$ or more 5
5. Sacculus shorter than costa. . . . . *paralias* sp. n.
   Sacculus longer than costa . . . . . *comptaria* Walk.

A. Section. Uncus weak, with strong lateral appendages.

obsoleta. *C. rectistrigaria Ev.* ab. **obsoleta** *Prout.* (Vol. 4, pl. 5 g). This form should, according to Djakonov, be degraded to the status of an aberration, as it occurs in the same localities as the type. If it were a subspecies, the name would be inadmissible, since there exists an Indian *C. obsoleta* (Warr., 1897). Further material is now known from Kamtchatka and Amurland.

latistriga. *C. amata L.* ab. **latistriga** *Rbl.* The oblique line on the forewing strongly thickened, with dentate proximal projections between the veins, on the hindwings still wider (1.5—2 mm), formings a wavy band. The *serenata.* type is Hungarian. — ab. **serenata** *Dannehl* lacks the usual irroration and has the oblique line slender and *griseata.* sharply expressed. S. Tyrol, not rare in the warmer spots. — ab. (? subsp.) **griseata** *Petersen.* This name was by an oversight given as *grisearia* in Vol. 4. It is possible, as Krulikovsky already suggested in 1908, that this should be united with the Scandinavian forms, which would be the typical *amata L.*, and the brighter *recompta.* forms of Central and South Europe, etc., re-named. — **recompta** *Prout* (4 c) is the Eastern race or representative, on an average smaller, the grey irroration slight or (as in ab. *serenata*) entirely wanting, the oblique line brightly coloured, the terminal pink suffusion strong. The ♂ genitalia, so far as examined, show the "scobinate flanges" of the ♂ uncus (see Pierce, Genit. Geom., p. 36) more heavily armed and other slight differences. Ussuri (loc. *comae.* typ.), Corea and Japan, formerly confounded with *comptaria.* — **comae** *A. Schmidt*, if it belongs to *amata*, is a very remarkable form, but I am inclined to agree with its author that it will probably prove a separate species; unfortunately no other material is known from the locality. Length of a forewing 13 mm. The oblique line is faint, the apical dash accentuated above but almost obsolete beneath, the underside very heavily irrorated. Murcia, 1 ♂.

comptaria. **C. comptaria** *Walk.* (4 c). In its generally small size agreeing with *amata recompta*, but diverging from typical *amata* in the opposite direction, the irroration being strong, even in the second brood, the oblique line duller rufous, always mixed with black, not diffused distally, often thickened at apex; postmedian line usually distinct, on the hindwing more sharply angled than in typical *amata*; terminal line dull, without pink suffusion; fringes generally tinged with pink. Uncus of ♂ much less blunt than in *amata*, its appendages more arm-like, sacculus long, free. Distributed from Japan and Ussuri to West China. Apparently represented in India by a closely related species, *responsaria Moore.*

paralias. **C. paralias** *sp. n.* (4 c). A rather large species (35—37 mm), otherwise nearly related to *comptaria*. Pale in colour, freer from irroration than most *comptaria*, antemedian line of forewing present, though very slender, postmedian of hindwing with the outward bend fully as strong as in *comptaria*, cell-mark of forewing weak but elongate. The genitalia show several differences: arms of uncus somewhat longer and more sinuate, costa almost as long as valve, its upper edge bisinuate, its thumb-like process somewhat less proximally placed, sacculus relatively shorter, fibula with a marked tooth at its bend near the tip, preceded by some slighter denticulation. The type ♂, here figured, was captured at Vladimir Bay, E. Siberia, among very thick vegetation at the mouth of the river, in the afternoon of 24 July 1899, and was kindly presented to me many years ago by its discoverer, Fleet Paymaster T. B. Fletcher. I have now before me, in addition, a couple of ♂♂ from Narva, S. Ussuri, 14 July 1921 (N. Kardakoff) and one specimen, also ♂, from Ongodai, Altai (Berezewsky).

apicirosea. **C. apicirosea** *sp. n.* (4 d). Generally distinguishable by the extension of the oblique line into a more or less pronounced rosy suffusion at the apex of the forewing (but see *dichela*): otherwise extremely difficult to differentiate from *comptaria*, though the ground-colour is generally less ochreous-tinged, the said line is less slender and the postmedian of the hindwing perhaps on an average less strongly bent. Terminal line brown, very slender, fringe with a rosy spot at apex of forewing, otherwise whitish, not or scarcely suffused. The first brood, which flies in May and June, is nearly as large as *paralias*, in general rather strongly irrorated and *inturbida.* strigulated with grey. — gen. aest. **inturbida** *nov.* (4 d) is considerably smaller, freer from grey scales, the rosy line in consequence brighter; all the dated specimens which I have seen were taken in August or September. Much more material will need to be studied before a precise analysis of *apicirosea* by the wing-markings will be possible, but it is already known to me from Japan, Ussuri and a few Chino-Tibetan localities (Siao-lou, Tien-tsuen); the types are Japanese, both in the Tring Museum: Takao-San, near Tokyo 18 June (*apicirosea*) and 20 September 1925 (*inturbida*). The Sino-Tibetan are perhaps a race, rather smaller and paler than typical *inturbida*. The ♂ genitalia, in addition to the remarkable lateral arms of the uncus (already given as diagnostic), differ from those of the two preceding in the somewhat shorter and almost straight fibula (not upcurved at

tip) and the longer costa (its tip extending just beyond the end of the valve), which moreover lacks the "thumb-like process"; these characters are often easily observable without dissection, by the removal of hair and scales.

C. dichela *sp. n.* (4 d). Another striking discovery, unfortunately very variable, therefore even more difficult to deal with until more material has been amassed. Again outstandingly distinct from all other Palaearctic *Calothysanis* in the genitalia, which come close to those of the Indian *obsoleta Warr.*, though not identical. In addition to the strong lateral plate before the uncus, one observes the very long costa, at its distal end strongly upcurved (to about 90°) and knobbed at its extremity, the fibula fused to the ventral edge of the rather narrow valve, only becoming free and conspicuously chitinized in its distal part as a very slender subparallel process; aedoeagus with a pronounced cornutus, a rare feature in *Calothysanis* and not found in *obsoleta*. The typical form, from S. Ussuri in August, is confusingly like *apicirosea*, the oblique line rather broader, more diffused at its edges, it and the apical cloud more mixed with smoky grey, the terminal line perhaps less slender, the angulation of the postmedian line of the hindwing usually very weak, the fringes somewhat suffused proximally. Type ♂ from Narva, 9 August 1921 (N. Kardakoff), now in the Joicey Collection; of the first generation I have only seen one Ussuri example (Okeanskaya, 23 June, G. Kon), larger but otherwise similar. — f. **tenuistriga** *nov.* perhaps constitutes a race in Japan, though I know at least one Japanese example which almost reverts to the type form. *tenuistriga* closely resembles moderately large *comptaria*, but is distinguishable (whether constantly?) by the noticeably less angled postmedian of the hindwing. As type I have selected a Tokio ♂, June 1891 (Dr. Fritze) in the Tring Museum. — f. **pusilla** *nov.*, from Gensan, Corea, in July, is apparently a local modification of the 2nd generation. Small (25—30 mm), less irrorated and of a more ochreous tone, the oblique line slender (as in *tenuistriga*), the postmedian of the hindwing sometimes more angled than in the other forms. A Formosan relative, in which the uncus resembles *apicirosea*, the valve *dichela*, will be described in Vol. 12. *dichela.* *tenuistriga.* *pusilla.*

C. correspondens *Hmps.* (Vol. 4, pl. 7 e) is still known from no Palaearctic locality except the Punjab, but as I have received it from N. E. Burma near the Chinese frontier it is still possible that it may be found in the mountains of W. China. It remains the only known *Calothysanis* with straight antemedian of forewing and postmedian of hindwing. Apparently not variable. Uncus aborted; valves, etc., difficult to describe, very complicated, very distinctive. *correspondens.*

C. convectaria *Walk.* (Vol. 4, pl. 7 e), though nearer in markings to *amata*, is readily distinguished from all Palaearctic *Calothysanis* by its ochreous tone and especially its dark costa and fringes. I have seen a few further examples from Szechuan, but its principal area of distribution is N. India and via S. China to Kagoshima, the Riukiu Islands and Formosa. *convectaria.*

B. Section. Uncus of ♂ well-developed, bifid at tip without lateral appendages (here belongs also *C. extremaria Walk.*, Vol. 4, p. 48).

C. oligoscia *Prout* (4 d). A moderate-sized or fairly large species, rather variable in ground-colour (greyer or more ochreous- or fleshy-tinged) but hardly otherwise, the irroration never heavy, the oblique line slender; costal margin of forewing somewhat darkened proximally, but far less conspicuously than in the two preceding species; postmedian line weak, on hindwing bent, but less strongly than in *convectaria*; fringes concolorous, the tips (less than ½) tinged with pink; underside strongly irrorated, in cell of forewing dark-suffused. Genitalia remarkally asymmetrical, the right sacculus short, the left long; fibula with a strong terminal plate, armed at end with extremely irregular teeth. We figure the type from Vrianatong, Tibet; many other examples are now known from W. China, a few from N. E. Burma. — ab. **pompalis** *nov.* (? sp. div.) (4 c). A remarkable contrast to the normal *oligoscia*, among a very long series of which it was taken at Tse-kou. Slightly different in shape, much more irrorated, antemedian present, postmedian faintly double, oblique line thick, especially at apex. I would suppose it a species but that the genitalia seem to agree. *oligoscia.* *pompalis.*

C. extremaria Walk. form **xenophyes** *nov.* (4 c) would not, at first sight, be recognized as belonging to the same species as the typical forms. The oblique line is entirely wanting, while the postmedian (in the type represented only by vein-dots) is considerably strengthened and a dark apical clouding is developed above and beneath. Nanning, Central China, April 1919, a ♂ in the Tring Museum, received from Schmiedel. Perhaps a race, perhaps merely an extreme aberration. The genitalia seem to agree completely. *xenophyes.*

12. Genus: **Ptochophyle** *Warr.*

Evidently related to *Calothysanis*, according to the evidence of the genitalia. Except in the smaller size of the species and the more diversified shape and markings, there is little to distinguish it from *Synegiodes*. The suggestion offered in Vol. 4 that the species *miniosa Warr.* might occur in the Palaearctic Region has not received any further support and it is not unlikely that even in Shanghai (if that was actually the Chinese locality) its introduction was accidental, perhaps by commerce.

13. Genus: **Chrysocraspeda** *Hmpsn.*

A more specialized development from *Ptochophyle*, differing in the loss of the areole of the forewing, all the subcostals arising from a common stalk. Chiefly Indian, but including a few African species; see Vol. 16, p. 51.

charites. **Ch. charites** *Ob.* (4 d). Only known from a single, somewhat damaged ♀ from Akbès, Amanus Mountains. Closely similar to *auristigma Prout* (New Guinea, etc.) and *phaedra Prout* (Sudest Island) but somewhat darker and with the cell-spot of the forewing large and whitish. Dr. Wehrli has kindly examined the structure and says that the venation agrees. Its occurrence in this definitely Palaearctic locality is so surprising that one wonders whether there can have been a mistake in labelling the specimen.

14. Genus: **Cosymbia** *Hbn.*

The two-fold division, according to the structure of the ♂ genitalia (see Vol. 4, p. 141), is regarded by Pierce as generic. He calls group 2, with the well-developed forceps ("plate of sacculus" of Pierce) *Codonia Hbn.*; group 1 (*Cosymbia* sens. str.), of which I only wrote" forceps wanting or rudimentary", is really characterized by the long curved arm ("fibula" of Bastelberger) which is attached to the base of the valve. The grouping, though certainly important, does not seem to me to be of generic value; *porata* and the new North African form described below furnish transitions.

impictaria. *C. pendularia Cl.* ab. **impictaria** *Meves* has the ground-colour inclining to yellowish, the markings wanting, excepting weak discal rings and the terminal black dots. One bred at Vaxholm, Sweden. — ab. **decoraria** *Newm.* (= nigroroseata *H. W. Wood*, nigrosubroseata *Bowman*) (4 d). I have since seen the type-form of this in some numbers from Surrey, and figure a good ♀. — **subroseata** *Woodforde* (Vol. 4, pl. 5 c, as *decoraria*), only known to me from N. Staffordshire, where it is almost a race, is not quite the same as *decoraria*, though individual aberrations closely approach it. Normally, *subroseata* has the rosy tone predominating, while *decoraria* is more black-grey. — ab. **orbiculoides** *Woodforde*, founded on a single specimen which was bred among a dark series of *subroseata*, is dark grey with the black vein-dots of both lines enlarged, the outer series followed by a pale band, altogether recalling *orbicularia*. — ab. **hatertica** *V. Schultz* differs from the other rayed forms (*radiata* and *nigrostriata*) in that the two lines of the forewing are thickened, greatly approximated posteriorly, the strong dark vein-marks of the postmedian therefore almost m e d i a n. Bred from a larva from Hatert, Venn, Holland. — f. **aestiva** *Vorbrodt.* "Quite strikingly small and pale, more weakly marked". Founded on second-brood specimens from Italian Switzerland. — **griseolata** *Stgr.* (4 e). This name should be restricted to the E. Asiatic race, which is certainly not identical with the weakly marked greyish forms of Europe, but is characterized by a peculiar yellowish tone and denser irroration. Osthelder proposes to apply to the so-called "*griseolata*" of Europe the name (ab.) *obsoleta Lambill.* (the name of *circularia F.* cannot be revived for it, as it is preoccupied).

decoraria. *subroseata.* *orbiculoides.* *hatertica.* *aestiva.* *griseolata.*

albiocellaria. **C. albiocellaria** *Hbn.* Warnecke and others have recently given careful attention to this species and the following, particularly as regards their geographical distribution. It appears that some of the records are based on misidentifications; see under *lennigiaria*. Yet the true *albiocellaria* does occur in France (Hautes Alpes) and probably its distribution is as wide as is indicated in Vol. 4, with the addition — according to some reliable observers — of Spain.

lennigiaria. **C. lennigiaria** *A. Fuchs.* In all its colour forms distinguishable by the smaller and more oval cell-spots, the difference generally particularly striking on the hindwing. The investigations of Warnecke and Lhomme have shown that its distribution largely follows that of its foodplant, Acer monspessulanum, and that most of the supposed French *albiocellaria* really belong here. — **occidentalis** *D. Luc.*, though described as a variety of *albiocellaria*, is certainly this French *lennigiaria*, which (according to Warnecke) differs from the Rheingau type as follows: Ground-colour purer and a little lighter, the dark parts of the median seem better delimited, but more material would be required in order to establish its constancy as a race. Lucas notes "the intense and irregular distribution of the black parts". His locality was Poitou; authenticated French records of *lennigiaria* are from Lot, Basses-Alpes, Ardèche, Charente Inférieure and Deux-Sèvres. The Tring Museum has two poor specimens of the *aestiva* form from Bouches-du-Rhône. — **mauretanica** *Reisser* has just been described from the Riff Mountains, Morocco. Lighter than the name-type, more yellowish, especially in distal area, the black postmedian and generally the median shade lessd eveloped, inclined to reduce to irregular irroration.

occidentalis. *mauretanica.*

sertaria. *C. annulata Schulze* ab. **sertaria** *Dannehl.* Shading between median and postmedian lines intensified, forming an almost black band, developed also on the hindwing. Tyrol. — ab. **extenuata** *Dannehl* is the antithesis of *sertaria*, the dark irroration between median and postmedian entirely wanting, sometimes the median itself also wanting. Magdeburg, the Sabine Mountains, etc., probably general with the type.

extenuata.

C. puppillaria Hb. ab. **stigmaria** *Dannehl* has the cell-rings reduced to small dots. Distributed with the type. — ab. **depupillata** *Dannehl* is a further development, with the cell-marks entirely wanting. — ab. **simplex** *Th.-Mieg* (= alogaria *Schawerda*) lacks also the transverse markings, becoming unicolorous. Thierry-Mieg's type was collected in the Pyrénées-Orientales, together with forms in which the onter row of dots remains visible. Schawerda records it from Pola and several examples from Zengg. — ab. **scorteata** *F. Wagn.* (= decolorata *Dannehl*) is pale leather-yellow, the antithesis of the bright red ab. *badiaria*. Named from Dalmatia. — ab. **fasciata** *F. Wagn.*, also from Dalmatia, is a more striking aberration, with the median shade on both wings broadened and exceptionally dark. — **calaritana** *Trti.*, described as a species (see Vol. 4, p. 146), proves to be merely a large, robust early-spring form of *puppillaria*, generally well coloured; its author considerably over-estimated its antennal pectinations. Similar forms occur in S. Dalmatia in March (F. Wagner). I have also seen such from Corsica and Capri. — **lilacinipes** *Schaus.* "Wings shaped as in *punctaria*, not narrow and pointed as in *maderensis*; vertex covered with reddish ochreous scales, cheeks white, front dusky lilacine; anterior legs rosy lilac in front; thorax and base of abdomen dorsally warm terra-cotta red. abdomen paler and yellow, the segments with a dorsal lilacine spot, dark in middle; wings above warm terra-cotta red, with a pale dusky median band across both, but no other conspicuous markings; postmedian dots in very irregular series; half way between median band and base a few (3) obscure dots; costa irrorated with lilacine markings: fringe pinkish. Expanse 29 mm." Funchal, Madeira, 1 ♀. It will almost certainly prove to be an aberration or local race of *puppillaria*. — **granti** *subsp. nov.* (4 d). Smaller than any but the most exceptional *p. puppillaria*, forewing scarcely so broad, median shade closer to the cell. Both the known examples are of a deeper reddish and more heavily dark-irrorated than any but a very few of the most extreme *p. puppillaria*, the costal edge of the forewing clear bright red; the paratype has the median shade much weaker than the type, which is the specimen figured. May well prove much more variable (as with continental forms). Azores: San Pedro, Sta. Maria, 2 March 1903 (W. R. Ogilvie-Grant), 2 ♂♂ in the Tring Museum, the paratype labelled "*pupillaria* ab. *badiaria*"; Reguinho, Terceira, 2200 feet, 6 April 1903, 1 ♂ in the British Museum. Distinguishable from the following, which Warren also determined as "*pupillaria*", by the more produced apex of forewing, more bent hindwing, reddish, black-centred abdominal spots, more deeply coloured wings, differently formed (but almost obsolete) postmedian dots, etc.

stigmaria. *depupillata.* *simplex.* *scorteata.* *fasciata.* *calaritana.* *lilacinipes.* *granti.*

C. maderensis B.-Bak. **azorensis** *Prout* (4 e). Considerably smaller (not „slightly" so, as stated in Vol. 4), somewhat broader-winged, especially in the ♂♂ of the typical (San Jorge) series. Reddish irroration generally denser; median shade slightly more oblique, commonly very thick and strong; postmedian dots often connected by a complete line, both above and beneath; cell-dot small. Possibly a separate species. Azores: Terceira, Graciosa, San Jorge, Fayal and Ilha do Pico. — **trilineata** *Prout* (4 e). The scope of this name, of which the type specimen is in the British Museum from La Laguna, Teneriffe, bred from Erica arborea (notwithstanding the unfortunate insertion regarding the Azores form), should be widened so as to cover the race from the Canaries. On an average smaller than *m. maderensis*, perhaps more brightly coloured, antemedian dots (according to Rebel) oftener obsolete, cell-spots small, only weakly dark-ringed, median shade (when strongly developed) showing no curve on posterior part of forewing, postmedian (when developed) not punctiform.

azorensis. *trilineata.*

C. quercimontaria *Bastelb.* (Vol. 4, pl. 40). As was expected, this interesting *Cosymbia* has been found in many additional localities since it became more widely recognized. In Germany and Austria it has a very wide range, in France it reaches the vicinity of Paris, in Holland it has recently been discovered at Berg-en-Dal, near Nijmegen, the Tring Museum has a few specimens from Hungary (Bihar and Mezöseg), Switzerland produces it in a few localities and the late Mr. J. W. Tutt took one at Au Pra, Vaudois Valley, Piedmont. — **elbursica** *subsp. nov.* (4 e) shows slightly more approach to *punctaria* in shape, is very warmly coloured throughout (slightly more reddish than the South American *angeronaria Warr.*) and has the antemedian as well as the median line marked with darker red, the white cell-marks very small, linear. The abdomen and the valves appear somewhat more slender than in *quercimontaria*, the sacculus arms (fibulae) highly developed, elegantly crossed (at least in this specimen). Elburz Mountains, 1 ♂ in the Tring Museum, collected at Darekeroudbar, Sabatku, Mazanderan, 20 July 1931. Perhaps a new species, but in any case representing *quercimontaria* in North Persia.

quercimontaria. *elbursica.*

C. ruficiliaria *H.-Sch.* (Vol. 4, pl. 40). The suggested synonym *hybridaria Selys* and — at least for the present — the locality Belgium must be deleted. M. Derenne has examined the originals in the Selys-Longchamps collection and finds them to belong to *linearia*; they are further discussed below, under that species. More doubt remains regarding the other older name which might have to replace *ruficiliaria*, namely *unilinearia Scharfenb.*; although its author definitely differentiated it from *punctaria*, he did not hit upon the salient features of the present species and may well have had before him an aberrant form of the variable *punctaria*. Beyond the recorded range, *ruficiliaria* occurs in Spain and (?) Holland.

ruficiliaria.

C. hyponoea *sp. n.* (4 e). Very similar to some (rather rare) examples of *ruficiliaria* ab. *privataria* in which ill-defined subterminal spots are developed, placed about as in *porata*; cell-dots dark-ringed (likewise

hyponoea.

as in *porata*), but extremely small; fringe without the red line, even on the underside, where it is the more constant in *ruficiliaria*; median shade of forewing formed as in *porata*, but very weak. Genitalia similar to those of *ruficiliaria*, but the club of the fibula broadened into a plate, intermediate towards that of *porata*. Philippeville, Algeria, type ♂ (Dr. A. Seitz, 18 June 1913) and a ♀ (K. Dietze, May 1909) in my collection; Ain Draham, Tunis, 2 ♀♀, one in Dr. Wehrli's collection, the other in the Tring Museum. Has probably been overlooked among the manifold forms of *puppillaria*; perhaps, too, the recorded occurrence of *ruficilaria* in Egypt refers to *hyponoea*.

nigrotransversata. *C. punctaria L.* ab. **nigrotransversata** *Hörhammer* is a more extreme form than *pulcherrimata A. Fuchs.* having a solid dark band from the median to the postmedian of the forewing, whereas in Fuchs's form the dark shading in this part of the wings is only (or chiefly) at the veins. The type is from Leipzig; the Colch-
erythrescens. ester specimen mentioned in Vol. 4 also belongs here. — ab. **erythrescens** *Preissecker* has the red irroration of the forewing strengthened and extended, so as to cover the entire wing with the exception of the basal area and a narrow stripe along costal and distal margins. Founded on a ♂ from Haschberg, Lower Austria.

suppunctaria. **C. suppunctaria** *Z.* (4 e). As with *ruficiliaria*, a better recognition of this species has led to its discovery in numerous additional localities. So far as I know, it is now recorded from Spain, S. France, Sicily, Italy, Switzerland, S. E. Europe and Asia Minor. It was already known to Bastelberger, but was not recognized by me in Vol. 4, that specimens of the first broad are — at least in some localities — considerably larger and less smooth-looking than the name-typical *suppunctaria*, sometimes confusingly similar to *ruficiliaria*. I have even examined the genitalia of French males in my own collection (see our figure) and that of M. Lhomme, expecting to find them *ruficiliaria*. The very strong plates (forceps) and their peculiar texture, fully set forth in Bastelberger's epoch-making article (Iris, Vol. 13), are the most helpful recognition-
amabilis. marks. — ab. **amabilis** *Schawerda* (6 a) is of a uniformly rosy colour, the median line visible through its slightly deeper tone. Founded on a single ♂ from Mostar, Herzegovina.

linearia. **C. linearia** *Hbn.* (Vol. 4, pl. 5c). The geographical distribution extends to the Elburz Mountains, N. Persia. Variation appears to be individual rather than local. Even the seasonal dimorphism, although so striking, is not quite constant. I have already mentioned occasional ochreous specimens in the summer brood; more recently Dr. Victor Schultz has recorded breeding fa. *strabonaria* in the first brood, together with the normal spring form
strabonaria. though the entire series was kept under identical conditions of temperature, etc. — fa. **strabonaria** *Z.* (= carnearia *Lah.*). Laharpe's *carnearia*, hitherto not cited in the literature, is clearly synonymous: "a variety,
hybridaria. bred by Meyer" (at Burgsdorf, no date given) "has the ochreous ground-colour reddish". — fa. **hybridaria** *Selys* is also almost identical with *strabonaria* and unfortunately the name has priority. Derenne (Lambillionea, Vol. 29, p. 3) reports that the better example is a dark, reddish *linearia*, the lines weakly expressed (clearly gen. 2) and having in addition the character of ab. *ophthalmaria*. The second example, in bad condition, is pale (stramineous), the lines also feebly expressed, the cell-rings slighter. It is pointed out that the
semifasciata. indication of "summer" for this form is further confirmation of its belonging to the 2nd brood. — ab. **semifasciata** *Derenne* approaches ab. *fasciata Prout* (Vol. 4, p. 150) but the band is confined to the forewing. Bel-
mesoorthia. gium, 1 example. — ab. **mesoorthia** *V. Schultz.* Median shade of forewing straight and scarcely oblique, placed
trilineata. just midway between the ante- and postmedian. Lippe. — ab. **trilineata** *Schawerda* has all three lines strengthened, especially the median, which is very striking on the hindwing. Mostar. If the badly-described *luteolaria Vill.*, from the neighbourhood of Lyon, really refers to the present species it probably represents this
simplificaria. form, as the lines were called „bands". — ab. **simplificaria** *Culot* (6 c) has only the median line present. Founded
bicolor. on a ♂ from Orne, France. — ab. **bicolor** *Ob.* (4 e) has the ground-colour normal as far as the median line, thence to the distal margin darkened almost as in ab. *infuscata*. Founded on a ♀ from Osnabrück. — ab.
ophthalmaria. **ophthalmaria** *Ob.* (4 a, f) has the white cell-spots strong, dark-ringed, though otherwise quite typical for the first brood. The type ♂ is from Sarthe, but Oberthür also figures one from Corsica and it is probably represented
infuscata. in most collections. — ab. **infuscata** *Prout* (4 a). We reproduce a figure of the type of this unique aberration. — Further, Seebold reports a "variety" (? aberration), occurring near Bilbao on oak, of a pale yellow colour, with the median stripe very broad and very dark, the other 2 only indicated by very fine dots. This may be akin to ab. *simplificaria*, but if it is really attached to oak possibly a pale and yellowish form of *ruficiliaria*.

14 a. Genus: **Kara** *Matsumura.*

"Much resembles *Anisodes*, but differs from it as follows: Palpus in both sexes long, porrect, nearly three times as long as the head; first joint short, second long, with rough long scales, third slenderer, nearly one-half the length of the second. Antenna of the ♂ long-pectinated for two thirds length, in the ♀ simple, fine-ciliated. Forewing with vein 11 free, 9 and 10 anastomosing, building an areole. Hindwing with 3 and 4 from cell at one point, 6 and 7 with a short stalk. Hindtibia of the ♂ fully developed, with two pairs of spurs." Unknown to me; the description suggests a Noctuid rather than a Geometrid.

K. sachalinensis *Matsumura*. The genotype, and the only species yet referred here. ♂, 31 mm; 1 ♀, 24 mm. Fuscous, with obsolete darker markings; forewing with wavy antemedian, median and postmedian bands, the median incurved behind the cell; marginal band black, wavy and narrow; fringe with some testaceous scales at vein-ends; distal half of costa with a series of testaceous specks. Hindwing with large black cell-spot; markings nearly as on forewing but without antemedian band, the other two both described as median. Underside dark greyish, the hindwing with cell-spot and an obsolete fuscous band, the forewing with the specks at outer half of costa as above; fringes nearly as above. Founded on a pair from Shimizu, S. Saghalien, collected in August. *sachalinensis.*

15. Genus: **Problepsis** *Led.*

(see Vol. 4. p. 49; Vol. 16, p. 59).

A good many additions and corrections have been made to this attractive genus, which, though evidently not Palaearctic in origin, is well represented in China.

P. vulgaris *Btlr.* (= delphiaria *Hmpsn.*, nec *Guen.*, attenuata *Warr.*) (Vol. 4, pl. 7 b). Inhabits, besides nearly the whole of India, Singapore, Tonkin, Hainan and South China and even reaches Szechuan. Our figure, from a Hong Kong ♂, is recognizable, though the dark element in the median area is scarcely strong enough and the antennal pectinations somewhat too heavy; in reality the latter are rather slender and little over twice as long as the diameter of the shaft. *vulgaris.*

P. albidior *Warr.* (= deliaria *Swinh.* part., nec *Guen.*) (4 f). I do not now regard this as a form of *deliaria Guen.*, which, in any case, is purely Indian (Ceylon to Bombay). A further correction has to be made in that the moth figured as *deliaria* (Vol. 4, pl. 5 a) is really *delphiaria Guen.*, another non-Palaearctic *Problepsis*, belonging to the section *Problepsiodes*. *P. albidior* is known from India, China, S. Japan to Formosa and perhaps Borneo. *albidior.*

P. paredra *Prout* (4 f). Pectinations very short (little longer than diameter of shaft); hind-tarsus short (perhaps scarcely $^1/_3$ of tibia). Easily distinguishable from *eucircota* (Vol. 4, pl. 7 b) by the irregular shape of the discal ocelli. Szechuan and N. Yunnan. *paredra.*

P. subreferta *sp. n.* (4 f). Variable in size, from 34 to 51 mm. Pectinations rudimentary, even the few longest ones definitely shorter than the diameter of the shaft. Hindtarsus short, well under ½ tibia (less extreme than in *paredra*), the 1st joint perhaps 5 times as long as its greatest thickness (in *paredra* only about 3 times). Cell-marks darker than in *paredra*, more continuous, only a very little constricted at fold, the larger (anterior) patch without the definite outward bulge between 2nd radial and 1st median. Tse-ku, 4 ♂♂ in the British Museum, unfortunately none in firstrate condition. No less than 5 *Problepsis* species, fairly similar but not difficult to discriminate (*crassinotata*, *eucircota*, *paredra*, *discophora* and the new species), occur at Tse-ku (which has a scarcely Palaearctic fauna) and were mixed in one series in the Oberthür collection. *subreferta.*

P. discophora *Fixsen* (4 g) has been wrongly sunk to the following (Vol. 4. p. 50), or at any rate two species have been mixed. Although it is not absolutely certain that the present one is really the *discophora* of Fixsen it is so probable that it seems better to employ that name for it than to impose a new one. Expanse generally 42—50 mm; postmedian of forewing generally thick at costa, otherwise obsolete or weak (in *superans* obsolete at costa, otherwise present or indicated), but this distinction is not constant. The teeth (rudimentary pectinations) of the ♂ antenna still further reduced. Retinaculum of ♂ whitish, or when that part of the underside is suffused, smoky with it. Vertex in both species, as in *phoebearia* (Vol. 4, pl. 5 a), white (in most *Problepsis* black). Described from Corea, known from W. China, E. China and Japan. *discophora.*

P. superans *Btlr.* (Vol. 4, pl. 5 a) is larger than the preceding (generally 58—62 mm), the ocellus of forewing large, with strong black curve round it (except in front), the subterminal spots on an average more strongly biseriate than in *fixseni*. Blotch of hindwing larger, with the metallic ocellus widening more strongly in its posterior half. Forewing beneath more strongly smoky proximally; ♂ retinaculum black posteriorly (this black spot not detected on any *fixseni*). Japan (loc. typ.), Ussuri, Corea and Central China. — **summa** *form. nov.* is even larger (64—66 mm), the discal spots relatively rather larger, that of the hindwing with its posterior continuation (to the abdominal margin) less narrowed. China, Tibetan frontier: Tse-ku, 2 ♂♂. Perhaps a local race. *superans.* *summa.*

P. crassinotata *Prout* (4 g). Antenna of ♂ dentate-fasciculate. May be known at once by the characteristic projection from the ocellus of the hindwing on its proximal side. A Khasi species which has been freely taken also in W. China (Yunnan and Sze-chuan). *crassinotata.*

16. Genus: **Scopula** *Schrank.*

On the necessary abandonment of the name *Acidalia*, which was employed for this genus in Vol. 4, p. 51, see Vol. 16, pp. 48 and 61 and the remarks at the head of the subfamily *Sterrhinae* in the present

volume. As the name *Scopula* was the earliest used in the Geometridae after *Phalaena (Geometra)*, there is fortunately no possibility of a need for any further change.

According to the investigations of Dr. Sterneck (see p. 23 above) a well-grounded genetic sequence of the Palaearctic *Scopula*, so far as hitherto investigated, appears to be obtainable by taking account of the following structural divergences, in the indicated order of importance: (1) Fibula with tips at most dark-brown = *Scopula* sens. str., comprising *hanna*, *umbelaria*, *moorei*, *nivearia*, *caricaria*, *nemoraria*, *bifalsaria*, *modicaria*, *proximaria*, *immorata*, *confusa*, *apicipunctata*, *nigropunctata*, *rivularia*, *virgulata*, *ornata*, *submutata*, *corrivalaria*, *rubiginata*, *manifesta*, *impersonata* and their offshoots; fibula with tips dark deep-black = *Ustocidalia* part., comprising the rest. (2) Aedoeagus relatively short (length to breadth at most 4.5: 1), applying to *Scopula* sens. str. as far as to *virgulata*; aedoeagus long (at least 6 : 1), applying to all the rest. (3) Socii shorter than their distance from one another, applying to all *Scopula* sens. str. except *impersonata* and *accurataria*, also taking out *lactea* and *donovani* (= *Lycauges Btlr.*) from *Ustocidalia*; at least as long as their distance (mostly lower) in all the rest. (4) Fibula abbreviated, ear- or mussel-shaped, found only in the *impersonata* and *rubiginata* groups, including *manifesta*; fibula in all the rest produced into a hollow pointed cone. Characters common to the entire genus are not here quoted, nor are those of whose genetic value Sterneck is still doubtful. Some perhaps significant deviations from the normal in the form of the valve and of the uncus are also left unnoticed, from lack of space. It is greatly to be hoped that Dr. Sterneck will be able to publish a full tabulation of his results.

A. Section *Pylarge*. Hindtibia of the ♂ with terminal spurs.

cineraria. **S. cineraria** *Leech* (Vol. 4, p. 52, pl. 3 k) is known to occur also in the Riu-kiu Islands.

candicans. *S. gastonaria Oberth.* **candicans** *Prout* (Vol. 4, p. 53). Although this is by far the more general form, with *gastonaria* as the rare mutation, I suppose on nomenclatural grounds it must be called ab. *candicans*.

luteofasciata. A synonym is *hollaria* (*Oberth.*, MS.) *Culot.* — **luteofasciata** *Rothsch.* (4 g). In Vol. 4, p. 417 this was tentatively referred to *Cleta*. A series, however, including both sexes, shows that it is merely a dwarfed race of *gastonaria (candicans)*, representing it in Southern Algeria.

lactea. *S. emissaria Walk.* (= defamataria *Walk.*) **lactea** *Btlr.* It is now recognized that the type of *emissaria* (from Burma) was merely a dwarf specimen of the same species which Walker on the following page of his catalogue described (from Ceylon) as *defamataria* and that the *lactea* of Japan and China is at most a race, scarcely more than a synonym, with slightly less narrow wings. The collective species is widely distributed in the Indo-Australian Region.

donovani. **S. donovani** *Dist.* (Vol. 4, p. 54). Unless the palpus and tongue are a trifle shorter than in *emissaria*, I know of no structural difference and am still inclined to regard this as a larger race of that, with the postmedian of the forewing generally more oblique and the cell-dot of the hindwing large. The known African range is recorded in Vol. 16, p. 63; I have no further Palaearctic records.

andresi. **S. andresi** *Draudt* (4 g). The originals are now in the Senckenberg Museum *) and we are able to give figures of the ♂ and ♀. So far as I am aware, the species has not subsequently been met with.

resplendaria. *S. ternata* ab. **resplendaria** *Dannehl.* A large, clear, glossy form with blackish postmedian, the other lines obsolete. South Carpathians and Upper Bavaria. — ab. **purissima** *Djakonov* is evidently almost synonymous with the foregoing; clear yellowish white, the usual dark scales almost entirely wanting, even the lines, excepting the postmedian, quite weak; this line on the forewing straighter than usual. Lake Tiberkul, Yenisei, 3 ♂♂ collected with the type form. — ab. **anastomosaria** *Preissecker.* Antemedian and median lines of the forewing anastomosed. Karlstift, Lower Austria.

purissima.

anastomosaria.

characteristica. *S. ansulata* f. **characteristica** *Alph.* (4 g). We figure a good representative ♂ from Samarkand.

decolor. **S. decolor** *Stgr.* There are still some uncertainties surrounding this species (or race of *flaccata*), although my suggestions in Vol. 4 (p. 56) regarding its affinities have proved to be accurate. Having learned that the ♂ hindtibial armature varied in *flaccata*, I had with confidence sunk my *languidata*; but Staudinger's type, which differs in some respects from the rest of the material known to me, leaves me again in some doubt. It has the palpus scarcely, if at all, longer than the diameter of the eye, the tongue well developed, the antennal joints slightly projecting, the ciliation not greatly longer than the diameter of the shaft; venation normal for *Scopula*, except that the 1st subcostal arises just beyond the apex of the areole (probably an individual aberration; in any case it is from apex of areole or just before in all the *languidata* which I have examined). More weakly-marked than any good-conditioned *languidata* that I have seen, the cell-dots obsolete.

*) Unfortunately they are not, as they had been lent only for figuring. (A. Seitz.)

S. flaccata *Stgr.* (Vol. 4, p. 76, pl. 4 l). This certainly belongs to the section *Pylarge*; I know of no ♂ without hindtibial spurs, as I quoted from Staudinger (Vol. 4, p. 76), in my experience it oftener has 2 than 1. Probably a race of *decolor* (see above). — **languidata** *Prout* (= flaccata *Chrétien*) (4 g). Compared with the type of *decolor*, I noted that the palpus was perhaps a triple less short, the tongue perhaps a little less long, the projection of the antennal joints and the fasciculation of the cilia always well manifest, these latter fully 1½ times the diameter of the shaft. Wings perhaps a trifle less elongate, the bend in the margin of the hindwing generally very slight; the cell-dots, though minute, are always present, at least on the hindwing. — The larva, according to Chrétien, is found only on Atriplex halimus, on which he has also reared it ab ovo, eggs laid on 13 April producing a second generation of the imago on 20 June. Larva slender and elongate (when newly hatched thread-like), the adult larva very little attenuated in front, thickened behind; clayey whitish, unmarked except for a brownish dorsal line and even this at times obsolete; spiracles small but very distinct, red. Feeds chiefly at night. Pupa yellowish brown, short compared with the larva, spiracles rather large, black; tip very dark reddish brown, cremaster with some hooked setae and 2 rather long central spinules, diverging at their tips. Now known from Morocco to Cyrenaica. *flaccata.* *languidata.*

S. elwesi *Prout* (4 h). Hindtibia with both the terminal spurs well developed. Very distinct from all the hitherto known *Scopula* of the section *Pylarge*, probably derived from *Holarctias*, but agreeing with *Scopula* as at present characterized, although the hair-scales of the palpus are rather long-projecting. The blackish irroration is sparse, except at the base of the forewing. The underside is similarly marked to the upper, but less strongly. Bashkars River, north of Lake Taletskoi, Altai, only the type ♂ known to me; it was taken on 26 July 1898. I now suspect that it may be near *cajanderi Herz* (6 f), of which the hindleg is not mentioned, but less broad-winged, probably less glossy, the median shade not stronger than the others, the terminal line weak (in *cajanderi* strong), the head mixed with reddish. — **sajanensis** *subsp. nov.* (4 h). Until material is available for anatomical investigation, I regard this as a dark form of *elwesi*, with which it seems entirely to agree in external structure as well as in the red-mixed head, likeness of under- to upperside, etc. The markings of the forewing are nearly the same (assuming probable individual variation in both races), but the type of *sajanensis* has indications of dark terminal shading and a stronger terminal line and is probably nearer to *cajanderi* as described. The hindwing shows more difference in the position of the postmedian and the broadening of the terminal shading. Munko Sardyk, Sajan Mountains, a single ♂ in the British Museum. — **achlyoides** *subsp. nov.* is still darker, the lines fuscous instead of ochreous-brownish. The head shows little of the red admixture, though a few reddish scales are discoverable with the lens. Forewing with basal part suffused, only 2 lines well developed, at about equal distances from the cell-dot, the outer of them stronger than in either of the preceding and more sinuous, somewhat recalling Herz's figure of *anaïtaria* (*cajanderi* ♀), distal area nearly as in *sajanensis*. Hindwing marked nearly as in *elwesi*, more dark-suffused proximally. East Tannuola: Schawyr at 2500 m, in June. One ♂ in the British Museum and one in my collection, possibly a mere aberration of *sajanensis*. *elwesi.* *sajanensis.* *achlyoides.*

S. cajanderi *Herz* (♀ = anaïtaria *Herz*) (6 f). Although the structure of this species has not yet been studied, the evidently near relationship to the group just discussed warrants the assumption that it should be placed here. Dr. Wehrli has recently obtained a ♂ and informs me that he has kindly lent it to Dr. Seitz for figuring. He regards the synonymy, first suggested by Püngeler as safe. *cajanderi.*

B. Section *Scopula*. Hindtibia of the ♂ without terminal spurs.

S. immorata *L.* According to Rebel, a single spur is occasionally present on the hindtibia of the ♂, another indication that the tibial armature in this sex, though it should always be carefully considered, is not of primary classificatory importance in the genus *Scopula*. — gen. aest. **pallidior** *Skala* is smaller, paler, generally more indistinctly marked. — ab. **fuscomarginata** *Höfer*. Subterminal line entirely wanting, leaving the distal area uniformly fuscous. The type was taken at Klosterneuburg, Lower Austria. — ab. **unicoloraria** *C. Schneider*. Forewing unicolorous brownish, hindwing the same, with black cell-dot. Underside indistinctly marked. Cannstadt, Württemberg, a ♂ captured on 14 June. — Schneider finds the larva of this species at large occasionally on Thymus and Origanum and breeds it easily on Salvia. *immorata.* *pallidior.* *fuscomarginata.* *unicoloraria.*

S. tessellaria *Bdv.* Praviel has recently recorded from France (Isle-Jourdain, Gers) a specimen which he determines as *tabianaria*, on account of the agreement with examples so determined by Turati himself. *tessellaria.*

S. rubiginata *Hufn.* I am not altogether convinced of the value of the multiplication of names for the various forms of this very inconstant species, but as it is not certain which of them (besides *ochraceata*) have any geographical importance, I give the descriptions and localities in some detail; in any case it will be a bibliographical convenience to have them brought together. — ab. **obscurata** *Skala*. Forewing above dusted with grey, so as to render indistinct the dark markings; hindwing also somewhat dusted in terminal area. Founded on a specimen from Nikolsburg, Moravia. — ab. **scotina** *Bubacek* is also darkened, both wings uniformly copper- *rubiginata.* *obscurata.* *scotina.*

brown, almost black-brown, but with the black lines still standing out sharply. Corsica, recurrent; the type *fuliginosa.* is large, but this distinction is probably inconstant. — ab. **fuliginosa** *Strand* is founded on a 2nd brood ♀ from Ignalino (Lithuania) and is described as smoky blackish, without red tinge, the markings little distinct, the area between the median and postmedian of both wings a little lighter. Probably the one name of *obscurata* will suffice for this and that form, but as that seems to have been a chance aberration while this may be, according to Petersen, a regular season-dimorph in the Baltic Provinces, I have quoted both in detail pending *bruneomarginata.* further comparisons. — ab. **bruneomarginata** *Schawerda.* Distal third of both wings entirely filled with dark brown. Herzegovina, several examples. — ab. **purpureofasciata** *Dannehl* is probably scarcely to be separated *purpureofasciata.* from the preceding. "Light brown-yellow", the distal area of both wings entirely "dark brown-rose". Founded on 3 ♂♂ and 1 ♀ from Terlan, South Tyrol, this pretty aberration is known to me from several localities in Spain, etc. The preceding, which Dr. Schawerda was inclined to consider peculiar to Herzegovina, may be *subangularia.* a duller-coloured modification. — **subangularia** *H.-Sch.* was presumably an aberrant specimen of the present species, but insufficiently described and without locality. "Forewing with 3 darker lines and a paler subterminal, both wings with central dot, colour somewhat purplish grey, similar to worn examples of *rubricaria* *ochraceata.* *[rubiginata]*, fringes traversed by a sharp dark line, hindwing scarcely appreciably angled." — **ochraceata** *Stgr.* (4 h). We figure this predominantly eastern race from the Ural.

anomala. *S. turbidaria Hb.* ab. **anomala** *Bubacek*, founded on a ♀ from Granada, has the customary dark irroration greatly reduced, showing itself chiefly in the basal part of the wings, and is further erratic in having the lines much more approximated to one another and to the base of the wings; the median shade of the forewing runs through the cell-dot and is twice connected with the antemedian behind the 2nd median vein, that *nubilata.* of the hindwing is very near the base. — f. **nubilata** *Th.-Mieg* (= syritaurica *Wehrli*) (4 h) is the very dark form mentioned, but not named, in Vol. 4, p. 58. Thierry-Mieg described it as entirely irrorated with blackish grey. Amanus Mountains (loc. typ.), Syria, Cyprus and European Turkey. A study of the forms from Cyprus, with exact dates and other oecological particulars, would be instructive, as every gradation between *nubilata* *turbulentaria.* and *turbidaria* seems to occur there, the latter perhaps almost exclusively between April and June. — f. **turbulentaria** *Stgr.* (= ochroleucata *Sterneck* olim, nec *H.-Sch.*) (Vol. 4, pl. 5 g, as ochroleucata) is treated by Sterneck, in his "Studien über Acidaliinae", as a species apart, but he admits that the structure is almost that of *turbidaria*. As some confusion has arisen between *turbulentaria* and *ochroleucaria*, the distinctions deserve emphasis. The fibula belongs in *turbidaria* to the *rubiginata*-group (weakly chitinized, almost transparent) in *ochroleucaria* to Sterneck's section *Ustocidalia* (strongly chitinized, its apical part almost black); the cerata are here nearly symmetrical, in *ochroleucaria* extremely asymmetrical, and there are several other differences in the genitalia. Further, the hindtarsus of the ♂ in *turbulentaria* is fully as long as the tibia, while in *ochroleucaria* it is appreciably shorter, although "three-fifths", given in Vol. 4, was a slight under-estimate; the postmedian line in the present species is less deeply dentate, the terminal more continuous (or at least segment-formed), particularly on the forewing beneath, while that of *ochroleucaria* is marked by very sharply black dots between the veins; the proximal subterminal line is broader, more band-like in the present species; finally, the forewing is as a rule slightly shorter in proportion than in *ochroleucaria*. Staudinger's originals came from Greece, taken in July; to the localities cited in his Catalog should be added Ste. Baume (Siepi), Central and South *steinbacheri.* Italy, Morocco and Palestine. — **steinbacheri** *subsp. nov.* (6 g). Ground-colour as in the most warmly coloured examples of name-typical *turbidaria* or slightly more inclining towards that of *rubiginata*; dark markings strong, particularly the ante- and postmedian lines, which are very sharply defined, the latter (especially on the hindwing) more sinuous than is usual in this species; cell-dot of hindwing often elongate. Darekeroudbar, Sabatku, Mazanderan, Elburz Mountains, N. Persia, 14—21 May 1931 (F. Steinbacher), 13 ♂♂ in the Tring Museum. Two from the same locality, 23 July 1931, have the black irroration somewhat slighter, beginning to recall the tone of *turbulentaria*, but still with characteristic, sharply black postmedian.

halimodendrata. **S. halimodendrata** *Ersch.* Sterneck has demonstrated from the genitalia that this belongs with *turbidaria* and not with *rubiginata*; as it is probably an incipient species I follow him in giving it the binary nomenclature in preference to making a new and probably only temporary trinomial. He differentiates it from *turbidaria* by a number of details; the most noteworthy are the ochre-yellow ground-colour, the loss (or extreme weakness) of the subterminal shades, and the uniformly reddish-ochreous underside, without dark irroration.

ochroleucaria. **S. ochroleucaria** *H.-Sch.* (= remotata part. *Ob.*, *Culot*, nec *Guen.*) (4 h). This species (or rather, subspecies of *minorata Bsd.*, Vol. 16, p. 73; pl. 7 g) was figured as *ochroleucata* the year before it was described; but as no generic name was attached it had no standing in a binary system. As some errors crept into the account given in Vol. 4 of the present work (the worst being the accidental substitution of a Syrian specimen of *turbulentaria* for figuring on pl. 5) a fresh figure is here given, taken from a Calabrian ♂ bred by R. Püngeler. A comparison with *turbulentaria* has been given above; hindtarsus of ♂ about ¾ hindtibia or scarcely more, the tibial pencils perhaps stronger than in *turbulentaria*. As it is now known from Palestine, there is scar-

cely any Mediterranean locality from which it is not recorded. — ab. **cheimerinaria** *Rbl.*, described as a Cyprus form of *turbulentaria* (? seasonal), is rather small (length of a forewing 8 or 9 mm), the ochre-yellow ground-colour weakly irrorated with grey; the other characters given as distinctive belong normally to *ochroleucaria* and Sterneck has learned from an examination of the genitalia that it really belongs to this species. Collected in January; one or two November specimens before one from the same locality (Limassol) nearly conform, but others are normally coloured. — ab. loc. **tripolitana** *Sterneck* is also small, apex of forewing somewhat more rounded, the bone-yellow ground-colour not tinged with reddish, the dark irroration very sparse, antemedian line almost obsolete; collar not darker than vertex. In a series of 18 from Tripoli in the Tring Museum, about one-third belong to this form, the rest are more normally coloured. — ab. loc. **colonaria** *H.-Sch.* (4 h). Dr. Wehrli has little doubt that a number of specimens which he has received from Sicily, one of which is here figured, represents the true *colonaria*, which may probably have to supplant *tripolitana*. In Herrich-Schaeffer's original, there was a "reddish" tone observable but the agreement is otherwise satisfactory except that the type figure omits the antemedian line. It has no connection with *paleacata* (6 i), such as was assumed by Oberthür. — ab. **accessaria** *H.-Sch.* (4 h), which I treated in Vol. 4, p. 81 as an unknown species (notwithstanding that Staudinger had already provisionally referred it to *ochroleucaria*) is, as I now believe, almost certainly a very warmly coloured and strongly marked aberration; with the antemedian line of the forewing very distally placed, confluent with the median shade. I have before me a large ♀ from Biskra which is very similarly marked (including the thick median shade of the hindwing), a small ♂ from Sicily in which, though the ground-colour is pale, the other tendencies are observable and a ♀ (Catania) with the strikingly macular proximal-subterminal. I suspect that the type came from Sicily. — ab. loc. **serrans** *nov.* (4 h) agrees with *tripolitana* and *colonaria* in lacking the reddisb tinge, but is rather large, densely irrorated, lines and median shade strong above and beneath, postmedian well dentate, subterminal shades better expressed than in the type. Ghor el Safieh, S. of the Dead Sea (M. Aigner), 2 ♀♀ in the Tring Museum, the type with the median shade broader, and on the hindwing less zigzag, than in the figured paratype; Jericho, 2 ♀♀ in my collection (Dr. J. Sterneck leg.), not quite so heavily marked. Andres also notes a similar form, bred in Egypt, as "dark (not reddish) brown, outer line strong and sharply dentate, underside strongly darkened". — According to Turati, the egg of *ochroleucaria* is green, becoming vinous-spotted the day before hatching, which takes place on the 6th day. Larva slender, greenish grey, slightly carinated laterally; clypeus white, mandibles brown; an extremely slender double, dark dorsal line, accompanied laterally by small oblique black marks; stigmatal line green, spiracles black; venter regularly furrowed with pearl-grey, the ventral line composed of alternations of double marks with single grey dots.

cheimerinaria. *tripolitana* *colonaria* *accessaria.* *serrans.*

S. remotata *Guen.* (4 i). The type ♂ of this much-misunderstood species, of which we here reproduce the figure, is still unmatched in the collection known to me. The indefinite locality ("North India") leaves it very doubtful whether it has a Palaearetic origin, though some very similar *Scopula* have been received from the Punjab. I am indebted to Dr. Wehrli for a very careful differentiation from *ochroleucaria*. Antennal shaft more slender, ciliation distinctly longer (nearly one-half as long again); palpus projecting slightly further beyond the face; hindtarsus definitely shorter, hindtibia perhaps, as Guenée suggests, less strongly dilated. The specimen, though in good condition, has unfortunately a wrong abdomen (♀) attached. Besides the "remoteness" of the median and postmedian lines, *remotata* differs from *ochroleucaria* in the more zigzag median line, blacker vein-dots on the postmedian and inclination of the terminal dots to form a line; also in that the first line of the hindwing is more proximal and more vertical, meeting the antemedian instead of the median of the forewing.

remotata.

S. personata *Prout* (Vol. 4, pl. 7 a), founded on 9 ♂♂ (not ♀♀, as misprinted in the German edition) from Japan and Corea, seems to be distributed in China and Formosa and it is by no means certain that it differs specifically from the *hypochra Meyr.* of Australia; at any rate species with this essential structure and facies are widely distributed in the Indo-Australian Region.

personata.

S. sinopersonata *Wehrli* (4 i) is easily distinguishable from the three preceding by the subcostal angulation of the median line and corresponding outward bend of the postmedian of the forewing. Antennal ciliation of the ♂ somewhat shorter than in *ochroleucaria*, only about equal to the diameter of the shaft; hind tarsus about as in *remotata* (tarsus to tibia as 35 : 58). Cell-dots small, sharply black. Underside coloured about as in *ochroleucaria*, the subcostal angulation of the lines even more striking than above. Canton, Omei-shan, etc. Similar to *actuaria Walk.* (India, Malaysia, etc.), but with the ♂ hindtarsus a little less short.

sinopersonata.

S. adelpharia *Püng.* In addition to the structural distinctions from *ochroleucaria* given in Vol. 4, differences have been found in the ♂ genitalia, particularly in the aedoeagus and the cerata; the latter are particularly easy to observe by removing some hair from the underside, as the horns are excessively asymmetrical in *ochroleucaria* and the very long one can sarcely escape notice; in *adelpharia* they are moderate, more symmetrical. — **pharaonis** *Sterneck* has been proposed to denote the Egyptian race, which is distinguished by the stronger development of the interneural black dots of the termen and (in sufficiently fresh specimens) by the

adelpharia. *pharaonis.*

presence of some black scales on the transverse bands. Perhaps a separate species, for Dr. Sterneck informs me that both cerata are fully developed, whereas in *adelpharia* one is of half-length only. I suspect *adelpharia* is African in origin, as I have seen scarcely distinguishable *Scopula* from Gambia and even as far south as Angola.

sybillaria. **S. sybillaria** *Swinh.* (Vol. 4. pl. 7 b) is believed to occur in West, as well as in Central China. It is probably incorrectly placed here and appears to be closely allied to the species described below as *francki* (5 e).

ignobilis. **S. ignobilis** *Warr.* (Vol. 4, pl. 4 m, 5 b). There is still some doubt regarding the distribution in China (see Vol. 4, p. 61); until more study has been made of the ♀ genitalia of the entire group, it appears futile to study more closely a few isolated examples of that sex.

humilis. **S. humilis** *Prout* (6 g), as was suspected, is in any case a separate species. In *ignobilis* both cerata are quite short (though not equally so), neither extending beyond the mappa. In *humilis* the right-hand one is decidedly longer than in *ignobilis*, the left-hand one wanting, its position merely indicated by a minute chitinous spot.

hesycha. **S. hesycha** *Prout* (4 i). Antennal joints of the ♂ scarcely projecting, ciliation scarcely longer than diameter of shaft. Collar ochreous. Hindtarsus well under ½ the length of tibia. Nearest to *delitata* (Vol. 4, pl. 7 b), but with shorter ciliation and hindtarsus, slightly more noticeable bend of the hindwing, slightly more brownish tone and somewhat less weak markings. Forewing beneath with rather strong reddish-smoky suffusions in and beyond the cell, cell-dot, postmedian and terminal lines developed; hindwing whiter, more weakly marked. Chang Yang, Central China; probably also in W. China.

ichinosawana. **S. ichinosawana** *Matsumura* is said to bear some resemblance to *immistaria* (Vol. 4, pl. 4 h). ♂, 24 mm. Pale testaceous grey with fuscous irroration and lines. Forewing with costa somewhat fulvous; ante- and postmedian lines distinct, median somewhat excurved near costa; cell-spot obsolete; hindwing with 2 weak lines, the postmedian excurved at vein 2; terminal line slender but conspicuous, fuscous, marked with interneural black dots. Hindtibia without spurs, tarsus scarcely abbreviated. S. Saghalien: Ichinosawa, 2 ♂♂ in July. Unknown to me.

monosema. **S. monosema** *Prout* (6 g). Similar to the common *pulchellata F.* of India and Africa (Vol. 16, pl. 7 c, *rufinubes*), antennal ciliation scarcely so long, hindtarsus relatively a little longer, median and postmedian lines more weakly curved, subterminal shade without the dark blotches, only the subapical black-grey mark well developed. Kashmir, probably at about 1000 feet, only the type ♂ known.

shioyana. **S. shioyana** *Matsumura.* Position uncertain. "Grey, with black scales and markings." Cell-spot of forewing elongate, conspicous, of hindwing obsolete. Lines (on forewing 5, on hindwing 3) mostly broken into vein-spots, the most proximal of the postmedian three of the forewing wavy, continuous except at veins 3 and 4, the outermost continuous in costal region; some black maculation on hindwing. Abdomen with a fuscous band at base and one at tip. Mt. Daisetsu, Hokkaido, 1 ♀, expanding "20 mm". Said to recall *Sterrha camparia.*

amataria. *S. beckeraria Led.* **amataria** *Wehrli.* Smaller than the name-type, face dark brown, vertex white, collar brown, wings white, marked as distinctly-marked *beckeraria*; beneath, in contradistinction to *rebeli*, all the lines and even the subterminal band are well expressed. Tunkinsk, Sajan Mountains.

aniculosata. *S. marginepunctata Goeze* ab. **aniculosata** *Rmb.* (4 i), founded on a specimen taken at Montpellier in September, is an extreme melanic form, like *orphnaeata* but with the lines suppressed. As the original figure and description are scarce, we have copied both in detail. "Wings black-brown above, darker costally on the forewing, a central black dot with slight whitish circumscription, a sinuous outer line of a yellowish white; termen yellowish, as also the fringe, which is bordered proximally by a series of black dots; underside of a brownish white, paler on the hindwing, where the dot of the upperside is slightly indicated." The remarkable specimen figured in "The Entomologist", Vol. 40 (not 42, as we quoted in Vol. 4) only differs in the loss of the subterminal line. — ab. **britonaria** *Culot* (4 i), from Cancale, should probably be sunk to *orphnaeata*, though the subterminal is unusually broad and the dark lines more distinct. — ab. (loc. ?) **subatrata** *F. Wagn.*, founded on a ♀ from Udine, N. Italy, is also much darker than the type (about as *Sterrha typicata* f. *hornigaria*), including the fringes and the underside. Unless it proves to have any geological importance (as its author suggests) it might also be merged in *orphnaeata*. — ab. (loc.) **insubrica** *Vorbrodt*, also dark, is definitely stated to be the local form in Mixos (Italian Switzerland). More sharply marked and altogether more variegated than the other dark forms. Inhabits damp mountain meadows. — ab. **marginevirgata** *Dannehl* differs from *orphnaeata* (or *britonaria*) in that the pale ground-colour continues from the subterminal to the termen; the black lines distinct. S. Tyrol. — ab. **griseofasciata** *Trti.*, from Cogno (Italy) has a grey-blackish median band, on the forewing broad (extending from antemedian line to median shade), on the hindwing a little reduced (little thicker

britonaria. *subatrata.* *insubrica.* *marginevirgata.* *griseofasciata.*

than in typical forms, but more intense). — ab. **nigropunctata** *Hartmann & Sterneck* has "distinct stripes, uni- *nigropunctata.*
colorous marginal area and large, round, black terminal dots at the inner angle of each wing produced in wedge-shape". Founded on a ♂ from Bêlá, Bohemia. — ab. **zernyi** *Schawerda* is entirely grey with very fine black *zernyi.*
irroration, the lines scarcely traceable. Albarracin, 1 ♀, the species to which it belongs not quite certain. — **argillacea** *Prout* (Vol. 4, p. 151) proves to be the prevailing, but not the only, form in N. Africa, perhaps "ab. *argillacea.*
loc." rather than "subsp." It is found in Morocco and Tunis as well as Algeria. — From the Elburz Mountains, N. Persia, comes a very large form (almost certainly racial), 27—31 mm, commonly attaining 30 (an expanse which is only reached in about 2 per cent. of some 500 others which I have tested), generally strongly marked and greyer than in most localities. — **terrigena** *subsp. nov.* (4 i). A series of 26 in the Tring collection *terrigena.*
(F. Steinbacher).

S. cleoraria *Walk.* (4 i) may be likened to *marginepunctata* in coloration and design. ♂ with the fascicles *cleoraria.*
of cilia much longer, hindtarsus less long (barely ½ tibia). Collar not noticeably darkened. Wings somewhat less broad; forewing with costal spots more pronounced, cell-dot rather larger but less sharply black; hindwing with distal margin somewhat more sinuous; both wings with postmedian line somewhat more distally placed. The Indian *fibulata Guen.*, to which Hampson has sunk it, has more nearly the antenna and hindleg of *marginepunctata*, some brown suffusions which are wanting in *cleoraria* and a *submutata*-like terminal line (running round the apex of the forewing). *cleoraria* is distributed in the Punjab and has a subspecies in the N. E. Himalayas. The typical *cleoraria* has generally the pale coloration of typical *marginepunctata*, but suffused examples (analogous to ab. *orphnaeata Fuchs*) are not entirely unknown.

S. tsekuensis *sp. n.* (6 g). Much like large, well-marked *cleoraria* (4 i) the collar similarly without *tsekuensis.*
darkening. Antennal shaft in ♂ fairly thick, with the joints slightly projecting, the fascicles over 1, but less long than in *cleoraria*. Hindtibia of ♂ long, with strong white pencil, tarsus little over ½. Forewing with costal spots rather strong, postmedian somewhat more deeply sinuous and denticulate than in *cleoraria*, usually followed by ill-defined brownish or grey maculation proximally to the two enlarged white spots of the subterminal. Underside of hindwing less suffused than that of forewing, showing traces of the postmedian line. West China, the typical series consisting of 12 from Tseku (Dubernard) ex coll. Oberthür; type in the British Museum. The "cerata" (about equal in *cleoraria*) are peculiar in that the right-hand one is shortened and somewhat curved, the left-hand one less short.

S. subtracta *sp. n.* (4 k). Similar to a small, greyish *cleoraria*, length of a forewing 10 or 11 mm. An- *subtracta.*
tenna of ♂ with the fascicles as long as in *cleoraria* or slightly longer (at least twice diameter of shaft), hindtarsus nearly as long as tibia. Collar dark brown — a ready distinction from its nearest relatives. Costal spots scarcely developed. Fringes irrorated to the base (in *cleoraria* with a whitish basal line). The tongue seems a little longer and slenderer, but no measurements have been made. ♂ genitalia less robust than in the two preceding, right ceras long, left quite short. Commonest at Simla and Sabathu, known also from Masuri; perhaps scarcely Palaearctic. The type is a ♂ from Simla, May 1886, in the Tring Museum.

S. fulminataria *Trti.* (4 k) is closely like the most brightly coloured forms of *luridata*, with which also *fulmina-*
it agrees in structure (probably a form). Still brighter reddish ochreous, without any blackish admixture in *taria.*
the lines or the costal spots; terminal and fringe-dots very weak. Cyrenaica. I have only seen one specimen, a ♂ in perfect condition.

S. luridata Zell. (4 k) ab. (?) **formosaria** *H.-Sch.*, from Crete, is obviously a well-marked example of *formosaria.*
this species with rather red-ochre ground-colour. Perhaps really synonymous with the type, perhaps transitional towards *fulminataria*. — **sternecki** *Prout* (= chinensis *Sterneck*, nom. praeocc.). Vertex clean white, *sternecki.*
collar red-brown, cell-dot of hindwing more distal to the median line; underside better marked than in the type form, cell-dots and postmedian line well visible, the latter even quite conspicuous on the hindwing. Corea (type); also Pekin and Omei-shan. Probably a separate species. — Outside the Palaearctic Region, *luridata* is represented in Somaliland, Arabia and Sind, probably also elsewhere in India.

S. vigilata (Mann, M. S.) *Prout* (4 k) is the correct name for the insect briefly described in Vol. 4 under *vigilata.*
submutata as a S. Italian to Sicilian race, but erroneously sunk to *gianellaria Turati*. F. Wagner, Wehrli and Sohn-Rethel have called attention to the misidentification (see below) and the last-named has expressed a belief that *vigilata* is a separate species, since both it and a very different-looking form of *submutata* occur together in the Sabine Mountains; but it has apparently not been noticed that it differs in the ♂ leg-structure from its more widely distributed ally; hindtibia slender, without pencil and with a single terminal spur, tarsus elongate. The tongue also seems to be longer, so that it to some extent connects *Scopula* with *Glossotrophia*, but the ♀ is 4-spurred. The words "usually of a clean white", in my description, were misleading and referred to the paucity of the irroration; the ground-tone shows an inclination to ivory-white. Sohn-Rethel considers it distinguishable from small *submutata* by the somewhat shorter and more rounded wings, with more arched

costa; markings very sharp, more ochre-yellowish, the characteristic markings of distal area less confluent.
turatii. Central Italy to Sicily. — **turatii** *F. Wagn.* (4 k). Superficially very unlike *vigilata* in its dense irroration, but as it agrees in structure and in the general character of the markings, I suspect it is a larva-form of the same. Described from Nicolosi, Etna.

submutata. **S. submutata** *Tr.* (4 k) remains, even after the elimination of the two preceding forms, a very variable species. The variation, as Wagner has shown in a preliminary revision, is largely geographical, but one needs very ample material before the racial can be distinguished definitely from the individual. The name-typical race, as here figured, has a slightly bluish tone and is fairly constant (within moderate limits) in Croatia (the type locality), Carniola, Dalmatia, the Balkans, etc. The forms from Central Italy, so far as they are known to me, are a good deal like the type, though probably they will require a separate name; according to Sohn-
cyanata. Rethel, rather poorly marked. — ab. **cyanata** *Schawerda* is the most strongly blue-banded development of
nigricans. the name-typical race. Bocac (Bosnia) and Zengg (Croatia). — ab. **nigricans** *Th.-Mieg*, founded (with a reference also to Guenée's unnamed Auvergne ♀) on a ♂ from St. Pons, is strongly powdered with black and can
gianellaria. scarcely be regarded as supplanting any of the subspecific names. — **gianellaria** *Trti.* (6 g), perhaps an aberration, perhaps a mountain race, is a small and obscure form from the Valle d'Aosta; markings heavy, particularly the subterminal, colouring fairly typical. By an inexcusable confusion, I assumed this to be a Sicilian race and hence united the name with *vigilata* (see above). Dr. Wehrli has forms from Torbole, S. Tyrol, which
roseonitens. are at least similar. — **roseonitens** F. *Wagn.* (4 k). This name can be applied comprehensively to the West Mediterranean forms, which have a definitely more brownish tone when compared with the typical race; not rarely there is a slight rosy gloss (whence the name) or, particularly in Spain, an ochre or yellowish tinge. The originals came from the Esterel and Ventimiglia (Italian Riviera), but I can see little difference in the Spanish
flava. forms, or at least those from Catalonia. — ab. **flava** *Kitt* (4 k) was founded on a ♂ from the Pyrenees (Vernet-les-Bains), differentiated by its deep bone-yellow ground-colour. If, as has sometimes been assumed, the forms from these mountains and those of Central Spain really constitute a race apart the synonymy will be very complicated, as some authors have endeavoured to raise the aberrational name to sub-specific rank. — ab.
marginata. **marginata** *Prout* (Vol. 4, p. 64) was, however, erected on a Spanish aberration 12 years earlier, yet the spe-
submutulata. cimen is definitely n o t characteristic of the race. See also ab. *nigricans* (1916) above. — **submutulata** *Rbl.* (Vol. 4, p. 64). As there is some uncertainty regarding the status of this form and the reference (Berl. Ent. Zeitschr., Vol. 47, p. 96) is not cited in our index, we give the original account verbatim: "Kalavryta [N. Morea], 4 Sept., a number of strikingly small ♀♀ with almost pure white ground colour, which produce a very different impression and belong to the unpublished form *submutulata* (Stgr., i. l.). I consider it worth naming." If this is merely a second brood of *submutata*, such as occurs at Limassol, Cyprus, in October and November, it is not exceptionally important, but the "very different impression" produced may perhaps point to *vigilata*, for which
nivellaria. it would be the prior name. — **nivellearia** *Oberth.* (7 a) is a large, warmly coloured and sharply marked form from Morocco (and ? Western Algeria), the black irroration generally heavy. It evidently intergrades with
pseudhone- the following race, over which, if they are merged, it will have priority. — **pseudhonestata** *Wehrli* (5 a), from
stata. southern Spain, is on an average less large than *nivellearia*, with perhaps less yellow in the ground-colour and less extreme black markings, though the black costal spots are conspicuous and the sharpness of the markings, brownish median shade and variegated distal area remain characteristic. Named from its superficial resemblance to *honestata Mab.* (Vol. 4, pl. 3 m). It was at first supposed to be a widely distributed mountain form in the Mediterranean countries, *taurilibanotica* and even *vigilata* having been confused with it. If the name is conserved, however, I think it will avoid confusion to restrict it to the Andalusian, etc., for which it was originally pro-
taurilibanotica. posed, although I admit that some from Cyprus (? *taurilibanotica*) are pretty similar to it. — **taurilibanotica** *Wehrli* (= syrilibanotica *Wehrli*) (5 a) is characterized by the strongly developed grey-blue (more rarely grey-brownish) spots on the blue-grey proximal-subterminal shade, which is otherwise poorly developed; suggestive of the same area in *decorata*. Marasch and Beyrut. — From Askhabad I have seen only 2 ♀♀ (kindly submitted by Dr. Wehrli, who has others), representing probably a further race, or even a closely related species (termen of forewing perhaps a trifle more oblique); more brownish than *taurilibanotica* and with neither the characteristic subterminal maculation of that form nor that of *pseudhonestata*, while the strong costal spots (including a small subterminal one), contrasted with comparatively clean central area — especially between median and postmedian lines — separate it from the variable *roseonitens* series; median shade of forewing rather sharply angled near costa, then strongly oblique, postmedian on neither wing with the sinuosities very deep:
transcaspica. subsp. (? sp.) **transcaspica** *nov.* (5 a).

farinaria. **S. farinaria** *Leech* (5 a). We figure Leech's type, which remains the only specimen known to me.

incanata. **S. incanata** *L. ab.* **adjunctaria** *Bsd.* (5 a) has been recorded from various other localities (Switzerland,
adjuncta- the Tyrol, Moravia, etc.) and has little, if any, geographical importance. We figure a ♀ from Savoy. — ab.
ria. *seminigra.* **seminigra** *Rbl.* Both wings, especially about the veins, much suffused with blackish as far as the subterminal

line, the marginal area remaining normal. Mezöseg district. — ab. **catenata** *Hörhammer*. Lines weak, except the postmedian and first subterminal, which are connected by a chain of dark maculation between the veins. Leipzig district, one ♂. *catenata.*

S. bifalsaria Prout **falsificata** *Prout* (= grisescens *Prout* nec *Stgr.*) (5 a) lacks the brownish admixture of typical *bifalsaria* and the lines are not diffused into bands. Vrianatong, Tibet. *falsificata.*

S. frigidaria *Mschl.* This holarctic species occurs in some localities in N. Siberia, as well as in Kamtshatka; it is, according to Djakonov, strongly variable and quite light forms occur together with the dark ones mentioned by Alpheraky. It is doubtful whether the subspecific name *schöyeni* is tenable. The specimen from Barracouta Bay, mentioned in Vol. 4, p. 66, under *cajanderi* and considered to resemble *ternata* in some respects, seems to be nothing but a slightly aberrant *frigidaria*. *frigidaria.*

S. dubernardi *Oberth.* (6 h). Face dark brown, vertex white, collar brown, ♂ antenna serrate, with the fascicles about as long as the diameter of the shaft, hindtibia not dilated, tarsus about as long as tibia. On account, probably, of its shape, oblique markings and weakly marked hindwing, Oberthür referred it to the genus (really section) *Phyletis*, of which the type is the African *silonaria* (Vol. 16, pl. 6 m). The characters given here were obligingly supplied by Dr. Wehrli and confirm the impression which I obtained from the figure, that it is a close relative of *segregata Prout* from the Burma-Yunnan frontiers, though decidedly larger. *dubernardi.*

S. lutearia *Leech* (Vol. 4, p. 66, pl. 3 l). Known, in addition to the original localities in Central China, also from several in West China, generally in slightly less yellow forms, but not, I think, requiring a separate name. Similar, particularly on the underside, to *superciliata*, to which it is probably really related; ♂ antennal ciliation not quite so long, hindtarsus shorter. *lutearia.*

S. floslactata Haw. ab. **undularia** *Hellweger* has most of the markings weak, the subterminal exceptionally broad, accompanied proximally by a conspicuous dark shade. Founded on a pair from the Höttingerbild, N. Tyrol, the ♂ particularly striking. — ab. **anastomosaria** *Preissecker*, from Hirschberg, Lower Austria, shows the anastomosis of the antemedian and median lines to which its author applies this collective name, but it should here evidently be superseded by *conjunctiva* (Vol. 4, p. 67). *undularia.* *anastomosaria.*

S. superciliata *Prout* (Vol. 4, pl. 4 n [3]). Two males of this species, according to the determination of Dr. Sterneck, have been taken by the Stötzner Expedition at Sumpanting, W. China. I have only seen it from Japan, unless the doubful Chang Yang ♀♀ (Vol. 4, p. 67) really belong with it. Possibly the Sumpanting specimens are referable to *lutearia*; the figure given as *albipunctata* (t. c., pl. 4 k, fig. 4) may represent a ♀ aberration of the present species or of *lutearia*. *superciliata.*

S. confusa *Btlr.* (Vol. 4, pl. 3 m, 4 m, n). The ♂ antennal ciliation is not, as was perhaps implied in my comparison with *superciliata*, exceptionally long; the hindtarsus, when its base is not covered by the tibial pencil, is seen to be of almost exactly the same length as the tibia. The postmedian line of the forewing very generally shows an intensification or darkening at each sinus (i. e., at both the folds). *confusa.*

S. (??) sachalinensis *Matsumura* (= candidata *Mats.*, nec *Schiff.*) is said to be close to *confusa* but the description and figure given indicate the pattern of a small Larentiid (Asthenid) and I can scarcely believe that the later generic placing is so nearly correct as the earlier reference to *Asthena*. Founded on 2 ♀♀ from S. Saghalien. *sachalinensis.*

S. ainoica *Matsumura*. According to its author "possibly related to *confusa*". Antennal ciliation of the ♂ long, hindtibia with long pencil, tarsus ½ tibia. Cell-spots large, oblong, black; bands brownish, on forewing one, proximal to the cell-spot, broadly excurved at cell and broadest behind median vein, on hindwing two, the outer one broadest beyond the cell-spot. Mt. Daisetsu, Hokkaido, 8 August 1926. Unknown to me. *ainoica.*

S. disclusaria *Christ.* (5 b). ♂ antenna with fascicles of cilia moderate, hindtarsus quite short (considerably under ½ tibia). We figure a ♂ from Okeanskaja, Ussuri. *disclusaria.*

S. pudicaria *Motsch.* Dr. Djakonov called my attention (in litt., 14 February 1928) to an interesting antennal character "not observed in any other species" of this group, the presence, in both sexes, of black scaling on the dorsal surface. E. China (Ningpo) can be definitely added to its range, but I am doubtful as to the records from Central China. *pudicaria.*

S. nupta *Btlr.* (Vol. 4, pl. 3 l, 4 m [6]). By the genitalia (cerata shortish, equal, etc.) as well as the lack of the black maculation on the antennal shaft, this cannot be a form of *pudicaria*, as I earlier assumed. Possibly I confused with it some small examples of true *pudicaria*. In any case not a second-brood form; the type is not dated, but the most typical dated examples which I have been able to examine show that it is on the wing in the Yokohama district in April and May. *nupta.*

shiskensis. **S. shiskensis** *Matsumura.* "22 mm. Closely allied to *nivearia*", but pale greyish white, with scattered fuscous scales; lines indistinct greyish, the antemedian apparently wanting, the other 4 approximately equidistant, the subterminals somewhat sinuous; on hindwing 3 indistinct lines; fringes concolorous, without black scales. Underside with cell-dots, forewing with the outer 3 lines close together, more distinct than above, hindwing with an obsolete submarginal band. Antennal joints in ♂ somewhat projecting, with moderate cilia. Hindtibia of ♂ without spurs, long hair from its base. S. Saghalien, both sexes obtained.

nemoraria. **S. nemoraria** *Hbn.* (Vol. 4 pl. 4 k). My suspicion that the Eastern Asiatic records of this species might refer to *superior* (Vol. 4, pl. 4 m) is not confirmed; true *nemoraria* reaches Vladivostok. Sterneck has pointed out that the 2nd subcostal and 1st radial of the hindwing are stalked in *nemoraria* but not in *superior*, the ♂ hindtarsus a little less abbreviated in *nemoraria*. Moreover the genitalia show material differences.

subpunctaria. **S. subpunctaria** *H.-Sch.* (Vol. 4, p. 69, pl. 4 k). An unexplained and very puzzling dimorphism in the 8th sternite of the ♂ probably points to incipient species-divergence, but it has hitherto been found unpossible to correlate it with any other character. In the form which (in the absence of a historical "type" for examination) is considered typical, the cerata are highly asymmetrical (see under *prouti Djakonov*). — There occurs with it, however, in most localities (e. g. the Pyrenees, Austria, Hungary, Caucasus) a form in which these are *isoceras.* equal, in this respect, though not in others, resembling *prouti*; I name it provisionally f. **isoceras** *nov.* It would be very interesting to learn whether both forms can occur in an individual brood, or what part heredity plays in the phenomenon. Unfortunately the type of my ab. *exstirpata*, St. Egid, Lower Austria, is a ♀. — ab. (?) *depunctata.* **depunctata** *Guen.* (6 h). According to Culot this is a distinguishable aberration, whiter and with the subterminal shades wanting. The locality of the assumed "type" is not given and it is uncertain whether the name should be regarded as a nomen novum for the preoccupied *punctata Scop.*, which Guenée cites, but hesitantly.

prouti. **S. prouti** *Djakonov, sp. n.* (5 b, ♂ ♀). "Nearest to *subpunctaria H.-S.* Presumably all the specimens from E. Asia ascribed to *subpunctaria* belong to this species. The ♂ genitalia are similar to [those of] *subpunctaria*, but have a definitely different ventral plate (8th sternite). In *subpunctaria* the lateral processes of the ventral plate (cerata by Pierce's terminology) are asymmetrial, the left being shorter than the covering flap (mappa) and strongly uncinate, the right, on the other hand, longer than the flap and only weakly curved. In *prouti* these processes are equal in length and as long as the flap. The subunci (socii) in *subpunctaria* are considerably longer and more strongly developed than in *prouti*, at their tips, moreover, more widely separated. The specimens of *prouti* are as large as medium-sized *subpunctaria*, the termen of the hindwing quite rounded. The ♂ hindtarsus is noticeably longer and the antennal ciliation likewise distinctly longer than in *subpunctaria*. The upperside of both wings is white, about as in *subpunctaria*, the dark irroration on the whole coarser and denser (in some specimens rather sparse). The irroration is strongest along the costa. Both wings bordered by a faint yellowish-grey line, which somewhat recalls *caricaria* (Vol. 4, pl. 4 k), but the black cell-dots, as also the terminal dots are entirely wanting in *prouti*. The lines are yellowish brown, similar to those of *subpunctaria*, yet somewhat broader and only very weakly waved, not denticulate; when all are developed, they are parallel inter se, to the number of 4 on each wing; by no means rarely, however, some of them are obsolete, so that exceptionally only one distinct line on each wing is left. The strongest line is the postmedian, which is always present and continues on the hindwing; median generally also strong, the others weaker, usually very weak, appearing only through their darker scaling. On the underside a distinct costal dot is present on each wing. The dark irroration is still stronger than above, but not so strong as in *subpunctaria*. Of the lines, only the postmedian is always present, usually very strong; the rest are very weak, often for the most part not appreciable. The brown-yellow terminal line is rather strong on both wings, between the veins somewhat broadened into spots; in *subpunctaria* black spots are here distinct. The ♀♀ are on the whole purer white, almost without irroration, with broader yellow lines, very faintly visible cell-dot and small black marginal dots in the anterior part of the forewing. Amur-Ussuri district, widely distributed; westward as far as Blagowestschensk. June till July. A long series in Zool. Mus. Leningrad" (Djakonov in litt.). Specimens from Japan, on an average somewhat larger and occasionally showing (small) black cell-dots on the upperside, perhaps represent a separable race.

anonyma. *S. caricaria Reutti* (= phlearia *Reutti*) ab. **anonyma** *Schawerda*, a ♀ from Mecklenburg, is wholly white, *nigrocingulata.* even the cell-dots wanting, the lines almost invisible. — ab. **nigrocingulata** (*Dannehl*, M. S.) *Hartig* has the costal edge of the forewing and the distal margin of both wings black-scaled, the preceding line (subterminal) also blackened. S. Tyrol, the type ♀ from Terlan, a Bozen ♂ also showing some approach to it.

klaphecki. **S. klaphecki** *Prout* (5 b). Very similar to *caricaria* (Vol. 4, pl. 4 k), but with the collar white, the costal margin of the forewing on an average rather more strongly irrorated, the cell-dot sharper and blacker, the subterminal nearer to the termen, the latter with well developed black dots; postmedian line perhaps more bent, especially on the hindwing, and somewhat more distally placed. N. China, the typical pair from Tsingtau, Shantung (L. Klapheck), others from Pekin, all dated August. Almost certainly the Amur speeies recorded by Graeser

and Staudinger as *caricaria*, probably also the Saghalien (Matsumura) should be referred here. Differs from *leuraria Prout* (Vol. 4, p. 69) in its smaller size and much longer hindtarsus. — **chinensis** *Sterneck*, described as a race of *immutata* with the 1st line of the hindwing more proximally placed and the terminal dots better developed, especially on the hindwing, is evidently the first-brood form of *klaphecki*. Paratypes from Pekin, June and early July, show no appreciable difference therefrom excepting their considerably larger size and at Tientsin *chinensis* occurs in June and typical *klaphecki* in August. Sterneck records also one ♂ of *chinensis* from Tatsien-lu. *chinensis.*

S. immutata L. (= caespitaria *Bsd.*) ab. **atra** *Rbl.* Upperside almost completely blackened, only a longitudinal dash (containing the cell-dot) and the dentate subterminal remaining white. Progar, Slavonia, the type unique. — ab. **coarctata** *V. Schultz.* Antemedian and median lines so closely approximated as almost to form a narrow band. Lüneburg Heath, a ♂. *atra.* *coarctata.*

S. contramutata *Prout* (5 b). Smaller than *immutata* (21—24 mm), hindtarsus of the ♂ relatively somewhat longer (about ¾ tibia). The characteristic shape of the hindwing somewhat more accentuated. Colour more tinged with ochreous, lines fairly thick, the dentate form of the postmedian and its inward curve between the radials always well noticeable. Forewing beneath less uniformly infuscated than in most *immutata*, the markings standing out more distinctly. Founded on a series from Chabarovsk, Ussuri Railway, June, July and August. Others since seen from the Amur-Ussuri district. *contramutata.*

S. corrivalaria *Kretschmar* (Vol. 4, pl. 4 k). This local species has also been found in Belgium (Hautrage), Marne, S. W. France and Upper Austria and there is one record for Zurich. The egg has been carefully described and figured by Rücker (Deutsche Ent. Zeitschr. 1920, p. 175). — Bentinck has described the Limburg race in detail. "Brownish bone-white, finely dusted with black; the lines clay-brown. The underside of the forewing is strongly dark-dusted. The colour of the wing in the N. German examples is much browner, or even yellow-brown, not bone-colour; the lines are darker, the underside of the forewing less strongly dusted." This Limburg form may be named — **limburgensis** *form. nov.* It should be added that a specimen from Hengelo (Overursel) agreed entirely with the name-typical North German race. — **eccletica** *subsp. nov.* (5 b) has also generally a yellow-brownish tone; the underside shows several distinctions from the European forms, though the variability renders a diagnosis difficult; cell-dots nearly always enlarged, median shade generally near them, the space between median and postmedian widened; proximal subterminal shade macular or very weak, distal always slight. Ussuri. *corrivalaria.* *limburgensis.* *eccletica.*

S. pseudocorrivalaria *Wehrli* (5 b) is described as very similar to *corrivalaria*, but with the ♂ genitalia specifically distinct from that, from *ignobilis*, *immutata* and *nigropunctata* and its forms; smaller and greyer than *corrivalaria* with only a faint yellowish tone, more strongly grey dusted, the lines likewise grey, the median shade of the forewing distinctly more oblique, which is shown still more strongly on the underside. Antennal ciliation shorter than in *corrivalaria* (= 1); tarsus about equally long. Shanghai, Lienping, Kwantung, Mokanshan and Kiangsi. *pseudocorrivalaria.*

S. pallida *Warr.* perhaps occurs also in Szechuan. Sterneck has recorded, but with some doubt regarding the determination, 2 ♀♀ from Ta-tsien-lu; as, however, they lack the cell-dot of the hindwing they will probably prove to represent a different though nearly related species. *pallida.*

S. nitidissima *Prout* (5 c). Larger than *pallida*, purer white and still more glossy; lines almost obsolete, the postmedian and sometimes the median discernible with attention; cell-dots as in *pallida*; terminal dots wanting or minute. Kashmir Valley and Kulu, at altitudes of about 7000 feet. *nitidissima.*

S. coniaria *Prout.* This South Japanese species is also very doubtfully recorded from West China; in any case the ♂ hindtarsus (as in this Kwanhsien relative) is about half as long as the tibia. I am inclined to regard the true *coniaria* as a straggler from the Indo-Australian Region; for I believe that the insect from the Riu-Kiu Islands described as *S. okinawensis* is really identical with it, or at most a race. *coniaria.*

S. epiorrhoë *sp. n.* (5 c). Smaller (the typical series 24—25 mm), antennal ciliation of ♂ perhaps slightly longer in proportion, hindtibia of ♂ long, with strong pencils, tarsus extremely short (1/5 or less). Wings with the irroration rather more regular and more brownish (in *coniaria* with some black-grey admixture); cell-dots less minute, sharply black; median and postmedian lines browner, rather more sinuous, the postmedian with somewhat deeper lunules; terminal markings more evenly expressed throughout (in *coniaria* inclined to fade away posteriorly); postmedian on underside farther from the termen. Satsuma, May 1886 (Leech), 2 ♂♂ and 2 ♀♀ (in the British Museum). A few others merely labelled "Japan", the largest ♂ (here figured) only 2 or 3 mm less in expanse than the smallest *coniaria*. Second-brood examples, from Tsu-shima and Kagoshima, July, August and perhaps still later (in the Tring Museum), are very small, 20—21 mm. *epiorrhoë.*

nigerrima. *S. virgulata Schiff.* ab. **nigerrima** *Rbl.* (= rehfousiana *Culot*, rehfousaria *Culot*, rehfousiaria *Culot*) (6 h) is black, with yellow-grey patagia and fringes. In Rebel's type (Nagy-Nyir, Hungary) the cell-dots are enlarged and the terminal line complete, Culot's (La Plaine, Canton of Geneva) is said to retain traces of the pale subterminal, but separate names are certainly not needed. — ab. **mus** *Kaucki* is similar, but less extreme, above unicolorous mouse-grey, beneath also darkened, but conserving the typical markings. Poland. — ab. **anastomosaria** *Preissecker*. Antemedian and median lines confluent. — **insubrica** *Vorbrodt* is said to constitute a geographical race in the "Insubrican" district (Italian Switzerland); if so, its name comes into collision with *marginepunctata* f. *insubrica*. Strikingly yellowish, often very large and rather strongly marked. — **rossica** *Djakonov*, from the neigbourhood of Leningrad, is a small, densely dark-scaled race, with the lines usually very indistinct, cell-dot nearly always wanting. It is there associated with the peat-moors. — **substrigaria** *Stgr.* must (as I already conjectured) be treated as a race of *virgulata*, connected by transitions. Less small and somewhat more ochreous than *rossica*, otherwise similar. Djakonov adds Minussinsk to its range. — **subtilis** *subsp. nov.* is paler than the type, at times almost as white as *albicans*, and has the lines slender, the cell-dot of the hindwing strong. Korea (type) and southern Ussuri; a very small form (perhaps racially separable) at Tientsin. See on *parallelaria*. — **albicans** *Prout* (5 c). The few further specimens which I have seen from Japan confirm the validity of this race, or representative species. The genitalia show only trifling differences. We figure a heavily marked ♀ from Oiwake.

mus. anastomosaria. insubrica. rossica. substrigaria. subtilis. albicans.

parallelaria. **S. parallelaria** *Warr.* (5 c). This species, of which I have now been able to study the type and a few other ♂♂, all from W. China, has no close connection with *virgulata*, nor with the Korean specimens (*subtilis*) which I supposed to represent it. On an average smaller than *virgulata* and scarcely so broad-winged. Hindtibia of ♂ more strongly dilated, with the tarsus only about ⅔. Ground-colour decidedly tinged with yellowish, irroration not very heavy; cell-dots present, though very small; median shade on hindwing continuing that of forewing, crossing or touching the cell-dot.

majoraria. *S. umbelaria Hbn.* **majoraria** *Leech* (5 c). There is a note by Püngeler (Iris, Vol. 10, p. 363) that a large whitish ♂ from Japan, almost without markings, is somewhat questionable as regards the determination, "as the antennae are longer ciliated." I cannot see that this is the case in the material which I have examined, but would direct attention to the statement of this excellent observer. The genitalia show no material divergence. — **graeseri** *subsp. nov.* (= majoraria *Sterneck*, nec *Leech*) (5 c) is similar, not quite so large (especially the ♀), still whiter or cleaner, the fine dark irroration being slighter, forewing beneath less strongly suffused. Ussuri and the adjacent districts. First recorded by Graeser as "general in Amurland, more or less common."

graeseri.

szechuanensis. **S. szechuanensis** *Prout* (5 c). As the genitalia are very unlike those of *umbelaria* (structure much simpler) the distinctness of this species is confirmed.

nigropunctata. **S. nigropunctata** *Hufn.* (= variegata *Steph.*). The addition of this synonym, accidentally omitted from Vol. 4, is necessary not only for the sake of completeness but also to explain the change of name of one of the aberrations described below. — ab. **anastomosaria** *Preissecker*, with the antemedian and median lines of the forewing anastomosing, was taken by its author at Klosterneuburg, Lower Austria. — **subcandidata** *Walk.* The variability of the Chinese race (or races) was mentioned in Vol. 4 but not studied in detail. Dr. Sterneck has carried the matter a step further by naming some of the principal forms which were found in the Stötzner collections. — f. **subalbulata** *Sterneck*. More whitish than European *nigropunctata*, though somewhat irrorated with black, cell-dots more sharply expressed, median shade sharper, more line-like, terminal line more dissolved into dots, underside (especially of hindwing) decidedly weaker marked. Omihsien and Vladivostok. — f. **ochrea** *Sterneck*. Similar to the type in size, intensity of markings, etc., but reddish ochre-yellow instead of whitish-grey, termen of hindwing somewhat more strongly bent. Kwanhsien, 1 ♀. — f. **rubella** *Sterneck* is likewise reddish ochreous, on an average larger than *ochrea* and typical *subcandidata*, the markings more or less weak. West China (Kwanhsien, etc.). frequent; also Pekin. — f. **nigrisignata** *Prout* (= variegata *Sterneck*, nec *Steph.*). Size of *rubella* (expanse 22—25 mm, measured from tip to tip in set specimens), but very sharply marked, the markings black, not grey, the median shade and postmedian line particularly prominent, the latter with the distal vein-dots accentuated; cell-dots large and black; terminal dots strong. Sumpanting and Omihsien, W. China. — The dates of the Stötzner material seem to show that the second generation is not necessarily smaller than the first. It should be added that *vagata Walk.*, cited by Leech as the brownish Kiukiang form of the present species, has nothing whatever to do with *nigropunctata*, but is a synonym of *vacuata Guen.*, both types from Sarawak.

anastomosaria. subcandidata. subalbulata. ochrea. rubella. nigrisignata.

modicaria. **S. modicaria** *Leech* (Vol. 4, pl. 5 e). A similar ♂ from Pekin has been determined by Sterneck as provisionally belonging here but has the postmedian (of the forewing ?) running straight to the costa near the apex.

emma. **S. emma** *Prout* (5 d). We figure the original ♀ (allotype; see Vol. 4, p. 75). I subsequently recorded the same species from Formosa and (quite erroneously) suggested that it might be a form of *kagiata Bastelb.* It appears, however, that the Formosan examples differ appreciably from those of West China and a separate name which has been given them (*jordani West*) will be accepted in Vol. 12.

S. ambigua *sp. n.* (5 d). Very closely similar to *kagiata Bastelb.*, which is fairly common on Formosa, so that I was inclined to regard it as a subspecies, but the genitalia are too different. An easily observed distinction is that the cerata (rami of the 8th sternite) are very unequal in *ambigua* (the left curved and less than ⅔ as long as the right), while in *kagiata* they are about equal. Both species are larger than *emma*, termen of forewing straighter and more oblique, median shade heavier, and they have a considerably shorter ♂ hindtarsus (½ tibia or scarcely). *ambigua* is appreciably paler than *kagiata*, with the median shade of the forewing not quite so oblique (at least in front of the 3rd radial), therefore less closely approximated to the postmedian at the 1st radial, the markings on the whole somewhat less sharp. Forewing beneath in both species rather strongly suffused as far as the median shade, postmedian line also strong; terminal line beneath brownish, not or scarcely interrupted, accentuated by blacker dots between the veins. Probably not rare in W. China, July to August. — Mt. Omei, Moupin, Wa-shan, Pehlinting, 6000 feet (150 miles N. N. W. of Chengtu), Chia-ting-fu, Kwanhsien, 4500 feet (G. M. Franck), the type a very perfect ♂ from the last-named locality in my collection. *ambigua.*

S. emutaria Hbn. **subroseata** *Haw.* (5 d). This, the ordinary British form, is in general paler than that of S. Europe and with the oblique stripe weaker or slenderer. The biological information which I gave in Vol. 4 was founded chiefly on this form. In the Mediterranean countries it does not seem to be particularly associated with salt marshes nor with Statice limonium, though I have little information regarding the nature of its haunts. Millière associates it with "open places" (lieux frais) and with Convolvulus sepium. If the name-typical form occurs in Britain (e. g., in the New Forest), it is only as an occasional aberration. *subroseata.*

S. flaccidaria Z. **albidaria** *Stgr.*, described in Vol. 4 as an "ab.", is clearly a good race; besides its whiteness, the antemedian line is better developed, the median shade generally broadened, the cell-spot of the hindwing large, the forewing beneath heavily suffused. The British Museum has a short series from E. Turkestan, from an altitude of 4000 feet. *albidaria.*

S. imitaria *Hbn.* Although the aberrations, as stated (Vol. 4, p. 77), are inclined to "pass into one another by gradual transitions," a study of more extensive material has shown that I was scarcely correct in describing them as "little striking." Several forms have since received names. — ab. **rosea** *Trti.* is of a bright rose-colour (deeper than in *syriacaria*), with the black cell-dots and blackish oblique stripe, the rest of the markings obsolescent. Founded on one example from Bengasi. — ab. **aequilineata** *Schwingenschuss* has the oblique stripe slender, linear, like the other transverse markings. Gravosa. — ab. **fasciata** *Vorbrodt* (5 d). Median line and the shade outside it consolidated into a dark band. Founded on 2 from S. E. Switzerland, occasional in many localities. — ab. **umbrata** *Dufrane* is similar, but more "reddish ochreous", the median band apparently still broader, reddish. 2 examples from Vannes. — ab. **bitinctata** *Dannehl* is a very rare aberration, light bone-yellow as far as the median line, the entire outer part of the wing strongly suffused with reddish brown. The type comes from the Roman Campagna. — **syriacaria** *Culot* (5 d) is a small form, prevalent in Syria and Cyprus, with a strong suffusion of flesh-pink throughout and with the postmedian line less sinuous, on an average also with the angle of the hindwing somewhat weaker. Very similar forms are occasionally (but very rarely) met with in North Africa and Sicily and intermediates are not unknown from Syria and Cyprus, but — like M. Culot — I have never seen really typical *imitaria* from these latter localities. *imitaria.* *rosea.* *aequilineata.* *fasciata.* *umbrata.* *bitinctata.* *syriacaria.*

S. stigmata *Moore* (5 d). Following Hampson's synonymy, I described this species in Vol. 4 as *extimaria Walk.* Closer study of the group has shown, however, that Walker's type (described without locality) belongs to the Sikkim-Assam representative, with sharper black dots, stronger spots on the abdomen, etc., so that Moore's *stigmata* ("N. W. India; Solun") has to be revived for the insect here figured, with its characteristically large and compound postmedian spots. *stigmata.*

S. moorei Cotes & Swinh. **achrosta** *subsp. n.* (5 d). Paler (less suffused with red-brown or red-grey) than the other races, the dark irrorotion slighter, dots on fringe weak or wanting. The cell-spot of the forewing is always large, but indistinct, that of the hindwing small, sharply blackish, not — as in many *m. moorei* — replaced by orange scaling. The name-typical race of *moorei* belongs to Sikkim and Assam; *achrosta* replaces it in N. W. India (Masuri, Murree Hills, Simla, Kashmir etc.) and sometimes attains a larger size than its relatives; type a ♂ from Kashmir Valley, 7000 feet, in my collection. *achrosta.*

S. proximaria *Leech* is now known from Szechuan, as well as from Central China. Our figure (Vol. 4, pl. 5 f) is a little too red, the antemedian line of the forewing rather too strongly curved and the dark markings outside the postmedian of the same scarcely developed enough. *proximaria.*

S. propinquaria *Leech* (Vol. 4 pl. 3 l, 5 f). May probably be regarded as a straggler from the Indo-Australian Region. Besides Hong-Kong (mentioned in Vol. 4, p. 78) and other S. Chinese localities, it is not rare on Formosa, March to July. Our figures are satisfactory, though pl. 5 f is somewhat too highly coloured and does not bring out the black spot at the costal end of the postmedian line. *propinquaria.*

francki. **S. francki** *sp. n.* (5 e). At first sight very much like a slightly less broad-winged *propinquaria*, with the dark markings of the outer area much weaker. Hindtarsus of ♂ rather shorter, scarcely over ½ tibia. Both wings with a rather large black cell-dot; median shade somewhat greyer, on the forewing outcurved well beyond the cell-dot; postmedian of hindwing more proximally placed than on forewing, a broader white space separating it from the first subterminal shade, no black costal spot on forewing; forewing beneath less strongly suffused than in *propinquaria*. Kwanhsien, Szechuan, frequent in July (G. M. Franck), type in coll. Prout. Scarcely a whiter form of *limbata Wileman* (Formosa); cell-dots larger, anterior projection of the postmedian line more acute, subterminal line broader.

insolata. **S. insolata** *Btlr.* (= butleri *Prout*). My re-naming was unnecessary, as *insolata Btlr.* was only a "secondary homonym" and *insolata Feld.* now stands in *Ptychamalia*. The present species reaches Assam, Tonkin and even Sumatra, and I can no longer regard *satsumaria Leech* (S. Japan) as more than a race of it.

concinnaria. **S. concinnaria** *Dup.* The type figure of this species is not very satisfactory, the veins being printed so heavily (and blackish) as to give it a very dull appearance. According to the description, however, it is milk-white, the spots of the terminal area of a somewhat bluish grey. Herrich-Schaefer has given a much better figure of this Andalusian form. — ab. **hesperidata** *Rmb.* seems to be really more greyish, and in any case indicates the more brown-bordered of the Andalusian forms. — **universaria** *Zerny* (5 e), from Albarracin, has the borders brighter blue and usually somewhat broader, the postmedian line being placed a little further from the distal margin. Zerny adds Castile, but my examples from Cuenca are *c. concinnaria*.

hesperidata.

universaria.

ornata. **S. ornata** *Scop.* I have not seen material from Amurland, which I included as a locality on the authority of Graeser and Staudinger; neither was my kind correspondent Dr. A. Djakonov able to give me any information. He wrote me that "in spite of the rich material in our Museum from East Siberia, I do not know any specimen of the *ornata-decorata* group from the Amur-Ussuri district. It seems that it is not represented in this region." Possibly it will prove to be the Wei-hai-wei form of *decorata* described below, or more likely a near relative of (or identical with) *ornata subornata Prout.* — ab. **paucisignata** *Krausse* (Vol. 4, p. 151) is evidently not a "var." (local race) as described, but an aberration; 2 of Krausse's Sardinian specimens from the same altitude are in the Tring Museum and do not support his diagnosis. — ab. **defecta** *Stauder*, described as almost entirely white, the cell-spots and cloudy subterminal shading wholly lacking, even the golden-brown spots of the latter very rudimentary, scarcely noticeable, is another extremely weakly marked aberration. Founded on a ♀ from Patsch, Wippthal, transitions also mentioned from Wippach and Trieste. — **enzela** *subsp. nov.* (5 e) has the dark markings slender (median line often wanting, the white subterminal broadened, its proximal brown shading slender but rather bright, its greyer shades almost obsolete, the discal one not or scarcely intensified in cellule 6), thus resembling the chance aberrations occasionally found in Europe but apparently racial in N. Persia. My originals are from Enzeli (see Journ. Bomb. Nat. Hist. Soc., Vol. 28, p. 187), but their differentiation is supported by a short series from the Elburz Mountains.

paucisignata.

defecta.

enzela.

kashmirensis. **S. kashmirensis** *Moore* (5 e). The typical form is the most sharply marked and most recalls *ornata*; it is generally of rather small size. We figure it from Srinagar; it is also distributed in the Punjab. — **gooraisensis** *form. nov.* (5 e) is larger, less pure white, the markings much weakened, the lack of the sharply expressed postmedian line and maculation beyond giving it a very distinctive appearance. Goorais Valley, Kashmir, a good series. — **quettensis** *subsp. nov.* is variable in size, otherwise pretty constant, intermediate between the other forms: clean white, the median line weak or obsolescent, the postmedian very slender, the shade outside it generally lighter brown, distinct on the forewing only. Quetta, the type series collected by Colonel Nurse.

gooraisensis.

quettensis.

decorata. **S. decorata** *Schiff.* Several further forms of this variable species have been described and named, though a few perhaps belong really to the following. — ab. **ablutata** *Dannehl*, from Central Italy, is intensely white, without a tinge of yellow, all the markings reduced, no dark admixture in the 2 yellow-brown terminal spots. — **leukiberica** *Wehrli* (5 e), published nearly 2 months later, is described in nearly the same terms, though proposed more comprehensively, to cover the prevailing (white) forms of S. Spain (loc. tvp.), Algeria, Sicily, etc., and with perhaps more of the "bluish" distal shading retained. — gen. aest. **pumilio** *Rothsch.* was unfortunately published as a Guelt-es-Stel (Central Algeria) form of *ornata*. "Much smaller, whiter, and not so heavily marked. 10 specimens, July 1913". The explanation is that the moderately variable first-brood series of *decorata* was sorted into three, recorded as *ornata*, *congruata* and *decorata*, and naturally this form was attached to the whitest of them. It is not entirely confined to the second brood, although much the more prevalent in that. — **congruata** *Z.* (Vol. 4, p. 79, pl. 3 m) is the oldest name for these white, weakly marked Mediterranean forms, and I suspect that all the 3 foregoing names may have to be suppressed in its favour or (as Zeller included both broods in his description) we might write "*decorata congruata Z.* (= *ablutata Dannehl*, expressly stated to be a first-brood form) and gen. aest. *pumilio Rothsch.*". Zeller's second-brood originals are almost precisely like the type series of *pumilio*. It is this brood only which shows the less sinuous termen and postmedian line of

ablutata.

leukiberica.

pumilio.

congruata.

the hindwing; the supposed antennal distinction is not substantiated. The originals were from Syracuse, in the S. E. of Sicily, but similar material is available from other parts of the island. The genitalia show no difference. Querci took both forms together at Albarracin on 5 October 1924, a ♂ *congruata* (gen. 2 or *pumilio*) with 2 ♀♀ *leukiberica* (equally small but with the postmedian, the borders, etc. typical of gen. 1). — ab. **cyanolata** *Schawerda*, from Corsica (therefore belonging to the subspecies *honestata*) has the blue outer band intensified, particularly on the hindwing. Monte d'Oro, at 2000 m altitude, 1 ♀. Since taken on Sardinia, with *honestata*. — — **rebeli** *Drenowski*, common on the Alibotusch Mountains, Bulgaria, at 1100—1600 m, is large (forewing length usually about 15 mm), pure white, with weak marginal markings. If this is really a constant race of *decorata* and not (as the description would lead one to surmise) a synonym of *orientalis*, it must be renamed, being a homonym of *rebeli Prout*; if a mere aberration of *decorata*, the original name can stand; in the absence of certainty, I do not yet propose any change. — **armeniaca** *Th.-Mieg*, founded on a ♂ from Armenia with a wing-expanse of "28 mm" (which would indicate a forewing length of about 15 mm), is said to be "absolutely typical except in size." Without further information, we cannot be sure whether it is a giant form of *decorata* or a strongly marked *orientalis*. As Alpheraky gives this same expanse for specimens from North Persia, but does not say that they are otherwise like his *orientalis*, there is possibly a large race of *decorata* in that region. — **eurhythma** *subsp. nov.* is a very small form from the Shantung Promontory (♂ 25 mm, ♀ 22 mm), with the shape of the hindwing and its postmedian as in second-brood *congruata* or *pumilio* but otherwise more like *decorata* — ground-colour not quite pure white, median shade well developed, subterminal shades fairly well developed, on the forewing almost exactly as in the less *violata*-like aberrations of that, on the hindwing somewhat weaker. Costal spots of forewing not strong, the postmedian in particular more slender than in nearly all *decorata* forms; subterminal white line relatively broad, somewhat narrowing its proximal shade. Wei-hai-wei, 15 May 1899 (type ♂) and Chifu (Che-foo), 9 May 1899 (allotype ♀), both kindly presented to me by Mr. T. B. Fletcher. He reports it, under the erroneous name of *kashmirensis* (Entom., Vol. 34, p. 200), as "Common in May", but unfortunately took no others. Probably somewhat variable, as the ♀ is more heavily marked than the ♂. — The only *decorata* which I have seen from Tian-Shan (a ♂) has vestiges of the terminal spurs of the hindtibia, and happens also to be the most extreme f. *aequata Stgr.* known to me. I suspect, however, that this is individual, not racial.

cyanolata.

rebeli.

armeniaca.

eurhythma.

S. orientalis *Alph.* (= magna *Prout*) (5 e), described from Taganrog as a race of *decorata*, has been shown by Obraztsov (especially from the genitalia in both sexes) to be a good species. It is larger than European *decorata* (length of a forewing 12—15 mm), the antemedian and median lines are faint, the subterminal maculation reduced, the evanescence of the grey spots at the costa producing a superficial likeness to *ornata*. Distributed in S. Russia and known from Asia Minor. Its exact range has not been worked out, but may probably include Transcaucasia and N. Persia, perhaps even Bulgaria; see *decorata*.

orientalis.

S. arcuaria *Hbn.* (6 b). The suggestion that this was an exotic, accidentally figured as European, is contradicted by a manuscript-note of Hübner's own, which gives the locality as Jülich [Rhein]; my attention was called to this by my friend Dr. von Rosen, when I was studying in the Munich Museum. We reproduce the original figure, in order to bring it to the notice of a wider circle of readers.

arcuaria.

18. Genus: **Glossotrophia** *Prout*

On account of the similarity in the ♂ genitalia, Dr. Sterneck has proposed to unite this genus with his *Ustocidalia* (see p. 34), in which case of course the name would have priority; in other words, it would be necessary to transfer to *Glossotrophia* all those *Scopula* which have the "fibula" heavily chitinized, with deep black tip: *ternata*, *frigidaria*, *imitaria*, the *marginepunctata* group, *incanata*, the *floslactata* group, *ochroleucaria*, *adelpharia* and numerous others. Although it is not unlikely that some of those are really related to *Glossotrophia*, the same can not be said of *ternata*, *imitaria*, etc., nor of *Stigma*, which has also such a fibula; moreover, the 4-spurred ♀ hindtibia is valid for *Scopula* the world over, and *Glossotrophia* is a quite natural group, more easily defined than many of the genera which are unhesitatingly accepted.

G. eurata *Prout* (5 e). This or an exceedingly similar species has subsequently been taken in Kashmir (Srinagar), where it varies in colour though a little less extremely than does *confinaria*. Our figure is from a Srinagar ♀.

eurata.

G. confinaria *H.-Sch.* still stands in need of a thorough monographic revision, as the variation — like that of *S. submutata* — is evidently in part geographical, in part individual. Even on the Adriatic littoral, where probably the least pronounced deviations from the typical form are found, an occasional very dark aberration has been taken. — ab. **corrivularia** *Mill.* This name, being faultily published (see Icon. Chen. et Lép., Vol. 3, p. 54), has been entirely overlooked, but is certainly more than a nomen nudum. "The ♂ and ♀ only differ from *confinaria* in the larger size and better marked bands". No locality is given, but an occasional brood or colony (for instance, from Herkulesbad in July 1907) entirely conforms to the description. — ab. **arenacea**

confinaria.

corrivularia.

arenacea.

Prout. This aberration, which is sometimes inaccurately called *falsaria*, was figured under that name in Vol. 4, pl. 4 h. The only extreme examples in the Tring Museum are from the Ragusa collection, but as they had no
dannehli. locality-label I doubt whether they were of Sicilian origin. — **dannehli** *Prout* (= romanaria *Dannehl*, nec *Mill.*) is said to be definitely a subspecies throughout the calcareous parts of Central Italy from the sea-shore up to about 2000 m (e. g. in the Sorente and Majella), though very variable inter se. "Especially large (up to 26 mm), very light, often almost whitish, with very sparse irroration and weak, diffused markings." I express no opinion
desertata. as to the validity of the race. — ab. **desertata** *Dannehl* is a further development, large, white, very weakly but quite regularly dusted, in extreme instances almost without markings excepting a narrow necklace-like border-
commutata. ing, produced by the terminal line and the chequering of the fringes. Type from Rome. — ab. **commutata** *Dannehl* is the opposite extreme, with much strong blue-grey scaling, especially in outer area, so that it much resembles *S. submutata*. Ground-colour somewhat more inclined to grey, without especially noteworthy dark dusting and not inclining to yellowish. Mostly robust. Found chiefly at high altitudes, fairly frequent among
falsaria. *confinaria* in the southern parts of the S. Tyrol, Etschtal, Gardasee, etc.; the type from Torbole. — **falsaria** *H.-Sch.* (5 f) remains a puzzle. As mentioned in Vol. 4, p. 82, the type ♂ is said to have come from the Caucasus (Elisabethpol); moreover, it is described as ampler winged and "much yellower" than *confinaria*, and although the figure shows a considerable admixture of moderately dark blue-grey it is quite unlike the Tyrolese and Sicilian forms which have since been called *falsaria*. Romanoff has recorded "*lăridata*" (by which was understood a moderately dark form of the present speeies) from a few Transcaucasian localities in June, but gives no further detail. Probably the name *falsaria* will have to be restricted to this race, but it is not possible to decide without
perfalsaria. confirmatory material. — In the mean time I provisionally use the name ab. **perfalsaria** *Prout* for the dark
aetnaea. form which is frequent in the Tyrol and occasional in S. Switzerland, etc. — **aetnaea** *subsp. nov.* It appears justifiable to give a separate name to the very dark geographical race of the Etna contry (Province of Catania),
anastomosaria. with its proximal subterminal shade particularly heavy, at least in the ♀♀. — We figure as ab. **anastomosaria** *nov.* (5 f) a beautiful aberration of *aetnaea* with the antemedian and median lines connected into a band. —
uberaria. **uberaria** *Zerny* is a large, robust race from the northern Lebanon, with the postmedian of the forewing finer and sharper. Ground-colour more yellowish than in the type (though not so sandy as in *arenacea*), border of hindwing often smoky, chequering of fringe never strong.

diffinaria. **G. diffinaria** *Prout*. The relation of this insect to *confinaria* is not so simple as was assumed; the geographical range of the two overlaps. Since, however, the distinction is morphological, and is constant for each locality, we must continue to regard it as a species. Dr. Wehrli has recently recorded it from Marasch, at 700 to 1800 m. in May and June, with a 2nd brood in August, of much smaller size. In this district it is very variable and some of the 2nd brood might have been mistaken for *asellaria*, apart from the structural difference. — ab.
ochrearia. **ochrearia** *F. Wagn.*, prevalent in Inner Anatolia, though not a fixed race, is an ochre-yellow form, analogous to *confinaria* ab. *arenaria*.

rufomixtata. **G. rufomixtata** (*Rmb.*) *Stgr*. Figured without a generic name in 1866, this species was referred to *Acidalia* in Staudinger's 1871 Catalogue and may thus be considered as validated from that date. For a careful study and comparison with the following, much too extended for quotation here, the reader is referred to Wehrli's article in Iris, Vol. 40, p. 116—121. *rufomixtata* is strongly variable in size and colour; the name-typical form is greyish, somewhat as in *confinaria*, from which it is readily distinguishable by the peculiar arrangement of the scaling which, for want of a better word, I have called "fluted", though this is only an optical illusion. The best distinction in markings from the following species is in the proximal half of the hindwing, which is coarsely
perrufa. mixed or marked with blackish. — ab. loc. **perrufa** *Wehrli* (5 f) adapted to the red rocks upon which it occurs in some localities (notably the Upper Geniltal) is extremely red or blackish-red, though the base of the hindwing remains characteristic. All transitions are found. — Concerning the geographical distribution of *rufomixtata*, I can add nothing definite to what was given in Vol. 4. The only Tenerife example known to me, a ♀, can only doubtfully be referred here; and the same remark applies to some rather puzzling Algerian ♀♀ (Sebdou, Blida Glaciers, etc.) which are in a measure connected with the most mottled forms of the following but seem to have too long a tongue.

G. asellaria is apparently the correct name for the assemblage of races or closely allied forms which have oftenest been quoted as *romanaria*, or by Wehrli (olim) as *dentatolineata*. As I have already pointed out in Vol. 4, the less long tongue affords a good structural distinction, although when it is closely rolled up the
isabellaria. length is sometimes difficult to estimate. — **isabellaria** *Mill.*, from Spain, is probably the gayest or reddest member of the assemblage, but some Barcelona specimens are said to resemble the following pretty closely. "Western Spain", given in Vol. 4 as the original locality, was a laps. cal.; Millière's specimens came from
dentatolineata. Mount Putchet, Barcelona. — **dentatolineata** (*Rmb.*) *Stgr.* occurs with *rufomixtata* in the Andalusian mountains, though more sparingly. It is yellow-brown or yellow-grey, apparently never reddish-ochreous, the "fluted" scaling is chiefly restructed to the spots of the marginal area and the basal half of the hindwing is not differen-
romanaria. tiated in colouring from the rest. — **romanaria** *Mill.* was adequately described and figured in Vol. 4, but I

think Spain should be deleted from the list of localities, while Algeria (at least some eastern stations) may be added. In Oran and Morocco the forms are generally more reddish and coarsely marked, temporarily referable to *isabellaria*, perhaps a new race, perhaps (as Wehrli has indicated) phases of *philipparia Prout*. But a very large series of the African forms, and from very many localities, will need to be brought together and analyzed before their great variability can be clearly understood. Chrétien took larvae frequently at Gafsa, feeding on the leaves of Fagonia cretica, Anarrhinum brevifolium and even Salvia aegyptiaca, and confirms the absence of the free tongue-case of the pupa which is found in *rufomixtata*. — **asellaria** *H.-Sch.* (= insularis *Wehrli*) (5 f), from Corsica, is small, sharply marked, grey-brownish. Herrich-Schaeffer's figure, which was long misidentified (see Vol. 4, p. 107), seems to represent an aberration with the median line strongly angled near the costa. Sardinien specimens are slightly transitional towards *romanaria*. — **semitata** *Prout*. The suggestion that this might be a separate species has not hitherto been substantiated. Similar forms occur on Cyprus. Variable. — **taurica** *Wehrli* is considerably darker, the scaling not "fluted", but agrees with *semitata* in its strong black costal spots. Marasch, Taurus. *asellaria.* *semitata.* *taurica.*

G. tripolitana *Trti.* "Expanse in ♂ and ♀ 23 mm." Apex of forewing rather acute in the ♂, distal margin more rounded in the ♀. Whitish, with extremely fine yellowish irroration (less intense than in *romanaria*), markings sandy ochreous, the irregular subterminal shades less strong in the ♀ than in the ♂♂. "Antenna finely ciliate in the ♂." Hindtibia of the ♂ with a single, long spur. Tongue moderately long. Founded on 2 ♂♂ and 1 ♀ from Sidi Mesri, April 1925. Excepting the reduced irroration and the "brown, not black" cell-dots, mentioned by Turati, and apparently the lack of black costal spots at the origin of the lines, I can point to no distinctions from *asellaria*, of which it may well be a further race. *tripolitana.*

G. romanarioides *Rothsch.* (5 f). We figure one of the original series from Oued Mya, Central Sahara. All the known examples are small, the length of a forewing in the largest ♀ being 9.5 mm. An additional distinction from *asellaria*, not mentioned in Vol. 4, p. 416, is that the face is pale, while in most *Glossotrophia* it is strongly irrorated or almost entirely covered with dark scales. *romanarioides.*

19. Genus: **Holarctias** *Prout*

In addition to the characters on which this genus was founded, Dr. Sterneck (in litt.) separates it from *Scopula* by the lack of the cerata (horns of 8th sternite in ♂) and by the socii (lateral arms of the ♂ uncus), which are here broad, with parallel sides, longish, rounded."

H. rufinaria *Stgr.* (= rufociliaria *Brem.*) (5 f). Dr. Sterneck has pointed out sufficient differences in the uncus to justify our regarding this as a separate species: central point not erect, socii less dentate, shortly rounded and without pronounced lobe on the outer side (vestige of gnathos?). The name of *rufinaria*, given in place of the preoccupied *rufularia Ev.*, has 3 years' priority over *rufociliaria*. We figure a ♂ from Apfelgebirge, Transbaikalia. — **rufinularia** *Stgr.* appears to agree almost exactly in structure with *rufinaria*, but has the ♂ hindtarsus about as long as the tibia, while Sterneck's measurements give "about ⅔" for *sentinaria* and *rufinaria*; as, however, tibia and tarsus are of almost equal length in all the *Holarctias* which I have examined, I suspect some mistake here. *rufinaria.* *rufinularia.*

20. Genus: **Oar** *Prout*

O. pratana F. **oppressa** *Walk.* (= obscuraria *B.-Bak.*) (5 f.). This dark form, in which should probably be merged *nigrescens Hmpsn.* and *mortuaria Stgr.*, was described under the name *oppressa* in 1870, thus 24 years prior to the name *obscuraria*. The type was from the Egyptian Sudan, *obscuraria* type from Egypt, *nigrescens* from Aden, *mortuaria* from Palestine. — **occidens** *subsp. n.* (5 g) is of a brighter brown than *pratana*, the shade proximally to the subterminal of forewing stronger and broader, so as to reduce the white boundary of the postmedian to a mere line. Perrégaux, Oran, October 1915, the type series in the Tring Museum; also from Taourirt, July 1918. *oppressa.* *occidens.*

21. Genus: **Stigma** *Alph.*

Here again the ♂ genitalia supply further structural distinctions from the adjacent genera. As in *Holarctias* and *Oar*, the cerata are wanting, but the fibula are of the "*Ustocidalia*" type and the valve and uncus show a combination of characters which has not yet been met with elsewhere.

S. kuldschaensis Alph. **negrita** *Th.-Mieg* (5 g). We figure a ♂ of this form from Juldus. *negrita.*

22. Genus: **Cinglis** *Guen.*

Notwithstanding its specialised venation, it seems clear that this genus belongs with the present group; in any case certainly not with *Cosymbia*. The mappa and cerata are present as in *Scopula*, indeed most of its anatomical characters may be found in one or another member of that genus, though the short fascicle-

bearing pectinations of the ♂ are there very rare, I think otherwise unknown in the Palaearctic Region (for the *S. dimoera Prout* and *sordida Warr.* of S. India, see Vol. 12).

humifusaria. **C. humifusaria** *Ev.* (Vol. 4, pl. 4 a). I have now examined considerable material, from localities ranging from Morocco to the Ili district, and find exceedingly little variation in it and apparently none that can be considered geographical. It is evidently one of those species which have found a very perfect adjustment to their environmental needs. — ab. **reducta** *Th.-Mieg* merely refers to an undersized specimen (♂) from Andalusia.

reducta.

andalusiaria. **C. andalusiaria** *F. Wagn.*, just published, is said to be on an average somewhat larger and more robust, more chocolate-brown, the white markings much restricted, cell-spots less prominent, forehead not white, ♂ pectinations and ciliations much stronger. Andalusia and Murcia. The figures which are to elucidate the antennal differences have not yet appeared; all the forms before me have similar antennae, but these do not include Andalusian or Anatolian ♂♂; possibly it is the Anatolian, as its author first suspected, which requires a new name.

23. Genus: **Emmiltis** *Hbn.*

teriolensis. *E. pygmaearia Hbn.* **teriolensis** *Dannehl* is said to be darker, more olive-grey than the Italian forms which, for purposes of comparison, Dannehl regards as name-typical, the markings more slender. Recorded *vannaria.* from various localities in the Tyrol. — gen. aest. **vannaria** *Dannehl.* Smaller, somewhat lighter, also inclining to olive-grey, the markings more complete and bandlike. Type from Gardasee. Considered to be the second generation of *teriolensis* rather than of the name-type, but a more scientific working-out of this variable species *sirentina.* is still a desideratum. — **sirentina** *Dannehl*, provisionally proposed for the forms from the Sirent, Sabine and Alban Mountains, is much more yellow-brown, in general somewhat larger, perhaps relatively longer-winged and with heavier markings than *teriolensis*. Unfortunately the originals, like most of Hübner's Geometridae, were undescribed, therefore of unknown origin. They are shown dark, but not olivaceous, and I cannot match them; moreover, *minutaria F.*, from Italy, which perhaps refers to this species, will also have to be taken into account in revising the nomenclature.

24. Genus: **Anthometra** *Bsd.*

unicolorana. *A. plumularia Bsd.* ab. **unicolorana** *Dufrane.* Absolutely uniform dark reddish ochre, with no trace of darker lines. — ab. **fusca** *Dufrane.* Darker, almost black, the lines lost in the ground-colour. Both these are from Soalheira, Portugal.

fusca.

25. Genus: **Cleta** *Dup.*

The species which was tentatively, but quite erroneously, referred here on p. 417 of Vol. 4, has since been assigned to its correct position with *Scopula gastonaria* (see p. 34). No fresh additions have been made to *Cleta*.

ramosaria. **C. ramosaria** *Vill.* (5 g). We figure a Spanish example of the name-typical race. Dr. Wehrli, who shares the suspicion that *transiens* may be a separate species, has recorded the latter from Chiclana, thereby adding Andalusia to its known range.

cinneretharia. **C. cinneretharia** *Amsel.* About 2 mm larger than *transiens*. Brown-yellow, without darkening of basal area and border; lines of both wings less waved, the median on forewing almost straight, exactly midway between ante- and postmedian, cell-dot of hindwing entirely wanting above, quite weakly indicated beneath; fringe-dots more distinct than in *transiens*, less proximally placed; underside similar, the lines still sharper. Genezareth.

26. Genus: **Sterrha** *Hbn.*

Almost all authorities, at least as regards our Palaearctic fauna, are now agreed that the distinction between *Sterrha* and *Ptychopoda* on the basis of the number of spurs on the ♂ hindtibia is not of generic value. It is therefore necessary to call the entire assemblage by the older name of *Sterrha*. The diversities of structure as regards secondary sexual characters in the ♂ form an extremely interesting but apparently interminable study, especially when one comes to deal with the exotic forms. It is possible that some of the groups which are founded on these structures really constitute valid genera, but hitherto I have not felt able to draw a line of demarcation; in the Lepidopterum Catalogus, no less than 548 species of *Sterrha* are registered, and this must be very far short of the world's total.

For convenience of reference, I have retained the sectionising according to the ♂ tibial armature.

A. Section *Sterrha*: ♂ hindtibia with terminal spurs present (very rarely one only).

S. aureolaria *Schiff.* (Vol. 4, pl. 4 a). The restriction of the range of this southern and eastern species in North Germany to a few scattered localities has recently given rise to some discussion regarding the probability of its being a "Xerothermrelict". It is not possible here to go into the arguments, but they show the absolute necessity of collecting reliable records, of the occurrence of local species and of their entire ecology. — ab. **latistrigata** *Vorbr. & Müll.-Rutz* has the fine lines replaced by thick streaks, on the forewing 3, on the hindwing 2. Zermatt. — ab. **pseudolutearia** *Osthelder*. Lines reddish instead of blackish, thus recalling *luteolaria Const.* Schleissheim, S. Bavaria. Also known from Kelheim. — **transsylvanaria** *Dannehl.* On an average a little larger and deeper gold-yellow, the lines, including the terminal, extraordinary fine and slight, less dark than in the type. Founded on 18 ♂♂, 4 ♀♀, Kronstadt district. *aureolaria. latistrigata. pseudolutearia. transsylvanaria.*

S. luteolaria *Const.* (Vol. 4, p. 90, pl. 4 a). According to Chrétien, the larva described by Millière, which has formed the basis of the descriptions in our text-books, bears no resemblance to those which he (Chrétien) has bred ex ovo from both its original localities — Font Romeu (Pyrenees) and San Ildefonso — and the eggs sent to Millière must have belonged to a different species. The adult larva is elongate, arcuate, attenuated anteriorly, thickest at segments 7, 8, 9 (presumably the 4th, 5th and 6th abdominal), each of which equals in length the entire thorax; segmental incisions very pronounced, especially posteriorly; yellowish grey, more or less shagreened and with small bosses; dorsal line yellowish white, subdorsal broader, blackish-brown, a strigiform dark-brown spot above the yellowish-white spiracular line on each of the first 6 abdominals. *luteolaria.*

S. ochrata Scop. (Vol. 4, pl. 4 a) ab. **major** *Dufrane* merely denotes an extra large ♂ ("28 mm"), from Evreux, France and need not have been separately named. — ab. **flavescens** *Galvagni*. Much more striking, so that even so experienced an entomologist as Dr. Rebel has suggested that it may be a natural hybrid, a too frequent and rarely justifiable explanation of abnormal aberrations. Wing-shape and fringes speak for *ochrata* (attention is directed to the acute apex of the forewing, excision in margin of hindwing and presence of a distinct dividing-line in the fringes, particularly beneath), the size and colour, on the contrary, for *rufaria*; cell-dot wanting on forewing, indicated on hindwing. Founded on a ♀ from Neusiedel (Burgenland); a similar, but more reddish ♀ from the Island of Lissa is also referred here, as it remains paler than normal *rufaria*. *major. flavescens.*

S. numidaria *Luc.* (Vol. 4, pl. 4 b). Variable in size and in the position of the median line. Examples are not infrequent in which it is so close to the antemedian as almost to give rise to the "ab. *anastomosaria* nom. coll."; at the other extreme, it may be fully twice as far from the ante- as from the postmedian. *numidaria.*

S. rufaria Hbn. ab. **purpurea** *Reisser*. Densely dusted almost throughout with violet-red, the broad clear yellow fringes strongly contrasting. Oberweiden. — ab. **rufobrunaria** *Hörhammer* is another strongly suffused form ("dark reddish chocolate"), but retains a yellow area between the median and the antemedian, on the hindwing reaching the base; postmedian blackish. Naumburg. *purpurea. rufobrunaria.*

S. delibata *Prout* (= rufaria *Hmpsn.*, nec *Hbn.*) (5 g). More glossy than *rufaria*, forewing slightly shorter, median line stronger and somewhat thickened, postmedian and subterminals weakened; fringe with small dark dots; hindwing termen slightly more sinuous, cell-dot strong, somewhat more elongate. Underside sharply marked. Kashmir, where it doubtless represents *rufaria*, though I can scarcely consider it a race of the same. *delibata.*

S. turatii *Sohn-Rethel*. Only known to me from the description and figure. Said to be very similar to *consanguinaria* (vol. 4, pl. 4 b), but still lighter, and still more glossy, the markings obsolescent, with the lines more yellowish, not brownish. When, however, its author adds that it is structurally distinct in that the 2nd subcostal and 1st radial of the hindwing are stalked (a character that applies to all *Sterrha*), we are inclined to suppose that he has misidentified *consanguinaria* and that *turatii* may be a form of Lederer's species. Described from the Abruzzi (Gran Sasso). *turatii.*

S. consanguinaria Led. ab. **consecrata** *Stgr.*, which has been hitherto treated as a separate species (see Vol. 4, p. 94), is shown by Zerny to be merely an infrequent banded aberration of *consanguinaria*, analogous to several in *Sterrha*. Among a series of 140 collected in the Northern Lebanon about a dozen are *consecrata*. The genitalia show no difference. *consecrata.*

S. determinata *Stgr.* (= geministrigata *Fuchs*) (Vol. 4, pl. 3 e). I have repeatedly attempted to reconcile this variable species with Herrich-Schaeffer's description of his enigmatical *nitidulata*, which, if belonging here, would be the oldest name for it. It was described without locality, but later matched with a Sicilian ♂ so similar to *litigiosaria* ♀ that he felt uncertain whether it, rather than his *morosaria*, was the other sex thereof. The locality, and the fact that its forewing possessed a median line, would favour *determinata;* but that line was explicitly stated to run proximally to the cell-dot on the forewing and the underside had a strong terminal line beneath. Moreover, the description of the antenna fits better to that of *determinata.*

litigiosaria and the original description speaks of a slight "sea-greenish gloss". I am therefore unable to restore the name here. Under the name of *geministrigata*, Drenowski has recently recorded *determinata* from Bulgaria;
fasciata. Rebel & Zerny add Albania. — ab. **fasciata** *Stgr.* (= kammeli *Staudinger*) (5 g), the former described from the Taurus as a species, the latter from S. Italy, where the form is not rare, is a prettily banded form, corresponding to the ab. *consecrata* of *consanguinaria*.

mutilata. **S. mutilata** *Stgr.* If this, as was suggested in Vol. 4, is really another form of *determinata*, it may help to solve some of the difficulties mentioned above regarding the acceptance of the name *nitidulata*. The yellowish grey tone in poor specimens might well indicate a sea-green gloss when fresh; the median line would be proved variable and the strong terminal dashes might in extreme cases suggest a continuous line.

sardoniata. **S. sardoniata** *Homberg* (= concordaria *Püng.*) (Vol. 4, pl. 3 f). The name of *concordaria* was not published b i n o m i a l l y until long after *sardoniata*. A further Spanish locality is Albarracin.

debiliata. **S. debiliata** *Sterneck.* "15 and 16 mm." Related to *lambessata* (Vol. 4, pl. 4 b), apex of forewing somewhat more pointed. ♂ antennal ciliation extremely fine and short. Veins 6 and 7 of hindwing stalked to about ½. Whitish grey with only a slight yellowish tinge; markings light grey, the lines weak, especially the antemedian; median almost straight; postmedian not dentate, oblique outward from costa, then curved, at the 3rd radial somewhat excurved, otherwise almost straight to the hindmargin; subterminal not very distinct, its distal shade only in the anterior half weakly visible; terminal line faint, but almost continuous. Hindwing with the markings more distinct and sinuous. Both wings with distinct cell-dot. Forewing beneath somewhat darkened. The ♂ genitalia have much in common with the *lambessata* group, but have an additional (third) spike or minute prong on the valve and a vesica more suggestive of the *sericeata* group. Recently discovered by Messrs. Zerny and Schwingenschuss in the Moroccan Great Atlas, the type series from the Goundafa district, 1200 m, latter half of June; a larger ♂ from Tachdirt, 2300—2700 m at the end of July.

flavidior. *S. mediaria Hbn.* **flavidior** *Rothsch.* Proposed for the Algerian form, under the impression that it was more yellowish than the European, but I cannot see that this holds to any appreciable extent, and if the race (which is not uncommon at Guelt-es-Stel) is differentiable it may very likely be on other characters.

renataria. **S. renataria** *Ob.* (Vol. 4, pl. 4 b) is on the wing from about the 20th of April till the third or fourth week in May. In addition to having a wide range in Algeria, it is now known to extend as far eastward as Sidi Mesri, Tripoli.

bengasiaria. **S. bengasiaria** *Trti.* (5 g). Near *renataria* but more densely irrorated, forewing with a shade and a line between base and cell-dot, both wings with median line much less thickened, the line outside the (very slender) postmedian less regular, on the hindwing strongly broadened. Cyrenaica.

sericeata. **S. sericeata** *Hb.* (Vol. 4, pl. 4 b). Very variable geographically, some of the forms so nearly intergrading between the type and *allardiata* as to suggest that the latter is nothing more than a very specialised race of it.
albomarginata. — ab. **albomarginata** *Zerny.* The brown band outside the subterminal wanting on the hindwing, on the forewing reduced to vein-streaks (the ♂ type, from Albarracin) or entirely wanting (a fine ♀ of the form *allardiata* from
solida. Lambèze, Algeria in the British Museum, ex coll. Bleuse). — ab. **solida** *nov.* Forewing with the 3 lines of the median area united into an almost solid band, only with some very slight indications of the pale interspaces here and there; the white band beyond it rather broad, not quite so sinuous as in the type; subterminal also fairly strong and regular. Founded on 2 ♂♂ from Helenendorf, Transcaucasia, both in the British Museum; they are the only specimens I have seen from that district and will, I suspect, prove to be a local race or at least a recurrent aberration; but I have seen one somewhat similar example from Switzerland (Vissoye) and Reisser has
wehrlii. recently recorded one from Austria. — ab. **wehrlii** *Prout* (= calvaria *Wehrli*, nec *Lah.*) is a large form from the Sierra Nevada, Andalusia (up to about 2000 m), especially Monte Calvario, with broader white bands, weaker-marked hindwing and generally light underside; median white band of forewing, in particular, often
altivolaria. much widened posteriorly. — **altivolaria** *Bubacek* (5 g), from the Mountains of Corsica, also from Sardinia, is the antithesis to *wehrlii*, medium-sized or small, the white bands narrowed, particularly the one outside the post-
extrema. median and sometimes the subterminal. — ab. **extrema** *Bubaček* is almost unicolorous brown, the white bands
subrecta. being almost entirely suppressed. Rare among typical *altivolaria*. — **subrecta** *subsp. nov.* (5 g). Bands straighter, particularly the brown postmedian of the forewing and the white band outside it, thus approaching those rare forms of *allardiata* in which the median area is broadened and white-centred. It retains, however, the olivaceous tinge of European *sericeata* and has not the breadth of the two outer white bands (postmedian and subterminal) which characterizes almost all true *allardiata*. Morocco, the type series from the Great Atlas.

volloni. **S. volloni** *D. Luc. & J. Joan.* (= macraria *Trti.*, nec *Stgr.*) (5 h) has no really near relationship to *fathmaria*, which, on account of the ♂ hindleg structure, has to be removed from the section *Sterrha; volloni*, however, probably also deserves a section apart, as the costal vein of the hindwing anastomoses strongly with the subcostal, as in the otherwise unrelated African *lilliputaria Warr.*, etc. (see Vol. 16, p. 81). The account of the

early stages given in 1909 by Chrétien under *fathmaria* rested on a misindentification (see Ann. Soc. Ent. Fr., Vol. 85, p. 394) and our abstract thereof must be transferred here. Turati's sinking to *Limeria macraria* is likewise a misidentification; shape and structural characters are very different; he records an example from Barca, Cyrenaica, in March. — ab. **numidica** *Trti.*, from the same locality in December, likewise a single specimen, is larger, fuscescent, with the lines obsolete or nearly so. I have seen a ♀ from Guelt-es-Stel very similar to his figure. *numidica.*

S. attenuaria *Rmb.* To the distribution given (Vol. 4, p. 97) are to be added Spain and the south of France. *attenuaria.*

S. moniliata *Schiff.* A synonym which was omitted from Vol. 4 is *pluripunctata Scharfenb.* Variation negligible; specimens before me from N. Persia show no appreciable difference from the Spanish and French. *moniliata.*

S. typicata *Guen.* (= asellaria *auct.*, nec *H.-Sch.*) (6 h). On the transference of Herrich-Schaeffer's long-misapplied name, see *Glossotrophia*. We are thus left with *typicata* as the probable name for the *asellaria* of Vol. 4. Unfortunately, however, Guenée's type (here figured) is a rare aberration, of which I have only seen two or three examples, exclusively from Digne, with the postmedian line more proximally placed and the median shade almost or altogether obsolete. Oberthür and Culot have stoutly maintained that this is a separate species, but there seems no evidence for this view. — Perhaps the more strongly marked French specimens may be called ab. **ruminata** *Mill.* — ab. **ciliipunctata** *Wehrli*, from Rovio, Tessin, has all 3 lines distinct, the postmedian strong, but lacks the subterminal markings and even the terminal dashes, but has developed strong black dots on the fringes, so as superficially to resemble *consolidata*. — **desertata** *Dannehl* is the antithesis of *ruminata*, white with a slight tinge of yellow-grey, the markings weak (recalling *depressaria*). Variable in size and in the density of the irroration. General in Central Italy, up to 1800 m. — **dyraria** *Zerny* (6 h) from Tachdirt and its vicinity, 2300—3100 m (Moroccan Great Atlas,) is larger, the forewing reaching in the ♂ a length of 11,5 mm, with both wings relatively elongate. Very glossy, generally even darker than *hornigaria*, but with a yellowish or ochre-reddish tone; lines broad, especially the subterminal. Founded on a good series collected in July. Structure quite typical. — The present species and several which follow have been moved to a position in section *Sterrha*. For *reynaldiata*, see under *alyssumata*. *typicata.* *ruminata.* *ciliipunctata.* *desertata.* *dyraria.*

S. ludovicaria *Culot* (5 h). Variable in details, the stalking of the 2nd subcostal of the hindwing always long. Hindtibia of the ♂ with 2 strong spurs, tarsus longer than tibia. The more ochreous tone, proximal position of median shade, etc., remove it widely from *typicata*. Distributed in Algeria, the type ♀ from Geryville. *ludovicaria.*

S. unicalcarata *Prout* (5 h). Very similar to the preceding, but smaller, the tongue apparently longer, the ♂ hindtibia with a single, long terminal spur. Ground-colour more rufous, markings generally weaker, frenulum of ♂ black or blackish (in *ludovicaria* light ochreous brown). Forewing with median line crossing, or bent outward just distally to, the cell-dot, posteriorly in general rather strongly curved inward; subterminal line weak. Hindwing with similar distinctions. Algeria, the type series from Bou Saada; also known from Morocco. *unicalcarata.*

S. mesodela *Prout* (5 h). Somewhat resembles *sabulosa Prout* and a few other obscurely marked Palaearctic *Sterrha*, but is readily distinguishable by the presence of a pair of spurs on the ♂ hindtibia and by the strongly developed, though slightly irregular median line, which on the forewing turns slightly baseward at costa and curves inward at the fold; on the hindwing both this and the postmedian are more sinuous. Kashmir: Srinagar, etc. *mesodela.*

S. nigrolineata *Chrét.* (7 b). Since the publication of Vol. 4, I have seen this easily recognized species from Sebdou, Oran. The ♂ hindtibia has 2 spurs and the correct position in the genus is approximately that to which we now assign it. *nigrolineata.*

S. completa *Stgr.* (5 h). As the supposed "*intermedia*" from Gafsa and other N. African localities prove to have been really *completa*, the comparisons made in Vol. 4, p. 131, are in part invalidated. Wehrli has recently published a careful differentiation and considers the distinctions to be of specific value. In *completa* the face and palpus are brown or red-brown, with vertex not or very little paler; in *intermedia* black or blackish with vertex pale; similar distinctions apply to the dark parts of the wings, which moreover in *intermedia* do not reach the cell-dot of the forewing and are straighter-edged; in *completa* the cell-dot itself is finer, placed within the dark area or on its boundary-line, while the fringe-dots are always well developed (in *intermedia* smaller, sometimes wanting). A North African series of over 100 shows considerable variability in the basal area, otherwise Wehrli's differentiation almost always holds; a few specimens have the vertex considerably paler than the face and one narrow-banded ♂ (Birtraria, ex coll. Holl) has the black cell-dot well outside the median line, but this is in any case very exceptional. *completa.*

S. intermedia *Stgr.* (5 h). I believe Cyprus is to be added to the range; a small but unfortunately much damaged ♀ from the Stourovoum Mountains seems clearly referable here. *intermedia.*

nevadata. **S. nevadata** *Wehrli* (= subcompleta *Fernandez*, ? salmanticensis *Mendes*, indescr.) (5 h). First described on a ♂ from the Sierra Nevada, at about 2400 m altitude and without doubt representing the undescribed "*completa* var. an sp. aff." of the Staudinger-Rebel Catalog. Antenna subserrate, the ciliation scarcely longer than the diameter of the shaft. Forewing a little narrower and more pointed than in *filicata*, yet not so acute as in *figuraria B.-Haas* (Vol. 4, p. 130). Nearest to the latter, but distinguishable by the smaller and differently formed dark area of the forewing, larger and straight-edged dark area of the hindwing, more strongly angled median line, with the cell-dot placed upon (not before) it, much finer postmedian line of the forewing and unchequered fringes (merely with strong, coarse black dots on the veins). Only known from southern Spain.

vulpinaria. **S. vulpinaria** *H.-Sch.* There is still no further morphological evidence, beyond the differences in the tibial armature of the ♂, for the separation of this from *rusticata* and some authorities still regard both as forms of a single species. The remarkable constancy of that difference, however, and the practical certainty that it will never be eliminated by inbreeding, lend sufficient support to their separation and allow us to assign each to its right section in the genus *Sterrha*. In Spain, where both occur together, the *vulpinaria* which I have seen belong to the reddish forms, while the *rusticata* represent a special race (see below).

B. Section *Ptychopoda*: ♂ hindtibia with terminal spurs wanting.

aestiva. *S. rusticata Schiff.* gen. aest. **aestiva** *Dannehl.* This name has been given to the summer-brood, e. g. from Etschtal and the lowlands of Central Italy. Smaller and with the markings reddish, not fuscous. —
mustelata. **mustelata** *Rmb.* (5 h). Subsequent experience has confirmed the general validity of the Spanish race. Although the posterior half of the band of the forewing is very seldem wanting, it is as a rule greatly attenuated and frequently disappears just before reaching the hindmargin. Almost, if not exactly, the same form occurs in Morocco and parts of Algeria, where it received the manuscript name of *algirica B.-Bak.*, a name which can be utilized if a difference is demonstrated for the Africau forms.

reynaldiata. *S. alyssumata Mill.* (= alyssata *Zerny*) **reynaldiata** *Roüast* (= romaui *Wehrli*) (5 i as *reynoldiata*). As has already been pointed out (Vol. 4, p. 107), this species offers another instance of the evidently direct derivation of a spurless from a two-spurred *Sterrha*. So close, indeed, is the resemblance that I unfortunately neglected to confirm Staudinger's erroneous statement that *reynaldiata* was synonymous with *asellaria auct.* (*typicata*). The rediscovery of a representative of the superspecies in the Lyon district by M. Roman caused me to examine some of Roüast's originals, with the result indicated in the synonymy above. They are of a much purer grey than typical *alyssumata* from Barcelona, etc., almost entirely without the vinous or reddish reflections, and have the markings stronger and coarser. Altogether very closely like *typicata* excepting in the ♂ tibial armature. It is interesting that Rondou reports *typicata* and *alyssumata* for the Pyrenees. I myself have only seen the latter from that district, but so good an authority as M. R. Homberg is responsible for a record of the former at Vernet-les-Bains. There is a description by Chrétien of the early stages of "*asellaria* var. *reynaldiata*" (Amat. Papill., Vol. 4, p. 150) which he quotes for the Mediterranean littoral while from Digne he knows only
genilaria. "typical *asellaria*" (*typicata*). — **genilaria** *Wehrli* (5 g). Larger than typical *alyssumata*, light yellowish grey to whitish, cell-dots more strongly developed, and with an abnormally developed black costal spot which gives it a very uncharacteristic appearance. Sierra Nevada, on the River Genil, at abont 1500 m altitnde. I notice that Ribbe's Sierra Nevada *alyssumata* (1800 m, see "Iris", Vol. 23, p. 304) are not separable from those of Central Spain.

marambaudista. *S. nexata Hbn.* **marambaudista** *D. Luc.* Ornamentation reduced, markings grey, not brown. Said to constitute a local race in Morocco, but an example before me scarcely supports this differentiation. It is, however, not quite fresh.

anastomosaria. *S. serpentata Hufn.* ab. **anastomosaria** *Galvagni* has the antemedian and median lines of the forewing coalescing. The type came from Lower Austria. — ab. **uniformis** *Kautz* has lost the lines and is therefore
uniformis. uniform ochreous with brownish fringes. Founded on a specimen from Moistrana, Carniola. —
flava. ab. (loc. ?) **flava** *Osthelder* is clear sulphur-yellow, mostly with strongly developed, rather regular, fine dark irroration and often blackish fringes; lines very variable in strength. Occurs regularly in the Ismaning Moss, S. Bavaria.

maidorni. *S. muricata Hufn.* ab. **maidorni** *Hannemann.* All the red parts replaced by pale grey. Berlin, a ♂ in
minor. the Maidorn collection. — **minor** *Sterneck* is proposed as the varietal name for the *muricata* of East Asia, which, as already mentioned in Vol. 4, (p. 99) are generally materially smaller than those of Europe. It occurs throughout China (Sterneck quotes Kwanhsien and Pekin), in the Coast Provinces of Siberia, and in Corea and Japan, with only an occasional aberration attaining the size of the name-type.

antitaurica. *S. dimidiata Hufn.* **antitaurica** *Wehrli* (= tauricola *Wehrli*) (5 i). Smaller in both generations than the name type, narrower-winged, yellow-brownish; typically with the spots of the distal area well developed, but the ab. *delictata Prout* (Vol. 4, p. 99) is rather frequent amongst it. S. E. Taurus, Akbes and the Lebanon. By an oversight Wehrli has re-named this race instead of the Taurus-Lebanon race of *elongaria*; see p. 63.

S. charitata *Rbl.* Antenna of ♂ shortly ciliated, its hindleg without spurs, the tarsus not abbreviated, anal tuft unusually long. Length of a forewing 6—8 mm. Vertex light yellow. Wings ochre-yellow with reddish brown irroration and markings, both wings with small black cell-dot; forewing with 4, hindwing with 3 waved lines; an interrupted dark terminal line and black-brown dots on the base of the fringes. Both wings with the termen somewhat sinuate. Tenerife, the ♂ type collected in April. *charitata.*

S. subsaturata Guen. ab. **lecerfiata** *Homberg* (Vol. 4, pl. 3 f). Culot has described and figured this frequent Algerian form, which occurs also in Spain and Tunis, under the synonym of *holli Oberth.* (M. S.). As he only knew typical *subsaturata* from France (Cette and Sainte-Baume), he assumed — on the strength of a single example — that *lecerfiata* (= *holli*) was the Algerian race. *lecerfiata.*

S. protrusa *Trti.* (6 i). Very distinct in its shape (which begins faintly to foreshadow that of *emarginata*) and in its large, somewhat Cosymbiid cell-spots. ♂ antennal ciliation short, hindtibia thickening distally, a hair-pencil from near base, tarsus very short. Lines obsolescent, the postmedian on both wings just traceable, above and beneath arising from a strong reddish costal mark. Derna, Cyrenaica, the figured type collected on 2 October. The areole of the forewing is open, the 1st subcostal entirely failing to anastomose with the others; the 2nd subcostal and 1st radial of the hindwing are stalked for almost half their length. *protrusa*

S. subrufaria Stgr. ab. **fusaria** *Chrét.* is a dwarfed form (measuring "8—10 mm instead of 14—16"), of a much lighter colour and more uniform, the forewing with 2 distinct brown lines, arising from a dark brown costal spot, the hindwing with 1 line. — The Tring Museum possesses an enormous series of *subrufaria* (or *fractilineata*) from N. Africa, extending from Morocco to Cyrenaica, and I am still unable to separate them into two species or to differentiate the more warmly coloured and weakly marked of them from the typical *fractilineata* of Italy and Sicily. In deference to Chrétien's treatment of it, and in the absence of biological data regarding the European form, I am using the name *subrufaria* and add a brief abstract of his account of the life-history. Egg a broad, short ellipsoid, with the depressions polygonal at the poles, long-oval on the sides; slightly greenish white, changing to yellowish. The larvae grow very irregularly, some maturing in 5 or 6 weeks, others in 3 or 4 months, others hibernating; they have nearly the form of *rusticata*, *filicata*, etc., but are less stout; head black, body much folded, rugose, finely granulated, dirty yellowish grey, with vague lozenge-shaped markings, the ordinary lines indistinct; setae short, claviform. They prefer fresh leaves and are sometimes cannibalistic. Pupa yellowish brown, finely shagreened; stigmata large, rather prominent; cremaster reddish brown, broadened at the base, narrowing rapidly, the small terminal cone bearing only 4 hooked setae, two in the middle, one on either side. *fusaria.*

S. lobaria *Chrét.* (= balestraria *D. Luc.*) (5 i). These two names, published almost simultanéously, refer to one and the same species; *lobaria* has 23 days' priority. The "pectinate" antenna is, as I surmised (Vol. 4, p. 104), dentate-fasciculate. I have before me a long series from Aïn Sefra (Oran), and a few from Biskra and Tozeur and have recently seen one from Ghor-el-Safieh, at the S. end of the Dead Sea. Scarcely variable. *lobaria.*

S. subpurpurata *Stgr.* (Vol. 4, pl. 3 f). Turati has recorded a ♀ from Berca, Cyrenaica, collected on 25 October. *subpurpurata.*

S. sanctaria *Stgr.* is believed to show some geographical variation, although it is not impossible that a study of more extensive material than has yet been brought together may show that all the forms occur in the same area. The long cell of the forewing and the extremely long stalk of the 2nd subcostal of the hindwing are characteristic of all the forms, unless possibly the former is slightly less extreme in the two known examples of *outayana*. — **outayana** *Wehrli* (= affinitata *Culot*, nec *B.-Haas*) (6 b) is differentiated by the less incomplete, more dentate postmedian line of the forewing, more sharply dentate postmedian of the hindwing and broader dark basal area of the latter wing; to some extent, also, the dark scaling of the forewing is stronger at the base than in the other forms and the costal spot beyond the cell-dot better developed. El Outaya, Constantine, 2 ♂♂. — **transcatenulata** *Rothsch.* (Vol. 16, pl. 7 k), erected as a separate species and so treated in Vol. 16 of this work (p. 78), is still closer to name-typical *sanctaria*. Perhaps a trifle narrower-winged, the proximal subterminal shade of the forewing fairly strong or at least indicated; the proximal black irroration is feeble on the hindwing, scarcely traceable to the base, while on the forewing it is only found between the two closely approximated lines and even here is sometimes slight. *transcatenulata*, however, like *sanctaria*, is certainly variable. Sahara: Tahihout, Ti-n-tabarik and Rharis. — **crassisquama** *Warr. & N. C. Rothsch.* (Vol. 16, p. 78, pl. 8 l), founded on a single ♀ from the Egyptian Sudan, is very likely also an extreme form of *sanctaria*, the ground-colour not quite so bright and with the irroration so heavy as to leave little of it visible; two outer shade-bands are formed, the proximal one absorbing the costal mark and the postmedian of the forewing. The extremely long stalking of the 2nd subcostal of the hindwing as characteristic as in the other *sanctaria* forms. *sanctaria.* *outayana.* *transcatenulata.* *crassisquama.*

eburnata. **S. eburnata** *Wocke.* (Vol. 4, pl. 4 c as *contiguaria*). As occasional doubts have been cast on the occurrence of true *eburnata* in the Iberian Peninsula, it may be mentioned that the Tring Museum has examples from San Ildefonso, Segovia, rather whitish and sharply marked, i. e. subsp. *pallidaria A. Fuchs* if tenable, but very like the Pyrenean and lightest Swiss forms, which are considered as name-typical. In an interesting article on the variability, recently published, Klimesch has pointed out that the race from Lower Austria differs appreciably from that of the Tyrol, the former being of a much deeper straw-yellow shade with the markings more accentuated, while the Tyrolese, which quite agree with the Swiss form from the Col du Simplon, have a much paler yellow
obscura. ground-colour and are less sharply marked, especially in the outer area. — ab. **obscura** *A. Fuchs.* To this moderately darkened form Culot has cited as a synonym *grisescens Obth.*, but I cannot find that the latter name
domestica. has been published elsewhere. — ab. **domestica** *Klimesch* (5 i). This name has been given to a very extreme form which appeared suddenly (6 ♂♂, 2 ♀♀) in the sixth generation in inbreeding from normal Lower-Austrian (Dürnstein) ♀♀. Both wings unicolorous blackish, with white subterminal spots (those at both folds large) and terminal dots intenser black. The ab. *fusculata* is merely yellowish smoke-grey, with the markings weak, but not entirely obsolete.

joannisiata. **S. joannisiata** *Homberg* (5 i) (Vol. 4, p. 110). We are now able to figure a paratype. The Moncayo ♂ which I recorded (Vol. 4, p. 106) as *consolidata*, although recognizing that it fitted Homberg's description,
ibericata. belongs quite definitely to *joannisiata*. — **ibericata** *Wehrli* (6 i). Vertex less whitish than in *consolidata*, ♂ antenna darker, wings more glossy, the lines of the forewing more dark-marked at hindmargin than at costa, the distal maculation somewhat less strong, etc. According to Wehrli (in litt.) darker, browner, in the distal area more sharply and copiously marked than typical *joannisiata*. Sierra Nevada (1500 m).

autumnatis. *S. consolidata Led.* (Vol. 4, pl. 7 d) ab **autumnalis** *Schwingenschuss*, collected in in the autumn of 1923 in Gravosa and no doubt a regular autumn-brood form, is smaller and somewhat whiter.

rusicadaria. *S. libycata Bartel* (Vol. 4, pl. 3 f) ab. **rusicadaria** *Andreas.* Uniform pale brown, with the median area of the forewing abont twice as narrow, nsually with the costal spots united into a large black spot. — ab.
dimeglionaria. **dimeglionaria** *Andreas.* Uniform dark grey-brown, the dark markings nearly obsolete, the pale subterminal spots
srigінaria. strikingly conspicuous. — ab. **srigінaria** *Andreas.* All the dark markings much more sharply expressed than in the type form. All these 3 aberrations occur in the Philippeville district, the last-named on the promontory opposite Srigina I.

tripartita. *S. vesubiata Mill.* (Vol. 4, pl. 4 c) ab. **tripartita** *Wehrli.* Both wings strongly darkened in the distal area, moderately also in the basal. Found both at Col St. Martin (Vesubie) and Digne.

striolata. **S. striolata** *Stgr.* Dr. Wehrli has examined the type of this little-known species, which is said to come from Beyrout. He thinks that the two following (*pectinata* and *mediοumbraria*) may possibly be forms of it. The wing-shape and the subpectinate ♂ antenna in any case suggest a relationship with the former, although Staudinger describes his types as dark violet-grey, comparable to the colour of *eburnata* var. *obscura*, and figures it with a forewing length of 12 mm.

pectinata. **S. pectinata** *Sterneck* (5 i). Length of a forewing 9.5 to 10.5 mm. Colour light ochreous brown, a little lighter than in average *obsoletaria*, markings much weaker than in *striolata*, cell-dots present, dots on fringe generally wanting, though they are developed in one ♂ before me. Antenna of ♂ with 2 pairs of long, very slender, well-ciliate pectinations on each joint except apically. Hindtibia of ♂ greatly dilated, with strong hair-pencil, tarsus about $^1/_4$. Only known from the country about the Dead Sea.

mediοum-
braria. **S. mediοumbraria** *Trti.*, founded on a single example (? ♀) from Sidi Messri, Tripoli, has about the size of the preceding. Compared in colour to "*turbidaria turbulentaria*" (so perhaps a *Scopula* ?), but distinguished by the oblique band formed by union of antemedian and median, in which stands the minute black cell-dot; postmedian more crenulate, subterminal shades indicated, black terminal line distinct, fringe concolorous with wings. On Wehrli's suggestion, see *striolata*.

metohiensis. **S. metohiensis** *Rbl.* (5 i) has been taken in great abundance at Zengg, Croatia, from the end of May to the beginning of July, and may now rank among the well-known species. Very distinct in its glossy white ground-colour; subterminal line less irregular than in *cervantaria*, postmedian of hindwing rarely so close to the cell-dot; median shade of forewing not rarely obsolete in its anterior part, which explains Rebel's description of it as "uniting with the inner line".

reisseri. **S. reisseri** *Prout* (= rupicolaria *Reisser* nec Mill.). Closely similar to some forms of *cervantaria*. Antenna of the ♂ with shorter ciliation. ♂ hindtibia a little less thickened, apparently with less strong pencil, tarsus relatively a little longer. Forewing with the apex slightly more acute. ♂ genitalia with the valve produced into a long arm ventrally, appreciable distinctions also in the uncus and aedoeagus. Variable, the whitish yellow ground-
fuscalata. colour more or less densely irrorated with dark scaling, the markings not very sharp. — ab. **fuscalata** *Reisser*

is an almost unicolorous dark form, only the subterminal (as in most of such forms) remaining pale. *reisseri* is only known from the vicinity of Puerta de Lobo, Sierra Nevada, at about 2180 m, where it flies in the latter part of July.

S. cervantaria *Mill.* (Vol. 4, pl. 3f). The most yellowish forms seem, as already noted (Vol. 4, p. 109), fairly stable in Catalonia, so that the retention of *depressaria* as a subspecies is perhaps justifiable. The latter, however, is extremely variable in N. Africa, where the species is abundant, and occasional examples are as yellow as typical *cervantaria*. Chrétien records *cervantaria depressaria* from St. Pons and describes its early stages. The name *mauritanica* wich, on account of defective information given by me in Vol. 4, has been sometimes applied to some of the N. African forms, is untenable; see *Brachyglossina*. — **montana** *Wehrli* (5 i) is a larger, darker mountain race, the ♂♂ sometimes confusingly similar to *eburnata* ab. *obscura*, while the largest ♀♀ can greatly resemble *typicata Guen* (6 h). Fairly common in the Sierra Nevada at 1500 to 1600 m in early July. *cervantaria.* *montana.*

S. okbaria *Chrét.* (5 i). By the kindness of M. Lhomme, I have been able to study some of Chrétien's originals and to provide a figure of the ♂. There is little to add to the description, except that the tongue is well developed, the hindtibia provided with hair-pencil, the whole structure in fact quite as in *cervantaria*. Although the pale colour gives it a distinctive appearance, some Algerian series (particularly from Bou Saada) show gradations from *okbaria* to normal *depressaria*. Is it really a separate species? *okbaria.*

S. incisaria *Stgr.* An abundant and very variable species in North Africa, at least from Morocco to Tunis. A somewhat smoother-looking, greyer form, with the incision of the hindwing somewhat shallower, the collar perhaps paler, was bred by Andreas from S. Tunis and might have been expected to prove a separate species, but the genitalia have shown no difference. On the other hand a ♂ from Biskra in the British Museum collection, has the valves notably longer than in the typical forms and perhaps indicates that there is still some mixture passing under the collective name. — ab. (?) **incisarioides** *Wehrli* (5 k) is a form or closely related species, said to be "larger, robuster, more strongly and in the distal area more copiously marked." Hammam Rirha, thus well with in the range of typical *incisaria*. I have seen similar aberrations of the variable *incisaria* from that locality. I gather from Dr. Wehrli that it was not intended as a comprehensive name for the Mauretanien race in general, hence Reisser is mistaken in suppressing to it the following. — ab. loc. (?) **pulverulenta** *Reisser* (= incisaria *Prout* in Seitz, Vol. 4, p. 109, pl. 3 g) is founded on the Philippeville forms (excluding presumably the ab. *centropunctata*) and is said to differ from the Portuguese name-type in being more ochreous-toned, with copious grey irroration (in *i. incisaria* pale yellowish-grey with browner irroration) and to have the markings inclined to be more irregular in position than in the other *incisaria* forms, more recalling those of *calunetaria*. — ab. **centropunctata** *Andreas* (6 i), bred from Philippeville with more typical *pulverulenta*, is whitish and very weakly marked as far as the subterminal maculation, the isolated cell-dots standing out conspicuously. — **praecisa** *Reisser*, from the Riff Mountains, looks superficially like a different species, but the genitalia show no difference. Snow-white, only in a few ♂♂ with a slight creamy tinge, irroration reduced to a minimum, median shade usually very strong (in an ab., however, wanting), postmedian line complete, terminal dashes always well developed. The biology has been carefully described by Reisser, who bred it in considerable numbers. — **albarracina** *Reisser* is small (length of a forewing 8—10 mm), the incision of the hindwing light, the colour cleaner white-grey, without yellowish tinge, more suggestive of *seriata* (Vol. 4, pl. 4 d). Albarracin, a few in July. *incisarioides.* *pulverulenta.* *centropunctata.* *praecisa.* *albarracina.*

S. mareotica *Draudt* (Vol. 4, pl. 3 g, as *mareotensis*). The larva apparently varies. After the first moult brownish yellow, with red, subsequently black, spots on segments 3—7 (Andres, Bull. Soc. Ent. Egypte, Vol. 3, p. 97). So far as is yet known, the range of this species is confined to a few localities in Lower Egypt. *mareotica.*

S. albitorquata *Püng.* (Vol. 4, pl. 3f) seems to be well distributed in the Mediterranean countries. Italy, Dalmatia and Malta have been added to its known range. Moreover, a *Sterrha* from Albarracin, which was first recorded as *incisaria*, turns out to have the genitalia of *albitorquata* and is probably a form of, if not synonymous with, this rather variable species. *obliquaria Trti.* (= napoleon *Prout*), on the other hand, has no connection with *albitorquata* and should rather be placed with the *calunetaria* group (see below). *albitorquata.*

S. maurusia *Trti.* (= maurusi *B.-Haas*) (6 i) somewhat recalls *subsericeata* in its strongly silky gloss and was, indeed, originally referred to that species, though with doubt. Actually, however, its affinities are with *sodaliaria*, as is suggested in the published description, or rather (in that the collar is white and the hindtarsus of the ♂ extremely short) with *albitorquata*. More glossy and weakly marked than the latter, postmedian line (on forewing often obsolescent) not punctiform; the antennal joints of the ♂ seem to project more, ciliation somewhat longer. Common at Berca (Cyrenaica), bred by Krüger in March and April. Larva not fully described; said to be short and thick, tapering anteriorly, sluggish in its movements; brownish, somewhat resembling those of *albitorquata*, *cossurata*, etc. *maurusia.*

S. camparia *H.-S.* (Vol. 4, pl. 4 c) Count Turati has recently recorded a specimen from Cyrenaica (Wady Cuf). — **europaea** *Wehrli*. Having studied material from Marasch, Beyrout, etc., which about agrees in *camparia.* *europaea.*

colour and markings with the type figure of *camparia* (*H.-Sch.*, fig. 465), Wehrli is able to differentiate the whitish, strongly marked European form and has named it f. *europaea*.

undulata. *S. seriata Schrk.* ab. **undulata** *Osthelder* is a pretty modification of ab. *obscura Mill.* with distinct broad
paleacata. pale subterminal line. — ab. loc. **paleacata** *Guen.* (= paleaceata *Stgr.*) (5 k). Oberthür, although he quite correctly disputed Staudinger's sinking of this name to f. *australis Zell.*, made a far worse muddle of the synonymy, but the identity of true *paleacata* has recently been cleared up by Dr. Wehrli, who now possesses Guenée's type. Structurally it belongs to the form-circle of *australis*, but it is differentiable by the stronger, more direct series of postmedian dots on the forewing, which are more prolonged into dashes. I have for many years known this form, which is, in fact, Mann's reputed *camparia* of Corsica (err. det.), but I had not associated it with Guenée's description and had postponed describing it in the hope of finding some structural distinction. Besides Hyeres (loc. typ.), whence most of the largest collections probably possess examples, it is known from Marseilles, St. Maxime (Var), Cannes, Corsica, Alassio and Naples, perhaps also Sicily.

sillemi. **S. sillemi** *Wehrli.* "Face dark grey. Vertex white. Costa slightly curved, less than in *sarthularia Stgr.* Apex rather acute. Distal margin of hindwing incised between the radials, at least as strongly as in *incisaria*. Forewing above dirty light grey-white; markings dark grey, nearest *conioptera* (Vol. 4, pl. 7 d), but at once distinguishable by the much smaller cell-dot and the possession of a rather broad, weakly dentate median shade, continuing as first line of the hindwing, here nearer to the cell-dot, describing a curve round it. Fringes with dark streaks and dots at the vein-ends. Underside the same." Panamik, Nubra Valley, 3350 m, 1 ♀, 10 July 1929.

descitaria. **S. descitaria** *Christ.* (Vol. 4, pl. 3 h). This species and its forms or allies have not yet been satisfactorily worked out. In any case *conioptera Hmps.* is closer to *descitaria* than was implied in Vol. 4 and Sterneck has described 2 ♂♂ from Werchne Udinsk (Trans-Baikalia) and a larger ♀ from Ta-tsien-lu which may belong either to the one or to the other.

longaria. **S. longaria** *H.-S.* (Vol. 4, pl. 4 d) reaches eastward through Egypt to Palestine and Syria. The only
faroulti. form which has received a special name is — **faroulti** *Rothsch.* (5 k), founded on examples from Guelt-es-Stel, Central Algeria. These are unusually large, and the ♂♂ more whitish than in the generality of *longaria* ♂♂.

sublongaria. **S. sublongaria** *Stgr.* (Vol. 4, p. 114, pl. 3 g). Dr. Sterneck (in litt.) suggests that this is probably nothing more than the East Mediterranean race of *longaria*. If so, the above references to Palestine and Syria should be transferred here and some of the distinctions on which we formerly relied for the separation of *sublongaria* break down.

maronitaria. **S. maronitaria** *Zerny*. Forewing narrow and elongate, but not so long as in *longaria;* termen of hindwing distinctly sinuate at both folds. Yellowish grey, rather copiously dark-irrorated; forewing with basal third of costa blackish, cell-dot developed, antemedian and median lines indistinct, angled subcostally, then parallel with termen, postmedian strengthened with black dots on costa and veins, subterminal faint, terminal slight, interrupted, fringe proximally with distinct black dots; hindwing with cell-dot smaller, the first line (proximal to it) straight and distinct, the outer lines weaker. Hindtibia of the ♂ thickened, but without pencil, tarsus about ¾; antennal ciliation distinctly longer than in *longaria*, thus much longer than in *infirmaria*, to which otherwise it bears a resemblance, though the vertex is less white. Collar not darkened. Bscharre, N. Lebanon, founded on 5 ♂♂.

allongata. **S. allongata** *Stgr.* (= allongaria *Stgr.*) (Vol. 4, pl. 3 g). The synonymy, given by Staudinger himself in 1901, was accidentally omitted from Vol. 4, and our text was made to read as if Mardin were the type locality. Actually, however, the original description and figure (Iris, Vol. 10) were based on a fairly good ♀ from Jerusalem, of which one of the characteristics was the enlarged cell-dot of the hindwing (which, however, is not supported by other material). It was apparently forgotten two years later when its author described *allongaria* quite independently on three fresh ♀♀ from Mardin, which were compared with *sublongaria* and *tongaria* and had the cell-dot of the hindwing nearly lost in the median line. The differentiated light-grey (not brownish) costal area of the forewing is mentioned only in the description of *allongata*. Whether there are two differentiable races, I have at present no means of deciding. The *allongata* of E. Palestine (and reaching Zerka, Transjordania), January to March, varies little in the ♂, so far as yet known; our figure gives a good idea of it, though missing the delicate grey of the costa, which also shows itself narrowly at the distal margin of both wings. The ♀ can be as dark as the ♂, but (according to Sterneck in litt.) is at times somewhat lighter or
paulusi. very much lighter. — **paulusi** *form. nov.* The Jerusalem ♀ (Paulus, 1899) in the Püngeler collection, determined by him as belonging to *allongata*, is not dated, but I suspect is a summer form, measuring not quite 21 mm (the typical form 23—26 mm), much paler, with costa and termen virtually concolorous with the ground-colour, subterminal shades extremely weak, antemedian and median lines more acutely angulated. Possibly a separate species. — The genitalia refer *allongata* to the *calunetaria* group, being quite unlike those of *longaria*.

S. gracilipennis *Warr.* has fortunately been re-discovered in the Northern Lebanon (Bscharre and Broumana) and the Taurus (Marasch). The type, erroneously published as from "Beyrut", also came from the Lebanon (see Zerny, Iris, Vol. 47, p. 89). Variable, the reddish irroration sometimes forming no lines, sometimes with median (weakly dentate, crossing the discocellulars of the forewing and ending at $^3/_5$ hindmargin) and similarly formed postmedian, both continued on the hindwing, and with a costal spot to represent the antemedian of the forewing. — ab. **rubrolineata** *Schwingenschuss* has the red-brown of the costal margin intensified, especially proximally, the antemedian line complete, the postmedian of the forewing and the median of the hindwing strongly developed (the former particularly sharp), the red on the underside of the forewing likewise strong. *gracilipennis.* *rubrolineata.*

S. pallidata *Schiff.* (Vol. 4, pl. 4 d). Derenne (Lambillionea, Vol. 31, p. 114) has recorded this from Belgium, a westward extension of its previously known range. As regards *argilata Guen.*, which — on account of the comparison made by Bellier (see Vol. 4, p. 115) — has hitherto been associated with *pallidata*, we have now removed it to a position between *nitidata* and *deversaria*. *pallidata.*

S. sylvestraria *Hbn.* (= straminata *Tr.*). A further synonym, overlooked in Vol. 4, is *grammicaria Bsd.*, given to escape homonymy with *sylvestrata*, which Boisduval unjustifiably changed into *sylvestraria*. Our figure (Vol. 4, pl. 4 d, as *straminata*) represents the typical form; we now figure an English ♂ of ab. loc. *circellata Guen.* (5 k). — **minuta** *Heydemann*, from Amrum Island, Rendsburg and the coast of Holland, is a small, narrow-winged race of a lighter bone-colour. *sylvestraria.* *minuta.*

S. mancipiata *Stgr.* Notwithstanding the amount of collecting which has been done in Spain of recent years, this remains a little-known species and we have not been able to obtain a figure of the name-typical form; in fact I have never yet seen a Spanish example. It may be added here that the second mention of *mancipiata* in Vol. 4 (p. 122) was printed, in the German edition, in the wrong type and with a marginal reference, thus giving a false impression that we were dealing with a second species of the same name. *mancipiata.*

S. laevigata *Scop.* (Vol. 4, pl. 4 d). Some further records for western Europe have been made of recent years. Belgium: Molenstede, several specimens; England: Durham, larvae, evidently introduced, probably in cocoa-nut fibre, but successfully bred in this country. — ab. **fuscovittata** *Dannehl.* Greyer, darkened with blackish from the antemedian line to about the middle of the median area, so as to form a dark band. Michelsberg, near Hermannstadt, occurring in both generations. — ab. **storae** *Andreas* is black-brown, almost without markings and was bred in some numbers from Stora, Algeria. Perhaps a Mendelian form, but unfortunately the progeny of the crossings obtained by Andreas does not seem to have been analysed statistically. — ab. **totanigra** *Andreas*, obtained in smaller numbers from the same source, is, as its name implies, a more extreme development, black instead of brown. — ab. **parvipunctata** *Andreas*, perhaps an "ab. domestica", was also bred in small numbers, in inbreeding from ab. *storae*. "Entirely markingless, of quite uniform brown colour, both wings with a fine discal dot". Without a knowledge of its ancestry, this form would scarcely have been recognizable except by structural characters. — ab. **suffusa** *Harrison* is described as melanochroic, "strongly suffused, especially towards the termen, with blackish scales." — ab. **johnsoni** *Harrison* has the ground-colour honey-yellow, instead of the reddish ochre of the typical form. Both these latter aberrations were bred at Durham. — ab. **roseata** *F. Wagn.* Larger than the type, more deeply coloured, with a bright rosy gloss, markings strong. Founded on a bred series from Cornul, Jud. Prahora, Roumania. If, as is suspected, this is a subspecies and if the same applies also to *dimidiata* f. *roseata Trti.* (see Vol. 4, p. 99), the present form must be re-named. *laevigata.* *fuscovittata.* *storae.* *totanigra.* *parvipunctata.* *suffusa.* *johnsoni.* *roseata.*

S. euphorbiata *Balestre* (7 a). Of this little-known species, of which the original description was quoted in Vol. 4, p. 139, we are now able to reproduce Culot's figure. Evidently, as the last-named author says, the relationship to *laevigata* is very close, but the antemedian line is more excurved, the median shade obsolete, the cell-dot weak. *euphorbiata.*

S. incalcarata *Chrét.* (= disjunctaria *Stgr.*, nec *Walk.*) (7 b). The two accounts given (at secondhand) on pp. 118 and 151 of Vol. 4 evidently refer, as Zerny has shown, to the same species. My challenge to the Staudinger-Rebel suggestion "praec. sp. ab. ?" was therefore justified, but it now occurs to me that "praec." was perhaps a misprint for "seq." (*attenuaria*). Staudinger's type must have had an unusually weakly marked underside; normally, at least at Albarracin (a third locality for the species), this shows on both wings a very distinct, dentate postmedian. *incalcarata.*

S. infirmaria Rmb. ab. **lucia** *Schawerda*. Upperside almost entirely carmine-red, only on the hindwing — especially in the basal part — with sparse black scales; lines still more intensive red. Corsiea. May perhaps be sunk to *carnearia Mann*, also from Corsica, described as "flesh-reddish." — Schawerda correctly points out that the typical **aquitanaria** *Const.* is yellow-grey, with bright red lines, though its author included also redder aberrations among it. The life-history of this race (if such it be) has been very fully described by Chrétien. The egg is ellipsoid, short and broad, compressed on two sides, the polygonal depressions very irregular, rather large and deep; white, red-tinted at the micropylar pole. Larva when first hatched very slender, slightly thickened posteriorly, vitreous grey, with 4 reddish brown dorsal lines and rosy spiracular flange; tubercles indis- *lucia.* *aquitanaria.*

tinct, setae glandular. Feeds on vegetable debris, fresh or withered, and grows very slowly, usually hibernating from October to February. The mature larva is more clay-yellowish, rugose, shagreened, short and thick, tapering to the head. Pupa light yellowish brown, the last segments darker, the veins and wing-cases rather prominent. — **mitescens** *form. nov.* (6 h) is similar to the (on the upperside) least grey-irrorated forms of *aquitanaria*, the ground-colour somewhat more olive-tinged, the lines rosy, without dark vein-dots or costal dashes, all indicated, but not so sharply expressed as in *rhodogrammaria*, cell-dots small, fringe as in type *infirmaria*, underside strongly irrorated, weakly marked. Algeria: perhaps a race at Bône. ? Morocco.

mitescens.

tincata. **S. tineata** *Th.-Mieg* (5 k). This variable species, of which the ♂ was unknown when I wrote, was erroneously placed in the section *Sterrha* (Vol. 4, p. 96). Similar to *infirmaria*, but the ♂ genitalia show it to be a separate species, not merely a race. The ground-colour varies from grey to yellow-grey or violet-grey, densely and coarsely irrorated (especially in the ♀) with black, without any admixture of reddish scales, the lines in the ♀ indistinct, the antemedian more proximal than in *infirmaria*, the postmedian from the subcostal bend onward straighter. Known from the Northern Lebanon and Cyprus in addition to the original locality (Akbès).

cavenacata. **S. cavenacata** *Chrét.* is described as more robust than *obsoletaria*, the forewing of the ♂ more prolonged at the apex, the lines less distinct, especially the antemedian, which is oftenest obsolete, the postmedian less interrupted, less (or even not at all) scalloped or marked with black dots; colour less glossy and shining. The only specimen I have seen (one of the originals) shows the distinction in the forewing shape, the termen of the hindwing slightly more sinuous, the underside rather less glossy, more sharply marked, the vertex less pure white. — Egg a little broader than that of *obsoletaria*, less deeply furrowed, etc. The newly hatched larva is grey, simply streaked longitudinally with reddish brown, while that of *obsoletaria* is light grey with t r a n s v e r s e red-brown bands on the middle of the central segments. In captivity, some of the larvae from eggs laid on 20 July were full-fed by the end of October and yielded the imago in January, while others hibernated after the second moult. The adult larva is very fully described; variable in size, but distinguishable be from that of *obsoletaria* by its strong granulations, its oval dorsal spots and its broad oblique subdorsal streaks, which indicate a pattern pointing in the opposite direction to that of *obsoletaria*. Pupa darker than in that species, more strongly granulated, the tip of the cremaster shorter, broader, its 6 hooked setae longer, more thickened at their base. Discovered at Saint-Pons de Thomières (Hérault); appears in July.

obsoletaria. **S. obsoletaria** *Rmb.* (Vol. 4, pl. 4 e). I am not acquainted with any good account of the early stages of this species, the doubts which were expressed in Vol. 4 (p. 119—120) as to the authenticity of the earlier descriptions remaining valid. It was evidently well known to Chrétien and several details can be gathered from his comparison with those of *cavenacata* (see above); subdorsal pattern of the larva V-shaped, i. e. converging towards the p o s t e r i o r end of the segment. — ab. (? subsp.) **violacearia** *Stgr.* (5 k). We figure a ♀ from Huélamo, Cuenca, one of a series of 14 collected in August 1928 which all favour this form. Probably this is a mere chance, as the type-form of *obsoletaria* seems to be predominant in Aragon and to occur in Andalusia. Perhaps "var. *tenellaria*" *Rmb. & Bsd.* (indescr.), from Andalusia was the same as *violacearia*, but it was never described and the totally different *Scopula virgulata* (= *strigaria*) subsequently claimed the name as a synonym. Sterneck, judging by 7 from Sierra Alfacar (1500 m), suggests that ab. *violacearia* is smaller than typical *obsoletaria*. Structurally there is no difference. — (ab. ?) **algeriensis** *B.-Bak.* remains unmatched, although normal *obsoletaria* forms are common at Sebdou; I cannot agree with Culot that the latter have "less white" vertex than in Europe. The type of *algeriensis* has the postmedian slightly less bent inward costally and perhaps a trifle more distally placed than usual; an appreciable, though not intense, dusky distal shade is not traversed by any trace of a pale subterminal.

violacearia.

algeriensis.

palaestinensis. **S. palaestinensis** *Sterneck* (5 k). Hindwing less perfectly rounded than in *obsoletaria*, being (very slightly) emarginate between the radials. Vertex not white but concolorous with wings; collar not darkened. Wings and their lines slightly more tinged with reddish than in normal *obsoletaria*, postmedian of forewing slightly more oblique from costa. Structurally distinct in the slightly longer ciliation of the antenna of the ♂, the strong hair-pencil of its hindleg, a long, slender cornutus (spine on the vesica), valve tapering at its extremity. Palestine: Jerusalem and Jericho; Syria: Haifa district; Mesopotamia: Kut al Amara.

epaphrodita. **S. epaphrodita** *Wehrli* (= serrataria *Sterneck*) (6 d). Antennal ciliation of the ♂ at least as long as diameter of shaft. Vertex white; collar light brownish. ♂ hindtibia moderately thickened, with hair-pencil; tarsus almost $^1/_2$. Easily distinguishable from the two preceding species by the longer ciliation, shorter ♂ hindtarsus and band-like markings. From *fractilineata*, which it somewhat resembles in the latter respect, the less pointed forewing and the rounded, not excavated margin of the hindwing at once separate it. Beyrut and Jerusalem. Sterneck remarks on its late date (19th August) in the latter locality.

troglodytaria. **S. troglodytaria** *H.-S.* (6 d). The *Sterrha* which I identify with this (although I know it only from Syria and Cyprus) is now tolerably familiar to me in both sexes. The wings are so decidedly narrower and whiter than in *obsoletaria* that I scarcely think Staudinger can have had the same insect before him when he proposed

to associate them. The very small size is not important, for we now known that a large number of *Sterrha* produce pygmies in the 2nd or 3rd brood; moreover, I have before me 2 ♂♂ from Limassoi, Cyprus, with a forewing length of 9—10 mm, collected in April, while the minute forms from the same locality are dated August to November. The best character, in addition to shape, gloss and obsolescence of lines, is in the ♂ hindleg: tibia with pencil, tarsus subtriangularly expanded, much as in *filicata*, to which, in spite of its very different appearance, it is probably related. Antennal ciliation of ♂ rather short. Forewing beneath, at least in the first generation, suffused with grey. In the Vienna Museum I saw this species standing as "*uniformis Stgr.*", but it has nothing whatever to do with that species (see *Brachyglossina staudingeri*, below). Wehrli mentions the occurrence of a reddish aberration in the Amanus or Antitaurus Mountains; these and the Lebanon are the best-known localities, the reputed type-locality (Crete) awaiting confirmation. Culot has figured as *troglodytaria*, from Mesopotamia, a small and obscure grey ♀ of the *obsoletaria*-group. The Syrian "*monadaria*", mentioned by me in Vol. 4 (p. 126) were, at least in part, poor specimens (♀) of the species now determined as *troglodytaria*.

S. oberthuri *D. Luc.* (7 b). "Expanse 16 mm. The wings rounded, bone-colour; nearly unicolorous, with very fine but distinct discoidal dots. Fringes rather long, of the ground-colour. The costal region is a little darker. The characteristic lines of *Acidalia (Sterrha)* are indistinct, though the specimen described is quite fresh; they are faintly perceptible in the outer part of the wings. Underside unicolorous, yellowish white; discoidal dots indistinct." Founded on 2 ♀♀ from Kairouan, Tunis, September 1910. Culot considers it "very near *troglodytaria* and *distinctaria*." *oberthuri.*

S. ruficostata *Z.* (= grisea *Th.-Mieg*). The collective species which is generally called *incarnaria H.-Sch.* was described 3 years earlier by Zeller, from "Tlos, Asia Minor" (? Tilos, in the Aegean). — gen. **autumnalis** *Schwingenschuss*, collected in the autumn at Gravosa and believed to be the 3rd brood, is distinguished only by its smaller size (as 7: 10). It occurs in both the type form and ab. *incarnaria*. — ab.(?) **distinctaria** *Bsd.* (7 a). The type and a quite similar example "ex Mus. Guen." have been examined by Wehrli who reports them manifestly *incarnaria*, scarcely different from gen. *autumnalis*. Unfortunately both have lost the abdomen. The figure does not sufficiently bring out the lighter costa which is shown by the type; the terminal line of the underside is developed. *ruficostata.* *autumnalis.* *distinctaria.*

S. eugeniata Mill. ab. loc. **speudodegeneraria** *Wehrli* (= pseudodegeneraria *Wehrli*) is a grey, slightly brown-tinged form, with blackish band between antemedian and median lines of the forewing above and beneath, somewhat recalling *degeneraria Hb.*; i. e. a less reddish sub-aberration of ab. *jacobsi Prout*. Founded on 2 ♂♂ and 1 ♀ from Granada, in the vicinity of the Alhambra, where grey rather than reddish *eugeniata* are in the ascendant. — **algeriaca** *Culot* (7 a), the Algerian race, is variable, but generally large, almost always brown rather than reddish or grey. The banded aberration, corresponding to ab. *jacobsi*, is of occasional occurrence amongst it. It should be added that I have seen some equally large examples from Portugal, but these generally retain the red colour of the type form. *speudodegeneraria.* *algeriaca.*

S. helianthemata Mill. ab. **depravata** *nov.* (6 d). I have examined a long and variable series from the Constant collection and can fully corroborate the statements of Milliére quoted in Vol. 4, p. 121. Excepting the less perfectly rounded hindwing, the less pure white vertex and perhaps the less glossy scaling, some examples could easily be mistaken for very warmly coloured aberrations of *obsoletaria*. Ignoring minor variation in ground-colour, I refer all which have the black median band obsolete to ab. *depravata*. *depravata.*

S. substraminata *Prout* (Vol. 4, pl. 7 d). Further Spanish material is now known, particularly from Albarracin, July and the beginning of August. Dr. Seitz discovered it at Philippeville, Algeria, in mid-June 1913, including an example similar in colour to *helianthemata* ab. *depravata*, and it has since been taken in a few other Algerian localities (Blida Glaciers and some parts of Oran) and perhaps in Morocco. *substraminata.*

S. ostrinaria Hbn. ab. **purpuraria** *Trti.* (= oenoparia *Püng.*) (Vol. 4, pl. 3 h, as *oenopararia*). This almost unicolorous purple aberration was, as is definitely stated in Vol. 4, p. 122, described by Turati prior to the publication of Püngeler's description; the appearance of a non-binomial figure in 1912 does not validate the name *oenopararia*, much less *oenoparia*. — ab. **lutea** *nov.* is pure yellow, hindwing quite uniform, forewing with the postmedian slender, the dark shade beyond it very weak and restricted. Teddors, Morocco a ♀ in the Tring Museum. — ab. **eucrines** *nov.* (6 d). Ground-colour also rather pale, but with complete dark borders, that of the forewing intensive, that of the hindwing broad. El Biar, Algiers, a ♂ from the Holl collection, now at Tring. *purpuraria.* *lutea.* *eucrines.*

S. korbi *Püng.* (= korbiae *Arnold*), founded on a ♀ from a pine-forest near Cuença (Castile) and provisionally referred to the vicinity of *ostrinaria*, though the palpus is much shorter, is ash-grey, densely scaled, with very fine black irroration; cell-dots distinct, lines thick, blackish, weakly dentate, antemedian of forewing bluntly broken near costa, postmedian almost straight, continued on hindwing, fringes grey, with dark dots. Underside lighter grey, with weaker cell-dots but darker fringes; postmedian present. More robust than *capnaria Püng.*, cleaner grey, with much thicker lines, distinct cell-dots, etc. *korbi.*

expandata. **S.** *circuitaria Hbn.* ab. **expandata** *Dannehl.* Median band much broadened outward, reaching the postmedian line; pale subterminal line reduced to quite small dots. All the brown parts appear deeper in colour than in the type. Founded on 3 specimens from Mt. Sirente, ca. 1100 m.

inquinata. **S. inquinata** *Scop.* (= herbariata *F.*, pusillaria *Hbn.*, microsaria *Bsd.*) (Vol. 4, pl. 4 e, as *herbariata*). I have re-examined the question of the status of Scopoli's *inquinata* (1763) and conclude that Werneburg is right and that the said name, with 35 years' priority, must supplant Fabricius' more distinctive name. Although at home chiefly in the Mediterranean countries, it continues to reach the Netherlands, Great Britain, etc., periodically among dry plants and is only too easy to breed. F. Auerbach has recorded breeding it ex ovo in a pill-box 5 cm in diameter × 2 cm in height and A. Schmidt added a note on the way in which it breeds itself indoors (Int. Ent. Zeitschr., Vol. 19, pp 305, 345). More recently (1931) its biology and morphology have been more fully treated of by Candura. — ab. (?) **incomptaria** *Bsd.* should be mentioned here, in accordance with a reference in Staudinger's Catalog of 1871. "Somewhat related to *microsaria*. Both wings whitish yellow, somewhat irrorated, with 4 very sinuous parallel bands and an apical strigula fuscous; underside unmarked". S. France in June. — ab. **mediofasciata** Bubaček, described from Corsica, has a more definitely developed dark-brown transverse median band on the forewing. — **adherbariata** *Stgr.* Turati and Zanon, in recording this race (?) from Cyrenaica, treat it as a species, but perhaps by mere oversight, as no explanatory comment is made. Wehrli notes 3 ♂♂ from Syria (Marasch and Akbès) which agree essentially with the types, but show a (very weak) postmedian beneath.

incomptaria. *mediofasciata.* *adherbariata.*

banghaasi. **S. banghaasi** *Prout* (= fimbriata *B.-Haas*, nec *Warr.*) may probably have to be sunk to *adherbariata*.

affinitata. **S. affinitata** *B.-Haas* (6 d) Dr. Zerny records this as not rare at Bscharre (northern Lebanon) at the end of June and beginning of July. The darkening of the basal half of the forewing proves to be inconstant. The genitalia are indistinguishable from those of *inquinata*, of which Zerny thinks it may be a form. — f. (?) **holliata** *Homberg* (7 b), of which Zerny collected 6 ♂♂ and 1 ♀ with *affinitata*, shows, according to his series, only the following differences: ground-colour dirty white or yellowish white rather than clay-yellow or clay-brown, decidedly thicker and more distinct costal marks as beginnings of the 2 lines and more distinct whitish subterminal. My two Akbès *holliata*, one of which (here figured) is a paratype kindly presented by the author himself, bear out the colour distinction but show a quite distinct subterminal and one of them (a small aberration) the thickened costal marks. A slip in the German translation of Vol. 4 (p. 125) has made it appear that the ♂ hindtarsus is much "more" aborted than in *inquinata*, whereas the opposite is actually the case.

holliata.

romeii. **S. romeii** *Trti.* (6 d). Only known to me in the ♀; should the ♂ prove 2-spurred, it may be placed next to *merklaria*, with which its author compared it. Longer winged, the hindwing with sinuous termen; colder grey, the white bands narrower (better described as lines), the very long fringes with a white line at base and another in the middle, the grey area between marked with fairly strong dark dots. Areole well developed, 2nd radial of forewing from before middle of discocellulars. Cyrenaica: Sidi Mesri, etc., chiefly in March and April.

fathmaria. **S. fathmaria** *Ob.* (= millieri *Rothsch.*) (Vol. 4, pl. 4 d). It was by some oversight (or perhaps an assumption that it had some real relationship with *volloni*, with which it has sometimes been associated, or even confused) that this species was placed in the section *Sterrha* (Vol. 4, p. 96). Actually, the hindleg of the ♂ is quite short and weak, without spurs. The early stages are unknown (see *volloni*). *millieri Rothsch.* (*Tephroclystia*), from Guelt-es-Stel, seems absolutely synonymous.

calunetaria. **S. calunetaria** *Stgr.* (= callunata *Rmb.*). Careful attention has recently been given to the group whereof this may be considered the type and it has been pretty well disentangled by Dr. Wehrli in particular. The original, from Chiclana, Andalusia, differs from the species which has so long borne the name (see *dorycniata*) in the lack of the dark collar, the less extremely oblique antemedian line, etc. — The Algeciras examples known to me are all very white, ab. (?) **baeticaria** *Zerny* (6 d), while the name-typical form showed a grey admixture. — **episticta** *Wehrli* (6 c), founded on a large series from Algiers and a ♂ from Chabat el Hamma, Morocco, also known from Oran, is a darkened race, more recalling *mareotica*, from which it is easily distinguishable by the much shorter antennal ciliation, shorter hindtarsus, more strongly bent postmedian and differently shaped hindwing. — **fuscularia** *Trti.* (6 e). Postmedian and subterminal less irregular, thus still more similar to *mareotica*; as the antennal ciliation seems appreciably stronger than in *episticta* I suspect it may be a separate species. About as dark as *episticta*, lines less accentuated by vein-marks. Cyrenaica.

baeticaria. *episticta.* *fuscularia.*

maxima. **S. maxima** (*Obth.*, indescr.) *Wehrli* (6 e), from Mrassine, Morocco, is perhaps only an exceptionally large and strongly marked form of *calunetaria*; structure the same. Superficially more like *incisaria* ab. *incisarioides*, antemedian more oblique, median less strong, further distinguishable by the less incised hindwing.

dorycniata. **S. dorycniata** *Bell.* (= calunetaria *auctt.*, nec *Stgr.*) (6 e). In its typical form small and sharply marked, distinguishable by its excessively oblique antemedian line, which, after its acute angle in the cell, runs almost

parallel with the costa; the median line of the hindwing generally continues the postmedian of the forewing, while in *catunetaria* the two postmedian lines meet. Although no palpable anatomical distinction from *calunetaria* has yet been detected, it is impossible to believe the two conspecific. Best known from Barcelona, the original locality; occurs also in some localities in the south of France. — **valesiaria** *Püng.* (Vol. 4, pl. 4 e) *valesiaria.* has already been satisfactorily figured and differentiated and it is only to be remarked again that the "*calunetaria*" with which it was compared is *dorycniata* and that the correct trinominal designation is *dorycniata valesiaria*. The specimen figured beside it is also a *dorycniata*, although it almost looks like a second *d. valesiaria*.

S. obliquaria *Trti.* (= napoleon *Prout*). According to the genitalia, this species is nearly related to *obliquaria.* *calunetaria;* termen of forewing equally oblique, hindwing similarly prolonged costally, markings (notably the postmedian) more as in the *seriata* group, to which it was formerly assigned. *napoleon Prout*, as was already expected, must be sunk as a synonym; no racial difference has yet been discovered between the Sardinian and the Corsican form. Recorded also from Sicily. The life-history has been worked out by Reisser. There are apparently two, or perhaps three, broods, though irregularly, and the larvae always show a preference for dry leaves. Larva variable; moderately elongate, in its adult stage tapered anteriorly (with small head) and somewhat thickened behind, in all its stages with very conspicuous lateral flange, which is brighter yellow in youth; dorsal area spotted with dark brown to a varying extent, ventral paler, more greyish. Pupa yellow-grey or brownish, sprinkled with dark dots.

S. elongaria *Rmb.* (Vol. 4, pl. 4 f) is the type species of another group of forms which still require careful *elongaria.* elucidation. A further synonym of the type is, according to Lederer, *confusaria Snell.* (ex *Mann*, MS.), from Sicily. — ab. **abundata** *Dannehl* is large, more olive-yellowish, all the markings extremely strong, olive-brown, *abundata.* on the forewing amplified so as to suggest three pairs of lines, or three longitudinally divided bands. Type from the Sabine Mountains. Probably occasional in many localities; I have a similar (though not yellowish) ♀ from Haifa and have also seen such from Macedonia. — **pecharia** *Stgr.* This name should perhaps, on geographical *pecharia.* grounds, be restricted to the Hungarian race, which is relatively constant and evidently produces the most extreme melanic developments. — That from S. E. Russia (Sarepta, etc.), to judge from a few examples, is not quite so extremely darkened and may bear the provisional name of **favillata** (*Zell.*, MS.) *Prout*, the type *favillata.* from Sarepta in the British Museum, from the Zeller collection. From Staudinger's reference, it seems probable that the forms from Asia Minor may be associated with this. — **seitunensis** *Prout* (= antitaurica *Wehrli*, *seitunensis.* nom. praeocc.). Larger, the wings above with a yellowish or ochreous tone, somewhat resembling *Scopula ochroleucaria;* lines sharper, the median well expressed, ochreous, the postmedian black, strengthened on the veins, running less obliquely towards the inner margin. Tarsus somewhat longer. If this latter distinction is constant, it should betaken a species, or at least an incipient species. Seitun (Antitaurus) and Bscharre (Lebanon). — **monadaria** *Guen.* (7 a). Although Guenées type was exceptionally minute, there is still some *monadaria.* evidence that undersized and generally weaker-marked forms are prevalent in S.E. Asia Minor, but Dr. Wehrli (in litt.) inclines to think of a 2rd or 3rd generation rather than a geographical race. I have a ♂ from Akbès, unfortunately without head and abdomen, equally minute and closely similar to the type, except that the median area is wider; but it has no indication of date of capture.

S. substriata *Trti.* Closely similar in shape and in its creamy-white colour to *elongaria*, but smaller *substriata.* (length of a forewing 7or 8 mm). From the single topotype before me I can discover no structural differences, but it is slightly less long-winged, more glossy, the lines (especially the proximal ones) rather weak; underside of forewing strongly suffused. Barce (Merg), Cyrenaica, captured at the end of June and bred by Krüger from ova obtained. Turati notes the more proximally placed median shade, relatively broader subterminal shades and weaker (occasionally obsolete) fringe-dots as distinctive, but neither of these characters is impossible in *elongaria*.

S. antennata *Wehrli* (6 e), founded on a ♂ from Akbès which stood in the Oberthur collection among *antennata.* *elongaria*, differs especially from that species in its antenna and wing-form. Antenna stout, almost twice as thick as in *elongaria*, better comparable to that of *attenuaria*, joints thickened at the ends, ciliation short (scarcely ½ diameter of shaft). Hindtibia with long tuft, tarsus abbreviated (about ⅓ or ¼). Forewing narrower than in *elongaria*, about as in *attenuaria*; hindwing without excision. Dirty light-grey with yellowish tinge and scattered brown (not black) scales; cell-dots strong, black; costal spots at the origin of the lines not sharp. Differs from *longaria*, *sublongaria* and *allongata* in its smaller size, different course of the lines and much shorter antennal ciliation, from *attenuaria* and *disjunctaria* in the quite different leg-structure and wing-markings, from the *seriata*-group in shape, much shorter ciliation, shorter hindtarsus, etc.

S. trisetata *Prout* (6 e). Superficially very like a minute *biselata* or *invalida*, though slightly narrow- *trisetata.* winged, the dark markings rather weak. Antennal ciliation of ♂ rather long. Best known by the leg structure of the ♂: midtibia with moderately strong fringe of long hair on upperside (subgenus *Xenocentris Meyr.*), hindtibia dilated, with light brown femorotibial pencil and long whitish distal tuft, which reaches to

near the end of the tarsus. Japan (loc. typ.), E. China and probably Formosa. The size, colour and markings separate it readily from *effusaria* and the ♂ hindtarsus is much less abbreviated.

griseata. *S. biselata Hufn.* ab. **griseata** *Preissecker*. Both wings, especially densely in the proximal part as far as the median shade, dusted with grey, the normally dark-shaded subterminal and fringes remaining clear yellowish. Founded on a ♂ from Klosterneuburg.

shimizuensis. **S. shimizuensis** *Matsumura*. Antenna of ♂ very finely ciliated, hindtibia long, at its apex clavate, with long bushy fulvous hair, tarsus rudimentary. The wing-expanse is given as 20 mm and the lines of the forewing are said to be nearly as in *sybillaria* but with the postmedian much more oblique, arising at ⅔ costa; proximal subterminal shade narrower and more distinct than distal; fringe speckled with fuscous. South Saghalien (loc. typ.), 30. July to 20. August, and Jozankei, near Sapporo, in early September. To judge from the figure, this might well prove to be a form of *invalida*.

infuscata. *S. invalida* ab. **infuscata** *Sterneck* has a strong subterminal dark shade reaching almost to the postmedian line, the terminal dots sharply black. Omihsien and Pekin.

tenuirussata. *S. trigeminata Haw.* **tenuirussata** *Zerny* (6 c). Differs from name-typical *trigeminata* in the somewhat more smoky wings, slenderer and sharper postmedian line, larger costal spot at origin of median shade and reduced grey (rather than brown) subterminal maculation, on the hindwing only vestigial; fringe-dots very sharply expressed. Bscharre, northern Lebanon, perhaps in two broods, a July specimen being much smaller than those taken in June. Occurs also in the Amanus Mountains and on Cyprus.

hispanaria. **S. hispanaria** *Püng.* (= hispunaria *Püng.*) (6 1). This species was named *hispunaria* (from the locality Sierra d'Espuña) in Püngeler's manuscript and was so published in the Entomologist's Monthly Magazine, Vol. 49, p. 302 and Seitz Vol. 4, p. 93 (September and December 1913) but unfortunately as "nomen nudum"; it is to be feared therefore that the misprint must be conserved as the oldest valid name. Further localities are the Sierra Nevada and Gibraltar.

belemiata. **S. belemiata** *Mill.* Besides the Iberian localities given in Vol. 4, this occurs in Oran (Sebdou, etc.) and in the vicinity of Algiers; the specimens before me were collected in July and early August. Apparently not variable.

filicata. **S. filicata** *Hbn.* occurs also on Cyprus. Since the appearance of Vol. 4, when no named aberrations were known, a good deal of attention has been given to its variation, which, however, is individual rather than geographical. — ab. **extincta** *F. Wagn.* "The dark line of the forewing entirely wanting". It was subsequently shown by a figure and a supplementary description that "line" was a lapse for "band" (proximal), which is reduced to mere costal rudiments. A few obtained in breeding from the egg, Palermo district, subsequently from Dalmatia, etc. — ab. **purificata** *Dannehl*. Proximal area almost normal; presubterminal band (which is retained in *extincta*) evanescent, represented only by slight traces costally. Described as occasional in Central Italy. — ab. **angeliata** *V. Schultz* is more extreme, the proximal band weakened and much narrowed, the presubterminal obsolete. Founded on a specimen from Klausen, S. Tyrol. — ab. (gen. aest., pr. p.) **somnambula** *Dannehl*, frequent in the summer and autumn broods in the S. Tyrol, is small, notably darker, with the markings more diffused and broken. — gen. aut. **autumnalis** *Schwingenschuss* was proposed for the 3rd brood in Dalmatia, etc., merely on account of its very small size, only about ⅔ that of normal specimens. Perhaps a superfluous name; *somnambula* would have priority.

extincta. *purificata.* *angeliata.* *somnambula.* *autumnalis.*

robiginata. **S. robiginata** *Stgr.* The record of this southern species for Belgium (Vol. 4, p. 132) was — as indeed might have been expected — based on a misidentification. Derenne has seen the supposed specimens and found them to be *serpentata*.

terminotincata. *S. lutulentaria Stgr.* **terminolineata** *Rothsch.* (6 e), founded on a single ♀ of doubtful status, is intermediate in appearance between *lutulentaria* and *fuscovenosa*, a good deal like a yellowish form of the latter, particularly in the presence of terminal marks between the veins. Ketama, Spanish Morocco, 1500 m, in July. A second ♀ from Izilan and 2 ♂♂ from A'Faska, Riff Mountains (Reisser).

inaudax. **S. inaudax** *Prout.* Probably nearest to *delicatula* and *dilutaria*, but slightly narrower winged, the costa of the forewing straighter. Antennal joints somewhat projecting, the cilia grouped in slender fascicles, little longer than diameter of shaft. Forewing with cell-dot and minute fringe-dots, as in *delicatula*, lines weaker, postmedian straighter, minutely dotted on the veins. Hindwing shaped somewhat as in *delicatula*, marked nearly as in *dilutaria*. Underside with the markings more or less completely reproduced. Described from Kumaon, known also from Dalhousie.

decidua. **S. decidua** *Warr.* (6 h). We give a figure of one of the best-conditioned specimens (a ♀) from the topotypical series of 4 ♂♂ and 4 ♀♀ in the Tring Museum, collected at Sabathu, N. W. India, in 1889. From

this, as well as from our description in Vol. 4, p. 127, it will be seen that our original figure (pl. 7 d) was based on a misidentification.

S. delicatula *Warr.* (6 e) has no very close relationship to *decidua Warr.* The ♂ antennal joints project less and the hindtibial pencils are white and less strong, the tarsus less shortened. Larger and much better marked; the broad, sinuous subterminal is markedly thickened between the radials and near the anal angle, its proximal shade strong (much as in *biselata*), its distal weaker, more recalling *trigeminata*. Punjab and Kashmir. *delicatula.*

S. denudaria *Prout* (6 e). Here again, as with *decidua*, our original figure (Vol. 4, pl. 7 a) is altogether at variance with the description and the specimens on which it was founded. We therefore substitute a ♀ from Ningpo, April 1886, which, though more ochreous-tinged than usual, is in better condition than most captured specimens of this obscure little *Sterrha*. It seems to be widely distributed in China. *denudaria.*

S. osthelderi *Wehrli* (6 c). Suggestive in shape of *ossiculata* (Vol. 4, pl. 4 b), but much smaller; in structure, colour and markings nearer *dilutaria* (Vol. 4, pl. 4 f), though slightly greyer. Ciliation of ♂ antenna rather longer (a little over diameter of shaft); hindtibia spurless, not thickened and without pencil, tarsus $^4/_5$ tibia, thus shorter than in *dilutaria*. Lines indistinct, straighter than in *dilutaria*. Marasch, N. Syria, May and June. *osthelderi.*

S. dilutaria *Hb.* ab. **anastomosaria** *Preissecker* (Vol. 4, pl. 4 f) is not yet known from Denmark; Klöcker's *dilutaria* is *fuscovenosa*. — Antemedian and median lines of the forewing more or less joined together. The type was from Lower Austria. *dilutaria.* *anastomosaria.*

S. fuscovenosa Goeze ab. **anastomosaria** *Preissecker*. The corresponding form to that noted under *dilutaria* and others to which Preissecker has applied this "collective name". Also from Lower Austria. — **corsula** *Schawerda*. Described as a race from Corsica, smaller than the type, grey-yellow rather than brown-yellow, the markings weaker. Schawerda expects it to occur also on Sardinia, but the Tring Museum examples from that island scarcely bear this out, while some from St. Baume (S. France) seem to be virtually *corsula*. Perhaps an aberration rather than a race. *anastomosaria.* *corsula.*

S. nitidata *H.-Sch.* (= tectaria *Leech*, nec *Walk.*, nitidulata *Stgr.*, nec *H.-Sch.*) (Vol. 4, pl. 4 f). A remarkable deviation from the normal forewing venation of *Sterrha* has not, I think, been hitherto pointed out, but is constant throughout the wide range of *nitidata:* one of the subcostals is always wanting, the 1st and 2nd being apparently coincident, rather remote from the costal; usually the 5th subcostal separates, b e y o n d this co-incident vein, occasionally just b e f o r e it (in one examined Ussuri ♂ well before it). Lord Rothschild's Herkulesbad ♀, recorded in Dr. Rebel's faunistic list ("♂" is a misprint) is an error of determination, as is shown not only by the venation but also by the cell-dots and other details; probably it is a curious aberration of *deversaria*. *nitidata.*

S. promiscuaria *Leech* (6 b) is not, as I suggested, a discoloured specimen of *nitidata* but a good species, with normal *Sterrha* venation. I still know only Leech's ♀ type, but Dr. Sterneck has seen 3 ♀♀ from Pekin, taken in June, and confirms its validity. *promiscuaria.*

S. argilata *Guen.* (7 b). The original ♀ (see Vol. 4, p. 115), which we now figure, remains unique. Dr. Wehrli has re-examined it and provisionally shares the opinion of Staudinger and others that it is a good species. On account of its acknowledged similarity to *nitidata*, from which it is distinguishable chiefly by its d a r k e r, b r o w n e r colour and s t r a i g h t e r, l e s s d e n t a t e lines, I suggested that he should investigate the subcostal venation; he reports that all the veins are present, their arrangement not exactly as in typical *deversaria*, which, however, varies in detail. Underside almost exactly like that of a lighter and somewhat larger Pekin *nitidata* with which he has compared it. Culot's figure makes the lines of the upperside appear somewhat too thin and sharp, the ground-colour a trifle too light. *argilata.*

S. degeneraria Hbn. ab. **affumigata** *Dannehl* (= affumicata *Dannehl*). Lines more blackened than in the normal form, median area more heavily powdered with blackish. Tyrol and Karawanken; probably, however, quite widely distributed. — Hübner's **degeneraria** (type figure) approaches this, but is not very satisfactorily executed, the postmedian and both subterminal lines almost certainly drawn too black; its ground-colour is flushed with reddish, yet not so red as in the *floridaria* forms. Probably it is copied from a large 2nd-brood example, in which case "var. (gen. II) *aestiva*" *A. Fuchs* is synonymous. — That author emphasizes as distinctive between the two generations, in addition to the larger size of gen. I (length of a forewing about 13 mm, as against 11 mm in gen. II), its g r e e n i s h grey-yellow tone and blackish brown median band, and proposes a provisional name: var. (May-generation) **vernalis** *A. Fuchs*. As his conclusions are approximately corroborated by most Central-European material, they may be accepted, although (as has been pointed out in Vol. 4) the variation is considerable and, especially in S. Europe and N. Africa, very complicated. — **meridiaria** *Mill.*, which retains in general an olivaceous tinge in the light grey ground-colour but has the band lighter and redder than the name-type, can hardly be united with either of the foregoing forms. — **alticolaria** *Schawerda* (= altivolaria *Schawerda*, nec *Reisser*), from the mountains of Corsica, is said to be much smaller than the coastal forms (which include a large percentage of ab. *floridaria*) and with very slight or weak markings; ground-colour *affumigata.* *degeneraria.* *vernalis.* *meridiaria.* *alticolaria.*

typically straw-yellow, median area of forewing grey. Ab. *floridaria Püng.* occurs also in this, as in all the southern races. — **erschoffi** *Chr.* According to a good series before me from N. Persia, this seems to be less variable than the western forms of *degeneraria;* ground-colour very rarely grey, generally with a more decided ochreous tinge than in *degeneraria;* median area of forewing always well marked, though its central part varies from slightly grey-mixed to solidly deep-brown. N. Syrian examples, according to Dr. Zerny, show some approximation to this race.

erschoffi.

inornata.

S. inornata *Haw.* Probably an older name for this is *straminata Bkh.*, but as a very different *Sterrha* (*sylvestraria Hbn.*) has been so generally known as *straminata* I am loth to revive the name while any possible uncertainly remains. *inornata* is rare in Algeria, perhaps almost confined to the Blida Glaciers. In 1913 I wrote "not yet known from Asia", but this is no longer correct; we now know — **sibirica** *Djakonov* from the Minussinsk and Altai districts and perhaps the Amur, Pekin and Tientsin. In external characters this is scarcely distinguishable from European forms, especially those of Finland, though the average size is small, the wings throughout with a strong rosy sheen, the subterminal shades altogether wanting, the median only indicated (and here very weakly) on the hindwing. The ♂ valve is somewhat differently shaped. Djakonov also knows typical *inornata* from Djarkent.

sibirica.

deversaria.

S. deversaria *H.-Sch.* This is perhaps the *maritimaria* of Bruand (ex Guen. MS.), first catalogued a year before the appearance of Herrich-Schaeffer's description, but not intelligible until 1855, when he communicated to Laharpe a differentiation from *aversata.* — **maritimata** *Guen.* (7 b) correctly diagnosed in Vol. 4 (p. 136), was probably not exactly the same form and should, strictly speaking, be renamed, as Guenée admits that he had determined different forms "in litt." We reproduce Culot's excellent figure of Guenée's original ♀ from Bourgogne. — ab. **anastomosaria** *Preissecker* has the antemedian and median lines of the forewing confluent. First mentioned from Spitz, Lower Austria; occasional at Herkulesbad, where *deversaria* seems exceptionally variable. We figure (6 f., as *diffluata* ab.) a fine ♀ from the Amanus Mountains, in which the antemedian and median are united into an ill-defined band, while the *diffluata*-band is exceptionally strong. The specimen is in the Tring Museum.

maritimata.

anastomosaria.

amoenata.

S. aversata L. ab. **amoenata** *A. Fuchs* (= suaveolaria *A. Fuchs*). I was informed by my old friend Püngeler, who acquired the type, that this was a slight aberration of the present species and not, as published, a form of *inornata.* The Ragusa collection, from Sicily, contains only 6 *aversata*, of which 5 are banded, normally shaped and with normally shaped postmedian, while the sixth (a ♀) has the postmedian less bent than usual and shows most of the peculiarities mentioned by Fuchs, except that the fringes are not reddish. "Costa of forewing more, and more regularly, curved" (than in typical *inornata*), apex broad and fully rounded, hindwing quite regularly rounded. Smaller than *inornata* from Sicily, different in colour. Black cell-dots distinct. Very fine dots at base of fringe." As this may be an "ab. loc.", or even an overlooked species, I think it wiser not to unite it as yet with *aurata-diluta* or any other named form. — ab. **latefasciata** *Wehrli.* The diagnosis of this aberration (see Vol. 4, p. 417) seems to have been supplied to the authors of the "Schmetterlinge der Schweiz" by Dr. Wehrli, in which case he is the actual author. The same, or a closely similar, form was registered by Seebold (An. Soc. Esp. Hist. Nat., Vol. 27, p. 136) as "ab. *latifasciaria Heydrch.*", but the latter, as we have already indicated, was synonymous with the type of *aversata.* — ab. **diluta** *Hannemann.* The markings obsolescent, the border of the band wanting. Berlin, etc. — ab. **aurodiluta** *Hannem.* (= aurata-diluta *Hannem.*, dilutata *Preissecker*), first described from the same source, is identical except that it has the yellowish ground-colour of the following series. Preissecker, who obtained specimens in breeding from *aurata* ♀♀ (Haschberg and Spitz, Lower Austria), questions whether it ever occurs in the wild state. It certainly does. — ab. **aurata** *A. Fuchs.* Fuchs knew both dark-banded and non-banded forms, but his name has since been quite correctly applied to the former. — ab. **aureospoliata** *Boldt* (= fuchsi *Dufrane*) is the non-banded yellowish form. Boldt founded it on Taunus specimens, but it occurs in most localities. Preissecker had previously mentioned it as "*spoliata Stgr.-aurata*", but this is not a binomial. — **griseocorsa** *Schawerda*, from the mountains of Corsica, is smaller, more grey-yellow than brown-yellow, the lines weaker, less distinct. Reisser mentions a ♂ with the median shade very strong, the other lines scarcely indicated. — ab. **pseudaurata** *Schawerda*, taken among *griseocorsa*, is reddish brown, slenderly marked, analogous to (but not identical with) the more gold-yellow and stronger-lined *aurata* of Central Europe. — **indeviata** *Prout* (6 f) is, so far as can be judged from a few specimens, scarcely variable, possibly a separate species. Ground-colour as in the palest *aversata* ab. *remutata*, median and postmedian lines on the forewing anteriorly much straighter. Algeria: Hammam Rirha (type) and Blida Glaciers; Tunis: Ain Draham. Flies from the latter half of June until early August.

latefasciata.

diluta.

aurodiluta.

aurata.

aurcospoliata.

griseocorsa.

pseudaurata.

indeviata.

karafutonis.

S. karafutonis *Matsumura* is said to bear much superficial resemblance to *Scopula annubiata Stgr.* (Vol. 4, pl. 4 l), but is a true *Sterrha*, with the 2nd subcostal of the hindwing long-stalked, hindtibia large, conically pointed at the end, tarsus rudimentary. Evidently belongs to the *aversata* group; according to the figure it might even be a form of *inornata* (Vol. 4, pl. 4 g). Pale testaceous with the 3 lines of the forewing equally developed, its cell-dot weak or wanting; marginal "band" (? line) fuscous, obsolete near the apex. Hindwing with the postmedian excurved at the furcation of veins 6 and 7. Saghalien, common in July and August.

S. indecorata *Warr.* (6 f), founded on a pale, thinly-scaled ♀ from Simla, is better recognizable from two beautiful ♂♂ from Goorais Valley, Kashmir, June, one of which we here figure. Perhaps related to *inornata*; which the type recalls in its weak markings, though the postmedian line is somewhat more proximally placed. The Goorais Valley examples show the median line brown, placed beyond the cell-dot of the forewing, the postmedian grey, lunulate-dentate, the underside strongly marked. The termen of the forewing is scarcely appreciably sinuous, that of the hindwing just noticeably bent at the middle; 5th subcostal of forewing arising very little beyond the 1st. ♂ antennal joints appreciably projecting, ciliation normal; hindtibia with strong pencil, tarsus quite short. *indecorata.*

S. indeterminata *Warr.* (6 f) is also from Simla and may be looked for in the Punjab. Perhaps connects *indecorata* with the Indian *actiosaria Walk.*, which will be discussed in Vol. 12. Larger, paler and more weakly marked than the latter, termen of forewing slightly more oblique, tending to sharpen the apex, both wings otherwise similar to it in shape — very slightly and somewhat irregularly waved. Smaller and perhaps narrower winged than *indecorata*, all the subcostals of the forewing stalked beyond the areole; median line almost crossing the very small cell-dot, postmedian slightly sinuous, subterminal shades generally fairly strong. The ♂ is similar in structure to that of *indecorata*, but the antennal joints scarcely project and the hindtibia seems relatively somewhat longer and more heavily tufted. *indeterminata.*

S. emarginata L. ab. **mosquensis** *Heyne.* Culot (Vol. 3, p. 68, f. 191) re-describes and figures this aberration, again in the ♀ sex and again without stating whether (as I surmise) it is confined to this sex. — **simplicior** *Wehrli* (6 g), founded on a ♂ from the Sierra Nevada, is remarkable for its different wing-shape, the forewing having much weaker incision and no definite angle, the hindwing only a single, not a double angle. Median shade bright orange instead of grey, antemedian line angled costally, thence almost straight and perpendicular to the inner margin. Further material from the same region shows that the shape is not always so extreme, but confirms the characteristics of the antemedian line. *mosquensis.* *simplicior.*

S. microptera *Warr. & N. C. Rothsch.* (6 f). Only a hurried reference was made to this tiny species in the addenda to Vol. 4 (p. 418). A supplementary notice, with a figure, will be found in Vol. 16, p. 78, pl. 8 l, but its most noticeable structural distinction from some similar species (e. g. *minimaria Warr.*) was left unrecorded, namely the loss of the areole; all the 5 subcostals are well stalked. The stalking of the 2nd subcostal of the hindwing is very long. Hindleg of ♂ rather long, rather slender, tarsus aborted. Recorded from the Sudan, Egypt, Kordofan and S. Palestine. *microptera.*

S. granulosa *Warr. & N. C. Rothsch.* (Vol. 16, pl. 8 i). I have restored to this (Vol. 16, p. 78) the status of a species, on account of the somewhat less long cells, absence of cell-dots and somewhat more distally placed outer line; but the question is not yet closed. The type was from the Egyptian Sudan, but I have also records from Egypt. Venation as in *microptera*. *granulosa.*

S. sordida *Rothsch.* (6 f), also briefly referred to in our addenda (p. 417), is still imperfectly known and I strongly suspect it is a more or less melanic form of *microptera*, on an average perhaps not quite so small. The type ♀ (Oued Nssa, between Ghardaïa and Guerrera) seems to agree with a species from other desert localities in S. Algeria, particularly Aïn Sefra, from which I have taken the figure and the ♂ characters. Tongue rather long; wings narrow; forewing without areole, all the 5 subcostals stalked; hindwing with 2nd subcostal very long-stalked; ♂ antenna with ciliation about 1½ times as long as diameter of shaft; ♂ hindleg short and weak, tarsus very short; ♂ genitalia (kindly examined by Dr. Sterneck) quite as in the (Palaearctic) Egyptian and Palestinian specimens which pass for *microptera* (which, however, I have not seen). Known also from Tozeur (Tunis) and Sidi Mesri (Tripoli). Occurs between the middle of May and the end of July. *sordida.*

S. miserrima *Turati* (6 f) differs from the preceding in the presence of the areole, rather less extreme stalking of the 2nd subcostal of the hindwing and the less coarsely dark scaling; the ♂ antennal joints seem to project more. Turati likens the colour to that of the Indian *testacea Swinh.*, but all the specimens that I have seen (mostly from Sidi Mesri) are decidedly darker than in that species. The originals were 4 ♀♀, merely registered as from "Tripoli" in June. The only ♂ in the Tring Museum has unfortunately lost both its hindlegs. In *miserrima* the tongue seems to be short, the costal vein of the hindwing, although not anastomosing with the cell at appreciably more than the normal "point", continues approximated as far as to the middle of the cell, thence diverging more rapidly. *miserrima.*

27. Genus: **Brachyglossina** *F. Wagn.*

An offshoot, or perhaps (as Dr. Sterneck, in litt., strongly advocates) section, of *Sterrha*, differing chiefly in the atrophy of the tongue, which is described as consisting, in the type species, of "colourless, only weakly chitinized (membranous) short remnants, of scarcely more than the length of the palpus". Antenna of the ♂ subserrate, with moderate fascicles, hindtibia of the ♂ without pencil, the tarsus short. Forewing with cell long; hindwing not emarginate, 2nd subcostal generally very long-stalked. Until an exhaustive study

has been made of the enormous genus *Sterrha*, it is not possible to say whether *Brachyglossina* represents a sharply definable group. The few Palaearctic species referred here are evidently nearly related and it is interesting to notice that Wagner, Turati and Culot have all seen in them a superficial resemblance to *Scopula rubellata Rbr.* Early stages unknown. The genotype is *B. acidalaria*. A few other species with the tongue atrophied *(Sterrha fathmaria, lobaria, detritaria, improbata, purpureomarginata)* have probably arrived at this condition by independent paths, though one or two of them may prove, on closer study, to have really some near affinity to the present group.

acidalaria. **B. acidalaria** *F. Wagn.* I have not seen Wagner's unique type, a ♂ from Djebel-Djelloud, near Tunis, taken at the end of April, and the description does not give the colour of the face nor the shape of the hindwing, two of the chief distinctions (provisionally) between the type of *mauritanica* and the variable *tantalidis*; moreover, the hindlegs were lost before the description was made and the wing-expanse is not indicated. Hence I cannot venture to say whether it sinks to *mauritanica* or supplants *tantalidis*, or whether it represents still another form in this difficult group. "Pale seal-red (reddish yellow), forewing with 2 black lines; a double (basewards more distinct) strongly dentate one in outer third, which is continued more weakly on the hindwing, and a simple and less strongly dentate one at ⅓; at end of cell a strong black dot. Scaling very coarse and dense (with the lens the surface of both wings appears sprinkled throughout with dark scales, the markings broken, only on the veins as accumulations of black-brown scales). Termen unmarked. Fringe concolorous, in distal half somewhat lighter. Underside blackish brown, forewing in posterior third and hindwing in distal half noticeably lighter; the reddish-yellow fringes sharply contrasting."

mauritanica. **B. mauritanica** *B.-Bak.* (Vol. 4, pl. 5 d) was rather fully described from the type on p. 108 of Vol. 4, but (perhaps unconsciously prejudiced by the position assigned to it in Staudinger's Catalog, whose sequence I followed) I compared it with *cervantaria* and evidently neglected to study the structure of the head. This circumstance and the inaccurate coloration of our figure have unfortunately given rise to much misunderstanding, so that the name has been transferred to similarly coloured Algerian forms of *cervantaria*. Face broader and less black (reddish brown, with some grey suffusion), tongue very slight (in *cervantaria* fully developed), hindleg much as in *tantalidis*, the tarsus somewhat less than ½ tibia. The strongly convex margin of the hindwing is well brought out in our figure, but the coloration should be more uniform, closely like that of *tandalidis* (6 i), the markings also as in that, though not quite so weak as in the figured specimen, the postmedian line somewhat unusually proximal (seldom matched in *tantalidis*); hindwing with the 2nd subcostal and 1st radial stalked to somewhat beyond ½. The underside is more suffused than in *tantalidis*, recalling the description of *acidalaria*. If the shape of the hindwing in the Guelma type is abnormal, a few other examples from scattered Algerian localities may also belong here, but I know no second specimen which can safely be thus determined.

tantalidis. **B. tantalidis** *Trti.* (6 i). Variable in the strength of the markings and very variable in size, a second (and perhaps a third) generation being much smaller than the spring form here figured; also somewhat variable in the length of the stalking of the 2nd subcostal of the hindwing, which is on an average somewhat longer than in *mauritanica* type. Face nearly concolorous with body and wings, or a little redder; I have not seen any example in which it has the dark suffusion of that of *mauritanica*. Palpus perhaps a trifle shorter than in *mauritanica*. Hindwing less convex. Terminal line and fringe-dots weak or wanting (the latter fairly well developed in *mauritanica* type, but probably more or less variable). The ♂ hindtarsus almost certainly varies somewhat in length, from about ½ tibia to decidedly less, though never so short as in the *oranaria* group; the tibia somewhat thickened by long, loose hair-scaling, but without pencil. Antenna in the ♂ with the joints somewhat triangularly projecting, the ciliation rather long; the scaling on some of the joints beyond the middle long and rather rough, somewhat overlapping. Bengasi, common in February and March and again in May-June, perhaps also later. Possibly also in Tunis and Algeria (see the two preceding).

staudingeri. **B. staudingeri** *Prout* (= uniformis *Stgr.*, nec *Warr.*) (Vol. 4, pl. 3 h, as uniformis). According to the definition this should also obviously be a *Brachyglossina*, the absence of tongue, the antenna, cell of forewing, subcostal of hindwing and even the coloration and simple pattern agreeing well. Face, vertex and collar concolorous with wings. Hindtibia of ♂ not thickened, tarsus only 1-jointed. Underside without irroration or markings, only on the forewing with (weakly developed) cell-dot. Aedoeagus much more slender than in the other *Brachyglossina*, with 3 or 4 short cornuti at the end. Best known from the neighbourhood of Jericho.

oranaria. **B. oranaria** *B.-Haas.* (6 b). This species promises to give almost as much trouble as *mauritanica*. With the kind co-operation of Mr. O. Bang-Haas and Dr. H. Zerny I was able a few years ago to examine the type ♂. Unfortunately it differs in several particulars from the common *Brachyglossina* which has passed under the name. Tongue rolled, perhaps short, but certainly not altogether vestigial, therefore no true *Brachyglossina*. Antennal ciliation rather even, apparently not longer than diameter of shaft. Hindtibia rather thick, a trifle longer than femur, roughened, but without any hair-pencil, the tarsus about ¼. The forewing is slightly broader, the hindwing slightly better rounded, than in the ordinary forms; subterminal area extremely weakly marked, cell-dot of hindwing minute, postmedian about midway between it and distal margin, rather regular; forewing

with 1st subcostal arising from apex of areole. A ♂ from Les Pins, Oran, agrees fairly with it, but otherwise I cannot match it at all. The so called "*oranaria*" have about the same palpus and hindtarsus as the type ♂, but seem to have a more rudimentary tongue, perhaps somewhat longer antennal ciliation, no femora-tibial pencil, and stronger markings, subterminal shade well-developed, often also (especially in the ♂♂) a strong median shade; the original comparison with *eugeniata*, though somewhat far-fetched, was much more understandable in relation to the type than to the other forms. I suspect two species are mixed, but am loth to impose a new name until the type is better understood. In any case variable, the variation in part sexual; males generally dark, heavily irrorated and strongly marked; females more reddish or sandy, more approaching the *mauritanica* group and generally without the median shade. Very generally distributed in Algeria and Morocco. — **maroccana** *Wehrli* (7 b), perhaps an aberration, perhaps a local mountain form, perhaps a separate species, is said to differ in its considerably larger size ("25 mm" in both sexes); the ♂ otherwise very similar to "*oranaria*" in colour and markings, but its somewhat thicker hindtibia and still shorter tarsus suggest that we may possibly be dealing with a separate species; the ♀♀ are relatively stronger-marked than those of "*oranaria*", median shade present on forewing, median area on both wings appreciably lighter, more yellow-reddish, than proximal and distal areas, fringe-dots obsolete. Founded on 2 ♀♀ from Mrassine, mistaken by Oberthür for *Scopula rubellata* (!), and 1 ♂ from Region des Zemmours. *maroccana.*

B. culoti *Wehrli* (= rubellata ♂ *Ob.*, nec *Rmb.*) (7 b). Almost as large as *maroccana*. Fascicles of cilia of the antenna 1½ times diameter of shaft. Tarsus extremely short (1/5 or 1/6). Palpus very short. Tongue vestigial. Face black-brown. Underside more sharply marked than in *oranaria*, otherwise I can find scarcely any constant distinction in the markings; on the whole, the postmedian line may be a little less sinuous and the broadenings of the subterminal line less pronounced, but I do not think this can be relied upon. The (very slightly) broader wings perhaps explain, though not justifying, Oberthür having confused it with *Scopula rubellata* ♂. The originals came from Mrassine; a few others have been taken at moderately high altitudes in the Great Atlas. *culoti.*

28. Genus: **Tineigidia** *Sterneck*

Palpus minute, slender. Tongue present, though rather weak. Hindtibia weak, with neither pencil nor spurs. Wings very narrow, the angles rounded off; cells long, the 2nd discocellular obsolete. Forewing without areole, all the subcostals stalked, the 5th separating first. Hindwing with the costal anastomosing to beyond the middle of the cell, 2nd subcostal stalked to about ½, 1st median widely separate. Genitalia in some respects different from those of any known *Sterrha*; the valves, though showing the same essential structure, consist of a very firm, highly chitinized proximal part (sacculus), at the end of which there is a long-pointed "needle-shaped" process, and a smaller and very weak, hyaline distal part. Type and sole species: *eremica Amsel & Sterneck*. Students of Sterneck's article (Iris, Vol. 48, pp. 48, 48) should take notice that the cow's-horn-shaped process figured nearer to the base of the sacculus was misplaced and is really an anellus-lobe.

T. eremica *Amsel & Sterneck* (7 c). Very small (12 mm from tip to tip), hindwing not emarginate. Brownish grey, densely irrorated with coarse dark scales; lines obsolete excepting the postmedian, which is oblique outward from the costa of the forewing, right-angled about the 1st radial, thence parallel with the termen, continued on the hindwing. Underside the same. Palestine, in the desert region of the Dead Sea, only a few specimens yet known. *eremica.*

29. Genus: **Rhodometra** *Meyr.*

For the sake of readers who have not ready access to Vol. 16, we quote a few lines concerning the taxonomy: "On account of the anastomosis of the costal vein of the hindwing with the cell, at least as far as the middle, the more rigid analysts have placed it in the *Larentiinae*, but the genitalia and some points in the forewing venation show it to belong to the *Sterrhinae*. Pierce associates it with the *Cosymbia* group, but the 'socii', shape of saccus and formation of the valvae seem irreconcilable therewith."

R. sacraria L. (= sacralis *Thnbg.*) ab. **debiliaria** *Rothsch.* (7 c), described as a race of the African *plectaria Guen.* (Vol. 16, p. 82), looks to me more like a striking aberration of *sacraria*, intermediate towards ab. *sanguinaria*, scarcely so striking as some forms of *sacraria* which have been raised ex ovo. The pink veining, though weaker than in *plectaria*, is sufficiently interesting to merit a name. Founded on 1 ♂ from Guelt-es-Stel, Central Algeria, collected with *sacraria* in October. — ab. **desertorum** *Stauder*, erected as a race, is said to be on an average smaller than typical forms of *sacraria*, paler, fringe white, not yellowish, the line of the forewing slender, browner, base of costa not rosy. Founded on a series from Biskra and El Kantara, but abundant material in the Tring Museum shows that, though frequent, it is not truly racial. — ab. **aucta** *Krausse* (7 c) has the rosy stripe broadened anteriorly and a supplementary (longitudinal) streak developed in the cell. Described from Sardinia; the ♀ here figured is from Sidi Mesri, Tripoli, and other examples are known. In my *debiliaria.* *desertorum* *aucta.*

experience, this form shows also an usually distinct rosy cell-dot, and Zeller's collection proves that this
fumosa. was also the case with his "var. b". — ab. **fumosa** *ab. nov.* (7 c) has both wings dulled with smoky grey, the cell-dot and oblique stripe blackish (an extreme development of ab. *labda*, although the stripe is here complete). Otherwise a grey suffusion of the hindwing seems only known in a few extreme developments of ab. *sanguinaria* (namely ab. *lividaria Costa* and ab. *rosea Oberth.*). Type a ♀ from Blida, in the Tring Museum. — The geographical range of *sacraria* is even more extended than was indicated in our summary; I have now before me specimens from Yunnan and Tse-kou (Chinese-Tibetan frontier) besides the Canaries, Madeira, St. Helena and Madagascar. In the Palaearctic Region its strong migratory tendencies effectually prevent the formation of geographical races, but from the Naukluft Mountains, S. W. Africa, I have recently (since publishing p. 82 of Vol. 16 of this work) seen a well differentiated form, or very closely allied species, which, in the absence of morphological distinctions, will have to be treated as a subspecies.

rosearia. **R. rosearia** *Tr.* (Vol. 4, pl. 7 f). I know of no other records of this species from Spain than Thierry-Mieg's of his ab. *elvira*, nor of any authentic record from Albarracin of any *Rhodemetra* other than *sacraria*. I suspect that he was mistaken as regards either the determination or the locality.

antophilaria. **R. antophilaria** *Hbn.* (= autophilaria *Sherborn*, ex err.). Here, as always, I conserve the original spelling of a name. I have not yet been able to get together sufficiently abundant material for a thorough-going revision of this variable species. The name-typical form (Hübner's original was almost certainly from S. E. Russia) and its rosy ab. *subrosearia Stgr.* (Vol. 4, pl. 6 a) are sufficiently well known. In Inner Anatolia, F. Wagner found the latter form to be chiefly, though not exclusively ♀. The extremely *sacraria*-like ab. *subsacraria Stgr.* was also founded on material from the Ural, being, indeed the "*sacraria*" of Eversmann (misidentified from Linné). Probably the practised eye would scarcely ever confuse these with the similar forms found, for instance, in North Africa and some errors have perhaps arisen from attempts to give too wide an application to some of the names (e. g. ab. *albipunctaria*) or to unite as synonyms some which have had an
consecraria. independant geographical origin (e. g. *subsacraria* and *gegenaria*). — **consecraria** *Rmb.* (7 c) differs from the most similar Russian forms (ab. *subrosearia Stgr.*, sens. lat.) in its generally larger size and in having the hindwing less strongly darkened (in any case with the pale postmedian band broader), sometimes with scarcely more than a grey line (or narrow stripe) to indicate the darkening, but never clear white; forewing variable, but always sufficiently dark to show the white cell-spot (hence the African records of "ab. *albipunctaria*"). Scarce in S. Spain, less so in N. Africa.

intermediaria. **R. intermediaria** *Trti.* (7 c) erected as a separate species, is intermediate between *sacraria* and *antophilaria* form. *subsacraria*, closest to the latter, from which it is differentiated by the (slight) curvature of the line as it approaches the costa of the forewing (so that it more nearly follows the course of the distal margin. Founded on a single ♂ from Barce (Merg), its application has been widened by Krüger to comprise the race (or species) from that district. I abstain from calling it a synonym (or ab.) of *subsacraria* because I am not yet certain that the N. African forms passing under that name are identical with the true "*antophilaria* ab. *subsacraria*" of Sarepta; if not, Turati's name will be required and the range given as Cirenaica to Oran and ? S. Spain. To judge from a very few Spanish specimens and good series from Algeria, there seems such a sharp demarcation between *antophilaria consecraria* and these *sacraria*-like forms as to justify the idea that
parallelaria. we may perhaps be dealing with two separate species. — ab. **parallelaria** *Krüger.* "Distal stripe of forewing grey, more or less smoky." Uadi Cuf (Central Gebel), 1 ♂; Bu Fachra and Carcura, 4 ♂♂ and 2 ♀♀.

5. Subfam.: **Larentiinae.**

No systematic revision of this subfamily, from the standpoint of the Palaearctic fauna, has been published since the appearance of our Vol. 4 and there seems no need to depart from the sequence of genera therein adopted, although it is admittedly based on a compromise between some different points of view. A valuable article on "The Genera of *Hydriomeninae (Larentiinae)* of the United States", with keys and notes, was published by Wm. T. M. Forbes in the Journal of the New York Entomological Society, Vol. 25, No. 1 (1917) and will be taken into consideration in Vol. 8 of the Macrolepidoptera of the World, but deserves mention here in account of the near relationship between the Palaearctic and the Nearctic fauna and the consequent inclusion of most of the Palaearctic genera. Forbes suggests that *Stamnodes* "perhaps represents the most primitive of living *Hydriomeninae*" and makes other suggestive comments on relationships, which will occasionally be mentioned in the following pages; but on the whole he uses essentially the same classificatory system upon which I have hitherto worked.

Concerning the genus (or rather, supergenus) *Cidaria*, I remain firmly convinced that many of its elements really represent natural genera, but I have not thought it necessary to force this view upon the reader and therefore continue to deal with them as "subgenera".

Genus 2 (*Rhodometra*), it will be observed, has been transferred to the *Sterrhinae*, but this small change was not considered sufficient justification for re-numbering all the succeeding genera.

3. Genus: **Lythria** *Hbn.*

L. plumularia Frr. (Vol. 4, p. 155) ab. **rufataria** *Vorbrodt.* All 3 bands confluent and the forewing so strongly reddened that mere red-dusted remains of the yellow ground-colour persist in the costal half (between bands 2 and 3) and at the distal margin. Founded on 2 ♂♂ and 1 ♀ from Madris-Avers, Switzerland. *rufataria.*

L. purpuraria *L.* The differentiation of this species and the following and the remarkable variability of both have given a fresh impetus to their closer study and some very interesting work has been done by Zerny, Kitt and others. The latest and most exhaustive study of the named forms is Lempke's, published in "Lambillionea" last year and is here accepted with little reservation. — ab. **porphyraria** *H.-Sch.* (7 a). On account of the varied opinions which have been expressed regarding this curious *Lythria* form (see Vol. 4, p. 156), we consider it desirable to reproduce the type figure. Dr. Zerny, having seen a similar example (a ♀ from Frivaldsky, without locality), transfers it to *purpuraria* and I unhesitatingly follow him; the figure shows the wings at least as elongate, perhaps even more so, and the extension of the olive-toned ground-colour along the hindmargin so far as to interrupt the postmedian band would be extremely improbable in a purple-suffused aberration of *purpurata*. I suppose my statement that it seemed to be certainly this latter arose from my having seen an ab. *sarmatica* (see below) determined as *porphyraria*. — ab. **mevesi** *Lampa.* Zerny and Lempke point out that my diagnosis in Vol. 4 is inexact; the original diagnosis, Lempke correctly says, runs: "ochre yellow, the transverse band of the forewing grey". The forms from Central Asia often incline to this colouring, but I think it must be rare in Europe. — ab. **lutearia** *Vill.* (= abstinentaria part. *Fuchs*) (7 c) is also very rare in the extreme form described by de Villiers (with markingless upperside) and when it does so occur, there is often also — as in the ♂ now figured from the Sibilline Mountains, 4 September — an obsolescence of the band beneath; de Villiers seems to have had a ♂ with the latter band and a ♀ without. In any case, I still agree with Staudinger in conjoining here specimens with "fasciis subnullis". I have a ♂ from Kazvin, N. W. Persia. — ab. **nigricans** *Manon.* Forewing blackish, as though covered with a slight coating of smoke-black; lines, as in *lutearia*, faint. Rochelle etc, in August and September. — ab. **trilineata** *nov.* (7 c) is very remarkable on account of the development of a median line on the forewing, as distinct as the antemedian though slightly narrower, and the strong development of the line of the hindwing above. Brignoles, August 1909 (Dr. P. Siepi), the unique type ♀ in the Tring Museum; collected with normal *purpuraria*. A ♂ from the Amanus Mountains, recordedtestatively by Wehrli as "*purpuraria sanguinaria*", may well belong here. — ab. (? subsp.) **ruginaria** *Costa.* Zerny merges this in *lutearia* and this may ultimately prove correct, as its author included with the rust-coloured ("fulvo-rubiginosa") typeform occasional yellowish ochre examples; but it seems premature, unless material has been studied from the Terra d'Otranto, where it is said to be frequent near the Adriatic littoral. As it is a large form (12—14 lines) and has the wings concolorous, Curò's attempt to see in it ab. (gen. aest.) *deceptoria* is quite wide of the mark. — gen. vern. *deceptoria Vill.* ab. **sordidaria** *Zett.* This, as Zerny indicates, is probably the correct appellation of the frequent spring-brood form in which the purple bands of the forewing are developed on the dark ground; only if it can be demonstrated that Lapland has a differentiable race will it stand as *purpuraria sordidaria* and another name be required for the banded *deceptoria*; there is, however, as with *purpuraria* and *lutearia*, no sharp line of demarcation between banded and non-banded. — When Vol. 4 was written I had not access to any *Lythria* from Central Asia and therefore did not attempt to place Staudinger's records; they belong, however r, to the present species, chiefly in the weakly marked forms. Westward it reaches France, where it is widely distributed; the records from Holland and Belgium, on the other hand, relate to *purpurata*. *porphyraria.* *mevesi.* *lutearia.* *nigricans.* *trilineata.* *ruginaria.* *sordidaria.*

L. purpurata L. (= purpuraria *Cl.*, nec. *L.*) ab. **sarmatica** *Prüffer* (= schumanni *Hannemann*) (7 d). Forewing almost entirely purple, excepting the obliquely bounded patch at the base; in Prüffer's type there remains also a subterminal spot at the costa; in the specimen which we figure there is further (though incomplete) development of the subterminal (ruberrima *Hannemann*). The type of *sarmatica*, a small, short-winged specimen from Zwierzyniec (Lublin), 13 August and all Hannemann's named aberrations were originally referred to *purpuraria* but rightly transferred by Kitt. — ab. **communiarea** *Romaniszyn* has the forewing purple as far as the end of the outer band, leaving only the narrow terminal area ochreous; the broad purple band on the hindwing beneath, widening anteriorly, shows it to belong to *purpurata*. Taken at Lubyczky Królowskiej, 28 July 1923. — ab. **rubrovittata** *Hannemann* conserves the basal patch of *sarmatica* and the narrow terminal band of *communiarea*, the rest of the forewing remaining solidly purple. — ab. **triangulata** *Hannemann* has small costal patches of the ground-colour in the broad purple median band of *rubrovittata*, showing here its tripartite origin. — ab. **tangens** *Hannemann*, with "the bands widened and anastomosing" is defectively characterized, so that the suggestion is given of a slightly less extreme ab. *triangulata*, whereas the figure shows only the 2nd and 3rd bands coalesced and only differs from the name-typical *purpurata* in the increased with of the band so formed. Kitt compares it with *sanguinaria* ab. *confluens Oberth.* (7 d). — ab. **rubrior** *Hannemann* also has the purple markings much broadened, but the outer (the coalesced) band here extends right to the distal margin. — ab. **aucta** *Krausse.* The description given in Vol. 4 (p. 156) might give the impression *sarmatica.* *communiarea.* *rubrovittata.* *triangulata.* *tangens.* *rubrior.* *aucta.*

that *rubrior* was similar to this, except in lacking the broad purple border of the hindwing; for I failed to make it clear that *aucta* had three bands on the forewing — "the outer band almost as broad as the median band" (Krausse); whether these two bands coalesced posteriorly (as in Spuler's pl. 63, fig. 20, from which it is differentiated) or whether they were free throughout is not indicated. In any case a remarkable form. —

semipurpurata. ab. **semipurpurata** *Pfau*, founded on a ♀ from Pomerania (Wolgast district), is a curious modification of ab. *rubrior*, with a broad red border to the hindwing b e n e a t h, recalling that of the upperside of the

ornata. forewing. — ab. **ornata** *Bubaček*. Red markings strong, with the addition of a cell-dot on the forewing

purpurascens. and 2 distinct, parallel lines on the hindwing above and beneath. Retz, Lower Austria. — ab. **purpurascens** *Kitt* has the ground-colour itself changed to bright purple-brown, the markings normal, deep-red. — ab.

hilariata. **hilariata** *Kitt* also has the markings normal, but the ground-colour is light ochre-yellow to chrome-

suffusa. yellow, without the usual greenish tone. — ab. **suffusa** *Lempke*. Ground-colour of the forewing blackish olive, the purple bands less intense than usual. Said to be not rare in the summer broad (at least in Holland)

nigricaria. and to bear much resemblance to an overgrown *demaisoni*. — ab. **nigricaria** *Lempke* is a further and rarer development of the summer brood, the forewing blackish without the purple bands; the type ♂ from Montferland.

depurpurata. — ab. **depurpurata** *Kitt* is described as having the forewing greenish ochre-yellow, both wings above and beneath without markings; an approximation, very rare in this species, to *purpuraria* ab. *lutearia*. This and Kitt's other two aberrations (*purpurascens* and *hilariata*) were taken in Austrian Silesia, between Olmütz and Jägern-

effusata. dorf. — ab. **effusata** *Lempke* has the bands very feebly marked, according to Lempke's figure so feebly that

griseolineata. it might almost be merged in *depurpurata*. Holland. — ab. **griseolineata** *Czekelius* has the bands of the forewing dark grey; *griseovittata Lempke*, which I treat as a synonym (since both are said to correspond to *purpuraria*

tenuivittata. ab. *mevesi*) has them considerably paler grey and was founded on a ♀ from Soest, Holland. — ab. **tenuivittata** *Lempke* has the bands narrowed, but scarcely needs a separate name; not rare; the type ♀, from Loosduinen,

unifascia. shows the costal forking of the outer band. — ab. **unifascia** *Bubaček* lacks the proximal (incomplete) purple

trilineata. band of the forewing. Type a ♂ of the summer broad from Retz, Lower Austria. — ab. **trilineata** *Stauder* (7 c) has the median and postmedian bands of the forewing separate throughout. Founded on a ♂ from Burroni, Aspromonte; from the same part of Italy (near Reggio) the Tring Museum has received a few examples, one of which is here figured. A year later (June 1917) Hannemann independently used the same name for this

trifurca. same form, claiming as the type a ♀ from Strausberg (Potsdam) in his own collection. — ab. **trifurca** *Hannemann* has the antemedian band running into the median band about the middle of the wing, while the outer band remains free, as in ab. *trilineata*; analogous to *sanguinaria* ab. *confluens Oberth.* (7 d), though without the additional purple suffusion. This and all Hannemann's other aberrations excepting *trilineata* were bred

conjunctiva. from Berlin larvae. — ab. **conjunctiva** *Lempke*, corresponding to the aberration of like designation in *purpuraria*, has the antemedian band connected with the broad outer band, which latter may be (as in typical *purpurata*)

demaisoni. forked at its costal end or fused throughout. — gen. vern. **demaisoni** *Prout*. I am severely criticized by Lempke for stating that this is "rather" (i. e., somewhat) smaller than the spring form of *purpuraria*, this statement having apparently been translated into French as "b e a u c o u p plus petite". Judged on sufficient series, the size difference is immaterial; typical *demaisoni* can be separated from *deceptoria* ab. *sordidaria* by the markings.

unicolora. — ab. **unicolora** *Lempke*, uniform blackish on the forewing, without a trace of the purple bands, is more difficult to separate from *deceptoria*, but Warnecke (in litt., Lempke) has pointed out that in a strong light (electricity or, still better, sunlight) the position of the markings is generally still traceable, and I would add that in some cases the underside will also give the required clue. — Occasional spring-brood specimens show the

pseudotypica. coloration of the summer brood; Lempke calls such specimens ab. **pseudotypica,** or, if aberrant, would prefix "pseudo" to their aberrational name. — *purpurata* is now known to be distributed from France and the Low Countries to Bulgaria and Macedonia and Zerny adds Erdschias Dagh, Asia Minor. The life-history has been elucidated by Trap (in Sepp, Vol. 6) and by Predota and Rebel. The egg is believed to be somewhat less bright green than that of *purpuraria*; larvae extremely similar, *purpurata* perhaps the less variable, scarcely distinguishable from sharply marked *purpuraria*; at Nyirbátor, ca. 50 km. N. of Debreczin, where Predota found the larvae at large, they were feeding on *Rumex acetosella*. Rebel believes that Buckler's carefully described larvae (Larv. Brit. Moths, Vol. 7, p. 144 seq.) were a dark form of *purpurata*. — *sanguinaria Dup.* ab.

confluens. **confluens** *Oberth.* (7 d). To facilitate comparisons with analogous forms of its more widely distributed relative (? *purpurata confluens* of Romaniszyn, cfr. Lempke), we reproduce the figure of the type of this aberration (see Vol. 4, p. 156), a ♂ from Vernet-les-Bains.

4. Genus: **Kyrtolitha** *Stgr.*

(See Vol. 4, p. 157).

This genus is almost certainly more closely related to *Kuldscha* than the sequence in the Staudinger-Rebel Catalog, adopted in this work, would indicate. It would, I think, be possible either to increase or to reduce the number of genera to be recognized in the group.

purpureotincta. **K. purpureotincta** *Sterneck* (7 d). Larger than the genotype. Palpus quite short, hairy beneath. Antenna of the ♂ with the joints (especially those of the proximal part) projecting and closely but shortly ciliated.

Forewing with the termen moderately oblique; whitish grey with reddish irroration, the markings grey-brown mixed with red; basal patch very obliquely bounded; median band sharply defined, parallel-sided, its boundaries sinuate, but far less irregular than in the genotype. Hindwing whiter, distally with red-brown suffusion, beneath with the cell-dot much strengthened. Szechuan: Ta-tsien-lu and Sunpanting.

K. avulsa *sp. n.* (7 d). Near *purpureotincta* in structure and markings, antennal joints of the ♂ less projecting, ciliation minute, hindwing with the shape perhaps a little more extreme. Coloration of forewing browner, more uniform, without red admixture; basal patch and median band somewhat infuscated, the rest of the wing merely with very slender and inconspicuous rippling; median band narrow, its distal edge with small and irregular indentations at all the veins; subterminal line traceable but (especially posteriorly) indistinct; terminal line stronger than in *purpureotincta*. Hindwing pale, but not quite so white as in *purpureotincta*. Underside also with stronger terminal line than in that species. Chinese Tibet: Yarégong and Yargong Zambala (R. P. Soulié), 5 ♂♂; Szechuan: Ta-tsien-lu, 3 ♂♂; type in the British Museum ex coll. Oberthür. The poor ♀ from Yatung, mentioned in Vol. 4 (p. 165) under *Kuldscha oberthuri*, is evidently very close to *avulsa*. *avulsa.*

K. pantophrica *sp. n.* (7 e). Rather larger than *avulsa*, forewing looking a little more elongate, ♂ antenna slightly intermediate towards that of *purpureotincta*. Forewing with median band as narrow as in *avulsa*, but much more regular, it (and indeed the whole of the markings) maintaining a course closely parallel with the termen; a sharply contrasting whitish area between the dark median and the less sharply defined dark distal area; both the dark and the pale areas rippled with fine lines; terminal black line strong. Hindwing correspondingly somewhat more variegated with white than in *avulsa*. Ta-tsien-lu, 6 ♂♂, 1 ♀ in the British Museum. *pantophrica.*

5. Genus: **Larentia** *Tr.*

(See Vol. 4., p. 157; Vol. 16, p. 88.)

A strict dividing-line between this genus and the somewhat heterogeneous assemblage which I have called *Cidaria* section *Colostygia* (*Calostigia* olim) has not yet been found, and even the equally heterogeneous section *Coenotephria* can, in the genitalia, show a pretty obvious approach to *L. clavaria* (e. g., *C. amelia*). In dealing with the non-Palaearctic fauna, I have had to give *Larentia*, as also *Perizoma*, a provisionally wider scope, but in the present volume (also "provisionally") I have attempted to conserve the general plan of Vol. 4, and have only added to the genus *Larentia* an *Ortholitha*-shaped species which would seem manifestly out of place in *Cidaria*.

L. clavaria *Haw.* Knobloch notes the remarkable fecundity of this species in comparison with most Larentiids of which the egg-laying habits are known. One ♀ laid 290 eggs, another nearly 200. He also notices the exceptional stickiness of the excrement of the larva. — **datinaria** *Oberth.* (7 e). As the figure given in Vol. 4 was not altogether satisfactory, Dr. Wehrli has kindly lent the model for a new one; he has also given some details of the variability of this well-defined African race, as exhibited in the Oberthür collection. The type remains the only example known from Kef, but a homogeneous series from Lambèse enables one to get a good idea of its characters. Few examples are so grey or so weakly marked as the type, but even when the basal and median areas are more brownish grey (bounded by darker grey), the distal area remains pale, a contrast to the dark distal area of *clavaria* (Vol. 4, pl. 6 i), and the subterminal is decidedly less deeply dentate than in that form, the enclosed dark spots on its proximal side consequently different in shape and generally more conspicuous; width of median band and form of its boundary-lines variable. Also known from Batna (Tring Museum etc.), from Tunis, Malta and (a pair in the Wehrli collection) from Palermo. — **fumosata** *Trti.* (Vol. 4, p. 157), from Frenda, Oran, is evidently, as already suggested, an exceptionally dark form of *datinaria;* Turati emphasizes the characteristic proximal-subterminal spots of the forewing. — **pallidata** *Stgr.* (7 f). We give a figure of this variable form from Cyprus, where (as well as in Palestine and Syria) it seems to be common in the winter months; it is doubtful whether it differs from *datinaria* in any very stable characters, though it is generally smaller, the postmedian line on the whole more sinuous, but too variable in all the races to be of much critical value. The pale distal area and the formation and filling-in of the subterminal line in any case agree; ♀ generally paler than the ♂. The larva, according to Mr. E. P. Wiltshire, is very variable and produces some forms that are not known in that of our British *clavaria;* it is full-fed about March, the greater part of the year being passed in the pupal state. His detailed notes are not yet published. Possibly the *datinaria-pallidata* group constitutes a separate species, but the genitalia show too little deviation to warrant that treatment. My Palestine specimens were collected in January, one ♂ (taken among mallow) being very dark, perhaps corresponding to the ab. (?) *fumosata* of *datinaria*, but unfortunately not quite fresh. — **saisanica** *subsp. nov.* (7 d). I had seen no material from Central Asia, which Staudinger treated as supplying further localities for his *pallidata* (Saisan and Fergana), until Dr. Wehrli kindly lent me a ♂ from Saisan, calling my attention to the fact that it bore no really close resemblance to the forms from Western Asia. It is evidently a good local race, if not a species, although probably nearer to *pallidata* than to *clavaria*. Brighter ochre- *clavaria.* *datinaria.* *fumosata.* *pallidata.* *saisanica.*

brownish, both above and beneath, than *datinaria* and *pallidata*, which have the underside pale, while here it is more like *clavaria* though brighter and with the lines straighter; median area of forewing above less differentiated in colour than in the warm-coloured aberrations of *pallidata* and scarcely dark-edged, terminal area nearly as in *pallidata*. Saisan (Zaizan), a pair in coll. Wehrli.

feliciaria. **L. feliciaria** *D. Luc. & J. Joan.* (= nisseni *Rothsch.*) (7 d). As I had no firsthand knowledge of this in 1914 and it was described as near *chenopodiata*, I referred it (Vol. 4, p. 159) to *Ortholitha;* the discocellulars of the hindwing, however, are definitely biangulate and it looks by no means out of place in the vicinity of *clavaria*, notwithstanding its smaller size and more pointed wings. Later in the same year it was accidentally re-described from Guelt-es-Stel, Central Algeria, as *Larentia nisseni Rothsch.* It is now well known, although it cannot be called a common or widely-distributed species. Flies in October and November.

6. Genus: **Ortholitha** *Hbn.*

(See Vol. 4, p. 158; Vol. 16, p. 86.)

A. ♂ antenna bipectinate.

seminigra. *O. coarctaria Schiff.* ab. **seminigra** *Schawerda* (7 e). Both wings fuscous, with a white subterminal line, the forewing also with the slender, divided band outside the postmedian. Founded on a ♂ from Mödling,
impleta. the darkening perhaps more intense than in *infuscata Stgr.* — ab. **impleta** *Heinrich*, from Digne, has only the
diniensis. median area of the forewing infuscated, so as to form a dark band. — ab. **diniensis** *Culot* (7 e), also from Digne,
griseata. has this band constricted, especially in the middle, where its boundary lines are unusually curved. — ab. **griseata** *Schawerda* has the lines of the forewing almost entirely suppressed, even the two principal (the ante- and postmedian) weak, so that the whole wing is light-grey, with somewhat whiter subterminal. Type from San Quirino, Upper Italy.

mucronata. **O. mucronata** *Scop.* has received much attention of recent years, particularly from Dr. Heydemann, whose specialised studies of the "Atlantic" fauna of N. W. Europe always merit careful attention. His article on "Variabilität und Rassenbildung bei Orth. mucronata", etc., in Vol. 24 of the Internat. Ent. Zeitschr., produced after some years of study and with the cooperation of many of our most prominent lepidopterists,
disconudata. should be consulted by all who desire more than the bare outline which we are able to offer here. — ab. **disconudata** *Dannehl.* Cell-spot of forewing completely wanting. Described from S. Tyrol, a very rare individual
nigrolineata. aberration. — ab. **nigrolineata** *Dannehl* resembles *umbrifera* in the dark shading which accompanies the lines, but the lines themselves are black-brown (without the ochreous undertone), as is also the very strongly deve-
approximata. loped apical dash. Penegal (S. Tyrol), etc., also rare. — ab. **approximata** *Prout* (7 e). We figure the type of
luridata. this aberration, a ♂ from Locarno in my collection. — ab. **luridata** *Hufn.* (= duponti *Th.-Mieg*, graslinaria *Culot*) (7 e). We give a figure of this aberration, which in its extreme form is very rare, though approximations
luridaria. to it are easily developed from *umbrifera.* — ab. **luridaria** *Bkh.* (= nigrescens *Ckll.*, obscuraria *Rothke*) (14 k). As the name *luridaria Brahm* was merely an "emendation" of *luridata Hufn.*, it is possible to argue that it has no better status than a misprint or misspelling and therefore to allow validity to the first legitimately erected *luridaria*, which is Borkhausen's. Until the question has been otherwise decided, I am therefore willing to accept the view-point of Heydemann and others. This melanic aberration seems to occur chiefly in Schleswig-Holstein and the north-western islands. As indicating the beginnings of racial divergence, it is interesting that v. Ghika has recorded (Intern. Ent. Zeitschr., Vol. 22, p. 372) an isolated colony of dark *mucronata* occurring annually in a small, quite circumscribed track of bramble-grown heathland near Duven-
griseolineata. stedt (S. Holstein), quite different from the form found on the rest of this heath. — ab. **griseolineata** *Prüffer* has a dark band for the postmedian and is therefore very similar to, if not identical with, the *umbrifera* of N. W. Europe; but there is a danger of confusion if one uses the same name for a chance aberration in Central and Eastern Europe as for a well established modification of the British race. Prüffer's type is from the
genistaria. Cracow district. — gen. aest. **genistaria** *Dannehl*, described from S. Tyrol, is smaller, dusky, the markings weak
plumbaria. and delicate, the pale edging of the postmedian wanting. Flies from mid-August to late September. — **plumbaria** *F.* (7 f) is interesting as being the only differentiable subspecies in a widely distributed species. Described from England. Heydemann points out that its lines are stronger and darker than in name-typical *mucronata*, the subbasal of the forewing generally obsolescent in the latter, conspicuous in the former. Although occasional specimens from such widely separated localities as Berlin, the Pyrenees and Carniola approach it, it belongs essentially to the Atlantic climate region, namely N. W. Spain, part of France, Holland, Belgium,
umbrifera. the British Isles, N. W. Germany, Denmark, S. W. Norway and S. W. Sweden. — ab. **umbrifera** *Prout* (7 f) (Vol. 4, p. 158) is interesting as being so prevalent in Britain and especially in N. W. Germany and Jutland that, notwithstanding the English origin of both the types, Heydemann has found that the geographical facts can be best brought out by ignoring the "law of priority" and calling *plumbaria* an ab. of *mucronata*, *umbrifera* a subspecies (et ab.). A valuable statistical working-out of the prevalence of *umbrifera* in different parts of its range, with particulars as to the boundaries (southward, eastward and in Scandinavia), will be found in

the article to which I have already referred. The genitalia are discussed and figured and show slight differences in the uncus. — ab. **multistrigaria** *Heydem.*, prevalent about Rendsburg and on the North Frisian Islands, is the most variegated form known, the forewing showing 4, the hindwing 2, strong white lines on an unevenly darkened ground. — ab. **pseudolimitata** *Heydem.*, from Holstein and Hanover, has the ground-colour strongly ochreous yellow-brown, so that it more or less strongly recalls dark specimens of *chenopodiata*. — ? f. teratolog. **solitaria** *Albrecht* (7 f) must be mentioned here. It deviates not only in the malformed wings, which (as in occasional monstrosities in other species) are greatly shortened and rounded off, but in the somewhat more *firmata*-like tone of colour and — more surprisingly — in some details in the genitalia. Dr. Wehrli, in an exhaustive article (Ent. Zeitschr., Frankfort, Vol. 46), very ingeniously argues that it is a natural hybrid between *mucronata* and *Cidaria (Thera) firmata*, sharing the characters of both; in spite of the "million-to-one" chance against the success of such a crossing under natural conditions, one dare not say that this is an impossible explanation of its arrival at maturity; in any case, the abnormal venation (1st subcostal of forewing free, leaving only a single areole, discocellulars of both wings somewhat distorted), as well as the modifications in the pattern (forewing with cell-mark larger, more elongate, ante- and postmedian lines closely approximated, the latter more strongly bent near the costa, etc.), are easily accounted for by the altered wing-form, although this explanation is somewhat less satisfying when applied to the striking prolongation of the cells (both wings). The antenna is said to be "strongly bipectinate to the extreme apex", which would not really agree with *mucronata*, but would be still less applicable to *firmata*. The unique example was captured at Forbach, Lorraine, on 12th June 1910, and published in 1920 as the type of a new genus *Forbachia*, subsequently withdrawn.

multistrigaria. *pseudolimitata.* *solitaria.*

O. chenopodiata *L.* (Vol. 4, pl. 6 i). C. Schneider, of Cannstadt, has recorded that the eggs are laid unattached on the ground near vetch; he obtained about 100 from captured ♀♀ and found that the larvae, which hatched in about a fortnight, accepted only Vicia tetrasperma out of the plants offered and ate only the upperside of the leaves; they hibernated in the 3rd instar. — ab. **grafi** *Joukl* is only known to me from Sterneck's references (Prodr. Schmettfaun. Böhmens, p. 163) and its exact relation to other darkened forms is uncertain; unless it can be identified with *monodii Th.-Mieg* (7 f) (as Sterneck suggests) or with *grisescens Hormuz.*, it will perhaps have to replace the following, over which the name has 3 years' priority. "Forewing darkened, bands and distal margin black-grey, markings indistinct, hindwing dark brown." Founded on a specimen from Hredle, near Zdice, Bohemia. — ab. (montic.?) **fumata** *Nitsche*. As this name has obtained some currency for the more or less darkened form which is prevalent in some mountain districts, at least in Austria and Bavaria, I give Nitsche's account in more detail. Near Aflenz, Upper Styria, among *O. chenopodiata*, some struck him as particularly dark and seemed also smaller and with less pointed wings than the type. They were taken in mid August 1909 and again in 1912 and were considered worthy of a separate name. Whether ab. *obscurior Heinrich* (1917), from Spandau, belongs with this or with *unicolor Th.-Mieg* (Vol. 4, p. 159) or *grafi Joukl* is not made clear by the brief description, in any case probably not *monodii* (7 f), as the forewing is "more unicolorous" than is normal. The naming of dark forms in this species, without reference to those already known, has manifestly proceeded too far. — ab. **plurimelineata** *Stauder*, said to be prevalent in the Salzkammergut, has all the subsidiary lines of the forewing and the postmedian and first subterminal of the hindwing accentuated. — ab. **insigniata** *Osthelder*, from the South Tyrol, shows the opposite extreme, with the markings of the forewing, excepting the basal and median bands, obsolescent or even entirely wanting. — **sibirica** *B.-Haas* (7 f). We figure a ♀ of this race from the Apfelgebirge, Transbaikal.

chenopodiata. *grafi.* *fumata.* *plurimelineata.* *insigniata.* *sibirica.*

O. moeniata Scop. ab. loc. **diniensis** *Neuburger* (7 g). As supplemental to our figure in Vol. 4 (pl. 6 i, fig. 6), which represents a fairly large ♀ of the name-typical dark form of *moeniata* as it occurs in Central Europe from Alsace to Transsylvania, we give an illustration of the fine large *diniensis* of S. France. As Wehrli has pointed out, S. French *moeniata* have the hindwing and the proximal and distal areas of the forewing much more weakly marked, but split into two colour-forms, with occasional intermediates. — ab. loc. **lantoscana** *Wehrli* (7 g) has the ground-colour purer white-grey, without the yellow-brownish tone of *diniensis*. In the Maritime Alps this form was observed more particularly on the open, rocky slopes, *diniensis* in a light wood at about 1500 m altitude. Whether the same holds in the St. Baume district and in Italy, where similar forms occur together, is not yet recorded. — **carsicola** *Stauder* (7 f) is a small pale form, sometimes only about half the size of the largest examples of *lantoscana*, which otherwise it resembles in its ashen ground-colour and reduction of markings. Inner Istria, on a plateau N. E. of Rakitovic, at about 1000—1200 m altitude, local and rather rare.

diniensis. *lantoscana.* *carsicola.*

O. proximaria *Rmb.* (7 g). Notwithstanding that much good collecting has been undertaken in Corsica of recent years, this species remains a rarity. We give a figure.

proximaria.

O. peribolata *Hbn.* A specimen taken at Westward Ho (N. Devon) many years ago has recently been determined as this species, new to Britain. No exact particulars regarding its capture are available and I suppose it to have been an accidental introduction. — ab. **staudingeri** *Th.-Mieg* (= coarctata *Prout*) (7 g).

peribolata. *staudingeri.*

I regret that I altogether overlooked the fact that this striking (perhaps unique) form had already been named by Thierry-Mieg (Ann. Soc. Ent. Belg., Vol. 54, p. 384, 1910). We figure the type of both names. — ab. *joannisi.* **joannisi** *Schawerda* has the median band of the forewing darkened throughout. Type a ♂ from Soalheira, *culoti.* Portugal, sent to Schawerda by the Abbé Joannis. — ab. **culoti** *Schawerda* (Vol. 4, pl. 8 a, as *peribolata*). Although Hübner's type figure was founded on a French specimen, it represents the dark form which is well known from Albarracin, etc.; the paler one, which we figured as *peribolata*, has therefore been named *culoti;* the type pair come from Cambo la Bergerie. The somewhat isolated colony which inhabits Guernsey is so *chouika.* similar to the rest of these light, bright forms that I do not think it needs a separate name. — **chouika** *Oberth.* (= magna *Prout*) (7 g). The synonymy of this large Algerian race was given in Vol. 4, p. 419 (unfortunately misprinted *chonica* in the German edition). We now give a figure. Some Spanish examples closely approach it.

subfimbriata. *O. duplicata Warr.* **subfimbriata** *subsp.* (? *sp.*) *nov.* (Vol. 4, pl. 12 b, as duplicata) differs from the typical *duplicata* of Sikkim-Tibet in having a better developed smoky band at or close to the termen of the hindwing above, divided by a white subterminal line. Locally common in W. China, the type series from Tschang-kou, good material also from Ta-tsien-lu, etc. Variable, but the general strength of the hindwing markings well maintained; in the ♀, and sometimes in the ♂, one sees further a more or less distinct postmedian line on the upperside of this wing. The genitalia of typical *duplicata*, so far as yet investigated, are somewhat intermediate between this and the following, so perhaps all three should rank as species.

eurypeda. **O. eurypeda** *sp. n.* (7 g). Appreciably larger than *duplicata* (length of a forewing 20—22 mm; in *subfimbriata* generally between 16 and 19 mm), the palest parts of the forewing white, almost or altogether without the yellowish tinge, either dead white or with a faint suggestion of violet-whitish, the hindwing very white, quite weakly marked unless in the abdominal region, the terminal band almost obsolete or, if present, very narrow. Constant distinctions in the forewing markings are hard to find; the dark bands are perhaps a trifle browner (less velvety blackish) and the lines outside the last of these bands generally show, on close attention, some small differences: the whitish subterminal line, which immediately succeeds the band, is generally less yellow, more slender and commonly traceable less far forward (in *subfimbriata* it sometimes cuts off the apical streak from the last band), the brown line and the blue-whitish one which stand between this and the fine terminal line are less sharp, the former of them almost always without the blacker interneural dots which catch the eye in nearly all *subfimbriata*. The ♂ genitalia show sufficient differences to indicate a separate species; the distal part of the valve is narrower, more pointed, the saccus broader, the aedoeagus stouter. Tchang-kou, 15 ♂♂, 3 ♀♀, from the Oberthür collection; also from Ta-tsien-lu and Hou-kow.

coelinaria. **O. coelinaria** *Grasl.* It appears that I interpreted the expression "fusco-subnigrum" in the description of the median area of Graslin's original too literally and it is now customary to separate the two forms *coelinaria* and (ab., nec subsp.) *jugicola* solely by the grey, resp. ochreous ground-colour of the forewing. Understood in this sense, my material entirely supports Zerny's experience (Eos, Vol. 3, p. 407) that there *jugicola.* occur various transitions. — ab. **jugicola** *Stgr.* (7 h). We figure a ♂ from Albarracin.

kashghara. **O. kashghara** *Moore* (Vol. 4, pl. 6 h). By a misprint in the German edition (p. 161), this name was given as *kashgara*, not only in the text but in the margin. The original spelling should be restored.

subvicinaria. **O. subvicinaria** *Stgr.* (14 k). We are now able to give a figure of this species. It should have been added to its differentiation from *vicinaria* (Vol. 4, p. 162) that the angulation of the postmedian line of the hindwing is somewhat more acute. A Hungarian ♂ (Meleg-Földvar, 29 April) determined by Rebel as *subvicinaria* is larger than *vicinaria* from the S. Tyrol and Valais, median band broader, postmedian line with a small indentation, which is wanting (or at least, minute) in *vicinaria*. This description and the accompanying figure *libanaria.* show little likeness to Caucasian *subvicinaria*, but more recall *vicinaria brunnescens.* — **libanaria** *Prout* (Vol. 4, pl. 12 b) is, according to Zerny, "doubless only a lighter, more sand-coloured race of *subvicinaria*". Examples thus recorded, though not quite exact to my type, were collected at the beginning and middle of June in the cedar forest above Bscharre (ca. 1900 m), but were not common.

illyriacaria. *O. vicinaria Dup.* **illyriacaria** *Schawerda.* Generally smaller than typical *vicinaria:* coloration more whitish grey, lacking the dark-brown bordering of the median area of the forewing, which remains at the most dark-grey. Underside pale, glossy, without markings except the weak cell-dot of the hindwing. Founded on material from Zengg, Croatia.

burgaria. **O. burgaria** *Ev.* (Vol. 4, pl. 8 a) has recently been recorded by Dioszeghy from the Retyezat Mountains, but, to judge from his figure, his *burgaria* is likely to be a form of *vicinaria*, perhaps near *illyriacaria.*

O. (?) **kiminaiana** *Matsumura* is said to be near *burgaria Eversm.* Measures only "26 mm" and the figure looks like a little sharply-banded *Colostygia* or in that vicinity. "Differs as follows: The broad central band to forewing on the innerside wavy, not excurved as in *burgaria;* basal and subbasal band distinct, the latter broadest at the costa; the interspaces 5 and 6 each with a fuscous spot; terminal line black, interrupted; discoidal spot conspicuous. Hindwing in the middle with a curved fuscous band, which is geniculated in interspace 3; terminal line black, scarcely interrupted at the veins. Underside pale grey, each wing in the middle with a wavy curved fuscous band, that of the hindwing narrower and not distinct, discoidal spot of hindwing distinct. Palpus black, the lower part with some greyish scales." Saghalien, only ♀♀ known. *kiminaiana.*

O. pinnaria *Christ.* (7 h). A few of the original Kurusch series came into the Elwes collection, and we are able to figure a good ♂. *pinnaria.*

O. bipunctaria *Schiff.* Oviposition, according to C. Schneider, as with *chenopodiata;* the larva, however, on account of the later appearance of the imago, only reaches the 2nd instar before hibernation. He fed it likewise on Vicia tetrasperma. — ab. loc. **pallidata** *Vorbrodt* (Vol. 4, p. 419). As so many names have been given to the pale or white forms of *bipunctaria*, it is not easy to decide which should be treated as synonymous, especially when the original descriptions lack precision. Vorbrodt merely says "the whole insect much paler, almost whitish; chalk form"; and gives as localities Hothen, Martigny, Jura near Geneva, Berisal, Frauenfeld. So far as I can see, the forms of the Swiss Jura are, in the aggregate, intermediate between *jurassica* and *sandalica* (discussed below), but I doubt whether they can be separated rigidly; nor can I differentiate from them the white, moderately well marked forms which occur in suitable localities in France. I suspect, too, that *albescens Fernandez*, recently described (through an error which is explained below) as a form of *octodurensis*, should be merged in *pallidata*, though I gather that at Burgos (Spain), whence it is described, it is only an occasional aberration among an abundance of less white forms, and not on a calcareous soil. — ab. **pallidior** *Th.-Mieg.* Almost entirely white (scarcely greyish), the lines faint, the median band wanting (i. e., remaining of the ground-colour); the two lines which bound it weak. Founded on a ♀ from the Maritime Alps. *erichi Schawerda* is only a slightly less extreme development of *pallidior* and the older and more descriptive name may suffice for both these weakly marked modifications of *pallidata;* the type of *erichi*, also a ♀, comes from Draga di Lovrana. — ab. **unipunctata** *Wehrli* has the cell-dot single instead of double; the type ♀ is from Zermatt. — ab. **confluens** *Wehrli* has the two cell-dots united into a single streak; the type ♂ from Täsch, near Zermatt. — ab. **tangens** *Wehrli.* The two dark bars (narrow bands) which bound the median area confluent in their middle part, diverging again posteriorly. Not altogether rare, Basle district, etc. — ab. **extrapunctata** *Dannehl* is said to have the dots before (i. e., proximal to) the outer margin developed into strong, cloudy, connected spots and to occur probably among all races of *bipunctaria*. As it is inconceivable that the terminal dots should attain this development, the reference must be to one or both of the subterminal series, probably the proximal, which is not infrequently strengthened in this way. — ab. **nigra** (*B.-Haas* in litt.) *Trti.* is described as smoky grey, with the lines and bands of the forewing of an intense black, somewhat recalling *maritima* but not so extremely black. One specimen taken at Sestola, Modenese Appennines, together with typical "glaucous-whitish" forms and the following. — ab. **nigrifasciaria** *Trti.* has the ground-colour a "wonderful glaucescent slaty-grey", the lines more accentuated, the basal and the median band of the forewing completely filled with black. Founded on 2 specimens. A pretty modification or intensification of our *herberti* (Vol. 4, pl. 6 i) of rare occurrence. — The prevalent English form, so characteristic of our southern chalk downs, is about (or almost) as white as *pallidata* but relatively small (length of a forewing generally 15—17 mm) and weakly marked and may be called **cretata** *subsp. nov.* (7 h). In enormous numbers of *bipunctaria* which I have seen, only a few continental individuals (chiefly French) could really be mistaken for it. — ab. **obliterata** *Prout* (14 k), of which we now figure the type, is also from England, but purely an aberration, not the typical race (see Vol. 4, p. 163) and therefore not supplanting it. It corresponds approximately to the ab. *pallidior* of *bipunctaria* (or rather, of f. *pallidata*). — ab. **albida** *Ckll.*, founded on a Lewes specimen, is said to be "a pure albino", the only such in the collection of Jenner Weir. — **jurassica** *Osthelder* (7 h) is near *sandalica* (7 h), but with a little brownish tone remaining in the central band of the forewing. Bavarian Jura (loc. typ.); the form from the Swiss Jura agrees, according to some authorities, in which case I suppose *jurassica* must sink to *pallidata*. — **sandalica** *Schawerda* (7 h) is not, as I suggested (Vol. 4, p. 164) before I had made acquaintance with the form, a race of *octodurensis*. Neither is it confined to Herzegovina, but appears to be pretty general in S. Europe; besides being distributed in Bosnia, Montenegro, Albania and Macedonia, it is treated by Dannehl (probably with justification) as identical with the Italian *bipunctaria*, or at least those of the Abruzzi. — ab. **filigrammaria** *Dannehl.* Ground-colour light, with a bluish timbre, the markings of the forewing sharp, all of nearly uniform strength and about equidistant. Very rare in the Abruzzi, among myriads of the ordinary form; type from Montagna Grande. — **hellwegeri** *Stauder* (7 h) is a slaty form from the Tyrol, the given distribution Innsbruck, Oetztal and N. Tyrol. Stauder considers it a well-defined race. — **maritima** *Seebold* (7 i). We now give a figure of this well-established race, which, strictly speaking, seems to be confined to the environs of Bilbao, near the sea. It certainly does not belong to *octodurensis*. — On the status of "*bipunctaria* ab. *grisescens*" see the following species.

bipunctaria. *pallidata.* *pallidior.* *unipunctata.* *confluens.* *tangens.* *extrapunctata.* *nigra.* *nigrifasciaria.* *cretata.* *obliterata.* *albida.* *jurassica.* *sandalica.* *filigrammaria.* *hellwegeri.* *maritima.*

octodurensis. **O. octodurensis** *Favre* (7 i). The claims of this *Ortholitha* to rank as a species, considered doubtful by its author but confirmed by Püngeler on its somewhat different build (see Vol. 4, p. 164), have been still further established; in particular, the distinctions in the genitalia are quite unmistakable (see Wehrli, Iris, Vol. 41, p. 66; Zerny, Eos, Vol. 3, p. 407, the latter with the names *bipunctaria* and *octodurensis* very unfortunately transposed for fig. 3 and 4). The size distinction, on the other hand, is quite immaterial. Geographical variation is at least as pronounced as in *bipunctaria*. Dannehl has collected in the Stilfser Joch and Ultental specimens which agree, in his opinion, with the description of *octodurensis*, but I do not know whether they have been tested; the definitely ascertained range in Europe is from S. Spain to Wallis, but as it is now known to reappear in the Caucasus (see below) some considerable additions may be looked for. In *kettembeili.* many localities it and *bipunctaria* occur together. — ab. **kettembeili** *Heinrich* has the median area of the forewing strongly darkened, forming or solid blackish band. Best known in the following race, in which it *gallica.* was first erected, but can occur in the other races. — **gallica** *Wehrli* (= ? grisescens *Neuburger*) (7 i). On an average somewhat larger than the name-type, the forewing somewhat lighter, more bluish grey, with basal and distal areas less darkly shaded. Probably this was first described from Digne under the erroneous name of *bipunctaria* ab. *grisescens* (see Vol. 4, p. 163), and although I possessed Digne specimens when writing Vol. 4, I failed to connect them with *octodurensis;* even now, it is not impossible that Neuburger had before him the light Digne form of *bipunctaria*. Those entomologists who insist upon giving an aberration-name a status in nomenclature will, however, probably desire to call this race *O. grisescens*. The form from the Ma- *nevadina.* ritime Alps scarcely differs. — **nevadina** *Wehrli* (7 i). Nearer to *gallica* than to *octodurensis*, the ground-colour remaining comparatively pale and weakly marked; somewhat smaller, somewhat more clay-coloured or yellowish in tone, with some inclination towards reddish, especially in the median area. Sierra Nevada, apparently a race on the chalk terrain of the northern spurs, at an altitude of 1800—2000 m. — The rest of the Spanish forms, so far as I know them (Alberracin and Tragacete), are darker and rougher-looking (the lines on the pale areas less indefinite, the colour "yellowish-grey to ash-grey" (Zerny), approximating to the *ibera.* "drab" and "hair-brown" of Ridgway and may be called **ibera** *subsp. nov.* Agenjo, in a valuable article on the group in Spain, adds Montarco (near Madrid) to the range; following Zerny's genitalia figures, he has reversed the names *bipunctaria* and *octodurensis* thoughout, as has also Fernandez in erecting *(bipunctaria)* *aëlptes.* ab. *albescens*. — **aëlptes** *subsp. nov.* (7 k) has, at least in the type, a slight olive tinge, the pale ground-colour being "smoke grey" (Ridgway), the irroration and markings greyer than "light greyish olive"; cell-dots separate, but not widely. The strong subterminal spots are probably inconstant. But as the genitalia in the only two examples yet known agree together, while showing appreciable differences in the shape of both the costa and the projecting extremity of the sacculus, as compared with European *octodurensis*, it is manifest that we have to do with a local race. The type, a ♂ from Chodzhalmachi, Daghestan (M. Rjabov) belongs to the Wehrli collection; the second ♂, from Grusia, Transcaucasia, long stood in the Joicey collection as a possible subspecies of *bipunctaria*, but being in poor condition was never thoroughly investigated: it is much browner than the type (partly through age and wear) the shape of the median band, etc., the same, but probably without the strengthening of the subterminal spots. Collectors who have "Caucasian *bipunctaria*" (so-called) are recommended to examine them.

alfacaria. **O. alfacaria** *Stgr.* (7 k). A gynandromorph has been described by Reisser, the left half ♀, the right *albarracina.* half ♂. It was captured at light in the Sierra Nevada, 13—14 July. — **albarracina** *Zerny* (7 k). Lighter and more yellowish grey, especially on the forewing costally; average size perhaps somewhat smaller. Albarracin. *inondula.* — ab. **inondula** *Schawerda* is almost uniform light-grey, the numerous lines of the forewing almost entirely wanting, only the boundary of the basal area indicated by a slightly darkened band, the outer boundary of the median area by a pale, divided band; cell-dot and white praemarginal dots visible. A ♂ from Albarracin. *transmarina.* — **transmarina** *Zerny* (7 k). Lighter than typical *alfacaria*, especially the hindwing; forewing predominantly either yellowish- or reddish-brown, with the median area darker than the proximal and distal. Morocco: Great Atlas, at 2300—3100 m.

B. ♂ antenna not pectinate.

pulchrata. **O. pulchrata** *Alph.* (Vol. 4, pl. 8 c). Matsumura has tentatively referred here a battered ♂ from S. Saghalien (Shiska, 17 August), but admits that its condition does not allow of a definite determination. The locality seems to be very improbable.

adornata. **O. adornata** *Stgr.* (7 k). We figure a ♂ from Kuku-Nor. So far as I know, there is little variation.

propinguata. **O. propinguata** *Koll.* (7 k). The *Ortholitha* from "North India" (known from Kumaon to Kashmir) recorded in Vol. 4 (p. 165) under *niphonica* is really *propinguata*, the oldest name for the collective species or group, and was well described by Kollar from Masuri as long ago as 1844. The ♀ figured on pl. 7 e of Vol. 4 as *niphonica* really belongs here, being a ♀ from Kashmir Valley (7000 feet) in my collection; we now add a ♂ from Masuri, which shows that the sexual difference is chiefly a matter of size. The ♂ antenna is

shortly ciliated, though not quite so shortly as in the *pulchrata* group. I have not yet been able to differentiate the W. Chinese forms. — **niphonica** *Btlr.* (8 a) is, allowing for individual variations, extremely similar, though on the whole more contrastingly coloured, antemedian of forewing never so oblique outward from costa as is frequent in *propinguata*. The ♂ antennal ciliation appears somewhat shorter. Japan. — ab. **coarctata** *nov.*, a ♂ from Takao-San, has the median band greatly restricted, its broadest part (at the radial area) only 3,5 mm. The specimen was mentioned in my working out of the Aigner collection. — **suavata** *Christ.* (8 a) is a smaller form from the Amur and Ussuri districts; Christoph gives the length of a forewing as 15 mm but in my experience the expanse is commonly still less. Antennal ciliation about as in *niphonica*, apex of forewing perhaps slightly less acute. Flies in June and July. *niphonica.* *coarctata.* *suavata.*

O. dicaea *Prout* (8 a) differs chiefly from the preceding in the straight, or almost straight, postmedian line of the forewing, that of the hindwing, though slightly curved, is also much less bent and sinuate than in *propinguata*. West China, the type from Mt. Omei, collected at the beginning of August. *dicaea.*

O. exacra *Wehrli* (8 b) differs from *dicaea* in that the central band of the forewing has outward projection in the middle and that the outer area of the forewing is whitish in the proximal part, darker (grey-brownish) in the distal. Kunkala-shan, W. China, 5 ♂♂. — **extrastrenua** *Wehrli* (8 b) differs from both the preceding forms in the much narrower outer area of the forewing; coloration approximately as in *exacra*, postmedian of forewing only weakly curved, not angled. Founded on 3 ♂♂ from Tse-ku. *exacra.* *extrastrenua.*

O. euthygramma *Wehrli* (14 k). Apparently related to *dicaea*, but still more aberrant in the genus, in that the hindwing is even less elongate costally. Palpus rather longer, face with a small projecting cone of scales. Very distinct in its small size (♂ 23—24 mm; ♀ 30 mm) and almost unicolorous wings; forewing with blackish cell-dot and 3 very slender white lines, the first two wavy, the postmedian firm and straight, or with only a very slight bend near costa, and with inconspicuous white subterminal dots; hindwing with faint cell-dot and postmedian line. Both wings beneath with cell-dot, weakly darkened postmedian (slightly pale-edged distally) and slight traces of white subterminal dots, or at least a costal spot or dot. Shanghai, Nankin. Mokanshan, Omei etc. — Like diminutive *corioidea Bast.* of Formosa. *euthygramma.*

O. ignotata *Stgr.* (Vol. 4, pl. 8 i). I find that this has the discocellulars of the hindwing biangulate and is certainly not a form of *propinguata* but is, in fact, so closely related to *latifusata* that it might almost be a race of it, rather smaller and with less pronounced sexual dimorphism. *ignotata.*

O. latifusata *Walk.* (8 b). Our account in Vol. 4 (p. 165) is probably adequate for purposes of identification, but we now add figures of the ♂ and ♀, from Dalhousie specimens. — **indecisa** *subsp. nov.* (8 b) is on an average larger, particularly some ♀♀. General tone more brownish, especially noticeable in the distal area, where the almost uniform greyish fuscous tone of *l. latifusata* ♂ becomes more varied with a brighter brown and often pale-mixed terminally, while in the ♀ that area is less extensively white; sexual dimorphism in consequence less pronounced. Darker than *ignorata*. Discocellulars of hindwing generally less strongly biangulate than in them, the tract between cell-fold and origin of 2nd radial being more or less shortened, though always present. Distributed in Szechuan, embracing all the Chinese records hitherto given for *latifusata*, also the Hpimaw Fort (Upper Burma). Kunkala-Shan (loc. typ.) and Tu-pa-kö, 7400 feet, have provided good series, the Tu-pa-kéo ♀♀ often very large. *latifusata.* *indecisa.*

7. Genus: **Kuldscha** *Stgr.*

(See Vol. 4, p. 165.)

K. staudingeri Alph. ab. (?) **brunneofasciata** *Warnecke* (8 a), of which a few examples (Issyk-kul and Korla) have been detected among the type-form, has a strongly developed dark band (in the ♂ almost black-brown) on a light-brown ground-colour, the pale centre of the median area almost entirely suppressed. It is suggested that it may possibly represent a separate species, but the genitalia agree essentially. — **alaicola** *subsp. nov.* (8 c). Forewing with termen extremely oblique, median band dark throughout, as in *brunneofasciata*, anterior half of its proximal boundary-line different both from that and from *albescens*, its only sharp bend being close to costa, distal area with rather regular lines, alternately paler and browner, the outermost line (narrow band) not macular. Hindwing with cell-dot obsolete or weak above, well developed beneath, postmedian rather heavy, its angulation weak. Alai Mountains, Ferghana, 2 ♂♂, the type (here figured from the Joicey collection), larger than typical *staudingeri*. Perhaps, like the following, a good species. *brunneofasciata.* *alaicola.*

K. albescens *Warnecke* (8 a). Superficially almost as similar to *staudingeri* as are the two preceding forms, though the weaker incisions of the ante- and postmedian lines of the forewing give to the median area a wider and less irregular aspect. Ground-colour brown-yellowish to yellowish-white, the dark shading in the basal and median areas slighter than in the allied forms. The genitalia show marked differences: the projecting, pointed costa of the valve is less developed than in *staudingeri* and the cornuti (thorns of the vesica) are quite differently formed. Aksu (E. Turkestan) and the Ili district. *albescens.*

bioerraria. **K. bioerraria** *Püng.* (14 k). Near *staudingeri*. The pectinations in the ♂ type appear to be appressed to the antennal shaft (perhaps accidentally); the ground-colour is lighter (whitish grey), not nearly so brownish as in *staudingeri*, the basal patch of the forewing far more irregular, with a longer subcostal projection, the antemedian with deeper but more rounded projections, the postmedian with shorter and more regular teeth. Founded on a pair from Altschan (Altyn-Tag); also known from Korla.

loxobathra. **K. loxobathra** *sp. n.* (8 b). Smaller than *oberthüri* (Vol. 4, pl. 11 a), the type measuring 40 mm, hindwing scarcely so narrow (its apex somewhat less pointed). Forewing with subbasal line strongly oblique throughout, much less excurved in middle, more broadly darkened, the antemedian more oblique inward posteriorly; postmedian with a stronger outward projection at the 3rd radial and consequently a more noticeable bay between this and the small posterior projection; distal area more weakly marked, in the type almost unicolorous, with weak dots on the veins in its proximal half; cell-dot in the type wanting above, faintly indicated beneath. Hindwing somewhat whiter than in *oberthuri*, with the postmedian well angulated at the 3rd radial, strongly incurved posteriorly. Amdo, the type ♂ in my collection, received as *oberthuri;* another
dignitosa. in the Hamburg Museum. — **dignitosa** *subsp. nov.* (= lakearia *Sterneck*, nec *Oberth.*) (8 c). Less small and on the whole more variegated, sometimes recalling a less red-marked *Kyrtolitha purpureotincta* (7 d); cell-dots well developed. Thus less far from *oberthuri* in aspect, but conserving the essential characters (subbasal and postmedian) of *loxobathra*. Ta-tsien-lu, type ♂ (figured) and another with broader band in the British Museum, a third ♂ (Tring Museum) representing a narrow-banded aberration; others from the same district known. Also from Sunpanting, W. China (Stötzner), determined by Sterneck as *lakearia Oberth.* (Vol. 4, pl. 6 i) probably misled by my erroneous suggestion of a connection between the latter and *oberthuri*.

productaria. **K. productaria** *Leech* (8 c). We now give a figure of the type ♂ (see Vol. 4, p. 165). I still know no other example.

8. Genus: **Mesotype** *Hbn.*

(See Vol. 4, p. 166.)

This remains a monotypical genus, perhaps better associated, as was already hinted, with the *Cataclysme* group. The inclusion of *undata Stgr.* was on structural grounds quite erroneous; see *Zola*.

mediofasciata. *M. virgata Hufn.* ab. **mediofasciata** *Schwingenschuss*, described from 2 ♀♀, Lower Austria, is white-grey with the secondary lines obsolescent, those of the central area of the forewing consolidated into two
diluta. largely confluent bands. — ? gen. aest. (? ab.) **diluta** *Galv.* is a yellowish form, variable in the exact colour,
contrariata. which is prevalent in June and July, particularly in the East and S. E. of Austria. — ab. loc. **contrariata** *Heydem.* (8 c). Paler than the typical form (Vol. 4, pl. 6 c), the ante- and postmedian lines accompanied by more definite dark shades, which give to the insect a much brighter, more variegated effect; generally best characterized in ♀♀. Described from Amrum, mentioned also for Kiel and England; it nowhere, so far as is known, forms a contrast race, but is interesting as being another of the products of the "Atlantic climate" (compare *O. mucronata plumbaria*).

9. Genus: **Hastina** *Moore.*

(See Vol. 4, p. 166.)

It is probable that this genus and several other smooth-faced Larentiine genera have really more affinity with the *Sterrhinae*, but as some inferences drawn from the genitalia, the forewing venation and perhaps in some cases the scheme of markings are by no means conclusive, it is more convenient to retain them in the present subfamily, as characterized by the costal of the hindwing.

subfalcaria. **H. subfalcaria** *Christ.* (14 i). The Japanese specimen mentioned in Vol. 4, p. 167 under the name of *S. caeruleolineata*, a ♀ from Jozanke, near Sapporo, Yezo, is much worn and torn, but apparently (by its shape) *S. subfalcaria*, so that — as already surmised — subsp. *caeruleolineata* may be deleted from the Palaearctic fauna.

stenozona. *H. azela Btlr.* **stenozona** *Prout* (8 c). Forewing with the dark posterior cloud of distal area stronger than in *A. azela*, confluent with the proximal dark colouring. Hindwing above with the dark band narrower and more distally placed, the white area beyond it somewhat narrowed; beneath with the proximal area, as far as the median line, dark-shaded. A pair from Hpimaw Fort, Kachin Hills, Upper Burma; mentioned here because 2 ♀♀ from W. China (Kwanshien and Mt. Omei) agree so closely that, at least until more Chinese specimens are available, no further race-name can be established. Both are rather small.

10. Genus: **Minoa** *Tr.*

(See Vol. 4, p. 167.)

M. murinata Scop. ab. **aterrima** *Stauder* (8 c) is even blacker than *cyparissaria Mann* (Vol. 4, pl. 6 c), with which, in any case, I probably included it in my first working-out of the species; occasionally even as black as *Odezia atrata*. Fairly frequent in the Trieste district, among subsp. *cyparissaria;* afterwards recorded from Faido, Sorrento district. — ab. **lactearia** *Stauder* represents the opposite extreme, purer white than any previously known form. The type, a ♀ from the Salzkammergut (not "♂", as printed), is in fairly good condition but it is hard to say whether, if perfectly fresh, it would have been any whiter than some examples which have passed for *amylaria Lah.* — There has been some discussion as to the (partial) double-broodedness of *murinata* and the duration of the pupal stage. R. Boldt, in 1934, supported Marschner's (Riesengebirge) experience against a second brood; from ca. 150 larvae collected in the autumn of 1930, 2 moths emerged in June 1931, 76 in May 1932, besides cripples; Tachinids also in 1931 and a further pair in 1932. Carl Schneider, however, in February of last year, has reported having captured a n d b r e d a partial second brood, besides confirming further the record originally made by Koch (Schmett. S.-W. Deutschlands, p. 287) as to the second over-wintering of some pupae. An important morphological observation on the larva has just been made by Dr. Cockayne and goes far to support the retention of the genus against Meyrick's suppression of it to *Asthena*. The arrangement of the setae is most remarkable: in place of the anterior and posterior trapezoidals, each with a single seta, there are 2 large compound tubercles, the anterior with 9 setae, the posterior with 12; the other tubercles are also compound, with multiple setae. *aterrima.* *lactearia.*

11. Genus: **Amygdaloptera** *Gmpbg.*

(See Vol. 4, p. 167.)

A. testaria *F.* (Vol. 4, pl. 6 a) extends westward into Morocco (W. slopes of Middle Atlas, not rare); in Algeria it seems chiefly western. *testaria.*

12. Genus: **Stamnodes** *Guen.*

(See Vol. 4, p. 168.)

Djakonov has published (in Russian) a very thorough revision of the Old-World *Stamnodes* (Rev. Russe Ent., Vol. 15, p. 478—495), with analyses, figures, comparisons of the genitalia and other particulars. *danilovi*, as would be expected, is more distinct from the rest than they from one another.

S. pauperaria Ev. f. **divitiaria** *Stgr.* (13 e). We figure a ♂ from Tura and a female from Kuldja. — **pamira** *Djakonov* is a small and brightly coloured race from the Pamir, with relatively somewhat narrower wings; forewing rosy orange with the apex blackish, the costal spots pure white. Type series from Tshatyrtash, on the River Alitshur, 3900 m. — **pamphilata** *Fldr.* (8 d) is treated by Djakonov as a race of *pauperaria*, and evidently with justification. Our figure brings out the characteristic extension of the grey proximal suffusions; sometimes, however, these are slight, the costal spot reduced, and the aspect altogether much nearer to *p. pauperaria* (Vol. 4, pl. 6 a). Its more variegated hindwing beneath is usually a good distinction for *pamphilata;* but *pauperaria* also has often a moderately distinct pale postmedian band in the same position. *divitiaria.* *pamphilata.*

S. depeculata *Led.* Djakonov regards this also as a race of *pauperaria*, but it has diverged further than *pamphilata*. — **thibetaria** *Oberth.* (commonly misspelled *tibetaria*) (8 d). I agree with Djakonov that this should not have been sunk to the *narzanica* of the Northern Caucasus. The frequent absence, or in any case narrowing, of the dark border of the hindwing is distinctive, generally also the shortening of the costal patch of the forewing (in an aberration the confluence of its posterior end with the dark border) and especially its more mottled and spotted hindwing beneath. West China and Tibet. *depeculata.* *thibetaria.*

S. danilovi Ersch. **djakonovi** *Alph.*, from the Nan Shan (N. E. Tibet), is a deeper orange race (or aberration) with the black dots and spots throughout thicker. Our first figure of *danilovi* (Vol. 4, pl. 6 a, b) probably represents this form, as the maculation, at least on the hindwing, is heavier than in any of the very numerous Altai *danilovi* which I have seen, and which are believed to agree with the originals from Minussinsk (S. W. Siberia). I incline to join with *djakonovi* the Kuku-Nor forms and (following Alpheraky) those from Gui-dui (= Kwei-to). — **davidaria** *Oberth.*, founded on a single specimen from "N. China" (I suspect Chih-li, but there is no indication of the exact localities where David collected), is perhaps another race, scarcely so heavily marked as *djakonovi*, but I suspect on account of the well-developed, solid distal band of the forewing (containing r e s t r i c t e d subapical yellow), as well as, probably, the geographical position, that it may have to supplant *djakonovi* for the E. Asiatic forms. — **sugitanii** *subsp. nov.* (8 d) is a further development, the enlarged black markings in places more confluent, the more solid marginal bands and on the hindwing the proximal confluence, at the 2nd subcostal, of the first two postmedian spots particularly noteworthy. Shinano, Japan, 2 August 1911 and 2 August 1920 (I. Sugitani), those of the later date (probably also the others) from Mt. Shirouma. Type in the British Museum. Suzuki has recorded this race as *danilovi*. *djakonovi.* *davidaria.* *sugitanii.*

13. Genus: **Polythrena** *Guen.*

(See Vol. 4, p. 168.)

pallida. *P. coloraria H.-Sch.* (Vol. 4, pl. 11 b) **pallida** *Djakonov.* Ground-colour not gold-yellow, as in the type form, but pale sulphur-yellow; the black markings also fewer and narrower than the normal. Founded on 2 ♂♂ from Klutshi, Kamtchatka, taken in damp meadows, 21 June. The known range of the typical race is given by Djakonov as Altai, Transbaikal and some localities in E. Siberia, once also in Russian Karelia.

14. Genus: **Trichobaptria** *Prout.*

(See Vol. 4, p. 169.)

exsecuta. **T. exsecuta** *Feld.* Notwithstanding some individual variability in all (or most) localities, this species shows some tendency towards race-formation. Felder's type was from Nippon (Hondo) and ab. *obscurior Th.-Mieg* was probably also from that island; it should here be mentioned that "absence of the white band on the forewing" in the diagnosis of the latter is an unfortunate misprint or lapse and should read "of the hindwing". The darker form is also supposed to have been taken at Hong-kong. — **latifasciaria** *Leech* (8 d), on the other hand, was from Yesso (Hokkaido) and reaches still further north, since Matsumura records it from S. Saghalien.

latifasciaria.

15. Genus: **Trichodezia** *Warr.*

(See Vol. 4, p. 169.)

Forbes is inclined to re-unite this genus and the preceding with *Polythrena* and points out that the latter "makes the transition to *Eustroma*". In any case *Trichodezia* most certainly belongs, according to the genitalia, in the "*Cidariinae*" of Pierce (*Lygris, Cidaria* vera and various of its subgenera, such as *Eustroma, Ecliptopera, Dysstroma*, etc.) and should not be separated therefrom by the large number of comparatively unrelated genera which are here interposed.

latifasciaria. leucocratia. *T. kindermanni Brem.* ab. **latifasciaria** *Prout* (8 e). This seems rather characteristic of N. Japan, but not by any means confined to that part of the country. — **leucocratia** *subsp. nov.* (8 d). Further material from W. China (Ta-tsien-lu, Moupin, etc.) confirms the status of the form mentioned in Vol. 4, p. 170 from Ta-tsien-lu. Antemedian (2nd) white line of forewing markedly oblique in its anterior half, consequently less parallel with the postmedian band, subtornal white dot obsolete on upperside; white band (or area) more or less strongly extended proximally or at least about the cell-spot, which is very conspicuous. Type ♂ from Ta-tsien-lu, 7500 feet, in the British Museum collection.

16. Genus: **Baptria** *Hbn.*

(See Vol. 4, p. 170.)

The actual affinities of this genus are much more obscure, the superficial resemblance to the two preceding having been probably brought about by some similarities in the habits of flight.

tibiale. **B. tibiale** *Esp.* (Vol. 4, pl. 6 c). This species deserves exhaustive study throughout the entire range of its occurrence, with a view to establish the extent of its geographical, as distinct from the individual variation. One can generally recognize, at a glance, the majority of the Amur and Askold examples, with their comparatively small size and relatively broad white band of the forewing; also the large, narrow-banded ab. *aterrima* of Japan and some other colonies or local aberrations. But this needs ample material and a discriminating judgment. Two aberrations have been named since the appearance of Vol. 4. — ab. **albofalcata** *Schawerda* is intermediate between typical *tibiale* and typical **eversmannaria** (8 d), which we now figure from Hakodate; white band of forewing a little shortened, that of hindwing not nearly reaching either costa or hindmargin. Type from Herzegovina. — ab. **kauckii** *Schille*, founded on a pair of large specimens from Mount Rembrowez, East Carpathians, is scarcely differentiable from some *eversmannaria*, the band of the hindwing considerably broader, especially in the middle, than in Herrich-Schaeffer's type. — C. Finke (Intern. Ent. Zeitschr., Vol. 28, p. 138) has published an account of its extremely local occurrence, particularly as to its restricted haunts in the Göttinger Wald, and, having bred it from the egg, has given new details regarding the biology. The egg, he says, is milk-white and is laid exclusively on the edges of the underside of a leaf. The larva, until shortly before the last moult, feeds on the underside of the leaves; it feeds up in 3 or 3½ weeks according to the weather. The flight of the moth is entirely diurnal and it only descends from its altitudes for oviposition.

albofalcata. *eversmannaria.* *kauckii.*

17. Genus: **Schistostege** *Hbn.*

(See Vol. 4, p. 171.)

decussata. **S. decussata** *Schiff.* (Vol. 4, pl. 6 d). Whatever may be the exact biological relationship between the different forms of this variable species, they are certainly more than mere "aberrations", as they were made

to appear in Vol. 4. Most districts have at least each a predominant form, so that the designation "subspecies" is not inapplicable, even though other forms may occur therewith as aberrations. The type locality of the form *decussata* is unknown, as Schiffermüller did not describe it from his own collection and the Vienna form is subsp. *fortificata*. In France, *decussata* is said to be the constant form at Beuil (Alpes Maritimes, 1450 m). — **transiens** *Stauder*, said to constitute a race in the Trieste district, is almost synonymous with *decussata*, somewhat intermediate towards *dinarica*. Stauder himself had earlier treated the form as typical, erecting — ab. **praeclara** *Stauder* (8 e) for a pretty form from the same locality (Opcina) with the white element broad and clean. — ab. **marginata** *Stauder*, also from Opcina, has the subterminal of both wings almost or entirely obsolete, so that the area from the white postmedian to the termen is uninterruptedly dark. — **fortificata** *Tr.* (8 e) belongs not only as a fixed race to Hungary, but also to Vienna, etc. (see above). Moreover the form in the Pyrenees (near Lugagnan) is said to agree entirely with this. — **dinarica** *Schawerda* is a large form with the markings much darker than in *decussata*, typically almost black, the white ground colour sharply contrasting. Herzegovina (loc. typ.) to Albania, variable, some individuals scarcely distinguishable from well-marked *d. decussata*. — ab. **infuscata** *F. Wagn.* (8 e) is the most extremely infuscated form of *dinarica;* described from Herzegovina. — **rumelica** *Rbl. & Zerny*, founded on specimens from Sliven (Bulgaria) has both sexes much purer white than in any other race, the dark markings particularly sharp.

transiens. *praeclara.* *marginata.* *fortificata.* *dinarica.* *infuscata.* *rumelica.*

S. nubilaria *Hbn.* (Vol. 4, pl. 6 d). A report of this East European species from France (Amat. Papillons, Vol. 1, p. 65) cannot be taken seriously, especially as two other S. E. Russian species were said to have been taken at the same time. — **exalbata** *Hbn.* (Vol. 4, pl. 6 d). Sheldon remarks that at Sarepta this flies with *Siona lineata* and looks very similar to it.

nubilaria. *exalbata.*

17 a. Genus: **Grammochesias** *gen. nov.*

Face moderately smooth. Palpus extremely short, rough-scaled. Tongue developed. Antenna simple. Hindtibia with the spurs short. Abdomen in ♂ elongate. Wings strongly elongate. Forewing with the cell long (well over ½); discocellulars very weak, particularly in the ♂, 3rd discocellular bending sharply at end of posterior arm of cell-fold, becoming extremely oblique; areole double; 1st median connate or shortly stalked with 3rd radial. Hindwing very shallowly sinuate between 1st radial and 1st median; cell over ½, 2nd discocellular oblique outward, 3rd inbent, becoming very oblique outward; costal in ♀ anastomosing to near end of cell, in ♂ approximated (not quite so closely as in *Schistostege*), connected by a bar near end of cell, 2nd subcostal long-stalked, 2nd radial about central (from the sharp outward angle of the discocellulars), 1st median connate or shortly stalked, 2nd submedian developed, close to abdominal margin, no appreciable pocket at base. Genotype: *hippocastanarioides Rothsch.* (as *Chesias*). A somewhat isolated genus, differing from *Schistostege* in shape, maculation, short palpus, long cells, very different origin of the medians, presence of submedian in the ♂ hindwing and anastomosis of the costal thereof in the ♀. I do not know why it was considered a *Chesias*, although it may probably have a similar resting posture; the foretibia lacks the claws and there are many other differences.

G. hippocastanarioides *Rothsch.* (8 e). Sufficiently characterized by the shape and structure. The longitudinal dark dashes on the folds are more conspicuous than the ill-defined, curved transverse bands. Algeria, very local in March and April, described from Guelt-et-Stel, but reaching northward to Berrouaghia. — **rotroui** *subsp. nov.* (8 d) is a noteworthy form, or representative species, somewhat less narrow-winged, median veins longer-stalked, forewing less brownish, the bands strengthened, the longitudinal marks much reduced. Oran: Sidi-bel-Abbès, 7 April 1918 (M. Rotrou); unfortunately I know only the type, a ♀ in the Tring Museum.

hippocastanarioides. *rotroui.*

18. Genus: **Lithostege** *Hbn.*

(See Vol. 4, p. 171.)

It is more than doubtful whether this genus can be separated by any significant structural characters from *Chesias*, which bears the older generic name. But inasmuch as that is, in the main, a rather compact group, while the so-called *Lithostege* are much more heterogeneous, it might cause some inconvenience to sink the large and widely distributed group to the small and almost exclusively European one. I therefore retain the division which has for so long served the needs of our "Palaearctic" lepidopterists. To the given range should be added Angora, Kenya and the United States of America.

L. farinata *Hufn.* (Vol. 4, pl. 6 d). It was recently questioned by Auerbach whether *griseata* might not be merely a form of *farinata*. This suggestion brought forth, amongst others, a valuable account of the two by B. Alberti of Merseburg, based on wide personal experience of both in his own district, where *farinata* has a wide distribution while *griseata* is very localised, always where there is Sisymbrium sophia — he suspects, with Stange (1869) that *farinata* is less particular in its choice, probably accepting also Sinapis

farinata.

arvensis. Further, *griseata* normally appears some 8 or 10 days earlier in May and disappears with the first half of June, while *farinata* lasts till the end of that month or just into July. Still more recently, Amsel has given a differentiation of *farinata*, *cinerata*, *palaestinensis* and *griseata* by the ♂ genitalia.

cinerata. **L. cinerata** *Trti.* (= cyrenaica *Amsel*) (8 f). Originally recorded, with a query, as *griseata*, this was afterwards recognized as a good species, "larger than *griseata*, apex more acute, termen less rounded", etc. Actually it seems to come almost closer to *farinata*, though somewhat less pure white and often showing some trace of the marking of *griseata*. The specimen kindly lent us by Count Turati for figuring is more *griseata*-like than any other which I have seen, but there occur gradations to individuals which might easily pass for *farinata*. Described from Cyrenaica, but apparently distributed also in Tunis and Algeria.

palaestinensis. **L. palaestinensis** *Amsel* (8 f). Distinguishable from *griseata* by the blue-grey gloss of the forewing and the strong darkening of the underside of this wing, reaching to beyond its middle. Constant differences in the genitalia show that it is a good species; juxta strongly tapering to its extremity (in *griseata* and *cinerata* continuing broad), "clasper" (central armature of valve) essentially narrower than in *griseata*, longer than in *cinerata*. Palestine (distributed) and Mesopotamia, February to April.

griseata. **L. griseata** *Schiff.* (Vol. 4, p. 172). For some comparison of the habits with those of *farinata*, see under that species. The type form was the most *farinata*-like one — "unicolorous, light-grey" — but can be taken to include the forms in which the apical dash of the forewing is well developed or at least indicated. Even those in which this dash is continued as a line across the wing do not as yet seem to have been separately *infuscata.* named. — ab. **infuscata** *Ev.* (= brunnescens *Skala*) (Vol. 4, pl. 6 d, as griseata) is the equally weakly marked form with the ground-colour of the forewing "wholly pale brown, which is only darker at the outer margin" (Eversmann, on Sarepta specimens) or "light grey-brown" (Skala, on Moravian); transitions occur. — ab. *stöckli.* **stöckli** *Pillich* (= grisearia *Hbn.*, nec griseata *Schiff.*) is a much rarer form, with a median line also strongly developed on the forewing, in Pillich's type — which has been kindly lent to me by the Hungarian National *duplicaria.* Museum — even sharper than the outer line. — ab. **duplicaria** *Hbn.* = (duplicata *Hbn.*). In describing this puzzling specimen, only known from Hübner's figure (208), I missed mention of the most remarkable peculiarity, the d o u b l e median line. Were it not for the express statement of Herrich-Schaeffer that a note in Hübner's own handwriting says the specimen was taken in Berlin, I should have regarded it as an aberration of the variable *coassata*, for which it would be the oldest name and with which it was identified by the earlier authors, probably at first including Hübner himself. It lacks, however, the dark ante-*zernyi.* median and the whitish subterminal of most of the strongly-marked forms of *coassata*. — **zernyi** *subsp. nov.* (= duplicaria *Zerny* nec *Hbn.*) (8 f). This strongly marked form, with the antemedian line developed, the postmedian line and subterminal shade separate, at least anteriorly, is treated by Zerny as a race in the Albarracin district, taken sparingly among Sisymbrium in May. Elsewhere (if indeed the similar forms from other localities entirely match it) only a rare aberration.

fissurata. **L. fissurata** *Mab.* (Vol. 4, pl. 11 b). Rebel has recorded this from the Sahara and the Tring Museum has it from Amgid (ca. 26° 30″ N. lat.) and from Sidi Mesri, Tripoli. The egg, according to Chretien, is ellipsoid, with a large but shallow depression (or sometimes mere flattening), polygonal reticulation small, confused and irregular, colour white.

latestrigata. *L. bosporaria H.-Sch.* (Vol. 4, pl. 12 c) **latestrigata** *Rbl.* (8 f). Stripes of forewing broader, especially the outer two: the antemarginal one not thickened costally; hindwing more whitish. Angora, May.

ignorata. *L. usgentaria Christ.* (Vol. 4, pl. 11 b) **ignorata** *Stgr.* (8 g). We figure a ♀ from Margelan, S. Ferghana, which by the brown hindwing, etc., has been referred to this race; it is, however, scarcely larger than the specimen already figured as *usgentaria*, which may be also an *ignorata* or transition.

notata. **L. notata** *B.-Haas* (8 g). Rather widely distributed in N. Africa — southward to the Ahaggar Mountains, eastward to Bengasi.

biermis. **L. biermis** *Prout* (8 g). Foretibia with both the claws highly developed, though the inner, as usual, is much the longer. Antenna thickened and lamellate, noticeably more so than in *Ch. legatella* ♂ (Vol. 4, pl. 6 b), to dark specimens of which (or to *Ch. isabella*, 8 h) it rather closely approximates in coloration, though not in shape or markings, which latter more recall those of *notata*. The brown veins of the distal area of the forewing, dotted with black between the postmedian and subterminal, and the strong teeth of the subterminal in its posterior half are rather characteristic. Casablanca, Morocco, only the type ♂ known.

buxtoni. **L. buxtoni** *Prout* (8 g) differs from all the foregoing in the rather long ciliation of the ♂ antenna. Also easily recognizable by the markings, though evidently variable. The type ♂, from Kangavar, Hamadan, N. W. Persia, 5000 feet, here figured, is much less dark and the outward teeth of its line less prolonged than in the only other then known example, a ♂ from Shergat, Asshur, Mesopotamia. Flies in December.

L. (?) **chaoticaria** *Alph.* (14 i) is still unknown to me (see Vol. 4, p. 175), but the discovery of *buxtoni* has strengthened my suspicion that it may be a *Lithostege* with well ciliated ♂ antenna. We reproduce the figure of the type. *chaoticaria.*

19. Genus: **Chesias** *Tr.*

I have brought forward this genus because of its obviously close connection with (section ?) *Lithostege* (see above), which rendered the interposition of *Anaitis* and *Carsia* somewhat inappropriate.

Ch. sureyata *Rbl.* (= leuconeura *Prout*) (8 g) is another link between *Chesias* and *Lithostege*, having the shape slightly less extreme than in the typical group of *Chesias*, but with the foreleg and the general scheme of markings more *Chesias*-like. The irregularly whitened veins give it a characteristic aspect; the white subterminal is curved posteriorly, about as in *legatella* (Vol. 4, pl. 6 b). The types of both names came from Angora, Rebel's obtaining priority through a preprint, which I had not seen when I redescribed as *leuconeura*. *sureyata.*

Ch. legatella Schiff. ab. **nigrogriseata** *Heydem.* The distinct rust-brown markings of the typical forewing (costal, distal and around the two spots of the median area) almost entirely absorbed in the blackish grey of the ground-colour. Treated as an ab. loc. in Schleswig-Holstein, frequent in the ♂, rare in the ♀, but the few which I have seen are from scattered localities. — **capriata** *Prout* (8 h) is also the race in S. Dalmatia, according to Schwingenschuss and Wagner. I suspect, however, that it and the Sicilian *legatella* are really intermediate races. Meier-Ramel and Wehrli note albinistic ♀♀ in S. France. *nigrogriseata.* *capriata.*

Ch. rhegmatica *sp. n.* Size of *legatella* (Vol. 4, pl. 6 b), (length of forewing about 17 mm), wings slightly broader, intermediate towards the shape of *isabella* (8 h). Forewing less pale than in *capriata* (8 h), the general blend of colour much as in average ♀ *legatella;* the white or light-brown anterior streak almost obsolete, only its apical part vaguely indicated in light-brown; subbasal line fine, acutely angled; postmedian line from costa to 2nd median blackish, as in *rufata*, irregularly thickened, with much deeper curves than in that species and more oblique outward to costa and with a very deep subcostal indentation; partial white proximal edging to this line, as in several allied forms; the slender, indistinct hinder end of the postmedian even more oblique inward than in *legatella*, bounding a similar (but indefinite and more longitudinal) submedian patch; subterminal slender, its proximal (grey) band bounded proximally by a sinuous whitish line. Cyprus: Limassol, 13 January (G. H. Mavromoustakis), the type ♂ in the British Museum; a rather smaller but precisely similar ♂ in the Tring Museum from the same locality. *rhegmatica.*

Ch. isabella *Schawerda* (= isabellae *B.-Haas*) (8 h), erroneously erected as a form of *legatella*, on 2 ♂♂ from Vernet, E. Pyrenees, and also thus recorded by me (2 ♀♀, Canales and Casayo, Spain), though I afterwards — equally erroneously — regarded them as extreme blurred forms of *rufata cinereata* (8 i), is now recognized as a distinct species, occurring at Albarracin together with both *legatella* and *rufata* and in some respects intermediate between the two. The only other recorded French locality is, I think, Saurat (Ariège, near Foix). An aberration (?) from Cintra, Portugal (in the Tring Museum, taken in April) is still somewhat more like *rufata*. In Spain, so far as my information goes, it occurs in the first half of July (several localities) and again in October (Albarracin). The rounded costa, blurred markings, but with distinct black mark at base of 3rd radial standing out as sharply as in *spartiata*, and the buff streak from apex are characteristic. *isabella.*

Ch. angeri *Schawerda* (8 i) founded on 3 examples from different localities in Upper Italy, is close to *rufata* but with the postmedian line straightish (parallel with termen), the subterminal curved, the tone different. I can indicate no other significant distinctions, but it scarcely seems possible that it can be a mere aberration. Province of Udine. *angeri.*

Ch. rufata F. **ornata** *Heydem.* (14 i). Forewing with the postmedian very broad, sharply black, often continuing equally distinct right to the hindmargin; the distal area, from the postmedian outward, darker, blackish-grey, but with the subterminal and an intermediate line (this latter often broken into dots) sharply white; the rust-brown markings often reduced (exceptionally, there occur examples with much brown). The apical region is especially darkened, slate-grey, offsetting sharply the clear grey-white costal angle. Characteristic of N. Holstein, Schleswig and the N. Frisian Islands; specimens from the latter mostly small (length of a forewing 12,3—13 mm). — ab. **pseudanaitis** *Heydem.* (14 i), occurring with the preceding on Amrum, has the forewing light-grey with all the red-brown shading wanting (or, in one example, with scarcely perceptible traces thereof), the lines, on the other hand, very sharply marked in black. "Perhaps showing a convergence to *linogrisearia*" (8 h). The strongly developed markings give some superficial impression of a small *Anaitis praeformata* or *Carsia paludata*. — ab. **nigrescens** *Heydem.* founded on 2 ♀♀, one from Mölln, the other from northern Eckernförde, has the forewing suffused with black-grey; even the brown, where it is retained at all, is darker. — **obliquaria** *Schiff.* (Vol. 4, pl. 6 b, as *rufata*), from Central Europe (the type from Vienna), though usually cited as synonymous with the name-typical *rufata* of England, is really lighter, intermediate towards *ornata.* *pseudanaitis.* *nigrescens.* *obliquaria.*

the S. European forms, whereas the English approaches *ornata*, which at least occurs among it as an aberra-
einereata. tion. — **cinereata** *Stgr.* (8 i) becomes a local race in the Mediterranean countries and perhaps intergrades with the *plumbeata* of N. Africa. We figure a ♀ from Albarracin.

linogrisearia. **Ch. linogrisearia** *Const.* (8 h). Having now seen examples of this exclusively Corsican form, I am strongly inclined to agree with those entomologists who regard it as a good species.

korbi. **Ch. korbi** *Bohatsch* (8 h). A short series from Marasch, determined by Wehrli, enables us to provide a figure. Rebel records it from Angora, perhaps in a racially distinguishable form, somewhat larger, not "flesh-colour" but with the costal part a reddish reed-colour with the veins darkened (brownish), the broadly brown-scaled 3rd subcostal particularly conspicuous.

20. Genus: **Anaïtis** *Dup.*

(See Vol. 4, p. 175.)

lythoxylata. **A. lythoxylata** *Hbn.* (Vol. 4, pl. 8 a). Bulgaria (Witoscha and Rila-Dagh, 1500—2000 m) is to be added to the range in Europe. Balestre has found larvae on Vaccinium in the Maritime Alps (1700—1900 m) but
christophi. so far as I know they have not yet been described. — **christophi** *subsp. nov.* is slightly narrower winged, the distal margin of the forewing and its lines appearing slightly more oblique, the postmedians sometimes inclined to curve inwards at costa; both wings duller in colour, the forewing more tinged with cinnamon or fawn, the hindwing more clay-colour; terminal shade of forewing rarely strong. Manglis, Transcaucasia, 4 ♂♂ in the British Museum, ex coll. Christoph.

mundata. **A. mundata** *Stgr.* (8 h). We figure a Beyrout specimen from the Wehrli collection. The already given differentiation from *mundulata* is probably adequate (Vol. 4, p. 176).

mundulata. **A. mundulata** *Guen.* (8 i). We also give a figure of typical *mundulata* from the same source; but the distinctions between this and the ab. *submundulata* (Vol. 4, pl. 8 a) do not seem very vital and as our previously figured example was from the Jordan Valley it should perhaps have been regarded as name-typical *mundulata.*

latefasciata. *A. praeformata Hbn.* ab. **latefasciata** *Nitzsche.* Median band of the forewing of equal breadth throughout. Described from Freiwaldau, Silesia.

infuscata. *A. annexata Frr.* ab. **infuscata** *Prout* (7 i). We give a figure of the type, a ♀ and Wehrli has it from S. E. Kansu.

poneformata. **A. poneformata** *Stgr.* (6 b). Sterneck records a few specimens from Wassekou and Sunpanting, W. China.

ruberata. *A. plagiata L.* ab. **ruberata** *Rbl.* (6 a). For convenience of reference, we reproduce the type figure of
kautzi. this aberration. — ab. **kautzi** *Schawerda.* Wholly dark-brown, the base, median bands and termen darkest; a very slightly more extreme development of ab. *suffusa Prout* (Vol. 4, p. 177), with which I would have united
nigrescens. it. A ♀ from Attersee. ab. **nigrescens** *Hannemann* is again almost a synonym, but is black-grey instead of brown, median bands not confluent, the entire area from thence to the termen strongly darkened. The type ♂ bred
dissoluta. from Rüdersdorf. — ab. (?) **dissoluta** *Dannehl* is said to be large (a first-brood form), the lines quite thin and isolated, the hindwing too rosy for "f. *pallidata*" (see *efformata*); perhaps really *efformata* first brood, as Dannehl
cypria. in this article mixes that species with *plagiata.* His type-locality is S. Tyrol (Mendel and Terlan). — **cypria** *subsp. nov.* (9 a). Somewhat darker, greyer, decidedly more uniform in aspect, neither the dark lines nor the whitish subterminal being so strongly expressed. Cyprus: Limassol, flying from October to February, apparently common. Type in the British Museum.

corsalta. **A. corsalta** *Schawerda* (9 a). Extremely similar to some forms of *plagiata*, probably sometimes scarcely distinguishable, apart from the locality. Described as intermediate in size between typical *plagiata* and typical *efformata*, of a steel-grey colour, with fine blackish lines and bands, the red-grey or brownish suffusion on the apical streak wanting, the underside also more greyish, without the rosy suffusions of *plagiata*, the antemedian of the forewing costally has a slightly different orientation. The abdomen is relatively shorter and broader than in *plagiata* and the genitalia show definite distinctions. Bytinski-Salz (Int. Ent. Zeitschr., Vol. 28, p. 136) has figured side by side the ♂ valves of *plagiata*, *corsalta*, *sardalta* and *efformata*. *corsalta* was first discovered in the Monte d'Oro district (Corsica) at 1300 m altitude, but has since been taken at somewhat lower elevations (1100 m). A single example from Gennargentu (Sardinia, 1700 m) recorded by Bytinski-Salz shows a distinct brown shading to the apical streak and will perhaps prove to represent a distinct race.

sardalta. **A. sardalta** *Bytinski-Salz*, founded on a ♂ from the Gennargentu district, 1700 m, captured on 12 July, is said to strike the eye as unfamiliar when compared with *plagiata* and *corsalta* "but it is hard to say exactly in what this difference consists". The ground-colour is cleaner grey than in *plagiata*, the grey scaling finer. The 3 principal bands of the forewing stand out more, on account of the comparative suppression of the subordinate markings; they are a trifle narrower than in *corsalta* and almost lack the longitudinal partitioning which is generally conspicuous in *plagiata*. The genitalia belong to the *efformata-corsalta* group, nearest to those

of *corsalta*, but the ♂ valve is broader distally (more shovel-shaped), with 3 or more pointed projections at the end, where *corsalta* has 2 only and *efformata* is rounded.

A. efformata *Guen.* (= pallidata *Stgr.*) (9 a). This widely distributed *Anaïtis*, though erected as a separate species by Guenée, was subsequently degraded to the rank of an aberration, or at the best a local race, and I regret to have to acknowledge that — misled by the superficial similarity of some slender-banded *plagiata* of the 2nd brood — I too dogmatically asserted (Vol. 4, p. 177) that it "certainly" had no claim to be a good species. Strangely enough, no-one seems to have noticed the very different form of the abdomen (shorter and much less pointed, particularly in the ♂) until 1923, when Dr. K. Jordan, in examining the series in the Tring Museum, was gradually led to discover the true state of affairs; see his interesting account in Novit. Zool., Vol. 30, p. 243. The ♂ valve in *plagiata* is at least 6 times as long as its greatest width and terminates in 2 small points (shorter than those of *corsalta*); that of *efformata* is relatively short and broad, elbowed in the middle and with other conspicuous differences. Superficially, the majority of *efformata* can be recognized by their smaller size, on an average paler coloration, generally slightly straighter antemedian band of the forewing, perhaps more obtuse subcostal angulation of the postmedian and other small points, but no infallible distinction has yet been found in the markings. Some entomologists have great confidence in the more acute angulation of the subbasal line, but this, though very general, is not quite constant. Guenée's type was Syrian, Staudinger's originals came from Greece and Asia Minor; in the Mediterranean subregion the distribution is very general — indeed in the Iberian Peninsula, Morocco and Algeria *efformata* seems to oust *plagiata;* but in England, France, Central Europe, Sweden, etc., the two may often be found together; *efformata* is not yet known eastward of Asia Minor. In England it loves chalky hillsides and is more local than its well-known congener. The early stages of the two are extremely similar; both larvae have the same markings and the same curious truncated anal flap, but *plagiata* is of a richer, redder brown colour (Cockayne in litt.). Dr. Cockayne records that from the 2nd brood (August) eggs were laid freely on Hypericum perforatum, usually singly but sometimes in pairs, on the petals, sepals and small leaves; they are pale cream-colour, smooth, ovoid, flattened on the side of attachment. The newly hatched larva is long and thin, whitish with a narrow blackish dorsal and subdorsal line, and another interrupted line below the spiracles; collar narrowly white; head pale yellowish-brown with a black spot on the lower part of each lobe and black mandibles; legs speckled with black. It feeds readily on the plant named. — ab. **fasciata** *Hannemann* has the entire median area of the forewing darkened excepting a small spot of the ground-colour about the cell-dot. Strausberg (Hannemann's type), England (coll. Tring Mus.) and Lower Austria (coll. Reisser). — ab. **tangens** *Hannemann* corresponds to *plagiata* ab. *tangens* (Vol. 4, p. 177). — ab. **suffusa** *nov.* (9 a) also corresponds approximately to the like-named ab. of *plagiata*. The only infuscated *efformata* yet known to me is the beautiful ♂ here figured, which was taken by Zeller on "30. 5. 59", therefore — according to his manuscripts — at Gross Głogau, Silesia. — Of geographical variation in *efformata* we have as yet little knowledge. The form from the Riff Mountains, Spanish Morocco, is according to Reisser, rather large, of an intensive bluish ash-grey colour and sharply marked, suggesting a "slightly differentiated local form".

efformata. *fasciata.* *tangens.* *suffusa.*

A. perelegans *Warr.* (9 a) is also a good species, with quite different genitalia. We give a figure. It remains rather scarce, so far as I can judge from the Japanese collections which have come under my notice, and few of the specimens have adequate data.

perelegans.

A. simpliciata Tr. ab. **pazsiczkyi** *Diószeghy* corresponds to *plagiata* ab. *tangens*, the central bands meeting so as to divide the enclosed light area into a larger anterior and a smaller posterior part. Founded on specimens from the Retyezat Mountains, 1900—2200 m. — **pierretaria** *Guillemot* (= magdalenaria *Bell.*) (9 b). All the French specimens known to me, as well as the good figure of *magdalenaria* type, show a more brownish-grey (not bluish) tinge than typical *simpliciata* (S. E. Hungary, Bosnia, etc.), the lines which form the two bands of the median area often more widely separated, so as to narrow the pale central part of the area. Perhaps also on an average rather large. Discovered in the Barcelonette district (Basses-Alpes). We figure a ♂ from Lautaret (Hautes-Alpes). — ab. **lantosquata** *Th.-Mieg* (9 b). This name supplants *obscurata Prout* (Vol. 4, p. 177), being founded on the same S. French specimen, of which we now reproduce the figure. — **bulgarica** *subsp. nov.* (9 b). Decidedly more sharply banded than the name-typical form, perhaps on the whole with a still more bluish tone. Rila Dagh, Bulgaria (loc. typ.) and Pirin Mountains, Macedonia. I have not been able to find that it has yet received a name. Two large ♀♀ from "Altai" in the Elwes collection are probably incorrectly labelled. — **graeciata** *Stgr.*, accidentally omitted from Vol. 4, was briefly diagnosed in 1901 as having the forewing yellowish grey, not cinereous, and given as constituting a separate race in Greece, though with the cinereous type-form as an occasional "ab." amongst it. I have only one before me, a ♂, duller and more drab-grey than even *pierretaria*.

pazsiczkyi. *pierretaria.* *lantosquata.* *bulgarica.* *graeciata.*

A. fraternata *H.-Sch.* (9 b). In Vol. 4 (p. 178) I was only able to quote the brief diagnosis of this species. In working out the Geometridae of the rich Pfeiffer-Osthelder collection from Marasch, however, Dr. Wehrli has found an opportunity to investigate carefully both it and *obsitaria*, together with the originals of *opificata*.

fraternata.

True *fraternata*, which remains very rare, has the lines less strongly dentate than in *obsitaria*, and with some differences in their course, particularly as regards the postmedian: in *fraternata* its 1st projection (subcostal) is angular, approximately a right-angle, its 2nd projection less definitely bilobed than in *obsitaria* and not approaching nearer to the termen than its 1st; in *obsitaria* the 1st projection is blunt, the 2nd markedly bilobed and always approaching nearer to the termen than the 1st. The ♂ valve has a "very long, very striking thorn at the anal end" which is wanting in *obsitaria*.

obsitaria. **A. obsitaria** *Led.* (Vol. 4, pl. 11 c, as *obritaria*). For the differentiation of *fraternata* see above. The present species, of which Wehrli studied a strongly marked form from Mardin, Hadjin and Malatia, which *evanescens.* he considers to represent, at least very nearly, the Diarbekir type, shows some geographical variation. — **evanescens** *Wehrli* (9 b), representing the preponderant part of the Marash *obsitaria*, is somewhat smaller, the *anatolica.* colour paler, the markings much weaker. — **anatolica** *Wehrli* (= fraternata *F. Wagn.*, nec *H.-Sch.*) (9 c) has the average size still further reduced and is lighter (whitish) lead-grey, less yellowish or brownish, weakly marked, the bands likewise more grey; a good deal like *fraternata* in coloration, but agreeing with *obsitaria* in the course of the markings and in the genitalia. Akschehir, Interior Anatolia.

opificata. **A. opificata** *Led.* The two originals, according to F. Wagner and Wehrli, are decidedly dissimilar, though both are ♂♂, the larger and darker being Lederer's type ♂, the other his "type ♀"! It is still somewhat uncertain whether both represent the same species and we must await a more thorough study of the genitalia and the variation. In any case Wagner has correctly restricted Lederer's name to the large dark specimen. *kawrigini.* — f. (? sp. div.) **kawrigini** *Christ.* (Vol. 4, pl. 11 b, as *opificata*) is therefore the correct name for the commoner form, which usually passes as *opificata*. Christoph's type was from Kasikoporan.

affinis. **A. affinis** *Warr.* (Vol. 4, pl. 6 k, 11 c). Further material has come to hand from W. China and Upper Burma, but the suspicion expressed in Vol. 4 (p. 178), that the reputed occurrence of this species and *pudicata* in Japan was erroneous, may now be considered a certainty. It has been learned, as I have frequently had occasion to point out, that numerous specimens from W. China were labelled "Japan" in the earliest days of the Tring Museum.

21. Genus: **Carsia** *Hbn.*

(See Vol. 4, p. 179.)

sororiata. **C. sororiata** *Hbn.* (= paludata *Thnbg.*, nec *L.*, pruinaria *Ev.*) (Vol. 4, pl. 6 g). It was overlooked that the name *paludata Thnbg.*, founded on Swedish material, was a homonym and that we are therefore left in the unfortunate position of having, for the type of this race, Hübner's very unsatisfactory figure 355, without ascertainable locality. Fortunately the ground-colour and the position of the markings leave no doubt of its identity, though it is too large and relatively too long-winged, etc. It shows remains of the brown suffusions *octosignata.* on the forewing and is less dark grey than ab. *obscurata*. — ab. **octosignata** *Strand*, described on a pair from Overhalden (Norway), has the 2 bands of the median area of the forewing confluent for a short distance behind the middle, giving them a remotely 8-shape or ×-shape, as in our figure of *imbutata* (Vol. 4, pl. 6 g). Perhaps the name ought to be *signata*, as Strand wrote "8-*signata*", which is no more a name than "*-*signata*" would *imbutata.* be. In any case, "nom. coll. *tangens*" would have met the need. — **imbutata** *Hbn.* (Vol. 4, p. 179) certainly extends rather far north in Scandinavia; I have it before me, rather small but otherwise typical or somewhat like *anglica*, not only from Trondhjem but also from the Lofoten Islands, and Stichel has even doubted whether Schöyen's *obscurata* (see above) was anything but a synonym of the extreme northern race, arising from a misidentification of *imbutata* as *paludata;* according to Orstadius, however, both the races occur together in one locality (Pajala). A remarkable record was communicated to me by Dr. Wehrli a few years ago: Monsieur S. Lavallée, of Paris, took at Segrez (40 km S. of Paris), in 1894, when he was quite a young collector, a single specimen, but has never seen it there since; and as he knows of no Vaccinium vitis-idaea in the neighbourhood he thinks it was perhaps an accidental occurrence. Hannemann, who has observed *imbutata* in profusion in the Harz Mountains, has never known it to fly voluntarily by day, though it may *conflua.* easily be disturbed. — ab. **conflua** *Hannemann* has the two bands of the median area coalesced from the middle *extensa.* hindwards, a more extreme development of the "*octosignata*" form which we figured as *imbutata*. — ab. **extensa** *Hannemann* (9 c) shows the opposite extreme, the two bands widely sundered by pale central area; its highest development seems to be in the ♀, of which we figure a broad-winged example. The types of this and ab. *con-* *brunneofas-* *flua* came from the Harz. — ab. **brunneofasciata** *Hannemann* has a complete (single) red-brown median band *ciata.* instead of the two bands of the forewing. Type ♀ from Braunlage, Oberharz; known also in the English race. *obsoleta.* — ab. **obsoleta** *W. Brandt*, also ♀ (from Amata, Latvia), is a pretty subaberration, with all secondary lines *anglica.* wanting, the slender subbasal and rather narrow ante- and postmedian strongly developed. — **anglica** *subsp. nov.* (9 c) is our small, sharply dark-marked British race of *imbutata;* the bands of the central area are very generally broad and thus produce a good percentage of "*octosignata*" and "*conflua*" forms.

23. Genus: **Acasis** *Dup.*

(See Vol. 4, p. 181.)

The present constitution of this genus, and indeed of all those which are comprised in the *Lobophora* group, is by no means perfect. As Prof. W. T. M. Forbes says: "In this variable mass practically every species has some distinctive structure, often confined to one sex, and there is some individual variation of structure, with the result that a large number of genera have been made." I have, however, found it necessary to constitute *sertata* the type of a new genus; comments on affinities or divergences can now be offered, but I shall for the most part confine myself to the task of bringing together the principal addenda of the past 20 years.

A. viretata *Hbn.* (Vol. 4, pl. 6 g). The given distribution (Vol. 4, p. 181), though wide, was not complete; it occurs also in the Khasis, Upper Burma and W. China and shows, on the whole, so little variation that it seems to have altogether escaped the attention of the variety-namers. A sexual variation in the venation of the hindwing has given rise to some comment; in my experience (and I see that Forbes's agrees, both for *viretata* and its North American representative *viridata Pack.*), the 1st radial is stalked with the 2nd subcostal in the ♀, but separate in the ♂; but Dr. Sterneck (Iris, Vol. 42, p. 143) has found these veins separate in both sexes in Europe, though stalked in the Tatsienlu and Kwanhsien ♀♀. Perhaps the ♀ is beginning, as in some other Lobophorine species, to inherit the ♂ characters. *viretata.*

A. muscigera *Btlr.* (Vol. 4, pl. 12 b). Sterneck identifies with this a ♂ from Wassekou (W. China) and one from Korea, rightly assuming that the yellow ground-colour in our figure is the result of discoloration. He gives the characters of these ♂♂, which include: palpus very long, the 2nd joint in particular strongly elongate; hindtibia with only terminal spurs and with a hair-tuft at its base; areole double, the distal essentially larger; hindwing with discocellulars biangulate, submedian wanting, pocket well developed. *muscigera.*

23a Genus: **Nothocasis** *gen. nov.*

Palpus in both sexes rather short. Antenna simple. Hindtibia with terminal spurs only. Wings rather broad; ♂ hindwing without lobe at base, merely with a small pocket; frenulum vestigial, evidently non-functional. Areole double, the proximal one sometimes minute, perhaps in process of atrophy. Hindwing in both sexes with costal anastomosing to near end of cell, 2nd subcostal well stalked with 1st radial, discocellulars biangulate, the 2nd somewhat curved and strongly oblique, 2nd radial nearer to 3rd than to 1st, both medians present, submedians wanting. Genotype: *sertata Hbn.* (1808—17, as *Geometra*). I know of no other species nearly agreeing in structure with this; in Vol. 4 (p. 182) it was forced into *Acasis* in spite of the short palpus; the loss of the frenulum, rare in this subfamily, seems to have remained hitherto unnoticed.

N. sertata *Hbn.* (Vol. 4, pl. 6 f). As regards the distribution, M. L. Bray has added Belgium, a specimen taken in September 1919 near Virton. On the ecology and biology, Culot has shown, from its abundance in a locality where there is no sycamore, that it must have some other foodplant. Dr. A. Binder, who made a special study of it on the foothills of the Erzgebirge, where it occurs at altitudes of 400—800 m, says that it lasts well into October, even after severe night frosts have set in; it emerges in the morning, likes to rest on tree-trunks in shady places and is very shy, flying high when disturbed; copulation in the evening. He gives a good analysis of the variation, but abstains from naming the forms. Höfer adds that in southern localities it appears some weeks earlier than in the Vienna district, i. e. in August, and calls attention to an abnormally early record from Carniola, 14 July (J. Hafner). — ab. **tangens** *Wehrli* (nom. coll.), characterized by the confluence and subsequent divergence of the two median bands of the forewing, is said to be not rare in the Aargau and Basle Jura. — ab. **hilariata** *Dannehl*, pure white, the blackish central lines sharply expressed, etc., has been received repeatedly and in numbers from the Black Forest and its author suggests that it has perhaps developed, or is in course of developing, into a distinct race. The type from Pforzheim. — ab. **dissoluta** *Höfer*. This and the next two names refer to the conditions of the median area (sens. str.) of the forewing, that is, the normally grey or whitish area in which the cell-dot stands. In ab. *dissoluta* this is so much narrowed in its posterior half that the lines meet (or are connected by short black dashes) on the veins, dividing the pale colour into separate areas. Doubtfully separable from ab. *tangens*. — ab. **costimaculata** *Höfer* is a much rarer form, with this grey or whitish area restricted to the anterior half of the central band, the posterior half being wholly dark. Founded on a ♀ from Hadersfeld, Lower Austria. — ab. **neofasciata** *Höfer* (= nigrofasciata *Osthelder*) has a solid dark median band, with only a small whitish spot surrounding the cell-dot; compare *carpinata* ab. *fasciata Prout* (Vol. 4, p. 184). A fine ♀ from Klosterneuburg. — ab. **viridulata** *Trti.* is a large form from the Modena Apennines of a delicate moss-green colour, in the life said to be as green as *Cidaria miata*, median band blackish brown; one specimen. It should be mentioned that Höfer disputes the statement (Vol. 4, p. 182) that freshly bred *sertata* are (necessarily) greenish, but regards such a tone aberrational; Herrich-Schaeffer believed the green in Hübner's figure of the (type) ♂ to be evol- *sertata.* *tangens.* *hilariata.* *dissoluta.* *costimaculata.* *neofasciata.* *viridulata.*

obscurata. ved out of his own head. — ab. (? subsp.) **obscurata** Osthelder has the whole forewing strongly infuscated with dark scales. Prevalent in the Allgäu Alps where, according to Osthelder, even the lightest examples among the very long series figured by Daniel and Pfeiffer (Mitt. Münch. Ent. Ges., Vol. 9, p. 65) are darker than the general forms of other localities.

25. Genus: **Nothopteryx** *Prout.*

(See Vol. 4, p. 183.)

Even more that *Acasis*, this "genus" is a loosely-knit assemblage. Founded on *carpinata Bkh.* as genotype, and intended primarily for those species in which the ♂ hindwing has the costal vein separate from the subcostal, merely connected at or beyond the end of the cell, it has been made to include a few species with long palpus, one at least in which the costal of the hindwing anastomoses, one or two in which the discocellulars of the hindwing are biangulate and others which show some minor anomalies. I have added a few structure-notes to the meagre ones given in Vol. 4, but do not pretend to have exhausted the subject.

ustata. **N. ustata** *Christ.* (Vol. 4, pl. 6 f). Not a true *Nothopteryx*, inasmuch as the costal vein of the ♂ hindwing anastomoses strongly with the cell; discocellulars fairly straight.

teriolensis. *N. sabinata Hbn.-G.* **teriolensis** *Kitt* is light grey, not brown, the median band of the forewing distinctly light in its ample central part and bounded by white-grey on each side, the underside with median band obsolete. Oetztal, Tyrol.

obscuraria. **N. obscuraria** *Leech* (Vol. 4, pl. 6 g). To the range are to be added some localities in Szechuan: Tatsien-lu, Kwanshien, etc.

grisea. *N. polycommata Schiff.* **grisea** *Djakonov.* A good local race, perhaps species, small, narrow-winged, weakly marked. Palpus somewhat shorter and more slender, antenna likewise more slender. Forewing uniform grey, almost without the brown scaling of the type, only the median area tinged with brown and with the veins darkened. Minussinsk; probably also a very worn Krassnojarsk ♀ belongs with it.

ussurica. **N. ussurica** *Wehrli* (9 c). Founded on a ♀, which has long palpus, and therefore very naturally assigned to *Acasis*, in the neighbourhood of *muscigera* (Vol. 4, pl. 12 b), though the discocellulars of the hindwing are merely very oblique, not biangulate. The ♂, however, has the palpus quite moderate, the costal of the hindwing free, connected with the 2nd subcostal beyond the cell, and shows evident relationship to *exportata* (9 c). The blackish shading along the inner margin as far as the postmedian, the strongly curved dark subbasal band, the brownish, not or scarcely darkened median area and the subtriangular costal shade beyond, followed distally by a conspicuous pale patch, are all characteristic. The specimens before me were collected at Okeanskaia by H. Kardakoff in May, but the type is from Sutschan, S. Ussuri, June.

exportata. **N. exportata** *Stgr.* (9 c). Similar in structure to *ussurica* but duller in colour, the forewing with much less curved or bent markings, especially in the proximal area, darker median band and the subterminal not expanded into a large whitish costal spot. Okeanskaia in April, collected by Kardakoff. A much greyer, superficially more *grisearia*-like ♀ from Sutschanski-Rudnik, June, in my collection has the long ♀ palpus of *ussurica*.

grisearia. **N. grisearia** *Leech* (Vol. 4, pl. 11 c). Hindwing of the ♂ with the costal vein connected with the 2nd subcostal b e y o n d the cell (much as in *carpinata*, to which the relationship is evidently fairly close). Hindtibia of the ♂ with the hair-pencil reaching about to the middle of the 1st tarsal joint.

fasciata. *N. carpinata Bkh.* ab. **fasciata** *Prout* (9 d). We figure a ♂ from Rannoch, Perthshire, probably its
nigra. best-known habitat. — ab. **nigra** *Bretschneider* is an altogether melanic form. From a worn melanic ♀, 3 out of the 12 specimens bred were of this form; others were taken in the same district (Wilsdruff in Saxony).

hemana. **N. hemana** *Btlr.* (Vol. 4, pl. 6 g). Venation about as in *carpinata*, palpus perhaps a trifle longer, spurs of hindtibia in the ♂ extremely short.

terranea. **N. terranea** *Btlr.* (Vol. 4, pl. 11 c, not 12 c as indicated on p. 184). Venation again similar to that of *carpinata*, but with the 2nd radial inclined to arise very much before the middle of the discocellulars. Occurs in the Ussuri district as well as in Japan.

misera. **N. misera** *Btlr.* (Vol. 4, pl. 11 c). Structure of the ♂ rather exceptional for the genus: forewing with the 1st radial often from about the anterior angle of the cell (in the type and one or two other examined specimens short-stalked; in all other *Nothopteryx* yet observed it is w e l l stalked); hindwing with costal vein rather remote, the connecting bar just before or at the end of the cell, the 2nd subcostal stalked (though only quite shortly); face rather rough; palpus moderate in the ♀, shortish-moderate in the ♂.

29. Genus: **Trichopterigia** *Hmps.*

(See Vol. 4, p. 186.)

T. consobrinaria *Leech* (9 d). It was pointed out on p. 186 of Vol. 4 that by an error we had figured a small *Acasis viretata* under this name. We now give a figure of the true *consobrinaria*. *consobrinaria.*

T. rufinotata *Btlr.* (Vol. 4, pl. 13 a). Sterneck has recorded a few specimens from Ta-tsien-lu, June and August. *rufinotata.*

T. sphenorrhyma *Prout* (9 d). A large species, recognizable also by its white ground-colour, strong black dots on all the markings of the forewing, subbasal and postmedian lines more continuously black. It lacks entirely the red dots of *rufinotata*, the only coloured markings being the faintly olive-yellowish bands. Described from 2 ♀♀, collected in Kashmir Valley, 7000 feet altitude, in June; a short series from Narkundah, collected in April, is also before me. *sphenorrhyma.*

30. Genus: **Emmesomia** *Warr.*

(See Vol. 4, p. 187.)

A third species, *formosana Bastelb.* from Formosa, has been referred to this genus, but it is doubtless the same as *Lobogonia bilineata Wileman* and although the latter is the younger name, Wileman's is the more correct taxonomy, so that the information given in Vol. 4 remains applicable.

E. bilinearia *Leech* (Vol. 4, pl. 12 a) occurs also in Yunnan (vicinity of Yunnan-Fu). *bilinearia.*

31. Genus: **Heterophleps** *H.-Sch.*

(See Vol. 4, p. 187.)

A further "subgenus" (perhaps eventually genus) has been added here; see *Ortholithoidea* below. Some further species and subspecies have also been detected, but no systematic study has been given to the group.

A. Section *Lygranoa:* ♂ antenna pectinate.

H. fusca *Btlr.* (Vol. 4, pl. 6 d). I now doubt whether the true *fusca* of Japan occurs in the Ussuri district and Corea and suspect, rather, that these records rest on misidentifications. Even the widely distributed Chinese race — **sinearia** *Wehrli* (9 d) differs considerably from *fusca* and I had it set aside as a probable species until Dr. Wehrli described it as a provisional subspecies. Larger, browner, the termen (especially in the ♀) appreciably more sinuate in its anterior half, apex consequently more produced, postmedian costal spot enlarged, line on hindwing stronger (especially in the ♀ beneath), underside yellower. Common in W. China, distributed also to the east of that country. *fusca.* *sinearia.*

B. Section *Heterophleps*: ♂ antenna ciliate.

H. clarivenata *Wehrli* (9 d). Similar to the Indian *bicommata Warr.* (the type of that author's genus *Dysethia*), which will be dealt with in Vol. 12; but I can scarcely agree with Dr. Wehrli in regarding it as a race thereof. Grey-brown, not purple-brown, the outer half of the forewing mixed with lighter scales, the veins light grey-yellow, termen of forewing more gibbous, postmedian more excurved, hindwing dark. Siao-lou, 1 ♂. *clarivenata.*

H. pallescens *Warr.* (= pulveraria *Leech* MS., Seitz Vol. 4, pl. 11 d). Apparently not very common, and still known from Japan only, but not confined to Oiwake, as was suggested in Vol. 4. Mr. Joicey received it from Mt. Kuruma, near Kioto; flies in May and early June. *pallescens.*

H. nubilata *Prout* (9 d), only known in type ♂, from Vrianatong, Tibet, was described as a subspecies of *sinuosaria*, larger, less brown, with the cell-dot small, the lines weak, etc., but as the forewing is broader and the hindwing has a better-developed pocket at the abdominal margin I now regard it as a separate species. *nubilata.*

H. sinuosaria *Leech* (Vol. 4, pl. 11 c). Of the typical form of this species I know also only the original, a ♂ from Ta-tsien-lu, July. Our figure gives a very good idea of it, although the forewing is not quite bright enough and a little too uniform in colour. No other specimen which I have seen has the cell-mark so large, the subterminal line and its costal spot so well developed or the 2nd discocellular of the hindwing quite so strongly oblique inward. A smaller form from Omei-shan at 7000 feet in July, represented by a worn ♂ and a fairly good ♀, may be left with it for the present, though the colour is less bright, the 3rd costal spot undeveloped and the cell-dot minute. — **stygnazusa** *subsp. nov.* (9 e) is the ordinary form about Kwanhsien (July-August), variable in size from 31—37 mm, similar in costal spots and cell-dot to the Omei *sinuosaria* but with heavy dark cloudings in, at least, the proximal half of the forewing and with the hindwing darker than in the other forms. Type ♂ in the British Museum. *sinuosaria.* *stygnazusa.*

confusa. **H. confusa** *Wileman* (= confusella Strand) (Vol. 4, pl. 11 d). In the description of the divergent venation of the hindwing (see Vol. 4, p. 188) — which perhaps gives *confusa* a better claim than *fusca* to be placed in a separate section — mention should have been made of the 3rd discocellular, which here runs out very obliquely from the cell-fold, so that an exaggerated development of the form usually described as "discocellulars biangulate" is produced. Strand has given a new name to our figure because it does not agree altogether with our description nor with Wileman's (poor) figure of his type. There is a little individual variability, but I see no ground for treating *confusella* as an aberration capable of differentiation, let alone of a species. —
epirotis. **epirotis** *subsp. nov.* (9 c). It must before now have become well-known to students of the Ussuri Geometridae, that the *Lygranoa* recorded from there — or at least the majority of them — are not *fusca* (as given by Staudinger, copied by me in Vol. 4, p. 188) but a form of *confusa*. All the Ussuri examples which I have seen, however (Chabarovsk, Narva, Russ Island, etc.) show a racial distinction in being smaller — 23—24 mm against the 28 mm rightly given by Wileman as the average for *confusa* —, somewhat paler and commonly with the costal marks small. Ussuri and Corea, the type ♂ from Narva (Kardakoff collection) in the British
punkikonis. Museum. — **punkikonis** *Strand*, though erected as *confusa* ab., is probably some different species, possibly a Formosan ♀ form of *fusca sinearia* ("Punkiko, Japan", the given locality, was, as the late Mr. Wileman informed me, an error in the Sauter collection for "Punkio, Formosa"). Length of a forewing 17 mm (i. e., about as large as *pallescens*) and said to differ further from *confusa* in that the postmedian is continued on the hindwing, though in part very weak, and that the underside has cell-mark and postmedian on each wing.

grisearia. **H. grisearia** *Leech* (Vol. 4, pl. 11 d). The ♂ is still unknown to me, unless *grisearia* be a ♀-f. of *sinuosaria*; notwithstanding the difference in the antemedian, the close relationship can scarcely be doubted.

C. Section *Ortholithoidea*: Hindwing with discocellulars biangulate, 2nd radial arising near the 3rd and from an acute outward projection, 1st median long-stalked.

euthygramma. **H. euthygramma** *Wehrli* (9 e). Quite distinct from the rest of the genus in the lack of the usual costal spots; lines of the forewing very straight. Underside yellowish, forewing with costa ochre-yellow, basal part, as far as the slender grey postmedian, with smoky suffusion, cell-dot and terminal line stronger than above, hindwing marked as above. Antenna of ♂ bipectinata. Kunkala-shan.

33. Genus: **Leptostegna** *Christ.*

(See Vol. 4, p. 189.)

The description of the peculiar venation (costal separate from the cell, connected beyond the middle by an oblique bar, etc.) refers of course to the hindwing, though it was misprinted (in the German edition only) "Vflgl." It applies to both sexes and to both the species (or races); I have not found it in any of the allied genera. The statement that the areole is single, made by Christoph in founding the genus, repeated by Meyrick in 1892 and by me in 1914, was challenged by Sterneck (Iris, Vol. 42, p. 144), who found it "always double". This led me to reopen the question and I found that though the single example which I possessed when describing *Leptostegna* (a ♂ from Japan) had it undivided, only one other specimen which I could examine (Yezo) agreed therewith; all the rest of the *tenerata*, with all the known *asiatica*, had it divided.

asiatica. **L. asiatica** *Warr.* (9 e) The W. Chinese form, a specimen of which we now figure, may differ racially from the Himalayan type, but I have found no definite distinction. Sterneck considers it a race of *tenerata* (Vol. 4, pl. 6 c).

35. Genus: **Microloba** *Hmps.*

(See Vol. 4, p. 189.)

diacena. *M. bella Btlr.* **diacena** *Prout* (9 f). Distinguishable from the eastern *bella* = *eburneata* (Japan, Corea and E. Siberia) by the entire, or almost entire, suppression of the dark markings of the central of both wings, leaving only the costal markings of the forewing, cell-spots and terminal patches of both wings and subbasal mark of hindwing. Described from Upper Burma, frequent also in W. China. A very occasional aberration in Japan resembles it, but there can be no question of its essential validity.

36. Genus: **Brabira** *Moore.*

(See Vol. 4, p. 189.)

Several species are now known, ranging from India to Fiji and showing some interesting structural modifications in the ♂; but the genus is evidently only a straggler into the Palaearctic Region and there is little new to record here.

artemidora. **B. artemidora** *Oberth.* (Vol. 4, pl. 6 c). Matsumura records this form from S. Saghalien (Ichinosawa
pallida. and Sakayehama). — **pallida** *Moore*, so far as at present tested, is not actually a synonym (as given in Vol. 4,

p. 190) but a separable race. As it belongs chiefly to the Himalayas, it will be examined more fully in Vol. 12, but its occurrence in the Kachin Hills (N. E. Burma) makes it not improbable that it may be found in Szechuan. Forewing rather more variegated (in places less brownish) than typical *artemidora*, with sharper dark markings; hindwing proximally with sharper markings.

37. Genus: **Sauris** *Guen.*

(See Vol. 4, p. 190.)

S. nigrilinearia *Leech* (Vol. 4, pl. 12 a, ♂). West (Novit. Zool., Vol. 35, p. 126) has given a carcful detailed description of the coloration and markings of Wileman's ♂♂, which may supplement our not very perfect figure of one of them; Leech's "type ♂" was really a ♀. The large development of the lobe of the ♂ hindwing suggests a possible relationship with the Malayan section (or genus) *Tympanota Warr.*, in which this is the most salient character; but there is also at the base of its abdomen beneath (though not highly developed) the pouch which distinguishes another group, *Episteira Warr.* There is, as with the kindred *Lobophora*, sens. lat. (and for the same reason) great difficulty in working out a taxonomic scheme for *Sauris*. *S. nigrilinearia* is known also from Ningpo, perhaps also from the Riu-kiu Islands and even from Selangor. *nigrilinearia.*

S. nanaria *Leech* (= minuta *Prout*, ex err.) (9 e). By some mental lapse, this was described in Vol. 4 (p. 190) under the name of *minuta* (not "accidentally omitted", as stated in Novit. Zool., Vol. 35, p. 305). As a result, the reference of pl. 7 f on p. 419 got attached to the wrong "*minuta*"; that figure is really *Collix minuta Btlr.* (Vol. 4, p. 300). *S. nanaria*, which we now figure, clearly represents the widely distributed Indo-Australian group which contains also *eupitheciata Snell.*, *postalba Hmps.* and *viridata Warr.* The Indian form (*postalba*) has been bred from Loranthus. The figured specimen represents a form fromTakao-San, considerably larger than *nanaria* type and with more white in the outer area. *nanaria.*

S. eupena *sp. n.* (9 e). In the absence of the ♂, the exact systematic position of this neat species is uncertain; the ♀ characters agree pretty closely with those of the genotype ♀, *hirudinata Guen.*: palpus at least 3 (but here black), areole undivided, hindwing with both the 1st and the 3rd radial well stalked with the neighbouring veins. Darker than *nigrilinearia*, at least 10 olivaceous lines from base to postmedian being more or less mixed with blackish, so grouped as to leave a narrow pale median area, on which stands the highly oblique cell-mark; postmedian series strongly zigzag; the "black line" of *nigrilinearia* less accentuated, more bent. Kagoshima, 1 ♀, in my collection; a larger and paler ♀ from Riu-kiu, still undescribed, may be a race of this and somewhat connects it with *Episteira*. The group will be further considered in Vol. 12. *eupena.*

38. Genus: **Cryptoloba** *Warr.*

(See Vol. 4, p. 191.)

I believe this will have to be restricted to the type species *aerata Moore* and its near ally *minor Warr.*, neither of which occurs in the Palaearctic Region; but as no other generic name is yet available for *cinerea* and its near allies, and the revision of the whole group depends almost entirely upon the study of the Indo-Malayan fauna, I continue to treat the present genus as a section of *Cryptoloba*. It is distinguished by the weakening (perhaps sometimes the complete loss) of the frenulum, and there are various minor differences in the wing-shape and venation, particularly in the ♂♂, which, however, vary according to the individual species. In their small size, moreover, and the simpler markings, they stand well away from typical *Cryptoloba*. The areole is always simple, while in *minor* and very occasionally in *aerata* it remains double.

C. cinerea *Btlr.* (9 f). I find that the typical form extends through Upper Burma to W. China (Mt. Omei, etc.). — **plumbeola** *subsp. nov.*, already mentioned in Vol. 4 (p. 191), is on an average smaller and is darker (more leaden-grey or violet-grey), with dark hindwing. Dharmsala. *cinerea.* *plumbeola.*

C. apicata *Prout* (9 f) occurs in W. China as well as in the type locality (Chang Yang, Central China). For the differentiation from *cinerea* the reader is referred to Vol. 4, p. 191. *apicata.*

39. Genus: **Lobogonia** *Warr.*

(See Vol. 4, p. 191.)

L. ambusta Warr. **salvata** *Prout* (Vol. 4, pl. 11 d, as ambusta). The name-typical Khasi race is only known to me from that district. The race from W. China, which in 1928 I named *salvata*, is generally less warmly coloured, the dark maculation less strongly developed, the postmedian line on both wings more curved (on the hindwing in *a. ambusta* it runs almost straight across the wing). Kunkala-shan (the type), Pu-tsu-fong, Omei-shan, etc. From *formosana Bastelb.* (Formosa) it differs in the tailed hindwing. In this group the connective bar between costal and subcostal of the hindwing is usually very weak, in the ♂ oftenest obsolete. *salvata.*

parallelaria. **L. parallelaria** *Leech* (Vol. 4, pl. 11 d). Notwithstanding a close resemblance, I am not inclined to sink this to *olivata Warr.* from the Khasis; it is at least a good race. Its blackish terminal line and (on the forewing) blackish fringe, besides the black costal dot between the postmedian and the apex are not reproduced even in fresh specimens of *olivata.*

pseudomacariata. **L. pseudomacariata** *Pouj.* (9 f). We now give a figure, founded on a ♂ from Kunkala-shan. Sterneck, in recording 3 ♀♀ from Wassekou, W. China, remarks that it differs very considerably from the *conspicuaria Leech* of Chang Yang (Vol. 4, pl. 11 d) and does not think that the latter can be a mere race of it. I still feel doubtful whether it is anything more.

pallida. **L. pallida** *Warr.* (= fasciaria *Leech*, *Prout* in *Seitz*, Vol. 4, p. 191) (9 f). Founded on a worn ♀ said to be from Japan, but probably in reality a *Leech* duplicate from Central China, Warren's name unfortunately has priority (see Vol. 4 addenda p. 419). It was described as "*Tosaura?*", that is to say, *Ozola* (!). Somewhat narrower-winged than *olivata* and *parallelaria;* other distinctions are noted in Vol. 4, p. 191.

40. Genus: **Carige** *Walk.*

(See Vol. 4, p. 192.)

There has been some confusion about the forms comprised in the *duplicaria* group of this genus. I can only at the moment give the results of an investigation which I undertook a few years ago and hope it may induce others to follow the matter further.

cruciplaga. **C. cruciplaga** *Walk.* (9 f), founded on a ♀ in poor condition, with one forewing lost, was said to come from Penang, but I think this locality must be erroneous; the specimen, though of a slightly warmer tint than the average of Japanese specimens, is so similar to them, and so unlike anything Malayan which has yet come to hand, that I have ventured to adopt the name for the Japanese *Carige* here figured. It is very variable,
debrunneata. particularly if the series discussed below belongs with it. I included it in *duplicaria Walk.* in Vol. 4. — **debrunneata** *Prout* (= duplicaria *Prout* in Seitz, Vol. 4, pl. 7 f, err. det.), fairly common in the mountains of Szechuan, is grey, less brown-tinged than *c. cruciplaga*, the wings slightly more angular, the excision in the termen of the hindwing generally appreciably deeper, the black markings which accompany the postmedian less variable than in *cruciplaga*, more uniform, scarcely ever much enlarged. Type locality: Pu-tsu-fu, W. China, 8000—10000 feet. Our figure was taken from an Omei-shan ♂ in my collection.

duplicaria. **C. duplicaria** *Walk.* (9 f), published a year later than *cruciplaga*, was founded on a ♂ from "N. China", which, with Walker, generally denotes the Shanghai district. Although it may be another form of *cruciplaga* it is more convenient to consider it separately, as the angulations of the wings are less sharp. It evidently represents in E. and Central China and probably Corea the well-known forms which I associate with it below. The ground-colour is on the whole somewhat less warm than in *irrorata* and with the dark maculation much stronger, generally including distinct subterminal spots and often somewhat conspicuous terminal irroration. —
nigronotaria. **nigronotaria** *Brem.* (9 g). The long Amur-Ussuri series before me is scarcely variable and is generally recognizable by the still stronger black postmedian and subterminal spots, on a pale ground-colour, though some *duplicaria* are closely like them. The type was taken above the Ema Estuary, Amurland. — **irrorata** *Btlr.* (9 g), from Japan, the type from Tokyo, may perhaps be nothing more than a very stable dimorph of *cruciplaga*, though the less sharply angled hindwing and generally different dark postmedian maculation create a decidedly different impression; proximally to the pale line which I here call the postmedian itself, the dark line is scarcely at all interrupted, nowhere much expanded; distally a dark line is hardly indicated except (especially on the
absorpta. forewing) by the paired blackish spots at the folds. On the relation to *duplicaria*, see above. — ab. **absorpta** *Warr.* has the lines almost simple, even the postmedian maculation at the folds obsolescent. "Japan".

irrorata.

scutilimbata. **C. scutilimbata** *sp. n.* (9 g). Variable in size (30—36 mm, a 2nd brood 25—26 mm), otherwise pretty constant. Forewing in both sexes, hindwing also in the ♀, with distal margins less irregular. Yellow-brownish, with fine but close grey irroration; the buff ante- und postmedian lines and their black accompaniments much as in sharply marked *cruciplaga*, those between the radials of the forewing often longer, recalling *extremaria* (9 g). Very characteristic are the solid black terminal markings of the forewing, cut by the veins, as in the quite differently shaped and coloured *extremaria Leech* (9 g) and *lunulineata Moore* (Himalayas). Japan in June, the type ♂ from Oyama, Nippon; small specimens, evidently a second brood, from Hakone in August (see above).

extremaria. **C. extremaria** *Leech* (9 g) is not a form of either of the preceding, but abundantly distinct in its large size, extreme shape, heavy black markings, etc.; ground-colour as pale as in *debrunneata.* Central and West China.

41. Genus: **Naxidia** *Hmps.*

(See Vol. 4, p. 192.)

Dr. Sterneck first called attention to an irregularity in the subcostal venation of this genus (see *roseni*). The areole, which is generally simple, becomes (or rather, from the phylogenetic standpoint, remains), double in *roseni;* investigating my own material for connecting links, I found one specimen of *irrorata* in which the left forewing had a double areole, the proximal one the larger, but otherwise — and Dr. Wehrli confirms my experience — the venation seems pretty constant for the 3 original species.

N. roseni *Wehrli* (= irrorata *Sterneck* nec *Moore*) (9 g) differs from the rest in so many particulars that Wehrli proposes for it a separate subgenus, *Binareolaria*. Palpus more slender and pointed, face brownish, not white, antennal ciliation of ♂ longer than in *irrorata* (½ to ⅓ diameter of shaft), forewing more produced apically, areole almost constantly double, the proximal the smaller (in only one of 14 recorded examples simple in both wings, in another simple in the left wing only). Larger and darker than *glaphyra*, markings more as in *punctata*. The type series from Tatsien-lu, one ♂ recorded from Sungpanting. *roseni.*

N. glaphyra *Wehrli* (9 g). Smaller and whiter (less irrorated) than typical *irrorata* (Vol. 4, pl. 11 e), wings broad, termen of forewing rounded, antennal ciliation minute (¼), markings sharp, the subterminal series often thickened. Hindwing and underside also with the markings well developed. W. China: Siaolu, "Tientsin" [? Tientsuen] Tatsienlu and Kunkala-shan, described as a race of *irrorata*, but as white forms of that occur with the greyer ones both in Sikkim and W. China, and do not differ in shape or structure, I suspect this is a species. *glaphyra.*

N. hypocyrta *Wehrli* (9 h). Palpus shorter than in the other species, brownish. The whitish face edged with brownish above and beneath. Antenna much more serrate than in *roseni* (9 g), with fascicles of cilia longer than diameter of shaft. Cell-dot of forewing larger than in any other *Naxidia* except *punctata* (Vol. 4, pl. 7 f), postmedian regularly rounded, not angled. Siaolu, only the type ♂ known. *hypocyrta.*

42. Genus: **Malacodea** *Tgstr.*

(See Vol. 4, p. 193.)

Kusnezov has made some very thorough-going studies in the morphology and biology of this interesting genus and the degree of its relationship with *Operophtera*. The greater part of his work is in Russian and has not yet, so far as I can learn, been translated into either of the languages of Western Europe. The genitalia of course confirm its position in the *Oporinia* group; those of the ♀ closely approach those of *Operophtera*. The venation of the semi-apterous ♀ is intermediate in development between those of *fagata* and *brumata*; its pupal wing — as in other such cases — is well developed and only differs a little in size from that of the ♂.

M. regelaria *Tgstr.* (Vol. 4, pl. 12 a) (= relegaria ex err., p. 193, German edn.) Restricted to Pinus sylvestris. Some additions have been made to its range, the most interesting being its occurrence in the Petchora basin on the frontier of the Taiga and the Tundra. *regelaria.*

43. Genus: **Operophtera** *Hbn.*

Kusnezov has investigated the venation of the ♀♀; in *fagata* all the veins and branches are well developed, though of course much reduced; in *brumata* greatly aborted, mainly in the subcostal and radial systems.

O. fagata *Scharfenb.* (Vol. 4, pl. 6 e, as *boreata*). Schawerda has recorded the occurrence of this species in Corsica, its most southerly known habitat. Rebel has added Angora. — ab. **pygmaeata** *Isaak.* This name is proposed for small examples (up to ⅔ the normal size) with obsolescent markings. This and the following were founded on material from Zawiercie, Poland. — ab. **isaaki** *Isaak.* Central area of the forewing entirely without markings, light whitish-grey, proximal and distal areas grey-brown. *fagata.* *pygmaeata.* *isaaki.*

O. brumata *L.* (Vol. 4, pl. 6 e). On Capri, according to Sohn-Rethel, the exclusive flight-time is the early spring, namely throughout February. A mixed gynandromorph, bred by Heinrich, is recorded in the Intern. Ent. Zeitschr., Vol. 20, p. 203. — ab. **harrisoni** *nov.* Prof. J. W. H. Harrison reports "a fully melanic variety" captured in the ♂ sex at light in some numbers in the Team Valley, N. Durham. A more extreme development than ab. *unicolor Lambill.* (Vol. 4, p. 194). — ab. loc. **myrtillivora** *Hoffmann.* Much smaller than *brumata* of the lowlands, considerably darker, the markings strengthened, brown. Abundant among bilberry (on which the larva there feeds) at altitudes of 900—1100 m. Described from Styria. *brumata.* *harrisoni.* *myrtillivora.*

O. peninsularis *Djakonov.* Tongue more rudimentary, ♀ wingless, thus belonging to the American subgenus *Rachela Hulst.* On an average smaller than *brumata;* tongue not quite so vestigial as in its American relatives. Wings, especially the posterior, somewhat narrower than in *Operophtera;* in coloration about intermediate between *fagata* and *brumata*, very transparent, light smoke-brown, without any darkened areas; *peninsularis.*

lines of forewing variable in intensity; hindwing still lighter, unmarked or sometimes with a narrow, weak median band and traces of one or two lines outside it. Avatsha Bay and near Petropavlovsk, Kamtshatka, several ♂♂ and 5 ♀♀, end of September and beginning of October 1908.

44. Genus: **Oporinia** *Hbn.*

(See Vol. 4, p. 194.)

The revision already given (as quoted above) and the references contained therein have borne much fruit in directing attention to this very interesting genus, and most studious lepidopterists are now well acquainted with the principal distinctions, particularly in the antennae and the genitalia. Especial attention may be called to the contributions by Wolff (Denmark), Nordström (Sweden) and Warnecke (Lower Elbe district), as well as to the biological studies of the English geneticist Harrison. The first-named, by careful micrometric investigations of a large number of *O. christyi* and *dilutata*, has demonstrated the limits of the individual variability in the distance between the octavals and his measurements enhance, rather than diminish, the general value of the distinction here shown. Hybridization has been found possible, even between *dilutata* and *autumnata* (See Journ. Genet., Vol. 3, p. 232 and Entom., Vol. 48, p. 1, 30) and between *autumnata* or *filigrammaria* and their American cousin *omissa Harrison* (see Trans. Northern Nat. Un., Vol. 1, p. 135) and has yielded very interesting results, which cannot be detailed here. There is also in the typical section of the genus a strong tendency to produce little segregated groups or colonies which breed true and sometimes even show (minute) structural differences from their nearest neighbours; these Harrison, in order to avoid the misused terms "race", "subspecies", has called "microgenes" and he considers analogous to the forms well-known to botanists in the genera Hieracium, Rubus, etc. The tongue in *Oporinia* is developed but not (as was stated in Vol. 4) the ♂ frenulum. The resting posture differs from that of any other Geometrid observed by Oudemans in that the costal margin of the hindwing projects in front of that of the forewing.

dilutata. **O. dilutata** *Schiff.* (= nebulata *Thnbg.*) (Vol. 4, pl. 9 f). The discovery of the larva and imago at Albarracin has added the Iberian Peninsula to the range of this species. Its occurrence in Scandinavia is now confirmed; Nordström records it from the southern third of Sweden and from the neighbourhood of Oslo. He has studied Thunberg's type and paratypes of his *nebulata* and shown conclusively that, although the latter series comprises a mixture, the name belongs to a specimen of *dilutata*. Thus its citation to *autumnata* must be deleted from p. 196. The name *nebulata* (preferred by Nordström) is not a homonym, as was there assumed; but it is 8 or 9 years younger than *dilutata*. Schiffermüller's *dilutata* was an oak-feeder and the traditional interpretation should be conserved; only if the Swedish *dilutata* should prove a distinguishable

regressa. subspecies from the Austrian will the former stand as *d. nebulata.* — ab. **regressa** *Harrison.* Ground-colour blue-black, markings practically obsolete, median area showing a broad silvery band. Team Valley, Durham.

fraxinaria. — f. (microgene) **fraxinaria** *Harrison* was defined as much smaller than typical *dilutata* of the same districts (N. England), bluish-grey, glossier, with practically no markings but not melanic, the time of appearance 30 September to 20 October (*dilutata* middle of October onward), the egg slightly smaller, hatching earlier, the larva green, never purple-marked, nearly always feeding on ash. Octavals as in *christyi*, labides head intermediate between that and *dilutata*, the valves much as in *dilutata* but smaller. It has apparently been

robsoni. subsequently suppressed (to *christyi?*). — hybr. **robsoni** *Harrison* (dilutata ♂ × autumnata ♀) is intermediate between the parents in several respects, including the ♂ antenna; but on the whole the ♂♂ are slightly nearer to *autumnata* and the ♀♀ intermediate or towards *dilutata;* both sexes have the white V at the furcation of the median with its 2nd branch well developed.

christyi. **O. christyi** *Prout* (Vol. 4, pl. 9 f). Heydemann points out that the *dilutata*, *quadrifasciata* and *affiniata* of Borkhausen, afterwards merged by their author, all occurred commonly together in beechwoods in October, at times in copula, and may most probably designate aberrations of *christyi*, but does not think that any certainty can be reached; the first of these names would be a misidentification of the preceding species, the second a homonym, but it is not improbable that *affiniata* may need to be revived in place of *christyi*. The distribution is certainly wider than was given in our earlier volume (S. 196) (e. g. in Scandinavia, Baden, Bavaria, Czechoslovakia), but has not even yet been thoroughly worked out. Heydemann gives useful notes on the larva, which are worthy of careful study, although Harrison finds them to be inapplicable to some broods or colonies (see Entom., Vol. 66, p. 145 for Harrison's latest contribution). Both authors made repeated experiments. Head at first deep black, after the first moult yellowish, later mostly very light brownish. Adult larva much more variable than that of *dilutata*; Heydemann found only ca. 15% really green, ca. 12% more or less spotted with purple-brown or chocolate-brown, the spots not so sharply defined as in *dilutata*, apparently never with blackish or clay-coloured tone, the ground-colour itself on the contrary, with an increase of red-brown or purple-brown colouring, 30—40% almost entirely light to dark purple-brown, rarely greyish olive-brown, only remaining greenish in the segment-incisions and with a brown dorsal line and two distinct whitish subdorsal; the best character the very distinct, broadly white (or very light rosy brownish) lateral line. In North Germany, *christyi* seems to be confined to beech; in Durham almost exclusively to wych elm, but in one locality passing

to Salix caprea. A further differentiation from *dilutata* has recently been made by Harrison, namely that the chromosome number is 31, while in *dilutata* it is 30. — ab. **latifasciata** *Prout* (= bellieri *Culot*) (9 h). Culot has renamed this handsome aberration, giving a good figure of a Paris specimen. — ab. **rittichi** *Dioszheghy*, as "*autumnata* ab.", is almost certainly, according to the figure and description, nothing but a not very intense-banded specimen of ab. *latifasciata*. The supposed race of *autumnata* from the Retyezat Mountains, among which this specimen occurred, was distinguished as "silver-white, somewhat greenish, with grey or brown-grey irroration and markings, the size "27—36 mm", the flight-time 20 September—11 October, which quite evidently denotes *christyi*. — ab. **intermedia** *Heydem.* is more variegated than the type, with distinct grey bands on a white-grey ground-colour. — ab. **nigra** *Harrison* is a wholly black form, occurring locally in the north of England, not yet detected elsewhere. — ab. **clara** *Harrison*. Third and fourth bands (those of the median area) obsolete, the area between the second and fifth grey, lightly sprinkled with black; analogous to *dilutata* ab. *fimbriata*. Devil's Water, Northumberland. — ab. **coarctata** *Harrison*. Median area narrowed by the approximation of its two bands; analogous to *dilutata* ab. *coarctata*.

tatifasciata. *rittichi.* *intermedia.* *nigra.* *clara.* *coarctata.*

O. autumnata *Bkh.* (Vol. 4, pl. 9 f). Further morphological distinctions, as compared with *dilutata* and *christyi*, are in the number of chromosomes (30 in *dilutata*, 31 in *christyi*, 37—42 in *autumnata*) and in the pupal cremaster, which is here differently shaped and with the pair of terminal spikes larger and longer than in them. — ab. **latifasciata** *Vorbrodt* (= latifaciata *Nordström*). This name has been repeatedly given to the banded form which corresponds to *dilutata* ab. *latifasciata*. Vorbrodt described from Basle. Harrison's heredity experiments have shown that the inheritance in this form is on a sex-linked basis exactly the same as in the well-known case of *Abraxas grossulariata* ab. *dohrni* (= *lacticolor*) (see his full account in Journ. Genet., Vol. 10). — ab. **schimae** *Schawerda* is more variegated than *latifasciata*, the dark median band containing a pale patch proximal to the cell-dot, while the presubterminal band is sharply blackened. 2 ♀♀ bred from Bewawinkel, Lower Austria. — ab. **coarctata** *Nordström* has the median area of the forewing narrowed by the approximation of the ante- and postmedian groups of lines; analogous to *dilutata* ab. *coarctata*. Described from Sweden. — ab. **undulata** *Nordström*, founded on a ♂ from Saxvallen, Jemtland, has all the brown-grey lines about equidistant and of about equal intensity, on a white-grey ground-colour. — ab. **similis** *Harrison*. Glossy, light grey-brown, remarkable in that the first postmedian line strongly inclines to the form of that of *dilutata;* the genitalia and early stages leave no doubt as to the determination. — ab. **lofthousei** *Harrison* is a very different melanic form from the previously known black aberration of the pinewoods (*schneideri Lampa* or *melana Clark*, Vol. 4, p. 196), "clear silky chocolate brown, unicolorous save for a white subterminal line". Both sexes obtained in a birchwood in Kildale (Yorkshire). — ab. **albilineata** *Harrison*. Blackish, with rather prominent, clear white subterminal line. — ab. **nigerrima** *Harrison*. Jet black, with no markings. "Behaves as a Mendelian recessive, therefore to be kept carefully distinct from extreme (nearly black) *schneideri* forms, in which the melanism is more or less dominant. — f. (microgene) **alticolaria** *Harrison* was defined as brown, but grey-mixed, markings more delicate than in f. *autumnata*, but still firm; central area very broad, duller; larger and the ♀♀ in proportion larger still. Time of appearance 23 September—23 October. Egg more purple, longer and narrower, etc. Larva very bright green; newly hatched larva a little longer. Genitalia with octavals larger; labides heads narrow. — f. (microgene) **pinivoraria** *Harrison*. "Males always suffused and feebly marked; females very small, generally well marked; when melanic, blue-black." Egg smaller and not so pink. Larva green, but may have rusty markings to mimic pine buds (not purple like *dilutata*). Imago in the latter half of September. — hybr. **rungei** *Harrison* (autumnata ♂ × dilutata ♀), the reciprocal cross to hybr. *robsoni*, showed very different results; except for the absence of the white V-mark, so prominent in the latter, they might have passed for suffused, blurred-marked *autumnata*. Buckstone, who bred *rungei* to the third generation also remarked on their general approach to *autumnata*, especially in the third generation. Harrison records once breeding this hybrid (tested by wing-markings and genitalia) from a wild larva beaten from oak in Styford Wood, Northumberland.

autumnata. *tatifasciata.* *schimae.* *coarctata.* *undulata.* *similis.* *lofthousei.* *albilineata.* *nigerrima.* *alticolaria.* *pinivoraria.* *rungei.*

O. filigrammaria *H.-Sch.* (9 e) which was treated in Vol. 4 (p. 196) as if it were a form of *autumnata*, is now widely recognized as a separate species. The chromosome number is 37, but as this varies in the different "microgenes" of *autumnata* from 37 to 42 there is nothing decisive in this. The genitalia, on the other hand, are distinguishable, though closely similar; the "cristae hairs" are more numerous in *filigrammaria* (10—16, not about 7 as given by Pierce) the depression between the octavals perhaps a little deeper, the signa of the ♀ distinctly larger. The pupa is also distinguishable: last segment distinctly longer than in *autumnata*, its lateral margins less rounded, cremaster slightly narrower and with weaker hooks, dorsal groove showing more approach to *dilutata* and *christyi* than does that of *autumnata*. *filigrammaria* is still not definitely known to occur outside the British Isles. — ab. **intermedia** *Harrison* corresponds to the *intermedia* form of *autumnata*. — ab. **distincta** *Harrison* is dark, with the pattern more or less obscured, corresponding to *autumnata* ab. *schneideri*. — ab. **melana** *Harrison* has the melanic tendency intensified, the markings almost suppressed. — ab. **latifasciata** *Harrison* corresponds to the like-named form in the rest of the group; but in the present species it is much more prevalent than in any of them. — ab. **coarctata** *Harrison* has the 3rd and 4th

filigrammaria. *intermedia.* *distincta.* *melana.* *latifasciata.* *coarctata.*

mixta. bands approximated, the pale space between them consequently narrow. — ab. **mixta** *Harrison.* "Fasciae *ovulariata.* with individual striae diffuse." None of these aberrations appears to be at all localised. — ab. **ovulariata** (Oberth. MS.) *Culot.* Markings weak, except subbasal line and narrow dark median band, which latter encloses two patches of the ground-colour, the posterior one narrow, divided into three by fine lines at the fold and the second submedian. Founded on a ♂ from Scotland.

viridipurpurescens. **O. viridipurpurescens** (Matsumura, MS.) *sp. n.* (9 h). Expanse 32—34 mm. Face blackish fuscous, crown green. Antennal joints projecting, much as in *dilutata.* Abundantly distinct in the delicate green ground-colour of the forewing, reddish-grey markings, much less bent antemedian group of lines, absence of strong costal markings of hindwing, etc.; postmedian of forewing sinuous, cell-mark wanting. Some details of shape and markings suggest that it is somewhat intermediate between the present genus and *Operophtera*, but the tongue is well developed and the discocellulars of the forewing not biangulate. The discovery of the ♀ will be of great interest. Mount Kurama, near Kioto, 16 November 1920 (I. Sugitani), 2 ♂♂, the type in the British Museum, more strongly marked (especially on the hindwing) than the figured specimen. I have also a much wasted ♂ from Owakidana, Japan (M. Culpin).

mediolineata. **O.** (?) **mediolineata** *Prout* (Vol. 4, pl. 13 c). I transferred this very distinct species to *Oporinia* on account of its general characters and November flight and its fully winged ♀, but both wings have the discocellulars biangulate (as in *Operophtera* and the American *Paraptera*), so that it is really out of place here and should probably be given a separate genus. Palpus and tongue short. Antennal joints of ♂ moderately projecting. Frenulum non-functional. Locally common in the Kioto district, Nikko, Osaka, etc. Variation slight.

45. Genus: **Triphosa** *Steph.*

(See Vol. 4, p. 197; Vol. 16, p. 91.)

Since the appearance of Vol. 4, I have provisionally accepted the reference, by Aurivillius, of two African species to this genus, but it is by no means certain that they have any really close relationship to the rest. Judging by the genitalia, typical *Triphosa* is also well removed from typical *Calocalpe* and Pierce considers its nearest (British) relative to be *badiata Schiff. (Earophila).* In any case, some strikingly parallel developments in the ♂ retinaculum (compare, particularly, the "corneous plate" of *T. dubiosata* — noticed by Hampson — with that of the similar *C. tremulata Guen.* — apparently overlooked by Hampson) point clearly to the consanguinity of some of the forms which are at present separated solely in accordance with the presence or absence of the ♂ hair-tuft of the hindwing.

sabaudiata. **T. sabaudiata** *Dup.* (Vol. 4, pl. 5 h). The Spanish form, or at least that of Albarracin, is said to be relatively more strongly marked than the name-type. The species and forms of this group have been revised by Le Cerf, but I cannot accept all his conclusions. He gives the distribution of true *sabaudiata* as Central and South Europe to Persia and Central Asia, adds a new record for Kabylie, treats *taochata* as potentially *millierata.* a separate species and erects two new though closely allied species; see below. — ab. **millierata** *Brd.* (= thierry-miegi *Le Cerf*). Le Cerf argues that Bruand's *millierata* was an aberration of *Calocalpe cervinalis*, notwithstanding that the type ♂ was taken in August and that its author and artist do not notice the hair-tuft of the hindwing; he therefore re-names the banded aberration of *sabaudiata*, founding his *thierry-miegi* on another Besançon ♂. The original figure, however, shows the wing-shape, pale fringes and other features of *sabaudiata* *eugramma.* and as Lederer, unlike Le Cerf, saw the type, no case has been made out for the change. — ab. **eugramma** *nov.* (= taochata part., *Stgr.*, nec *Led.*). Slightly more greyish, the lines less feebly expressed, a definite suggestion, on both wings, of a band-like shade proximal to the subterminal. Best developed in a few ♀♀, generally of large size; type a ♀ from Besançon, in the British Museum. Occasional in most localities, including Digne, where I suppose it has given rise to the idea that *taochata* occurs in that locality; 2 of my 3 ♂♂ from Abries, Hautes-Alpes, belong almost to this form.

petronata. **T. petronata** *Le Cerf* (9 h). Very close to *sabaudiata*, making an impression of a browner or greyer tone, the markings less vague, forming, by accumulations of the slate-grey irroration, a band-like appearance of which there is usually no indication in *sabaudiata.* The genitalia, which its author carefully and minutely studied, show some distinctions. Discovered on the summit of Monte San Petrone, Corsica, 1768 m, end of July; subsequently taken on Monte Incudine (1900 m), the Col de Vizzavona and perhaps other suitable spots in the island. It frequents caves, like its nearest allies.

agnata. **T. agnata** *Le Cerf* (= taochata part., *auctt*, nec *Led.*). Very similar to *sabaudiata* and *petronata* but smaller, in some respects intermediate between the two. Paler than the latter, darker than the former and reddish- or brownish-grey rather than cinereous grey; has the same festooned lines as *petronata*, but they are less sharply defined and without the interlinear dark irroration; the light and dark marks on the veins are better developed, notably on the hindwing, and the yellowish white line which bounds the postmedian, as also the subterminal, is more regular and better expressed. Type from Caesarea, Cappadocia, other examples from

Amasia and from Hadjin, Mesopotamia. Le Cerf thinks this cannot be the true *taochata* (Transcaucasia), as it has just the same shape as *sabaudiata*, while *taochata* has the wings "shorter and more rounded, the hindwing less deeply dentate" (Lederer); moreover, *taochata* should be "olivaceous grey" and — according to the figure, strongly marked. — ab. **oberthüri** *Le Cerf*, founded on a ♂ from Amasia (Anatolia), has the wings above uniform mouse-grey, a little light towards the base of the hindwing, markings almost obsolete, only the alternately dark and light vein-marks standing out distinctly. — To judge from a very few examples of this form and only 2 Transcaucasian *taochata*, I incline to think it is at most a mere subspecies. After this manuscript had gone to press, Dr. Wehrli (i. litt.) with Lederers originals before him, confirmed for me the sinking of this to *taochata*. *oberthüri.*

T. taochata *Led.* (Vol. 4, pl. 5 h). More grey than the rest of the group (except *petronata*, which is larger, with darker hindwing proximally, etc.), the terminal line more developed than in the rest; cell-mark strong; apex perhaps slightly less sharp. Transcaucasia. Variable, but Lederers figure incorrect in showing dark terminal line and paired abdominal spots (Wehrli). *taochata.*

T. dubitata L. (Vol. 4, pl. 5 i) ab. **fasciata** *Schwingenschuss* is the banded form, about parallel to those of *T. incertata*, *T. amdoënsis* and others which bear the same name; median band black-brown. Described from Mödling, Lower Austria. — **amblychiles** *subsp. nov.* (9 h). Subsequent experience confirms my former statement as to the colder colour and generally weaker markings of the far-eastern race (China and Japan); this is applicable to perhaps 90 per cent, but I further notice that practically every specimen differs from the name-typical race in that the tooth of the postmedian line (at and in front of the 1st radial) is blunt and double, whereas in *d. dubitata* it is produced and usually acute. I have chosen as type of the new race a ♂ from Kwei-chou in the Tring-Museum. *fasciata.* *amblychiles.*

T. sericata Btlr. (Vol. 4, pl. 11 f, as sericaria) **decolor** *Prout* (10 a). We here give a figure of the type ♀ from Kwei-chow. The race is distributed in Szechuan and not always very sharply differentiable from the Japanese. — **oberthüri** *Hedem.* (= subsericata *Stgr.*). If, as I still suppose, all the *sericata*-like forms belong to a single species, the synonym *subsericata* should have been cited here, not to typical *sericata* as in Vol. 4. It was founded on a Sutschan ♀ which was collected with an *oberthüri* ♂ and which was smaller than the Japanese *sericata*-♀, though otherwise similar — lighter than *oberthüri* ♂♂. *decolor.* *oberthüri.*

T. salebrosa *sp. n.* (10 a). In structure an absolutely typical *Triphosa*. Forewing with the costa, and especially the termen, a little less curved towards the apex, which therefore appears somewhat more acute; coloration nearly as in *dubitata* (Vol. 4, pl. 5 i), a little darker, the reddish scales little noticeable without the lens; easily distinguished from the neighbouring large species by the very strong outward bend of the antemedian from median vein to cell-spot, the jagged postmedian and the purity of the white of its anterior edging, of its long inward projections on the veins and of the marks which form the subterminal. Hindwing with some of the marginal teeth very long; weak-marked, except as to the subterminal. Underside rather dark, the red tone very noticeable in distal area of forewing; the whitish vein-dashes, etc., moderately distinct. Omei-shan, August 1907, a fine ♂ in the Tring Museum. *salebrosa.*

T. aequivalens *sp. n.* (= expansa *Warr.*, nec *Moore*). (Vol. 4, pl. 5 k, as expansa). I find that two different insects have been passing under the name of *expansa Moore*. The true *expansa* of Sikkim (Moore's allotype ♀ is merely labelled "Himalaya", but belongs therewith) is a strongly marked species with a dark presubterminal shade developed posteriorly and with costal markings somewhat as in *sericata Btlr.* and will be dealt with in Vol. 12. The other, very common at Thundiani in August and September (type series in the British Museum) and distributed from the Murree Hills to Kumaon, is much more soberly and more uniformly coloured, without the costal expansion of the central bands, but with a whitish spot near tornus. Possibly a larger (length of a forewing 29—31 mm), much less reddish race of *venimaculata Moore* of Sikkim. The 3 Pu-tsu-fong specimens have perhaps a slightly warmer tinge than typical *aequivalens*. I have not seen the Ta-tsien-lu pair recorded by Sterneck as *expansa*. *aequivalens.*

T. rubrodotata *Walk.* (Vol. 4, pl. 6 l). Common on Omei-shan, etc. The ♂♂ are much smaller and generally — at least in W. China — less brightly red-mixed in the median area than the ♀♀; perhaps we have here a separate race, as I have not even seen any females with the beautifully red band which is often developed in Sikkim. *rubrodotata.*

T. instabilis *Alph.* (10 a). According to the material before me, it seems impossible to leave this in the genus *Philereme* (= *Scotosia*), to which it was originally assigned. The ♂ valve is quite un-characteristic. The aspect is more that of a somewhat narrow-winged *Calocalpe* (e. g. *veternata*), but neither retinaculum nor abdominal margin of hindwing shows any special modifications. Attention may be called to the rather straight termen of the hindwing. Palpus short. *instabilis.*

T. albiplaga *Oberth.* (Vol. 4, pl. 5 k). This *Triphosa* and those which follow are characterized by the development of the ♂ retinaculum into a more or less broad, firm, membranous plate, which reappears in a somewhat extreme modification in a Neotropical subgenus or genus which Warren has named *Strepsizuga* *albiplaga.*

(*aberrans Warr.*, *gavara Druce*, *umbrifacta Prout*) and — as already in part indicated in the note at the head of the present genus — in several *Calocalpe*. Its taxonomic value is not yet ascertained, but the morphological study will be well worth pursuing. A race (?) of *albiplaga*, either from Japan or possibly Formosa is represented in the Joicey collection by a single example; but the uncertainty as to its origin, even more than the lack of confirmatory material, prevents my dealing whit it at present.

nigralbata. **T. nigralbata** *Warr.* (Vol. 4, pl. 7 l, as albiplaga). Perhaps more blackish brown. Forewing with the oblique white patch ampler, the transverse series of white dots differently (on the whole better) developed, the antemedian costal mark oblique, the subterminal series developing a narrow mark opposite (well detached from) the oblique patch (in *albiplaga* a broad spot), the spot close to the tornus enlarged. Kashmir to Sikkim, the type from Thundiani; a ♀ which absolutely belongs here by my differentiation, was collected by Mr. H. Stevens (Kelley-Roosevelt Expedition) at Tu-pa-keo (Mupin), 7400 feet, 7 September 1929.

incertata. **T. incertata** *Stgr.* (Vol. 4, pl. 8 d) is perhaps a small, somewhat browner northern race of *dubiosata*; some of the distinctions given in Vol. 4 (p. 198) are very slight or inconstant and the structure appears to be the same in both; but the less bent lines of the hindwing underside in *incertata* may be significant.

dubiosata. **T. dubiosata** *Walk.* (Vol. 4, pl. 11 g). This has frequently been quoted as *Scotosia* or *Philereme dubiosata*, but the genitalia show no connection with those of true *Philereme*, yet are nearer to *Calocalpe* (e. g., *cervinalis*) than to typical *Triphosa*. Common from Afghanistan to Kumaon. The ♀ from Hakodate, recorded by Wileman, must surely have been misidentified, but cannot be traced in his collection. — The larva of *dubiosata* feeds on Berberis (Hocking); a preserved larva in the British Museum recalls *Philereme vetulata*.

tremulata. **T. tremulata** *Guen.* (10 a) founded on a pair (not 2 ♀♀, as published) from North India, in not very fresh condition, is perhaps not strictly Palaearctic. I suspect that they came from Masuri, the best-known Indian locality and one from which Guenée evidently received Geometridae. Moore many years ago labelled a N. Indian ♀ of the species which has since passed as *multilinearia Leech* as agreeing with Guenée's type, and the description, supplemented by information supplied by Dr. Wehrli, entirely supports him. Hampson in 1895 nevertheless entirely misidentified it, describing a purely Indian *Calocalpe* as *Scotosia tremulata*. All the specimens known to me from Masuri agree in having the white subterminal dot of the forewing in cellule 2 better developed than in the Chinese form, but otherwise the resemblance is wonderfully close; and as I have a pair from Nainital (Kumaon) which agree with the latter, not with the former, it would perhaps be justifiable to

multilinearia. reunite the two (provisional) races. — **multilinearia** *Leech* (Vol. 4, pl. 13 d), which has been recognizably described and figured, is abundant in West China and tolerably constant. The figure is perhaps scarcely dark enough and does not quite adequately bring out the relative strength of the t w o white subterminal dots (central and posterior); variation is generally in the direction of weakening, rather than strengthening, the rest of the series (see the differentiation of name-typical *tremulata*).

confusaria. **T. confusaria** *Leech* (Vol. 4, pl. 13 c) has also some races or very close relatives in India (Sikkim-Tibet and Bhotar), which will be considered in Vol. 12.

46. Genus: **Calocalpe** *Hbn.*

(See Vol. 4, p. 199.)

The connection with *Triphosa* was noted in Vol. 4 and has been adverted to, from another standpoint, in the account of *Triphosa* above. In another direction, a really near relationship with *Eulype* (which still stands as a section of *Cidaria!*) has only gradually been realised, but is supported by so many characters that it cannot be a mere illusion attributable to convergence. The build and habits of the larvae, the structure of the genitalia, the venation of the hindwing, the transition from a double to a simple areole (see Vol. 4, p. 201, *latifasciaria*) and even the specialised coloration and wing-pattern of the last few *Calocalpe* all point in the same direction.

cervinalis. **C. cervinalis** *Scop.* (Vol. 4, pl. 5 i). A further synonym, overlooked in Vol. 4 (as also by Sherborn in his Index Anim.) is *ancipitata Tr.*, published in October 1925 as a correction for the supposedly erroneous use of *cervinata Hbn.*, therefore actually having priority over the long-established *certata Hbn.*, which was erected for the same purpose. The naming of aberrations in this variable species has proceeded energetically. — ab.

atra. **atra** *Kiefer*. Forewing strongly blackened, slightly glossy; hindwing lighter, especially towards the base. Both without any markings, the dark marginal line distinct, "the fringes lighter, chequered". Near Admont, Styrian

infuscata. Ennstal. A more extreme development than ab. **infuscata** *Rbl.* (10 a), of which we figure a ♂ from Sprottau.

unicoloraria. Rebel records a transition from Mödling and doubts the chequered fringes. — ab. **unicoloraria** *Schwingenschuss* is of a uniform rust-brown colour, so that the median band has altogether vanished; the lines indicated by light

variegata. spots along the costa of the forewing and marks on the veins. St. Peter in der Au, Lower Austria. — ab. **variegata** *Schwingenschuss*. Forewing much variegated, bright brown-red, with white-grey or yellow-grey bands bounding

the median area proximally and distally, the median area itself containing a clear yellowish patch anteriorly. Founded on 2 ♀♀ from Schönberg, Moravia. — ab. **mediofasciata** *Bubaček*. Median area of forewing forming *mediofasciata.* a solid black-brown band, the lighter parts of the wing comparatively free from markings. Rekawinkel, bred from larva. — ab. **rebeli** *Nitsche* is said to differ from the preceding in that the same scheme is continued also *rebeli.* (though somewhat less strongly) on the hindwing. Sieveringer Wald. As, however, Ljungdahl's Swedish figure (Ent. Tidskr., Vol. 37, fig. 35 B), which, though narrower-banded, Bubaček cites to *mediofasciata*, shows also this tendency, I incline to think the name *rebeli* superfluous. — ab. *flavonigrofasciata* (Zool. Rec., Vol. 62) *Hörhammer* (ex *Schepp*, non binom.) is again almost a synonym, the ground-colour clay-yellow instead of greyish, the black median band offset by a pale area on either side. Schepp founded his conception on a number bred from Heidelberg. — **hawelkae** *Schawerda* is described as having the wings slightly narrower and more pointed *hawelkae.* than in the type (but not undersized like *simplonica*), light grey without any trace of brown; different from ab. *griseata Bastelb.* in that the markings are weak. The 4 originals from Gacko, which established the first record of the species for Herzegovina, were pretty constant and were assumed to indicate the existence of a local race. — The pupa of *cervinalis* has been carefully described and figured by Ljungdahl; the "short fork" of the cremaster (Vol. 4, p. 200) is not Y-shaped, as for instance in *T. dubitata*, but V-shaped and there are 6 supplementary hooklets, 4 lateral and 2 dorsal.

C. veternata *Christ.* (= veterenata *Stgr.*) (10 b). We figure a ♀ from Vladivostok. The description *veternata.* Vol. 4 (p. 200) is probably adequate.

C. exsultata *Christ.* (Vol. 4, pl. 8 d, as *exultata*). Staudinger adds Central China to the range. The *exsultata.* subterminal line is generally a good deal more deeply lunulate than in *cervinalis*, but it varies and (very rarely) seems to cut athwart the differentiation by the shape of the median band.

C. montivagata *Dup.* (Vol. 4, pl. 5 k). Zerny regards both the Albarracin examples and those of the *montivagata.* Sierra Nevada as indistinguishable from the Astrabad form and therefore necessarily sinks *andalusica Ribbe* to *hyrcana Stgr.*; Reisser has recently recorded a single, defective example from Izilan (Riff Mountains) under the same synonymy, as it seems to agree with the Spanish. If these authors are correct, one must assume that *hyrcana* is the phylogenetic (though not the nomenclatural) type and that a separate race has evolved only in Alps. I have no Persian material accessible, but an example from the Taurus looks somewhat different and I cannot venture a pronouncement on the synonymy.

C. ithys *sp. n.* (10 b). Smaller than normal *montivagata* and much more contrastingly marked (differing *ithys.* even more from Sierra Nevada *montivagata* than they from the typical forms of the Alps); it would, however, have been regarded as a race but that the ♂ hindleg is definitely less highly specialized: femur almost as rough-tufted, tibia in part roughly clothed, but without the terminal tuft which in *montivagata* projects along the 1st tarsal joint, the latter swollen, but less so than in *montivagata*. Environs of Lambèse: Sgag, July 1913 (Harold Powell), a pair in the British Museum.

C. sideritaria *Oberth.* (10 b). Hampson's union of this *Calocalpe* with *Triphosa dubiosata Walk.* was *sideritaria.* already rejected in Vol. 4 (p. 199) and doubts raised as to its belonging to *Triphosa*. It is, in fact, very near *C. fasciaria*, but Dr. Wehrli writes me that it differs from our figure (Vol. 4, pl. 11 e) in its darker ground-colour and sharper terminal line, besides the much less distinct cell-dot of the forewing, the ♂ also in its costally broader, and in its proximal half darker, median band and the more sharply marked distal area; the ♀, which, however, is considerably worn, is lighter, with the band darker, narrower and more parallel-sided. Some of these deviations are individual, some due to imperfections in the figure, but the terminal line is important and the hair-tuft of the hindwing is black in *sideritaria*.

C. fasciaria *Leech* (Vol. 4, pl. 11 e). Hair-tuft of ♂ hindwing very slightly dark-mixed. Wings without *fasciaria.* a trace of terminal line. Further comparisons with *sideritaria* are made above. A second specimen of *fasciaria*, a ♂ from Kunkala-Shan, is in the Tring Museum.

C. grisearia *Leech* (10 b) seems well distributed in Szechuan, perhaps commonest in the Ta-tsien-lu *grisearia.* district. We figure a typical ♂ and an — ab. **variegata** *ab. nov.* (10 b) the form with bright brown shades in *variegata.* the proximal and distal areas.

C. tristis *Prout* (Vol. 4, pl. 12 b). Our figure is too brown. But the species varies considerably, or per- *tristis.* haps includes a mixture; a few very glossy specimens, sometimes of a more o l i v e - grey tone, have somewhat puzzled me, but I cannot yet seen any ground for a separation. Sterneck's remark that *tristis* shows conspicuous yellowish spots or spots about the median vein in the centre of the forewing (such as is sometimes shown by *grisearia*, but not, I think, by *alternata nudaria*) is not borne out by the original series and I doubt the identification; on the other hand, a Sunpanting *Calocalpe* received from the Dresden Musum as "*grisearia*" seems to me to be a rather pale *tristis* with well dentate postmedian and subterminal.

corporaali. **C.** (?) **corporaali** *Wehrli* (13 c). Similar to *grisearia*, costa less convex, hindwing less deeply dentate; forewing with antemedian not sharply angled in cell, merely excurved throughout, postmedian with its subcostal prong less long, proximal boundary of distal area blurred, terminal line less continuous. Khardong, 4100 m, 5 June 1929, 1 ♀ collected on the Dutch Karakoram Expedition.

undulata. **C. undulata** *L.* (= palaearctica *Bryk*) (Vol. 4, pl. 8 d). The North American form, which has been named *bluff* (!) by Bryk, seems to be an ecological, if not a morphological "species", as it is there gregarious and con-
heinrichi. fined to wild cherry. — ab. **heinrichi** *Hannemann* has a very narrow, moniliform dark central band on the fore-
nordströmi. wing, formed by the filling-in of the loop-like median markings. Berlin district. — ab. **nordströmi** *Bryk* (= medio-
alba *Maslowscy*), on the contrary, has the two central groups of lines more widely separated than is normal,
divisa. leaving clear a complete whitish band. Hökö, Scania (*nordströmi*); Zawiercie, Poland (*medioalba*). — ab. **divisa** *Heinrich* (= culoti *Bryk*) forms the transition to *nordströmi*, the whitish median patch being narrow (about 1 mm) and tapering to a point towards the middle of the wing; Heinrich includes also modifications in which the pale patch reappears at hindmargin after its interruption. Berlin, Sweden, S. England, etc. For the rest, Bryk has made a minute study of the variation, which has some value as showing the possibilities in a rela-
paucilineata. tively constant species but cannot be recommended as an example in nomenclature. — ab. **paucilineata** *Bryk* (= ljungdahli [*Strand*] *Nordström*) founded on a small ♀ from Blidö figured by Ljungdahl, has the lines of the forewing much weakened, in the more than ordinarily suffused proximal area scarcely traceable; cell-mark
malaisei. conspicuous; hindwing also weakly marked. — ab. **malaisei** *Bryk*. The loop-like median markings ("Eierstab" of Bryk) confusedly double, perhaps through the insertion of an additional line of dark shading between them.
quinqueun-dulata. Uppland (Sweden). — ab. **quinqueundulata** *Bryk*. The last two dark "lines" of the forewing (bordering the sub-
septemlinea-ta. terminal) confluent into a waved band. — ab. **septemlineata** *Bryk*. The sixth "line" (proximal subterminal) of the hindwing cleft by a fine whitish line, bringing up the total to 7. — ab. **octolineata** *Bryk*. A much rarer
octolineata. development, with, in addition, the 3rd line beyond the cell-dot of the hindwing faintly duplicated, bringing the
uddmanni. total to 8. — **uddmanni** *Bryk*, from Karelia, is uniformly pale (without the browner hue in median and terminal
sajana. areas), the cell-spot of the forewing strong, the "Eierstab" inclined to be lost. — **sajana** *Bryk*. The confluence of the last two "lines" of the forewing (see *quinqueundulata*) is believed by Bryk to become characteristic of the Sajan race, but both this and the preceding were founded on quite inadequate material.

inanata. **C. inanata** *Christ.* (Vol. 4, pl. 7 e). Suzuki has added Japan to the range of the species; I have not the detail concerning this.

flavipes. **C. flavipes** *Mén.* (10 c). We figure a ♀ of the name-typical Amurland race from Narva, S. Ussuri. —
sachalinen-sis. **sachalinensis** *Matsumura*, described (like the original *flavipes*) as an *Abraxas*, afterwards removed to *Cidaria* (*Xanthorhoë*), on account of an assumed relationship (notwithstanding the admittedly biangulate discocellulars) to *abraxina Btlr.*, manifestly represents a form of *flavipes*, but whether an aberration or a local race I have no means of deciding. Spots of forewing somewhat reduced (especially the postmedian series), the median one at base of 2nd median branch small, comma-shaped, well isolated from costal; median and postmedian of hindwing confined to abdominal region. S. Saghalien, 1 ♀.

47. Genus: **Philereme** *Hbn.*

(See Vol. 4, p. 204.)

I have brought this forward in order to avoid separating it from the rest of its group by *Photoscotosia*, a course which I took solely for the sake of conserving the sequence of the Staudinger Catalog.

vetulata. *Ph. vetulata Schiff.* (Vol. 4, pl. 8 a, b) **vetustata** *Stgr.* (not vestustata, as misprinted in the German edition) (10 c). We figure a ♂ from the Wehrli collection.

senescens. **Ph. senescens** *Stgr.* (10 c) was, according to the genitalia, rightly placed in this genus by Staudinger, but I do not consider his comparisons with *C. montivagata* and *cervinalis* (see Vol. 4, p. 205) particularly fortunate. In any case, a very distinct species. The ♂ here figured is from Shahrud, the ♀ from Arwas, Transcaspia, collected in June.

hastedonen-sis. *Ph. transversata Hufn.* (Vol. 4, pl. 8 b) ab. **hastedonensis** *Lambill.* (10 c). We figure a ♂ from Epping
depicturata. Forest. — ab. **depicturata** *Niepelt* is a modification of the same form, almost unicolorous grey but with the pale
mediofascia-ta. subterminal line well developed. Founded on a Magdeburg ♂. — ab. **mediofasciata** *Bubaček* deviates in the opposite direction; median area developed into a broad, solid black-brown band, markings of outer area ob-
terror. solete. Type from the E. Pyrenees. — **terror** *Schawerda*. According to Schawerda the melanic form becomes a local race in the Balkans and has received the above name; the extreme type, almost entirely black, comes
japanaria. from Herzegovina. — **japanaria** *Leech* (10 d) remains very rare; besides the 2 originals (♂♂, not dated) I know only a ♀ from Nikko, 2000 feet, 10 July 1893, in the Wileman collection. Sterneck, however, records from Sunpanting, W. China, 1 ♀ of this or a closely similar race.

Ph. vashti *Btlr.* (Vol. 4, pl 11 e) evidently makes a passage towards *Triphosa* and sometimes resembles, in the two outstandingly white subterminal dots of the forewing, a broad-winged, glossy *T. multilinearia*. — "*Ph.*" *instabilis* (Vol. 4, p. 206) which, following Alpheraky, was also referred to the present genus, though doubtfully, has been referred above to *Triphosa*. *vashti.*

48. Genus: **Photoscotosia** *Warr.*

(See Vol. 4, p. 202.)

Ph. atrostrigata *Brem.* (Vol. 4, pl. 5 h). To the distribution assigned in Vol. 4 is to be added Saghalien; Matsumura records it from Odomari (S. Saghalien) and Nyiwo (N. Saghalien), July and August. *atrostrigata.*

Ph. miniosata *Walk.* (Vol. 4, pl. 6 k). Sterneck points out, as characteristic, the large black post-median costal spot of the forewing beneath (compare the note on *apicinotaria*, infra); this is, however, more or less reduced in the Formosan race. There are probably two broods, one from the end of April and on into June, the other chiefly in August. On the whole, Palaearctic specimens have the dark parts darker (blacker) than those from Sikkim and Assam, but the difference is not constant. I have recently (1931) described a subspecies from Luzon. *miniosata.*

Ph. apicinotaria *Leech* (Vol. 4, pl. 5 k). Although the apparent constancy of the light apical spot of the forewing above is applicable to both sexes and renders confusion with *miniosata* improbable, it is not without interest to notice Sterneck's further differentiation of the ♀♀: forewing beneath in *apicinotaria* with the post-median spot reduced to a short, narrow streak. *apicinotaria.*

Ph. propugnataria Leech (Vol. 4, pl. 11 g) ab. **reducta** *Sterneck* (13 a) is described as having the proximal and distal areas of the forewing uniformly brown and lacking the dash of yellow-greenish towards the apex, the hindwing also lacking the contrasting colours of the distal area, which remains uniformly light-brown. Underside grey-brown, not yellow, the sharp postmedian line of the hindwing obsolete. Described from Tatsien-lu. *reducta.*

Ph. dejuncta *sp. n.* (10 d). Forewing almost as dark as in *funebris* (Vol. 4, pl. 11 f), but with apex rather more acute, tornus slightly more cut away, hair-pencil slenderer; a cupreous suffusion slightly more manifest, especially in median area, a subapical dash from costa to 5th subcostal and a slighter spot at apex whitish buff, these two confluent on the underside; hindwing with apex slightly more truncate than in *funebris*, the costal white area and the fuscous posterior part slightly more extended, the orange part nowhere crossing the 1st median vein, beneath with the orange part much restricted (nowhere approaching costa or termen) and much irrorated with the dark colour. Kashmir: Gulmarg, 16 July 1931, at light (T. B. Fletcher), type ♂ in the British Museum, presented by the discoverer. *dejuncta.*

Ph. dejuta *sp. n.* (10 d). In shape and to some extent in the coloration of hindwing and underside near the preceding; forewing better comparable with the most tawny-tinged ♂♂ of *miniosata* but with the antemedian line widened into a narrow band, the postmedian a little more definite posteriorly, the subterminal with two whitish dots equally well expressed; hindwing beneath with a bent postmedian line, the orange suffusion less overlaid with dark scaling than in *dejuncta* and extending (though mostly narrow and not sharply defined) from cell-mark to termen between 2nd subcostal and 2nd radial. W. China: Wuin-kin, 1897 (R. P. Dejean), type ♂ in the British Museum, ex coll. Oberthür. *dejuta.*

Ph. leechi *Alph.* (Vol. 4, pl. 5 h) is now known to occur also in West China. — ab. **nonfasciata** (ex *Th.-Mieg*) is a rather striking aberration from Koko-Nor which lacks the three bands, the black cell-spot and apical streak and a vague pale subterminal remaining. Thierry-Mieg wrote ab. *non fasciata*, which of course is not binomial; the "Zoological Record" gave it its status, otherwise I would have substituted something less crudely formed. *leechi.* *nonfasciata.*

Ph. undulosa *Alph.* (Vol. 4, pl. 5 h) occurs in W. China (Szechuan) as well as in the S. W. and in the Koko-Nor district. *undulosa.*

Ph. rivularia *Leech* (10 d). This was given in Vol. 4 (p. 204) as a form of the very variable *amplicata* (or *dejeani*), with the comment that it might be a separate species — Leech's own view of it. In any case it is worth while to provide a figure of it. *rivularia.*

Ph. postmutata *Prout* (10 e). This form is in like case with *rivularia* and equally deserves figuring. Differs from *tonchignearia* in shape (especially the truncate tornus of the ♂ forewing), less clean white hindwing, less sharply chequered fringes, etc.; ♂ considerably larger, as large as its ♀. Our figure is one of a series from Kunkala-shan. *postmutata.*

Ph. tonchignearia *Oberth.* (10 e). ♂ (Vol. 4, pl. 9 h; as touchignearia, ♀). The originals came from Tatsien-lu. The typical form, of which we now figure also a ♂, from Kunkala-shan, has the white patch in the *tonchignearia.*

median area of the forewing restricted and ill-defined (partially obscured by irregular dark irroration) and generally some slight grey suffusion in the abdominal region of the hindwing in addition to the constant, though small, basal shading. It is this form which, in Vol. 4 (p. 204) I considered to bear "an extraordinary resemblance" to the Sikkim *Amnesicoma bicolor Warr.* The two are certainly very similar, but perhaps I over-emphasized the likeness; *bicolor*, which is not unlikely to be found in W. China, is on an average smaller, its hindwing with broader border, darker and more extended suffusion at the base above, some basal suffusion also beneath (*tonchignearia* here remains white to the base) and a larger white subapical spot on each wing beneath. — ab. **albiplaga** *nov.* (Vol. 4, pl. 6 l, as *bicolor*) may denote the form of *tonchignearia* (in my experience quite frequent) in which the white median patch of the forewing above is clean and well-defined, comparable to that of typical *dejeani* (Vol. 4, pl. 6 l). Type a ♂ from Che-tou in the Tring Mus.

albiplaga.

49. Genus: **Amnesicoma** *Warr.*

(See Vol. 4, p. 204.)

In the Tring Museum I merged this so-called genus in *Photoscotosia* as section A (without the ♂ hair-pencil), although the few known species evidently diverged therefrom at different points, so that neither as section nor as genus can it be regarded as a perfectly natural group. For provisional taxonomic purposes its continued conservation is convenient.

A. simplex *Warr.* (10 e), the genotype, calls for mention here, as the original series came from Goorais Valley, though not exactly localized in the published description. It is unmistakable, being the only yellow-hindwinged *Amnesicoma* yet known and bearing some resemblance to *Ph. miniosata*, to which (quite inexcusably, however) Hampson has sunk it.

simplex.

A. vacuimargo *Prout* (10 e). Overlooking the expanded costa of the hindwing, I described this as an *Ortholitha* "in some respects intermediate" between *pulchrata* (Vol. 4, pl. 8 c) and *adornata* (7 k) and thus missed its true affinities. Palpus short. Very similar to *Ph. achlropha* (Vol. 4, pl. 5 h) but without the hair-pencil, forewing paler, without cell-dot, distal area very weakly marked, hindwing white. Sinin Alps, Tibet. The specimen figured as *oberthüri* (Vol. 4, pl. 5 k) is quite evidently a slight aberration of *vacuimargo*.

vacuimargo.

50. Genus: **Telenomeuta** *Warr.*

(See Vol. 4, p. 206.)

T. punctimarginaria *Leech* (= inconspicua *Bastelb.*, as *Triphosa*) (Vol. 4, pl. 11 h). I was not aware of the synonymy when Vol. 4 was published, but a manuscript description and figure made by Warren from Bastelberger's Formosan type subsequently directed my attention to it. The geographical distribution extends to W. China.

punctimarginaria.

51. Genus: **Hysterura** *Warr.*

(See Vol. 4, p. 206.)

The particulary previously given require some emendation. Warren erected two genera simultaneously, *Hysterura* for *multifaria Swinh.* and *Lygridopsis* for *cervinaria Moore*, the former having page-priority and showing the special characteristics in the highest degree of development: forewing beneath in the ♂ with a bed of pale hair at hindmargin, reaching almost to the anal angle and to the 2nd median vein; hindwing in the ♂ with an angle or small tail between the 3rd radial and 1st median and with the abdominal margin tufted with coarse dark hair. *Lygridopsis* (*cervinaria* only) was differentiated by the simpler shape of the hindwing ("somewhat undulate", Vol. 4) and the smaller pencil of hair on the forewing beneath (about as in *Lygris*). Actually, however, each of the species known to me has its own ♂ characters; as regards the pencil of hair I can now say that it is wanting in *literataria*, also in the related form from Yulongkong described below. Two Indian species, moreover, have been confused under *multifaria* and it is probable that *declinans Stgr.* (the type of yet another generic name, *Eulygris Stgr.*, based on the same characters as *Hysterura*) may represent a third.

H. multifaria *Swinh.* (Vol. 4, pl. 12 a). Our figure well represents the ♂, except that it does not show the pronounced angulation of the hindwing. As I now think the sinking of *declinans* highly improbable, I know only one Palaearctic specimen of *multifilaria*, a ♀ from Gulmarg, Kashmir; in this sex the hindwing is not angled and is usually paler than in the ♂. Sterneck records (without detail as to structure) one example of "*multifaria*" from Ta-tsien-lu.

multifaria.

H. declinans *Stgr.* Smaller, length of ♂ forewing 14 mm, antemedian acutely exangled in cell, postmedian oblique inward at costa, subterminal spots small. Sutschan, 1 ♂, still unknown to me.

declinans.

H. hypischyra *sp. n.* (10 e). Larger than *literataria* (Vol. 4, pl. 13 n), hindwing distinctly elbowed at 1st median (though much less than in *multifaria Swinh.* ♂), a strong tuft of spreading hair on abdominal margin

hypischyra.

of hindwing beneath, nearly as in *multifaria* ♂. Forewing with markings nearly as in *literataria* but relatively larger, the postmedian with more prominences; hindwing more distinctly marked on the upperside, the postmedian with a stronger central projection. Yulongkong-Wali (S. of Ta-tsien-lu), 11 200—12 000 feet, 27 June (Kelley-Roosevelt Expedition of 1929), type ♂ in the Tring Museum.

52. Genus: **Lobogonodes** *Bastelb.*

I have merged in this genus, established in 1909, my *Microlygris* (Vol. 4, p. 207), as most of the characters agree. Since there are, however, two sections, according to the characters of the ♂ forewing, both names can be conserved subgenerically. The type of *Lobogonodes* is *permarmorata Bastelb.* (10 f) from Formosa, with which I associate a second Formosan species (*taiwana Wileman & South*) and the Palaearctic *erectaria* (Vol. 4, pl. 13 d). The genus has a limited range, which is sufficiently indicated by these notes.

A. Forewing of the ♂ with hair-pencil beneath, 1st median vein free (*Microlygris*).

L. complicata *Btlr.* (Vol. 4, pl. 13 a) is not, as it was made to appear, conspecific with the following; had it been so, the priority would have been reversed, for *complicata* was published in 1879, *multistriata* not until 1888. In the former, the cell-spot of the forewing is indistinct, not white-ringed, the distal area brighter ochreous-brown, the oblique white streak near the apex is wanting, etc. Besides Japan, it is only known to me from Formosa, in an unnamed race. *complicata.*

L. multistriata *Btlr.* (= porphyriata *Hmps.*, nec *Moore*) (Vol. 4, pl. 12 a as porphyriata), fairly common from the eastern Punjab to Masuri (type from Dharmsala), was misidentified by Hampson as *porphyriata* and has since passed under that name. It has a race, sometimes scarcely differentiable, in Sikkim and the Khasis, which will be dealt with in Vol. 12. — **atherma** *subsp. nov.* (10 f) has the white lines more sharply developed, the dark parts more uniformly olive-brown mixed with fuscous, with scarcely any suggestion of the bicoloured median area of *m. multistriata*. Kwanhsien, 17 July 1928, type ♀ in my collection. — **clasis** *subsp. nov.* Considerably smaller than *m. multistriata* (the length of a forewing 9—11 mm), coloration less warm (intermediate towards *atherma*), 5th line about as sharply angled as in *multistriata*, outer markings more as in the Sikkim race. Yoshino, Yamato, in May, June and July and (1 ♀) October (A. E. Wileman), a series in the British Museum, besides 1 ♂ from Osaka, 30 July. Here belong also the Corean (Gensan) examples which were erroneously referred to *complicata* in Vol. 4 (p. 207). *multistriata.* *atherma.* *clasis.*

L. porphyriata *Moore* (10 f). Larger than *multistriata* (length of a forewing 12,5—16 mm); forewing with the elongate cell-mark ringed with very pale brown instead of with white, first two white lines less approximated, rather more oblique, 5th line (1st antemedian) broadened, outermost pair profoundly indented on both the medians, subterminal only shortly indented on 5th subcostal. Hindwing with termen scarcely angled at 3rd radial; very feebly marked excepting a narrow posterior part. Dharmsala and Dalhousie. Moore's originals from Darjiling and 2 Sikkim ♀♀ are large (14.5—16 mm, against 12.5—14 mm for the N. W. Indian), but I find no other difference. Its comparative rarity has led to the misidentification of *multistriata* from the same localities (see above). *porphyriata.*

B. Forewing of the ♂ without hair-pencil, 1st median vein more or less stalked (*Lobogonodes*).

L. erectaria *Leech* (Vol. 4, pl. 13 d). Very local, chiefly on Yezo, June—August, but occurs also in the vicinity of Kioto in May and on Mt. Daisen in August. *erectaria.*

L. permarmorata *Bastelb.* (10 f). A rather large species, with much less sinuous postmedian line than the rest, a broad white apical dash on forewing, both wings with the cell-dot broadly ringed with white. Formosa. Mentioned here because a worn ♀ from Tu-pa-keo, Szechuan, 7400 feet (Kelley-Roosevelt Expedition) seems to agree exactly with it. *permarmorata.*

53. Genus: **Eustroma** *Hbn.*

(See Vol. 4, p. 207.)

E. reticulata Schiff. (Vol. 4, pl. 8 e) **obsoleta** *Djakonov.* On an average smaller than normal, lighter, the black markings reduced; differs from all the other named forms in that the middle of the forewing from the hindmargin to the costal spot remains white, almost without markings. Kamtshatka. — **dictyota** *subsp. nov.* (10 f) is much browner, with the transverse lines of the forewing more slender, the white markings of the hindwing less developed. In the typical form the brown androconial patches of the hindwing above and of the forewing beneath are somewhat reduced, the former somewhat darkened, suggesting the possibility of a separate *obsoleta.* *dictyota.*

species, but as this does not hold for a ♂ from Chia-kou-ho (1700 feet) I do not stress it. Omei-shan, 3620 feet, July, type from the Leech collection; the ♂ here figured (Omei, 23 August) is in my collection.

inextricata. **E. inextricata** *Walk.* (Vol. 4, pl. 13 a). The forms from China, Formosa and even Corea and Japan have not yet been demonstrated to differ from the name-typical *inextricata* of N. India, but *aerosa Btlr.* must be separated (see below). I have *inextricata* from Nikko, beginning of September (Dr. Cockayne) and have seen others from "Japan", less well localized.

aerosa. **E. aerosa** *Btlr.* (10 f) is extraordinarily like *inextricata* but lacks the black patch of specialized scales on the hindwing above, though the pencil on the forewing beneath is equally well developed in both. I have hitherto failed to find any other constant difference, though *aerosa* may be on an average larger and lighter; and inasmuch as Butler's type (from Hakodate) is a ♀, one cannot yet say with absolute certainty that it may not be a rather large, light *inextricata*, in which case the present species would require a new name. Besides Japan, I only know it from Kwanhsien.

aurigena. **E. aurigena** *Btlr.* (Vol. 4, pl. 13 b). The types of this and the following species both came from the N. E. Himalayas, but both extend into Kashmir. Our figure scarcely does justice to the green gloss of fresh specimens but is well recognizable. The description should have emphasized the light colour of the ♂ hair-tuft, as this offers the best distinction from the following.

chalcoptera. **E. chalcoptera** *Hmps.* (10 f). Hampson differentiated this from *aurigena* by the "chestnut", not bronzy, ground-colour of the forewing and the pale hindwing. The latter is generally valid, but the ground-colour (light bronzy-green) of the forewing is almost alike in fresh specimens. The hair-pencil of the ♂ underside is black. The dark markings in *chalcoptera* are generally more chocolate (less fuscous) than in *aurigena*, the subbasal generally more extended, the median band often uninterrupted, in this case much widened in the cell and about the 3rd radial (i. e. in front of the posterior constriction). Belongs chiefly to Sikkim, but occurs also in Kashmir Valley.

chrysoprasis. *E. fissisignis Btlr.* **chrysoprasis** *Oberth.* (Vol. 4, pl. 10 l, as *chrysoprasis*) is the correct name for the Chinese form of this collective species. I now believe it to be differentiable from the N. Indian *fissisignis* by the appreciably larger sex-patch in the cell of the forewing above, but the markings scarcely differ. By the hair-tuft of the ♂ hindwing beneath, this species falls into Sterneck's genus *Pareustroma*, with the following.

propriaria. **E. propriaria** *Leech* (Vol. 4, pl. 13 d). Sterneck proposes to constitute this the type of a new genus, *Pareustroma*, agreeing in most structural characters with *Eustroma* but with the palpus somewhat longer; differentiated chiefly by the presence, in the middle of the abdominal marginal of the ♂ hindwing beneath, of a large tuft of gold-yellow hairs.

fractifasciaria. **E. fractifasciaria** *Leech* (Vol. 4, pl. 13 d). As this appears to lack the special hair-tuft of the two preceding, as also the androconial patch in the cell of the forewing above, I think it better to transpose it and *propriaria*, in order to leave the two "*Pareustroma*" species together. The ♂ type of *fractifasciaria* is not very fresh, but I do not think the special tufts can possibly have been lost by abrasion.

melancholica. **E. melancholica** *Btlr.* (Vol. 4, pl. 7 l). The synonymy given in Vol. 4 (p. 208) was inexact as it did not take into account the geographical variation; *chlorovenosata Christ.*, founded on specimens from Vladivostok, June and August, belongs to the E. Siberian race *venulata*. The group has also a race or representative on For-

venulata. mosa. — **venulata** *Oberth.* (= chlorovenosata *Christ.*) (Vol. 4, pl. 8 e) is not always quite so gay as in the type figure, but is well separable from *melancholica* by the more decided green admixture on the forewing, particularly in the pale areas which bound the darker median band. This race belongs exclusively to the Ussuri district.

brunnearia. — **brunnearia** *Leech* (10 g) is only known to me from the type ♂ but, whether as aberration or subspecies, it seems better to keep it separate from the *venipicta Warr.* (= pilosa *Th.-Mieg*) of Sikkim; larger, the colour-contrasts sharper, the brown parts (corresponding to the green of the preceding) warm and bright, the white element (especially on the hindwing) better developed. Pu-tsu-fong, 9820 feet.

metaria. **E. metaria** *Oberth.* (Vol. 4, pl. 10 l). Dr. Wehrli has very kindly supplied me with information regarding the structure of this hitherto undescribed species, confirming my supposition that it should belong to *Eustroma* (sens. lat.). Palpus long (1½—2), with 2nd joint thickened; face convex, without projecting tuft; antenna shortly ciliated; venation normal; forewing beneath with a long, slender black pencil, concealed by the costal area of the hindwing; hindwing without special modification. The ♀ is unknown.

lativittaria. **E. lativittaria** *Moore* (10 g) is a fine large species, strongly glossy and not liable to be mistaken for any other. The ♂ has, on the forewing beneath, the *Eustroma* hair-pencil, although this was overlooked by Hampson, who consequently assigned it the wrong position. Palpus less elongate than in most *Eustroma*. Described from Darjiling, but reaches Kashmir. I have also seen a few specimens from Szechuan (Kunkala-shan) which are not in absolutely perfect condition but in which I cannot detect any deviation whatever from the typical form.

56. Genus: **Calleulype** *Warr.*

(See Vol. 4, p. 209.)

C. (?) **intersectaria** *Leech* (Vol. 4, pl. 11 h). I have tentatively (on account of the short palpus) transferred this anomalous species from the homogeneous *Lygris* to the more heterogeneous *Calleulype*, in which, indeed, it would form still a third section: ♂ forewing without hair-pencil; areole double. A second ♂, with rather more extended black markings, particularly on the proximal part of the hindwing, was taken at Tupa-keo, 7400 feet, 30 August (Kelley-Roosevelt Expedition). *intersectaria.*

C. compositata *Guen.* (10 g). Guenée's original came from "North China", not "West China" as misprinted in the German edition of Vol. 4 (p. 210). The distribution in China is, however, wide and I know the species also from Corea. — ab loc. (? subsp.) **constricta** (*Warr.*, MS.) *nov.* has the white postmedian area of the forewing strongly narrowed in front of the median vein, the groups of lines which encompass it confluent at costa (in the type almost as far as to the 2nd radial). Tsingtau, Shantung, 15 June 1927 (G. Hindle) type ♂; "N. China", a second ♂ which Warren had intended to make type; both in the British Museum. *compositata.* *constricta.*

56a. Genus: **Eucosmabraxas** *gen. nov.*

I have adopted a manuscript name of Warren's for "*Abraxas*" *placida* and *evanescens Btlr.*, which have clearly nothing to do with *Epirrhoë* (see Vol. 4, p. 258). Palpus rather long. Antenna simple. Abdomen not crested, mimetic of that of *Abraxas*; the broad, rounded valve and presence of "labides" suggesting possible affinity with *Eulype* and *Calocalpe*. Wings without hair-pencils or special modifications. Forewing not markedly elongate; areole simple. Hindwing with costa not arched; discocellulars not biangulate; 2nd radial from well before middle. Genotype: *E. placida* (*Btlr.*).

E. placida *Btlr.* (10 g). We give a figure of the unique type, of which a description was given in Vol. 4; the loss of the outermost black spots reveals a macular yellow band at the termen. — ab. **propinqua** *Btlr.* (Vol. 4, pl. 8 e, as *placida*) is the ordinary form, with the two rows of subterminal spots strongly developed. — *placida* perhaps belongs chiefly to Yezo, but the originals of ab. *propinqua* came from Tokyo and at Oiwake it occurs together with *evanescens*, on Sado I. perhaps alone. Also Gensan, Corea. So far as dated specimens are accessible to me, I judge that the usual flight-time is in July and August, but a regrettably large proportion lacks good data. *placida.* *propinqua.*

E. evanescens *Btlr.* (10 g). In addition to the differentiation given in Vol. 4 (p. 258), where it was erroneously treated as *placida* ab., I note that *evanescens* looks whiter (many *placida* have a tinge of cream in the ground colour, and in any case their fringes, the basal patch of the forewing, etc., seem more definitely yellow), the course of the distal edge of the median band of the forewing is somewhat different, the s i n g l e, h e a v y (at the 1st median often broken) postmedian of the hindwing is distinctive and the aspect is altogether more *Abraxas*-like. Distributed in Hondo, also occurs at Hakodate and at Unzen, Kiushiu; June and July The ♂ genitalia seem somewhat larger and more heavily clothed, but scarcely differ essentially from those of *placida*. *evanescens.*

E. pseudolargetaui *Wehrli* (10 h). An extraordinarily interesting discovery, found by its author among Oberthür's series of *Obeidia largetaui* (Vol. 4, pl. 14 h), of which it is a wonderful mimic. It was referred to *Calleulype*, but on account of the non-biangulate discocellulars and the forward position of the 2nd radial of the hindwing I regard it as a *Eucosmabraxas*. Apart from the great differences in structure, the deeper orange colour and the more complex, more band-like formation of the black markings distinguish it from *O. largetaui*. W. China: Siaolu and Ta-tsien-lu. A closely related *Eucosmabraxas* from Formosa was described by Wileman in 1912 as *Obeidia octoscripta*. *pseudolargetaui.*

57. Genus: **Lygris** *Hbn.*

(See Vol. 4, p. 210.)

With the exception of the proposed transference of *intersectaria* (see *Calleulype* above), the composition of this well-known genus has not been changed. If, as I am inclined to suspect, *Gandaritis* should be sunk to it and the generic definition correspondingly broadened, the objections against the retention here of *flavomacularia Leech* (Vol. 4, pl. 11 h) would be mitigated. On the other hand, the removal of the section (? genus) *Chartographa* — with which also *fabiolaria* might be associated — would increase the congruity of *Lygris*. Cocktayne's investigations have shown that only the w h i t e species of the *Lygris* group are fluorescent.

L. ludovicaria (Vol. 4, pl. 8 d) **praemutans** *subsp. nov.* Closely similar to the Askold-Ussuri name-type, but with the apex of the forewing beneath more heavily blackened, not cut by white lines; apical region of hindwing beneath and the orange part of each wing above also commonly more strongly black-marked. Chang Yang (type ♂, July 1888, ex coll. Leech) and some localities in W. China (Wa-shan, Chia-kou-ho, Mupin). *praemutans.*

trigoniplaga. **L. trigoniplaga** *Hmps.* (10 h). Very near *fabiolaria Oberth.* (Vol. 2, pl. 23 f; Vol. 4, p. 211), of which I formerly supposed it a subspecies, a possibility which I still do not think entirely excluded. Both wings without the anterior brown cloud at the distal margin, or at most only with faint indications of it; forewing with the distal area broadly and (except at tornus) very uniformly grey, with its proximal edge less curved than in *fabiolaria*, the white subterminal line lunular or in part broken into spots; the triangular midcostal patch is variable in length and acuteness. Described from Nepal, known from N. W. India (Chakrata), Upper Burma and Chinese Tibet.

obscurata. *L. prunata L.* (Vol. 4, pl. 8 e) ab. **obscurata** *Barca.* Both wings without any white, that of the forewing replaced by greyish brown, the hindwing grey, towards the termen with the veins brownish. Both wings
arctica. beneath grey, with black cell-dots, forewing costally somewhat brownish. Norway. — **arctica** *Strand.* A small form analogous to this, with very little yellow in the coloration, has been distributed from the Sajan Mountains as a local race, but I have seen too little material to form an opinion regarding its status. In parts of Siberia
estonica. (e. g., the Altai) *prunata* seems typical. — **estonica** *Schawerda*, the form (or a form ?) from Esthonia (Loots) is another of the less warmly coloured *prunata*, having the basal and median areas nearly black, intermediate
samnitica. and outer areas white, marked with light black-brown. Petersen ignores it. — **samnitica** *Dannehl.* Here again it is claimed that we have to do with a local race; characteristic of the S. Abruzzi, at 1000—1700 m altitude, the type from Scanno. Mostly small ("about 25—31 mm against 29—34"), ground-colour of forewing yellow or ochreous, with parts white, lines of outer area slender, hindwing weakly marked. A series from Pescocostanzo
dolomitica. does not entirely conform. — **dolomitica** *Stauder* (10 h) is a large form from the Dolomites, in general more
leucoptera. brownish-violet in colour, the median band broadened. — **leucoptera** *Djakonov.* Not smaller than a series from the Leningrad Government, but lighter, especially in the distal area, where the brown shading and dark wedge-
annexa. spots are obsolete; hindwing whitish or almost white. Kamtshatka. — **annexa** *Schima* (13 a). Schawerda, in publishing a good coloured figure of this Balkan form, treated it as probably a separate species. It will be noticed that the projecting teeth of the basal patch are stronger than in *prunata*, the hindwing more strongly marked; in the type ♂ the median band is traversed by two white lines.

testata. **L. testata** *L.* (10 h). We here give a figure of the name-typical race of northern Europe, as that of Vol. 4 (pl. 8 e) represents f. *achatinata*. It certainly intergrades with *insulicola*; according to Heydemann, the principal form for Amrum, Bredstedt, Husum, Rendsburg and Kiel is transitional from *testata* to *insulicola*, approximately as Culot figures his "*insulicola*" from "England", namely such a form as is frequent on the moors
insulicola. of Scotland and northern England. — **insulicola** *Stgr.* (11 d). For lack of available specimens from the Shetlands (the actual type locality), we figure one from the Hebrides. I strongly doubt whether it is racial; in any case it is much more widely distributed in Britain than Staudinger indicated. Some confusion has arisen from the assumption that Linne's *testata* was the same form as Hübner's *achatinata*, so that all the less bright forms have been mixed together as *insulicola*; thus Bohatsch and Petersen refer the Esthonian here, whereas in my opinion they are only slightly dusky *t. testata*. I do not think they require a separate name. Stach's record
fuscata. of *insulicola* from the high moors of S. W. Poland may be in like case. — ab. **fuscata** *Meves* is strongly dusted with brown, excepting a narrow reddish costal streak from base to postmedian. Södertalje, Sweden. Perhaps an *insulicola*-like form, perhaps a more truly melanic one, such as the following; the underside is unfortunately
obscura. not mentioned. — ab. **obscura** *Brettschneider* (10 h). The dark rust-brown colour extended over the entire forewing, in part dusted with smoke-grey, the markings obliterated except (at least in the apical region) the whitish lines. Hindwing also dark, especially distally. Underside almost uniform dark smoky, the lines obsolescent or wanting. A truly melanochroic form, probably Mendelian in its inheritance. Brettschneider bred from the egg 24, against 44 normal specimens, from a pairing of the offspring of a dark Erzgebirge ♀. In Great Britain ab. *obscura* is known chiefly from parts of Lancashire and W. Yorkshire, also from Paisley, etc.
achatinata. It may eventually have to be sunk to the less carefully erected ab. *fuscata*. — **achatinata** *Hbn.* (Vol. 4, pl. 8 e, as *testata*). I think *citrinata Meves* should be added as a synonym here; "entirely lacks the violet-grey tone". Occasional in Uppland. In my experience, sallow-feeding *testata*, at least in the Isle of Wight are constantly (in both sexes) of this extreme *citrinata* form. It should be added that females with this colouring reach at least as far north as Cheshire and are even approached in northern Scandinavia, whereas their ♂♂ in these
karafutonis. localities seem to be definitely *testata* or even *insulicola*. — **karafutonis** *Matsumura* is the race from Saghalien and is said to be nearer to *testata* than to *achatinellaria*. Markings of the forewing weak, especially in the ♂, hindwing more or less infuscated at the termen, underside weakly marked. Sakayehama, S. Saghalien, taken at the end of August.

achatinellaria. **L. achatinellaria** *Oberth.* (Vol. 4, pl. 8 e). Djakonov finds some appreciable distinctions in the ♂ genitalia and thinks that this should be treated as a separate species. I have accepted his view provisionally but it should be added that Sterneck, on a ♂ from N. Manchuria, doubts whether the difference is important.

dotata. *L. populata L.* (Vol. 4, pl. 8 f) ab. **dotata** *L.* (11 d). We figure a fairly representative example of this
lutea. form from Germany. — ab. **lutea** *Strand.* It has been suggested that this should be treated as synonymous

with *dotata*, though more weakly marked. In any case, to judge from the available material, it is not r a c i a l in Arctic Norway, hence the question has not much importance. — ab. **binderi** *Marschner* (11 e) has the yellow or ochreous ground-colour of the forewing replaced by dark brown, the hindwing also smoky, the dark markings in part obliterated, the pale lines which define the median band, as well as the apical streak, still present. At altitudes of 1100—1360 m in the Riesengebirge it is about as common as the type form. This is certainly the *musauaria* of our Vol. 4 (p. 212) and of common usage, but — ab. **musauaria** *Frr.* (= musauria *Frr.*) (11 e), of which the (unfortunately worn) type from the Musau Alps was described in full detail by Speyer (Stett. Ent. Zeit., Vol. 26, p. 256), is still more uniformly dark and should probably supplant *fuscata Prout*, though actually it is a rare (not quite unique) development in that the outward projection of the median band forms a single tooth; in true *fuscata* the band can no longer be traced at all. — ab. **tatrica** *Prüffer*, from the Polish Tatra, also sunk (by Romaniszyn) to *musauaria*, is uniform "ochreous-brown", probably a synonym of *rufescens* rather than of *musauraia*. — ab. **intermedia** *Schawerda* is a frequent mountain form with strongly darkened median band and (generally) terminal area, but with the yellowish ground-colour remaining at least in the subtriangular patch between the band and the apex. Described from Lower Austria. — ab. **mediofasciata** *Nitsche* (11 h). Median area uniformly darkened ("violet-brown"), but the darkening of the distal area faint. Altvater. An extreme of the same, with the forewing almost unmarked except for the strong basal and median bands, has been described and figured from the Linz district by Klimesch (Zeitschr. Oesterr. Ent.-Ver., Vol. 13, p. 3, pl. 1, fig. 7). We figure a small ♀ from the J. A. Clark collection. — ab. **inversa** *Nordström* has the colours of the forewing reversed, so that the median and basal areas are yellow and the rest of the wing brown, with apical dash hardly visible; the light yellow hindwing has a broad brown distal border. The figure shows that the dark suffusion along and in front of the median vein persists, dividing the yellow median area into unequal parts, and that the broad dark border of the hindwing is not absolutely solid. A ♂ from Enskede, near Stockholm. — ab. **pallidata** *Lambill.* "Median band very narrow, hardly dulled with brown." The former character, as Derenne points out, precludes my suggestion of sinking it to ab. *lutea*. It seems to be, Klimesch says, an ab. *dotata* with the median area constricted, a very rare manifestation, though known to him in ab. *intermedia* and ab. *mediofasciata*. The last-mentioned entomologist, who for a number of years has made a special study of *populata*, notes the Belgian race (?) as smaller than that of the North Tyrol, generally also with some further slight deviations. It is to be hoped that his promised monograph may yet see the light. — The wide distribution of the species will be better appreciated if I add Italy, Amur, Saghalien and Corea to the outline given in Vol. 4 (p. 212).

binderi. *musauaria.* *tatrica.* *intermedia.* *mediofasciata.* *inversa.* *pallidata.*

L. peloponnesiaca *Rbl.* (11 c). Though so local, this fine species has now found its way into many collections and we are able to give a figure of it.

peloponnesiaca.

L. ledereri *Brem.* (Vol. 4, pl. 8 g) **inurbana** *subsp. nov.* (11 a). Very variable in size, but on an average (especially in the ♀) definitely larger than *l. ledereri* from the Ussuri district, ground-colour less whitish, the dark markings less ochreous, more suffused with grey, hindwing also as a rule more suffused, its cell-dot much oftener obsolete, in any case minute and generally weak. Japan, the type from Hakodate, in Tring Mus.

ledereri. *inurbana.*

L. tertrivia *sp. n.* (11 a). In a measure intermediate between *convergenata* and *ludovicaria* (Vol. 4, pl. 8 d); whiter than the former, though not without some buff suffusion, the white band which crosses the cell of the forewing still more oblique and much narrower, tapering, the three lines composing the three groups which converge on the ample, suffused tornal area much more regular inter se than in most *convergenata* (our figure of the latter is exceptional), a line or shade developed between the subterminal and the termen. Tu-pa-keo, Szechuan, 7400 feet, 7 September (Kelley-Roosevelt Expedition, 1929), type ♀ in the Tring Museum, unfortunately torn and rubbed, but unmistakable. I do not think it will prove to be merely a local race of *convergenata*.

tertrivia.

L. pyropata *Hbn.* (Vol. 4, pl. 8 g) appeared suddenly in great abundance in East Prussia in 1915 and 1916 and Zöllner has contributed (Iris, Vol. 30, p. 195—202; Vol. 33, p. 1—6) notes on its early stages and variation, besides a supplementary one (Vol. 33, p. 6—8) comparing the pattern with that of the allies. Egg minutely granulated, micropylar rosette with 9—12 irregular rays. Larva up to the last moult very slender, with strikingly small head, mostly light-green; the characteristic pattern develops in the last stadium. It then tapers gradually to the head, excepting a protuberance on the mesothorax; variable in colour between green and brown, dorsal markings much as in *prunata*, etc. Feeds on Ribes nigrum and is, like most of the genus, easy to rear. Pupa strongly spindle-shaped, with produced cremaster, bearing on each side 3 short bristles and at the extremity "spirally curled" ones. Likewise variable in colour, following that of the larva. — ab. **flavobasata** *Zöllner* has the basal area of the forewing light rust-yellow instead of the usual grey-brown. — ab. **subnigra** *Zöllner* is slightly (scarcely) darkened above, but has the underside strikingly melanic. — ab. **melanoxantha** *F. Wagn.*, founded on material from the same source, has the upperside also strongly suffused with dark grey. *excelsa Sterzl & Ecker*, bred from a Königsberg pupa, is virtually a synonym. — **sugitanii** *subsp. nov.* (= pyropata *Wileman*, 1911) (11 a). Forewing with antemedian white line almost evenly curved, sub-

pyropata. *flavobasata.* *subnigra.* *melanoxantha.* *sugitanii.*

apical white mark enlarged, its principal part broad and longitudinal in the end of cellule 6. Hindwing with more extended smoky suffusions than in the name-type, leaving only the costal part (scarcely to cell-fold and 2nd radial) and the postmedian line white. Japan: Hot Spring Hoppo, Nagaro-ken, end of July (I. Sugitani), type in the British Museum; Yoshino, Yamato, June 1899, 1 ♂ (A. E. Wileman).

albicinctata. eminens. **L. albicinctata** *Püng.* (11 a). Has been recorded by Sterneck from Sunpanting, to which can be added Ta-tsien-lu and Ta-ho, etc. (Chinese Tibet). — **eminens** *form. nov.* (11 a) is a large form, or perhaps separate species, of which I have only seen a pair, collected for Oberthür on the "eastern frontier of Tibet." More warmly coloured, especially the (almost) orange bands of the forewing; antemedian white line straighter from costa to the angle at median vein (which angle is less acutely produced), apical mark slighter, less clean white, hindwing in the ♂ darker; above and beneath much more strongly marked; both wings beneath with distinct brown band outside the postmedian.

festinaria. *L. agnes Btlr.* (Vol. 4, pl. 11 h) **festinaria** *Christ.* (11 b) seems to have broader white subterminal, at least on the hindwing; but if it is a separable race I think it belongs to Yezo as well Ussuri, *agnes* being the Hondo form. A better differentiated race inhabits Formosa.

pyraliata. aurantiodeleta. **L. pyraliata** *Schiff.* (Vol. 4, pl. 8 g). Cockayne has recently described and figured a larva with spiral segmentation, the first record of this abnormality in the Geometridae. — ab. **aurantiodeleta** *Schawerda.* Like ab. *deleta Strand* but with the ground-colour light reddish yellow. The type from Vucijabara, Herzegovina. Bang-Haas (Novit. Macrolep., Vol. 2, p. 220) erroneously registers also "*L. populata* ab. *aurantiodeleta.*"

58. Genus: **Gandaritis** *Moore.*

(See Vol. 4, p. 214.)

tristis. *G. fixseni magnifica Prout* (Vol. 4, pl. 8 f.) ab. (? subsp. div.) **tristis** *Sterneck.* Strikingly darkened; forewing with merely a small white costal spot before the middle, the large apical spot (which is here white, not yellow) and obsolescent whitish subbasal and antemedian lines, the rest dark brown, without markings. Hindwing as far as the postmedian entirely dark-brown, with two yellow bands, the proximal one continuous, the distal broken into lunules. Ta-tsien-lu, 1 ♀. As this is the only *fixseni* recorded from W. China its status is uncertain.

59. Genus: **Cidaria** *Tr.*

Subgenus **Cidaria** *Tr.*

(See Vol. 4, p. 215.)

lineata. arcaruptata. *C. fulvata Forst.* (Vol. 4, pl. 8 g) ab. **lineata** *Wehrli.* Hindwing with a distinct dark postmedian line. A very rare development, typified by an example from the Solothurn Jura. — ab. **arearuptata** *Sitovski* is diagnosed as smaller, paler, forewing with median area interrupted. Poland and elsewhere, especially (?) in Eastern Europe. *deguttata Dannehl* (Karwendel and Carnic Alps) is a synonym, for the size and pale colour are non-essential. *costovata.* Mosley has figured an *arearuptata* (without name) from the Isle of Man. — ab. **costovata** *Nitsche* (= kolari *Drenowski*) has lost the posterior spot of *arearuptata*, only a small costal spot (very small in the type *costovata*, Kastel- *nugata.* ruth, Dolomites) remaining. — **nugata** *Feld.* (Vol. 4, pl. 13 o). I have subsequently compared Felder's type with Issyk-kul *distinctata* in the Tring Museum and noted o n l y the dark basal patch and rather narrower and more angularly margined central band as distinguishing the latter.

basharica. **C. basharica** *O. B.-Haas* (11 b). Bright yellow, the forewing with basal and median areas reddish-brown, much as in *ochracearia Leech* (Vol. IV, pl. 130), but differing in the shape of the median area and in the angled basal patch. Hindwing with the postmedian line present, in the type "distinct". Bashar, Poo, Schipki Pass, 4000 m, collected in July. Possibly a subspecies of *ochracearia.*

ochripennis. **C. ochripennis** *Prout.* As a synonym is to be added *staudingeri Wnuk.* Like most authors who exercise themselves with name-giving in groups with which they are unfamiliar, Wnukowsky has burdened us with an unnecessary name.

delctaria. **C. deletaria** *Hmps.* (11 b), founded on a single ♂ (misprinted "♀" in the original description) from Koksar, Kashmir, is rather long-winged, with smooth face, longish palpus and rather strongly oblique discocellulars of the hindwing, the type of pattern also suggesting that it belongs to the typical section of *Cidaria*, though it does not seem so closely related to the rest of them as they do one another; much less yellow, forewing beneath with more extended suffusions than above,

miyakei. **C. miyakei** *Matsumura.* In deference to its author's opinion that it "belongs no doubt to the subgenus *Cidaria*", I quote this species here, but it is compared with *munitata*, though with simple antenna; pale grey; forewing with a broad fuscous median band which is proximally angled at the median vein, distally waved but not angled; cell-spot black, conspicuous; hindwing with cell-dot and traces (distinct in posterior half) of wavy

postmedian line. Possibly in the *silaceata* group, as the figure shows traces of the characteristic terminal mark. Areole double, discocellulars of hindwing oblique, genitalia simple. S. Saghalien, 2 ♂♂ in August.

Subgenus **Lyncometra** *Prout.*

(See Vol. 4, p. 215.)

This differs from *Lampropteryx* in its stronger palpus, slightly less elongate wings and probably some other details, but the genitalia indicate a near relationship.

C. ocellata *L.* (Vol. 4, pl. 8 g). Possibly a separate subgenus for this species is superfluous and it might be accommodated in *Lampropteryx*, with which the genitalia show a good deal in common. — ab. **coarctata** *Prout* (= stenotaenia *Hellweger*). This form was redescribed by Hellweger from Brixen, doubtless before he had seen my account in Vol. 4 (p. 216). My original description was in The Entomologist, Vol. 37, p. 154 (1904), from an English specimen. — ab. **caeruleotaenia** *Dannehl*, several examples among a small Siebenburg series (Cibinsgebirge), is characterized by the exceptionally blue tone of the median band. — ab. **robiginata** *Dannehl*. Distal area of forewing in almost its whole extent suffused with dull rust-brown, only remaining whitish at the apex; the brownish border of the hindwing very broad. Type from Terlan, another example from Upper Silesia. *ocellata.* *coarctata.* *caeruleotaenia.* *robiginata.*

Subgenus **Plemyria** *Hbn.*

(See Vol. 4, p. 216.)

C. rubiginata *Schiff.* (= bicolorata *Hufn.*, nom. praecocc.) (Vol. 4, pl. 8 h, as bicolorata). It has been overlooked that Hufnagel himself gave to two species the name *Phalaena bicolorata*, without even the excuse that he had any subgeneric or sectional epithet interposed. His first *bicolorata* must of course stand. — A rather full biological sketch has been given by Grabe, who notes a superficial resemblance in the form of the egg and the pupa to those of *Ennomos*. The moth is attracted by honey-dew on leaves. As regards the range, Staudinger is right in including Japan (see Vol. 4, p. 216); well bordered specimens, and even such with nearly complete central band do occur there among the more *dahurica*-like forms. I have not seen enough Japanese material to make any complete analysis and can only say that it is there very variable. — ab. **bipunctata** *Hannemann* (= diadelphata *Stauder*) has in the posterior part of the median area of the forewing two superposed spots, thus making a transition towards the forms *completa Rbl.* and *plumbata Curt.* Type ♂ and ♀ from Hagen in Holstein; Stauder redescribed from Innsbruck. — ab. **peralbata** *Stauder* has the upperside of the hindwing and sometimes even the underside clear white, or only the cell-dot conserved. — ab. **rosarium** *Stauder*. Terminal dark shading of the hindwing wanting, as in most of the Tyrolese, S. Bavarian and other southern forms; but the subterminal greyish shading is here conserved as a chain of spots. This and the preceding were likewise founded on material from the Innsbruck district, where occur also various transitions. Osthelder records a similar range of variation in S. Bavaria. — ab. **completa** *Rbl.* Osthelder advocates the resuscitation of this name for the not altogether uncommon aberration in which the two posterior spots of ab. *bipunctata* are united into a single patch, so that the median band of the forewing is complete except for a slender interruption at the submedian fold. As Rebel did not note any other deviation from the type, called *completa* an "ab." (not "var." or subspecies) and only wrote "cfr. Barrett, Vol. 8, pl. 339, fg. 1 b", without specifying that that individual — a *plumbata* from my collection — was his type, I accept this argument, although Rebel ought to have cited Barrett's figure 1 a rather than 1 b. This aberration occurs also in the subspecies *dahurica*. *bipunctata.* *peralbata.* *rosarium.* *completa.*

Subgenus **Thera** *Steph.*

(See Vol. 4, p. 216.)

A. ♂ antenna ciliate.

C. phaiosata Stgr. has to be removed; see Vol. 4, p. 420.

C. undulata *Warr.* (11 b). In some respects more reminiscent of a grey *siterata*, or even of a *Hydriomena* (in which group Warren published it) than of any other *Thera*, but the projecting, fascicle-bearing joints of the ♂ antenna refer it here; palpus longish-moderate. Apparently not variable; the shape of the band and particularly the clean white-grey, faintly olive-tinged area between this and the basal patch make it easy to recognize. Founded on a short series from Thundiani, Punjab, August and September. *undulata.*

C. variata *Schiff.* (Vol. 4, pl. 8 h). Although the slight differences in the genitalia and the early stages, as between this species and *obeliscata*, are not yet acknowledged on all hands to be absolutely constant, the evidence is gaining ground that they are biologically quite distinct and should be so treated. Even *stragulata Hbn.* is now plausibly claimed as a good species; see below. The antennal joints of the ♂ perhaps project somewhat more strongly and bear longer cilia in *variata* than in *obeliscata*, but extensive micrometric examination will be required in order to substantiate this idea. Larval distinctions are discussed below, under *obeliscata*. Cockayne has made successful experiments in hybridizing and published his results in detail in *variata.*

The Entomologist's Record, Vol. 39, p. 1—5. Some careful analyses of the variation of both *variata* and *obeliscata* have been made by Höfer, Osthelder and others and several (perhaps too many) of the aberrations have been given separate names. — ab. *nigrofasciata Heydem.* Brownish white, with unicolorous blackish median area. This is perhaps the correct designation of the form which has usually been called ab. *nigrofasciata Gmpbg.* Heydemann points out that Gumppenberg founded his name on Rössler's black-banded aberration and argues (perhaps rightly) that the latter belonged to the Scotch fir species *obeliscata*, though he overlooks that Rössler both in 1866 and in 1881 mixed the two *Thera* and gave no indication of the foodplant of
obscura. the ab. in question, so that personally I see no necessity for the change. — ab. **obscura** *Höfer* (= scotica *Höfer*, nec *Stgr.*) is a dark, uniformly greyish black form which Höfer originally confused with *obeliscata* ab. *obliterata*
albonigrata. = *scotica*. Founded on specimens from the Wienerwald, certainly not racial. — ab. **albonigrata** *Höfer* has a
interrupta. cleaner white ground-colour than ab. *nigrofasciata*. Also from the Wienerwald. — ab. **interrupta** *Schawerda* (= divisa *Höfer*), which can occur in either of the preceding forms, has the median band interrupted at the
dissoluta. fold. Lower Austria and probably everywhere. — ab. **dissoluta** *Höfer* (= interrupta *F. Hoffm.*, nec *Schaw.*, maculata *Höfer*) has the band twice interrupted, i. e., the posterior half broken into isolated spots; Höfer
costimaculata. cites our figure of *stragulata* (Vol. 4, pl. 8 h) as an example of this development. — ab. **costimaculata** *Höfer* has only the anterior half (approximately) of the median band developed, i. e. about as far as the median vein. Founded on a ♂ from Rekawinkel and a ♀ from the Rosaliengebirge; Höfer says this is not a form of
tenuifasciata. *stragulata*. — ab. **tenuifasciata** *Osthelder* has the median band strikingly narrowed throughout, its posterior
cembrae. part almost thread-like. Type from Falkenstein, near Füssen. — **cembrae** *Kitt* (= coniferata *Osthelder*, nec *Curt.*) (11 b). My account of this race in Vol. 4, p. 216, is adequate, except that it should certainly not be associated with the black-banded ab. By an unfortunate lapse of the German translator, "pure grey" (English edition) has been rendered "rein weiß" and Mr. Höfer and Dr. Kitt, who evidently had not seen my original, attributed the error to me. As to *coniferata Curt.* (the "Northern Juniper Moth", from Castle Eden Dene, Durham), which I cited in its correct place on p. 217 without comment, the confusion which has arisen from an absurd misidentification in Staudinger's Catalog necessitates more detailed correction. Curtis's original figure, printed too dark (but not "grey", as Staudinger gives) is a beautiful drawing (now in the possession of Lord Rothschild) of a rather large ♂ of *cognata Thnb.* and has never been a subject of uncertainty among our British entomologists; how Osthelder, generally well-informed on matters of geographical variation,
britannica. could use it for a "high-alpine race" (1800 m and upward!), I am at a loss to imagine. — **britannica** *H. J. Turn.* (11 c) is of a soft delicate grey colour, less brown-grey than in the continental type, and with less contrast between the bands and the ground-colour, the white edging of the bands generally slender and inconspicuous; subterminal line oftener narrow or weak. Hindwing very weakly marked. Founded on a series from Southampton, but applies to the whole English race (N. Devon, Hampshire, Surrey, Oxford and no doubt elsewhere
nigrosignata. in the southern counties), which is therefore clearly no recent introduction. — ab. **nigrosignata** *Prout* differs from typical *britannica* on having the principal markings (ante- and postmedian line, vein-marks on posterior half of median area, proximal-subterminal shade and apical dash) sharply black, the basal patch obsolete, the line or narrow band between it and the median area intensified. Hindwing rather darker than normal, with
subtaurica. very distinct white postmedian line. Several examples from the New Forest. — **subtaurica** *Wehrli* (11 c). Grey, mixed with white, sometimes also with brown, somewhat mealy in appearance; basal area usually light, subbasal band distinct, median band narrow posteriorly, often bordered by light bands, a large white subcostal spot at the outer edge of the median band generally conspicuous. Bertiz Jaila in June and Maras (gen. 2) in September; also from the Northern Lebanon. Approaches *variolata Stgr.* I do not think *britannica*, *subtaurica* and *variolata* ever attain the large size of many name-typical *variata;* but the latter can also be very small.
woodi. — hybr. **woodi** *Cockayne* (variata-♂ × obeliscata-♀). Variable and in some ways intermediate between the two parents, but nearly always with the *obeliscata* tone in the median area. On the whole, this hybrid shows even more inclination to follow *obeliscata* than does the reciprocal cross.

variolata. **C. variolata** *Stgr.* (Vol. 4, pl. 8 h). This may probably be as Reisser has suggested in recording it from the Riff Mountains, a further race of *variata*, connected with it by *subtaurica*. Always small, variation similar to that of *variata*. Abundant in the Blida Glaciers in June and again in September and October. Reisser says that in Morocco the enormous majority are dark olive-grey with deep coppery-brown band, lighter specimens being principally ♀♀.

stragulata. **C. stragulata** *Hbn.* (? =pittneraria *Franzenau*) (Vol. 4, pl. 8 h). This may probably be as distinct from *variata* as *obeliscata* is; in any case it is an aid to clarity to treat it separately. So far as is yet known, it never appears in breeding from *variata;* moreover, whereas the latter lays freely in captivity, it is much more difficult to obtain eggs from *stragulata* and they are oftener unproductive or the resultant larvae delicate. Further, there are many localities for *variata* where *stragulata* is entirely wanting. Kautz and others who know it in a state of nature strongly incline to regard it as a species. The genitalia, however, have shown no difference. Generally small, the white ground-colour shows a peculiar yellow-brownish or olive-brownish suffusion and the median band is generally rather deeply indented at, or just in front of, the 1st radial; hindwing also whitish, fairly well-marked. Belongs chiefly, so far as I know, to Austria, Germany and Switzerland.

The type form shows only the costal half of the median band and a very small and weak posterior remnant. — ab. **costovata** (*Wehrli* MS.) *Vorbrodt* (= péterfii *Dioszeghy*) is almost a synonym, the costal spot much less than half the wing-breadth, distal markings (at least in *péterfii* type) obsolescent excepting the apical dash. Described respectively from Bern and Lapusnicul river valley (Retyezat district). — ab. **dissoluta** *Höfer*. with the posterior part of the median band represented by small, isolated spots, is, as already mentioned above, the actual form which we figured in Vol. 4. — ab. **interrupta** *(Schawerda) Höfer* (= stragulata *H.-Sch.*, fig. 297), corresponding to the like-named aberration of *variata*, does also occur in *stragulata*, though here very rare. I have never seen a *stragulata* with absolutely complete band. — ab. **grisescens** *Höfer*, founded on a fresh, perfect ♂ from Tullnerbach (coll. Galvagni) has the ground-colour darkened by a sprinkling of grey scales. *costovata. dissoluta. interrupta. grisescens.*

C. obeliscata *Hbn.* Höfer (Austria) and Osthelder (S. Bavaria) consider this species single-brooded (June onwards), *variata* double-brooded, commencing to appear earlier; Petersen (Esthonia) had definitely the opposite experience — *obeliscata* double-brooded, *variata* not so, though he concurs regarding the earlier appearance of *variata;* Lavallée, on the other hand, confirms the double-broodedness of both. On some extensive observations and breeding experiments, carried out at Segrez (Seine-et-Oise), he notes several larval distinctions, though in varying degrees of constancy. Least reliable is the darker green colour of *variata*. In the later stages he finds — like other observers — a general constancy in the red thoracic legs of *obeliscata*, those of *variata* remaining green. Again, *obeliscata* shows (always visible, though sometimes interrupted) a slender mark uniting the spiracles and has the subspiracular line ivory white, at least at the extremities; in *variata* the spiracular streak is wanting and the subspiracular line is yellow throughout. Most important of all, in his material the anal points are only .3 or .4 mm long in adult *variata*, .7 or .8 mm in *obeliscata*, notwithstanding that *variata* is generally the larger larva. Cockayne notes that the number of the setae on the anal flap, though somewhat variable, gives some clue: in *obeliscata* it is 6 or 7 on each side, in *variata* 5 or 6. There is complete unanimity as to the natural foodplant of *obeliscata* (Pinus sylvestris), though Cockayne found one larva feeding on an isolated Abies nobilis and Ljungdahl has even recorded finding one on Juniperus communis. In captivity it will often, but not invariably, accept the foodplants of *variata*. — ab. **herrichi** *Höfer* is the ordinary light fawn-brown banded form figured by Herrich-Schaeffer, the type figure of *obeliscata* (Hübner's) representing an Augsburg specimen with the median band darkened except costally. Osthelder considers *herrichi* a race in S. Bavaria. — ab. **mediolucens** *Rössler* (Vol. 4, p. 217) seems, according to Höfer, more of an alpine form. — ab. **reducta** *Höfer* has the median band reduced to a costal spot (half-band), corresponding to ab. *costovata* of *variata*. Type a ♀ from Podersom, Bohemia. — ab. **nigrofasciata** *(Gmpbg.* sec. *Heydemann)*. Median band of forewing black. See Vol. 4, p. 216 and the discussion above, under *variata* ab. *nigrofasciata*. Heydemann thinks that the name *medionigricans Reutti*, though diagnosed as "brownish white with unicolorous blackish median area", also belongs here because at Malsch, Freiburg (the type locality) the food-plants of *variata* are wanting in the lowlands. — ab. **juniperoides** *Strand* is small and rather dark, transitional towards ab. (et var.) *obliterata B.-White* (= scotica *Stgr.*, nom. praeocc.), which Strand confused with a form of *juniperata*. A ♂ from Mo, Helgeland, ca. 66 ° N. lat., 24 July. — ab. **brunneoalbata** *Heydem.*, founded on a pair from Straussberg, near Berlin, has the ground-colour s t r o n g l y w h i t e n e d on each side of the well-developed brown median band of the forewing. Compare *diniensis* below. — ab. loc. (? subsp.) **pseudovariata** *Heydem.* (= variata *Künnert*, nec *Schiff.*) (11 c). Ground-colour more dulled with grey, both the basal and the median band edged with black, the latter also with the veins and especially the hindmargin marked with black. This is the commonest form in Schleswig-Holstein and the Frisian Islands, as also in Britain, and has often passed for *variata*. — **diniensis** *Heinrich*, described as a subspecies of *variata*, is said to have the basal and distal areas of the forewing strongly suffused with whitish, "otherwise as in *obeliscata*". This reads more like *obeliscata* ab. *brunneoalbata Heydem.* than any conceivable *variata*-form and may have to supplant Heydemann's name. — hybr. **prouti** *Cockayne* (*obeliscata*-♂ × *variata*-♀) differs chiefly from hybr. *woodi* in being darker and lacking the branded and pale variegated forms; only one example yet recorded really approaches *variata*. Its author remarks that, so far as e idence is available, "the influence of *obeliscata* appears to be the greater" in both crossings, though "especially when it is the ♀ parent." *herrichi. mediolucens. reducta. nigrofasciata. juniperoides. brunneoalbata. pseudovariata. diniensis. prouti.*

C. exangulata *Warr.* (Vol. 4, pl. 8 l) is further recorded from Wassekou, 1 ♀ (see Sterneck, Iris, Vol. 45, p. 83). *exangulata.*

C. cognata Thnb. ab. **nigrofasciata** *F. Hoffmann*, from Styria, has the median band of the forewing completely blackened. — **lisciata** *Dannehl*, said to be a dark race in Upper Bavaria (Schliersee district), is only known to me in two examples and these are closely like the small dark form from Sligo which has not hitherto been definitely separated from typical *cognata;* Dannehl only compared with *geneata*. *nigrofasciata. lisciata.*

C. postalbida *Wilem.* (11 c) possibly extends to W. China (Kwanhsien), though the specimen which Sterneck doubtfully refers here differs in that the antemedian line runs to the middle of the hindmargin and the black dot and line of the hindmargin are wanting. *postalbida.*

gibbiata. **C. gibbiata** *Costantini* is unknown to me. "Related to *juniperata*, but the median area very different, constricted by the two ordinary waved lines, etc." Monte Gibbio (subapennine region) and Bologna, rare. It may be doubted whether this is anything more than an aberration of the following, but the description is quite inadequate.

juniperata. **C. juniperata** *L.* (Vol. 4, pl. 8 i). The pupa, well figured by Ljungdahl, has 12 hooked setae on the cremaster. A black form of the pupa, extremely rare in a state of nature (perhaps 2 per cent), was produced by Cockayne by keeping the larvae in the dark (in a biscuit-tin) from 20 August; of 229 which had pupated by 8 September, only 2 were green. C. Schneider has gone carefully into the question of a supposed occasional early brood of *juniperata* and finds no foundation for it; it appears that those collectors who reported *minor.* it had *variata* before them! — ab. **minor** *Maslowscy* is merely diagnosed in Latin as being smaller and of a pale colour, though there is a more detailed note in Polish. The figure shows a narrow but pretty complete band. *caeca.* I gather that the aberration is founded on 2 ♀♀ from Zawiercie. — ab. **caeca** *(Feustel) Osthelder* is without any trace of the cell-spots. A series obtained at Wolfratshausen, together with specimens which agree with *infuscata.* the description of *istriana.* — ab. **infuscata** *Schwingenschuss* (= nigra *Cockayne*). Both wings uniformly darkened with smoke-brown, the median band of the forewing only shown definitely by its fine white edgings. Oberweiden (Schwingenschuss) and N. E. Surrey (Cockayne). The latter author calls it blackish-brown and notes along the termen a series of narrow white interneural dashes, but I suppose the forms are practically *istriana.* identical. In the Surrey locality it is estimated that about 2 per cent of the *juniperata* are melanic. — **istriana** *Naufock.* Founded on 3 examples bred from larvae collected in the neighbourhood of Trieste, but believed to represent a local race. Apical streak of forewing heavy and continued conspicuously across the median band as in *cupressata*, from which of course it differs in the shape of the postmedian line anteriorly, as well as in *scotica.* the larva. — **scotica** *B.-White* (11 c). Cockayne adds to my very brief diagnosis of this small, suffused Scottish race that it is more variable and produces a higher percentage of ab. *divisa Strand* and a few melanochroic specimens, the blackening most obvious on the abdomen and underside; he thinks it probably reached Scotland with its food-plant, Juniperus nana, by the Scandinavian land-bridge, while the English *juniperata* came by way of the Channel, with Juniperus communis. It emerges somewhat earlier — mid September to mid *privata.* October (my earliest date for *j. juniperata* coincides exactly with Cockayne's, namely 5 October). — ab. **privata** *nov.*, interesting as only known in *j. scotica*, entirely lacks the posterior third of the median band; Cockayne has found about 10 per cent of the ♀♀ to belong to this form.

praefecta. **C. praefecta** *Prout* (11 d). I have not yet seen any further examples of this rather large *Thera*, but now give a figure of the Yokohama ♀ (see Vol. 4, p. 219). The tone of colour, shape of median band and absence of the black hindmarginal spot proximal thereto distinguish it from *quadrifulta.*

B. ♂ antenna bipectinate.

sounkeana. **C. sounkeana** *Matsumura* is said to be closely similar to *obliterata B.-White* (*obeliscata* form) but with the antenna finely pectinate, all the lines of the forewing equidistant at hindmargin, the median and postmedian nearly parallel in their hinder half, not converging, the postmedian highly undulate, obsolescent on the hindwing, the cell-spots fuscous, conspicuous; hindwing grey. Expanse "30 mm." Sounkei, Mt. Daisetsu, Hokkaido, 1 ♂, collected on 9 August 1926.

firmata. **C. firmata** *Hbn.* (Vol. 4, pl. 8 l). Pierce, by the genitalia, thinks this "seems to form a separate genus", although closely allied to true *Thera;* but except in the squared, not pointed, saccus and the different position of the cornuti I see nothing distinctive; Djakonov would like to place it with *Colostygia*, perhaps on account of the pectinate ♂ antenna. Regarding the hibernating stage, authors are still at variance; possibly, as with a few other Geometridae, this is not absolutely fixed. Carl Schneider states that the few previous writers who have given it as hibernating as a young larva are right, according to his own personal verification. Vorbrodt, contradicting him, quotes from voluminous records which he has collected, to the effect that it is really the egg that hibernates, and suggests that — as in many Swiss collections *obeliscata* is misidentified as *firmata* — a resultant confusion may have arisen; for *obeliscata* does pass the winter as a small larva.

comis. **C. comis** *Btlr.* (Vol. 4, pl. 13 d). I ought perhaps to have given more detail regarding the antennal structure of this species. *consimilis* and *dentifasciata.* In *comis* the pectinations are scarcely longer than in *firmata*, although as the shaft is somewhat less robust the measurement in terms of the diameter of the shaft would appear relatively more favourable for *comis.* In all the pectinate *Thera* there are two pairs to each joint. *C. comis* is moderately variable, sometimes rather more reddish, sometimes rather greyer than in our figure. Moderately distributed in Japan, October and November; Djakonov has recorded a ♀, in poor condition, from the Ussuri district, Sterneck a ♀ from Ta-tsien-lu and one from Sunpanting and the Kelley-Roosevelt Expedition obtained a ♀ from near Shih-shah-shu (Kia-ting-fu district), 4 October.

quadrifulta. **C. quadrifulta** *sp. n.* (11 d). Expanse 33—35 mm. Somewhat paler than *comis* and without any reddish tone. Antennal pectinations far shorter, only about as long as diameter of shaft. Forewing with the

characteristic hindmarginal dark mark of *comis* developed, but accompanied anteriorly by some dark shading which gives it a more triangular (less flattened) appearance; median band much less parallel-sided, the antemedian line, though dentate, being moderately direct, except for a small indentation about the median vein; both ante- and postmedian line blackened at costa and especially at hindmargin; subterminal shades not very strong, the proximal one darkening at the hindmargin; apical dash developed; cell-dots, or at least that of the forewing, strong. Japan: Shinano, 2 ♂♂, 3 and 6 August 1911, the type in the British Museum; Gifu (Nawa) a damaged ♂, without antennae, in the Wileman collection, determined as *variata*. Leech also recorded *variata* from Gifu, as well as from Oiwake, Gensan and Ningpo, but unfortunately seems to have dispersed his eastern material in the group. Perhaps *quadrifulta* will prove to be near *sounkeana Matsumura*.

C. taigana *Djakonov*. I have not seen the type, a ♂ from the upper River Kasyr, E. of Minussinsk, 7 April 1924, but the careful description and figure leave nothing to be desired. Closely like a large and broad-banded *quadrifulta* ("33 mm" — i. e. about 40 in actual expanse), the pectinations similar, the wings more glossy, the forewing brick-brown, especially between basal and median bands and in proximal half of outer area, the hindwing yellowish grey; cell-mark of forewing larger, of hindwing more elongate; subterminal line obsolete (no dark shading on its distal side to define it), apical dash also wanting. *taigana.*

C. consimilis *Warr.* (11 d). Pectinations a little longer than in *comis*. Colour at least as variable, typically about as in *cupressata*, sometimes more *variata*-like in tone, sometimes more *obeliscata*-like. Founded on Thundiani specimens, fairly common in the Punjab and known from Kashmir. *consimilis.*

C. dentifasciata *Hmps.* (Vol. 4, pl. 13 d, as dentifascia). By oversight this name was inaccurately given both on the plate and in the text. It was founded 40 years ago on a pair from Dalhousie and Murree and has not subsequently come under my notice. The median band is narrower and more sharply dark than in *consimilis* (more recalling that of *exangulata Warr.*, Vol. 4, pl. 8 l), basal patch less toothed, hindwing paler, with postmedian more acutely angled, pectinations of ♂ considerably shorter, though not merely, as Hampson calls them, "short cilia-bearing processes." *dentifasciata.*

C. serrataria *Prout* (11 d). We figure a ♂ from Pompejefka, Amur, not perfectly fresh, but well recognizable. I now regard it as a distinct species. *serrataria.*

C. distracta *Sterneck*, founded on a ♀ from Wassekou, W. China was doubtfully referred to *Thera*, but the strongly glossy and snow-white ground-colour, with deep-black markings shows that at least it is not at all typical thereof; in any case very distinct. Face smooth, white. Palpus long, with elongate terminal joint. Forewing with the markings interrupted, the proximal ones strongly angled at the fold, not (as in *serraria*) at the median; central band broken into a costal half and a hindmarginal triangle, the former not whitened round the cell-spot, distally forming a long, acute projection (much as in *brevifasciata Warr.*, s. Vol. 12). Hindwing clean white, with strong cell-dot, faint postmedian (strong beneath) and a series of almost confluent dark spots close to the termen. *distracta.*

Subgenus **Chloroclysta** *Hbn.*

(See Vol. 4, p. 220.)

C. siterata Hufn. (Vol. 4, pl. 8 i) ab. **phaiolata** *Schawerda* (= phaiota *B.-Haas*, perfuscata *Dannehl*) is deep brown without a trace of green; the hindwing brown-grey, not black-grey. Schawerda's type came from Mostar. Dannehl describes his *perfuscata* (from Pforzheim) as brown-black, but I suppose both authors are dealing with essentially the same form. *phaiolata.*

C. miata L. (Vol. 4, pl. 8 i) ab. **radiata** *Nessling*. Basal and median areas darker green, strongly bounded with white; all the veins dusted (especially on the median band?) with black-green. Hindwing rather white. Vetil, Om (Finland), an imperfect specimen. — **primaria** *Stauder*, erected as a separate species, is merely a large pale ♀-ab., perhaps not essentially (if at all) different from *clara*. The specimen was bred at Castelrotto, S. Tyrol. — **clara** *Th.-Mieg* (= coarctata *Mill.*, nec *F.*, alpinata ♀ *Culot*, vix ♂) (13 c). Founded on Guenée's "remarkable variety", which he thinks should form a distinct local race; characterized by its silky ground-colour (not or scarcely irrorated with green), the green bands (subbasal, ante- and postmedian) well separated, the distal area green with sharply white subterminal. First known from Vernet, where it was said to appear in July, subsequently in other Pyrenean localities, in Spain and, according to Zerny, in Albania. Culot's *alpinata*, originally supposed to be a separate species, was founded on a mixture of this and a strikingly dark-banded aberration (clearly not, as Zerny suggests, a *tophaceata*-ab.) from the Bernese Oberland; his type is, on all the evidence, the ♀ (Gédre), notwithstanding that later (1919) he calls the ♂ the type. — **subapennina** *Costantini*, smaller, lighter (than typical *miata*), densely scaled, is said to be the common southern, subapennine form. Type locality: Monte Gibbio. Occurs in April and the beginning of May and again in September and October; the author, evidently unaware of its habits, calls this a second generation. *radiata. primaria. clara. subapennina.*

Subgenus **Dysstroma** *Hbn.*

(See Vol. 4, p. 220.)

Of the Palaearctic members of the very natural "subgenus" (genus) *Dysstroma* (misprinted *Dystroma* in the German edition) and their Himalayan and other outliers, an excellent monograph has been published by Dr. Heydemann in the Mitt. Münchn. Ent. Ges., Vol. 19, p. 207—292, besides some smaller supplementary contributions subsequently. His work is of course much too voluminous to be quoted, or even summarized, here; but it will have to be taken into account by all future workers at the group. I have adopted the sequence proposed by him in the Intern. Ent. Zeitschr., Vol. 26, p. 31, and have found myself in agreement with almost all his conclusions, wherever I have been able to check them; for several of the rarer and the most recently discovered species, we are greatly indebted to Dr. Wehrli, who has kindly lent specimens for figuring. *Dysstroma* is represented by at least 23 Palaearctic or border-line species, several in Northern India, one or two each on Formosa, Luzon, Borneo, Sumatra and Java and a score or more in North America.

truncata. **C. truncata** *Hufn.* (= centumnotata *Schulze*) (Vol. 4, pl. 8 k, fig. 2). It has been demonstrated that Schulze's *centumnotata* was virtually the same grey-dusted form from which the species seems to been originally described and must therefore be sunk as a synonym. An extremely important paper has just been published by Groth (Svendborg), in which he deals with his experiences in breeding *truncata* ab ovo and their bearing on its general biology and heredity (Flora og Fauna 1935, part 3). It has not been possible to rewrite my manuscript or even to incorporate all his conclusions, but I have accepted them as regards the *rufescens* group. He has found the species scarcely at all susceptible to immediate environmental factors, and this renders all the more secure his deductions as to the Mendelian inheritance; as a result of over 70 breedings ab. ovo, he finds it established that the aberrations *rufescens*, *perfuscata* and *nigerrima* (sens. lat.) are dominant over the white-banded. — ab. **russata** *(Schiff.?) Hbn.* (= centumnotata *auctt.*, nec *Schulze*, ? albofasciata *L. Müll.*) (Vol. 4, pl. 8 k, fig. 3, as *centumnotata*). On account of the sinking of Schulze's form (see above) this name has been adopted for the cleaner-banded form which, according to Heydemann, becomes increasingly prevalent from Central Germany to dry East Europe. — ab. **albata** *Culot* has the median area broadly white, almost or altogether without the dark lines or shades which narrow it in the preceding form. The type was from Germany. Probably, however, Dahlström's *latefasciata* (mentioned below) should supplant it. — ab. **depuncta** *Romaniszyn* is merely diagnosed as being "without the black dots on the venules of the forewings." The reference must be to the cell-dot. Described from Mikuliczynie, Poland. — ab. **fumata** *Lange*. This name may perhaps be used comprehensively for the forms which are intermediate between *truncata* and ab. *perfuscata* as we have figured them (Vol. 4, pl. 8 k). Heydemann calls it *saturata Steph.* (which has been sunk as a synonym of *truncata*) and merges in it *modesta L. Müll.* and *griseofasciata L. Müll.* — ab. **tysfjordensis** *Strand*, which I assumed (Vol. 4, p. 222) to be synonymous with *citrata* ab. *simpliciata*, has been transferred to *truncata*, chiefly on account of the almost impossibly early date for a northern *citrata* (ca. 10—18 July, Tysfjord, Norway, 68° 10′ N. lat., 1 only). Unless it can be proved to represent an aberration of *infuscata* = *schneideri*, with which its author compares it, it may be applied to the forms of *truncata* with blackish, somewhat white-mottled median band. — ab. **cervina** *L. Müll.*, a ♂ from Kirschdorf, Upper Austria, end of July is a puzzle. It was determined by Heydemann as a specimen of the following *(perfuscata)* discoloured by age, to which the reply is that *perfuscata* does not occur in the district. The date and the "considerably lighter" hindwing, with the submarginal spots "scarcely indicated" suggest a *citrata* ab., but its author maintains that it is a dusky form (suffused with fawn-brown) of the *rufescens* series. — ab. **perfuscata** *Haw.* (= russata part., *Hbn.*) (Vol. 4, pl. 8 k). Although frequent in N. W. Europe, and perhaps the chief form known on Arran, these black-banded *truncata* seem to be wanting from a great part of Eastern Europe and are probably in Switzerland, Austria, etc., chiefly confined to the Alps and a few other mountain ranges, thus, as Heydemann opines, conditioned by climate. — Commonly, at least in Britain, the "black" of these forms is duller and more smoky or brownish-dusted but has also a strong tendency to suffuse also the distal area of the forewing so as to dull or obliterate the ferruginous presubterminal shade. Barrett, who figures it at pl. 356, fig. 1 j, inaccurately calls it *saturata* and Dr. L. Müller has named apparently the same form ab. *cervina;* but Heydemann has revived for it the name ab. **fuliginosa** (*Warr.*, MS.) *Prout* and this seems to be the oldest legitimate name for it. My suggestion (Vol. 4, p. 221) that *schneideri Sandb.* might be applicable to it, was entirely wide of the mark. Arrar, Yorkshire, Nottingham and Wolverhampton are well-known localities for it. — ab. **nigerrimata** *A. Fuchs* (= nigerrima *Schawerda*, melaina *L. Müll.*) (11 d). Here the hindwing and underside participate markedly in the darkening, so that the form is definitely melanic. It was described from Elberfeld, a transition *(? fuliginosa)* from Oberursel: rare at (always west of) Kiel, but Heydemann has been successful in breeding it from the egg. It is now further known from Denmark, S. Sweden and Yorkshire. — ab. **nigrobrunneata** *Heydem.*, only yet known as a "fa. domestica" was obtained (1 ♂, 4 ♀♀) from a pairing of *nigerrimata* and would not have been named separately but that it shows a character otherwise only known in *corussaria:* median and terminal areas of forewing deep sooty black, basal and antemedian together forming a rust-brown area. — ab. **nigroalbata** *Culot* is another curious form, grey-brown, with the borders of the median area broadly black, its middle white,

russata.
albata.
depuncta.
fumata.
tysfjordensis.
cervina.
perfuscata.
fuliginosa.
nigerrimata.
nigrobrunneata.
nigroalbata.

with black cell-mark; ♀, from England. — ab. **rufescens** *Ström*, founded on a Danish specimen, is a widely distributed "mutation", but most frequent in N. W. Europe, especially in parts of Denmark. The colour of the band varies considerably, from the brighter orange-yellows to cinnamon or the "sayal-brown" of RIDGWAY and its costal part, usually grey-mixed, is occasionally whitish, still more rarely (hitherto only observed in ♂♂, which HEYDEMANN regards as homozygote *rufescens*) yellowish like the rest of the area. GROTH has given careful attention to this *rufescens* (sens. lat.) series and to its crosses with the *perfuscata* and *nigerrimata* series. The pure-bred (homozygotic) *rufescens* is, in his experience, well differentiable from the heterozygotes, the median band being of a brighter, more reddish yellow and almost, or entirely devoid of the lines which traverse it in the latter. — ab. loc. **ochreata** *Schille* probably needs, on geographical grounds, to be separated from ab. *rufescens*, as the forms from Central Europe seem regularly to have the median area lighter ochreous, in varying degree mixed with whitish. The type specimen, from Rytro, Galicia, at above 1100 m, 2 August, had the first 2 bands of the forewing infuscated, not brown-red, the median area much broadened, lightened and suffused with "orange-yellow", probably not far from the Svendborg ♀ figured by GROTH at fig. A 1. — ab. **mixta** *Prout* (= composita *L. Müll.*). Described by me as a "semi-melanic form, central area tawny [i. e. as in *rufescens*], basal and marginal areas dark fuscous;" now known to be the resultant of the *rufescens-nigerrimata* elements. Dr. MÜLLER re-named it, under the impression that I had intended by *mixta* a form with the "tawny" colour darkened. My type, a ♀ from Hale End, near London, is still in my collection. — ab. **fuscorufescens** *nov.* (8 i). This form, the resultant of *rufescens perfuscata*, has been dealt with by GROTH and figured at B 2, B 3 and B 4 of his paper; and he urges, in the interests of clarity, that it should have a separate name. It differs from true *mixta* in the retention of some white markings in the proximal and distal areas and in the non-melanic hindwing and underside. — ab. **latefasciata** *Dahlström*, with "median area very broad, pale yellow or white", seems to have been erected quite independently of STAUDINGER's, which properly refers to a separate species; and as there is no homonymy law regarded aberrations, it may conveniently be applied as a part of the system of collective names within *Dysstroma*. — A more southerly locality has been added to the range of *truncata* by its discovery at Vizzavona, Corsica in the form *rufescens* (sens. lat.); not yet demonstrated to be separable racially. From the Orient, HEYDEMANN has described two races, of which he has established the status by an examination of the genitalia. — **transbaicalensis** *Heydem.* Distinguishable by the leaden grey dusting on all the darker parts of the forewing, the median area remaining white or white-grey, the hindwing proximally more slightly, distally more densely irrorated with grey, the white subterminal spots almost obsolete. Lake Baikal and Transbaikal, also a ♂ from Urga, Mongolia. Somewhat recalls *infuscata Tgstr.* — ab. **rufescens** *Heydem.*, with the median area light yellow-ochreous or ochre-yellow, occurs both at Lake Baikal and at Urga. — **sinensis** *Heydem.* (13 a). More dusky than the preceding, resembling dark *t. truncata* but with the forewing coloration much less contrasting, all the black parts merely dark-grey, the brown bands dull grey-brown. Szechuan: Wassekou, Sunpanting, Tu-pa-keo, etc. Not very variable, but includes occasionally an ab. *perfuscata* or an ab. *centumnotata*. From *imitaria* (11 g), which occurs with it, it may best be distinguished by the darkened hindwing.

rufescens. *ochreata.* *mixta.* *fuscorufescens.* *latefasciata.* *transbaicalensis.* *rufescens.* *sinensis.*

C. concinnata *Steph.* (Vol. 4, pl. 8 k). Much study has been given also to this interesting species since the appearance of Vol. 4. The cornuti have proved inconstant, as also COCKAYNE's suggestion of distinctions in the broader and more abruptly widened ♂ valve and the much broader spine-covered area round the neck of the bursa in *concinnata;* indeed RAYWARD, on a careful comparison of both sexes with *truncata* from very various parts of the British Isles, has concluded that "there are no differences in the genitalia which can be depended upon as good characters" for the separation of *concinnata*. It is, of course, still possible that *concinnata* in other races exists in other parts of Scotland and Ireland and is causing a part of the difficulty; in any case, single-brooded and more or less similar "*truncata*" occur in many parts of Scotland, especially the Highlands, and in particular races of one or the other from the Hebrides and from Achill Island (off Mayo) have even been determined as *concinnata* and are still engaging careful attention; these latter seem to have identical habits, feeding chiefly on heather and resting by preference upon the granite rocks where — at least in the case of Arran *concinnata* — their mottled colouring affords them marvellous protection. As in some parallel cases (*C. variata* and *obeliscata* or *Ectropis crepuscularia* and *bistortata*) the occurrence of the two alleles side by side but with different life cycles and without any intermingling, is sufficient evidence for Arran of biologically distinct species. COCKAYNE emphasizes the heavily marked hindwing beneath, especially its post-median line, as characteristic for *concinnata*. HAWKINS, without claiming to have found anything decisive or final in the pupa, indicates "Poulton's line" as clearly indicated in dark-brown (almost black), such as is only faintly suggested in one examined *truncata* pupa. SHELDON found no constant difference between larvae of *concinnata* and the variable *truncata*; those of the Achill Island *Dysstroma* he found quite different in colour from those of Arran, all being entirely green, both before and after hibernating. — ab. **centumnotata** *Heydem.* has the central band of the median area clean white. — ab. **perfuscata** *Heydem.* has the median area blackish-brown. — The naming of the manifold further aberrations of the imago, if needful, can probably be adapted from HEYDEMANN's scheme of nomina collectiva. The nearest approach to the *rufescens* series is a curious-looking creature, the median area mottled with ochreous, white and black.

concinnata. *centumnotata.* *perfuscata.*

flavifusa. **C. flavifusa** *Warr.* (11 e). Erected as an aberration of the Sikkim *cinereata Moore* and only diagnosed as having "the greyish white tints of the middle area replaced by dull yellowish"; fortunately no such colour-form exists in *cinereata* and (by courtesy) Heydemann, in making the species properly known, has recognized Warren's as the type. Smaller than *cinereata*, more glossy, the spot near anal angle less constricted in the middle. N. E. Himalayas and W. China, reaching Ta-tsien-lu. — ab. **centumnotata** *Heydem.* has the median area white, in part clean, in its distal part finely irrorated with grey.

centumnotata.

japonica. **C. japonica** *Heydem.* (= russata *Pryer*, nec *Schiff*; cinereata *Sterneck*, nec *Moore*) (11 e). This large Japanese species, which both Heydemann and I earlier took to be a race of *cinereata Moore* (N. E. Himalayas and Formosa), differs both from that and from *truncata* in the genitalia. Upperside similar to *cinereata*, edge of basal patch angularly projecting in the middle, incurved before and behind the angle, ending in a blacker spot at hindmargin, cell-dot generally better developed, hindwing less white. Underside more yellow-brown than in *cinereata*. I known no striking aberrations. According to Heydemann the Kwanhsien "*cinereata*" properly belong here. Strictly speaking, the name *japonica* (1929) is a secondary homonym (see *corydalaria japonica*, 1926) and perhaps Heydemann will propose a temporary substitute; but it was erected as *Dysstroma*, to which he justly accords generic value.

proavia. **C. proavia** *Heydem.* (11 e), founded on 5 specimens from Szechuan, combines the characters, both superficial and morphological, of the two longest-known *Dysstroma*, so strikingly that one is probably not far wrong in viewing it as representing the progenitor of the group. The forewing most resembles *cinereata*, *truncata* and the comparatively unrelated *korbi* (11 h), while the markings of the hindwing agree almost exactly with those of *citrata*; median area of the former broad with the central projection long, hindmargin with a white spot on each side of the subbasal band and a large dark-brown spot outside the postmedian as in *cinereata* (compare *japonica*, pl. 11 e). The name-type has the median area finely irrorated with grey. — ab. **centumnotata** *Heydem.* has the median area broadly white. — ab. **rufescens** *Heydem.*, a ♂ from Omihsien, has it light ochre-yellow and whitish, as in the like-named aberration of *truncata* or rather (now that that is subdivided), *ochreata Schille.*

centumnotata. *rufescens.*

superba. **C. superba** *Heydem.* (11 e). A splendid large species, which its author thinks should be placed between *proavia* and *latefasciata*. As the type ♂ (from Ta-tsien-lu) is unique, no description of the variation is possible. neither have the genitalia been examined. The said type with its broad, uniform rust-brown or fox-red median area (formed nearly as in the neighbouring species) represents pretty closely the *rufescens* form of the *truncata* group. The size, the form of the postmedian and the very sharply and contrastingly marked underside — dark-grey to the postmedian and at the apex of the forewing, with a whitish band interposed — should render *superba* easy of recognition.

latefasciata. **C. latefasciata** *Stgr.* (11 f) is now fairly well known and the confusion which Staudinger himself introduced (by mixing with it broad-banded aberrations of *truncata*) has been eliminated; little remains, therefore, but to provide a figure; Vol. 4, pl. 13 c which, through a similarity of name, got quoted to *latefasciata* in the German edition, has of course nothing to do with it, but (as p. 245 of that volume shows) represents *C.* (*Trichoplites*) *latifasciaria Leech.* Far more misleading, because less easily detected, was the substitution by the translator, at the beginning of line 4 of the description, of "schwarzen Punkt" for "white spot" of the English edition; as Heydemann truly says, this white spot (Fleck) is especially characteristic of the species. Nordström, who first recorded *latefasciata* from Sweden, has an excellent article on its range and variation; it occurs in Norway (Odalen, 1 example), Sweden (well distributed), Estland (Reval), Leningrad and S. Siberia (Irkutsk to Nikolaievsk). — ab. **rufescens** (*Heydem.*) *Nordström*, with median band yellowish or rust-brown, — ab. **mixta** *Heydem.*, connecting *rufescens* with *perfuscata*, — ab. **perfuscata** (*Heydem.*) *Nordström*, with the median band more or less strongly powdered with grey-brown, and — ab. **nigerrimata** (*Heydem.*) *Nordström*, a handsome form with the forewing almost uniformly blackened, although the white antemedian spot at the hindmargin nearly always persists, are all demonstrated to occur in Sweden; their nomenclature follows Heydemann's system of nomina collectiva. — The larva feeds on Vaccinium myrtillus and is said to be nearer to that of *citrata* than to that of *truncata*. The pupa is the darkest of the 4 Swedish *Dysstroma* and is distinguishable from the others — judging from one example — by the more strongly developed, slightly bifid central spikes of the cremaster.

rufescens. *mixta.* *perfuscata.* *nigerrimata.*

imitaria. **C. imitaria** *Heydem.* (11 g) seems to have been earlier confused with *citrata* but is really — notwithstanding its projecting postmedian and its glossy white hindwing — nearer to *truncata*; the latter is a good recognition-mark for the species, though the angle of its postmedian (scarcely shown on the upperside) is about as acute in *citrata*. Koko-Nor, the type series, distributed in many collections; also from Sunpanting, Szechuan. The type form has the median area coloured as in *truncata*. — ab. **perfuscata** *Heydem.* has the median area of the forewing densely dusted with dark-grey, the basal and distal areas also darkened; hindwing remaining glossy white, only towards the termen darker. — ab. **rufescens** *Heydem.* Roughly parallel to the like-named form of *truncata*, but here of a weak, greyish, light ochre-brown colour, with the costal streamer between median and postmedian line and into the anterior part of the outward projection brown. Type a fine Koko-Nor

perfuscata. *rufescens.*

♀ from the Püngeler collection; a second ♀ known from Sunpanting. — ab. **mixta** *Heydem.* is a mixture of the two preceding aberrations, the median area at the costa being broadly irrorated with grey-black, often also with the ochre-brown almost entirely suppressed by grey intermixture. A number of examples known. — The genitalia of the ♂ and the ♀ resemble respectively those of *truncata* and of *citrata*. *mixta.*

C. infuscata *Tgstr.* (= schneideri *Sandb.*) (11 f) is now well known and we give a figure. The forewing is, as Tengström indicated, slightly more rounded at the apex than in the allies, the termen being a trifle less oblique anteriorly; the size in both sexes is moderate to rather small; the tone rather characteristic, generally with a dirty-yellowish or more olivaceous tinge, the distal area of the forewing with a good deal of blue-grey irroration; the rust-coloured bands not very conspicuous, in some forms entirely suppressed; hindwing relatively dark. It inhabits peat-moors and bogs in Northern Europe and Siberia, the name-typical race perhaps not extending eastward of the Ural. Sandberg described his *schneideri* on ample material from Arctic Norway and it is accepted that his type-form was nearly the same as Tengström's. Nordström points out that I mistranslated "ensartet blaagraa" as "blackish blue-grey" instead of uniform blue-grey and consequently made an incorrect attempt to recognize in it *truncata* ab. *nigerrimata*. — ab. **olivescens** (*Warr.*) *Prout* (= olivacea *Prout*), founded in 1908 on 2 specimens from "Lapland" and 1 from "Finland", all in the British Museum, is a more olivaceous form, the inner ferruginous band in the originals wanting, the outer one dull, interrupted, inconspicuous, being also dusted with dark scales. — ab. **centumnotata** *Nordström* has the median area of the forewing bone-yellow, little dusted, and is the only definite indication yet known of parallel variation with that of the *truncata*-group. — **nyiwonis** *Matsumura* is, according to Heydemann, the Saghalien race of *infuscata* and is not at present considered differentiable from the Siberian forms, chiefly from Transbaikal, which he quotes under the same name. Darker grey, the forewing without the blue-grey or olive tone of the western forms. — The larva of *infuscata* feeds on Vaccinium uliginosum; I know no detailed description of it. Single brooded, the perfect insect appearing in June or July. According to the latest views, it is a northern representative of the *volutata-incolorata* group and not, as was formerly supposed, a member of the *truncata* group. *infuscata.* *olivescens.* *centumnotata.* *nyiwonis.*

C. psodoidaria *Heydem.* (11 f). A small species (length of a forewing in both sexes 14—15 mm) with a characteristic aspect, somewhat suggesting to its author a very light *Psodos*. Structurally a link between *volutata* and *infuscata nyiwonis*. Forewing black-grey mixed with whitish and with blue-grey irroration, the postmedian with the characteristic anterior indentation of the succeeding three species, but here followed by a longer outward projection. Hindwing snow-white, more or less dusted with grey. Chinese Tibet, Tschang-kou and Ta-tsien-lu. *psodoidaria.*

C. volutata *Prout* (11 f) remains very rare and only certainly known from Koko-Nor, and in the male sex, but a very worn ♀ from Siao-lou may belong to it. *volutata.*

C. incolorata (*Warr.*, MS.) *Heydem.* (11 f), described from specimens collected at high altitudes in Sikkim (3000—4000 m), has since become known from Chinese Tibet (Wehrli collection, 3 ♂♂ from Dejean, also a few in the British Museum), so that it requires mention in the present volume. A rather large and long-winged species, with more rounded apex than *volutata*, the coloration and markings similar, the dark markings more blackish, some black costal spots and three characteristic wedge-spots in the postmedian band noticeable; cell-dot not, as in *volutata*, strigiform; hindwing less white than in that species. *incolorata.*

C. pseudimmanata *Heydem.* (= pseudoimmanata *B.-Haas*) (11 f). In its general aspect black-grey, with two sharp yellow-brown bands. Forewing with basal area brown-grey, its distal half black-grey, dentate-edged; the broad subbasal band terminating in a large yellow-brown spot posteriorly; median band broad, black-grey sprinkled with white, the cell-spot distinct, the distal projections as strong as in *citrata*; subterminal indistinct, except where bounded with black spots or wedges. Hindwing wholly dusted with grey, the cell-dot and postmedian of the underside showing darker grey. Forewing beneath dark to the postmedian line and in the apical region, hindwing with the cell-dot large, the postmedian strong, angulated, grey-dusted. 2 ♂♂, 1 ♀, all believed to come from Borochojewa, Malchan Mtns., Transbaikal, received as *citrata*, but considerably different in the genitalia. *pseudimmanata.*

C. citrata *L.* (Vol. 4, p. 221). The lost Linnean type, accepted as being really Swedish, has been cleverly "restored" by Heydemann from the original description and comparisons and a rough sketch of the result published which could not well represent any known Swedish species except the present one. The "large whitish spot" towards the distal end of the costa is of course conclusive against *truncata* and probably against all possible rival claimants. The exact form intended is less easy to gauge, but I fully accept the conclusions of Heydemann and assume the name-type to be the almost uniformly (excepting the costal spot) grey-dusted form, which is not rare in Scandinavia. It is, I trust, unnecessary in the present stage of our knowledge to give in extenso the distinctions from *truncata* which have been demonstrated or hinted at by different authors; excellent parallel tabulations of the chief have been published by Heydemann in his recent articles. It may be well, however, to repeat his warning against too great confidence in a venational difference pointed out by Zöllner; *citrata.*

when it was first published I tested it on numerous specimens, as did also Lange, but Heydemann has made such as exhaustive analysis as almost to put the matter on to a statistical basis. The supposedly important distinction (others were admitted to be inconstant or extremely slight) was in the position of the anterior extremity of the discocellulars of the hindwing, which Zöllner found to be in *citrata* midway between the branching-off of the costal and that of the 1st radial, in *truncata* at ⅓ (i. e. twice as near to costal as to 1st radial). In about 80 % of the *truncata* examined, Heydemann finds the origin of the discocellulars at ⅓, in accordance with Zöllner's rule, but in the other ca. 20% all transitions are found to the half-way position which he gives as a reliable character for *citrata*. In about 50% of the examined *citrata*, Heydemann found this condition fulfilled, in about 25 % the origin of the 2nd discocellular at ⅓, thus exactly as Zöllner gives for *truncata*, in the rest its origin is at ⅔ (i. e., Zöllner's conditions reversed), in two specimens not even agreeing as between the two hindwings. Of 111 *citrata* in Dr. L. Müller's collection 48 show the ½ division, 52 the ⅓, 2 a ⅔ division and 1 specimen even a ¼. Whether Meyrick depended on this or some other fallacious test, I do not know; but in his Revised Handbook he has referred *concinnata* to the present species! The 2nd joint of the palpus is appreciably longer in *citrata* than in *truncata*. The egg is a little more slender and is not, like that of *truncata*, firmly stuck to leaves, but often laid loose; the larva hibernates within the egg-shell. — ab. **punctumnotata** *Haw.* (= passeraria *Frr.*) (Vol. 4, pl. 8 k). Heydemann somewhat waveringly divides this into 2 or more forms, Dr. L. Müller definitely into 3 or 4. — ab. **tricolorata** *Culot* (= albofasciata *L. Müll.*) (13 a) certainly seems too different to be merged in the preceding; the dark bands which narrow the white centre of the median area make quite another impression than the dark boundary lines of *punctumnotata*. Authors have called this form *variata Thnbg.* (a homonym), *marmorata F.* (a homonym), or *centumnotata F.* (a misidentification on the part of Fabricius). Actually, however, *passeraria Frr.* represents a common transition, with the band formation incomplete, while *tricolorata* (England) = *albofasciata* (Upper Austria), with both bands reaching the hindmargin, is a much rarer development. — ab. **incompleta** *Culot* has the median area as in the preceding, but the ferruginous bands are wanting, or rather, they are replaced by grey ones. No locality is given; likely from N. England or Scotland. — ab. **insolida** *Prout* (= grisea-insolida *L. Müll.*) was also erected without type locality and perhaps Heydemann cannot be blamed for having vacillated regarding its actual determination. It was, however, founded on Barrett's reference (Lep. Brit. Isl., Vol. 8, p. 273), "Others, especially from the north, have the otherwise black central band divided by a large middle cloud of some shade of grey or grey-white," and the type figure is on pl. 357, fig. 1 g, of that work, a ♀ from West Scotland, which is like *incompleta* except that the white central part of the median band has become grey, the "ferruginous" bands equally dulled. — ab. **simpliciata** *Walk.* (11 g) is a further development of *tricolorata* or *incompleta*, with the white band interrupted. The specimen figured, from Forres, is very true to Walker's type. It seems that the name *tysfjordensis* Strand can hardly be applied to the corresponding grey-marked aberration of *citrata* (see above under *truncata*). — ab. **dimidiata** *L. Müll.*, founded on Austrian specimens, represents a final stage in the approach to the wholly dark-banded forms, only a small light-grey spot remaining about the cell-dot. Culot (fig. 486) figures the same with the spot white (ab. *pythonissata L. Müll.*). — ab. **effusa** *L. Müll.* (= indistincta nom. coll., sec. *Heydem.*), which is already known in combination with both white-banded, grey-banded and black-banded *citrata*, is produced by the loss of a definite distal boundary to the median area of the forewing, which therefore becomes diffusely confluent with the region beyond. Müller uses compound names, *alba-effusa*, *grisea-effusa*. — ab. **grisea** *L. Müll.* This name is proposed, with sub-aberrations *saturata* (darker, with stronger colour-contrasts) and *confluens* (with the lateral shades of the median area blackened, confluent in their posterior half) for the grey *citrata* forms in which the lateral shades reach the hindmargin, reserving *citrata* to those in which this is not the case. I do not find them separable, except in the more contrasting forms discussed above, and therefore call them all typical *citrata*. — ab. **inumbrata** *L. Müll.*, doubtfully separable, has the grey median area quite uniform, except for blackish longitudinal marks (darkened veins); even the usual postmedian costal streamer is not darkened. — ab. **strigulata** *F.* (= immanata *Haw.*, amoenata *Steph.*, intermedia *L. Müll.*) (Vol. 4, pl. 8 k, as *immanata*). A study by Nordström of Fabricius' type has resulted in this correction of the synonymy. — ab. **bicolor** *L. Müll.* is an interesting modification of *strigulata* with nearly the entire forewing, except the median band, wood-brown. Founded on 1 ♂ from Spital a. Pyhrn, but other examples are known. — ab. **nigerrima** *Schawerda* has the forewing almost entirely blackened, even the two brown bands overlaid with dark suffusion, no white remaining except 3 punctiform spots on hindmargin and a very narrow remnant of the outer costal spot. The type is a fine ♂ from Attersee. — ab. **griseonotata** *Lange* is intermediate between *citrata* and *strigulata* and is connected by all transitions with the latter, but is noteworthy as accounting for a very high percentage of the forms from Northern Central Europe. The brown bands are distinct, the white costal patch narrow, the median band less deep black than in *strigulata*. — ab. (nec. subsp.) **krassnojarscensis** *A. Fuchs* is really more "incomplete" than ab. *incompleta Culot*, in that the ferruginous bands are more definitely obsolete, indicated only by some fine irroration, the dark shades in the median area also slight. The naming is therefore unfortunate and the only further interest of the specimen is in the narrowing of the forewing. — ab. **csehi** *Dioszeghy* has also strikingly narrowed forewing, with produced apex, apparently greyer and less sharply narked than *krassnojarscensis*, but I can see very little justification for the name. 1 ♂ from Gura, Retyezat Mtns., 989 m. — ab. **acutata** *Guen.* (11 g). No confirmation has been

punctumnotata. *tricolorata.* *incompleta.* *insolida.* *simpliciata.* *dimidiata.* *effusa.* *grisea.* *inumbrata.* *slrigulata.* *bicolor.* *nigerrima.* *griseonotata.* *krassnojarscensis.* *csehi.* *acutata.*

obtained for the suggestion that this was a local race; occasional narrow-winged specimens may occur anywhere (compare *krassnojarscensis* and *csehi*) and, if extreme enough, would be teratological rather than varietal. By the kindness of Dr. Wehrli we figure Guenée's form. — **pythonissata** *Mill.* (= pythonnissata *Heydem.*, scotica part. *Heydem.* ex *Stgr.* nom. commerc.) (Vol. 4, pl. 8 i). On account of the culpable negligence of the early English lepidopterists regarding localities, this strongly differentiated race was often received on the Continent as from "Scotland" or cuen "England"; in fact Millière merely recorded his originals as coming from England, bred by H. Doubleday. Fortunately, however, the latter has published a note stating that his series (still extant) was bred from Orkney ova and showed some forms which he had never previously seen. The race is confined to the Orkneys (loc. typ., although in those islands forms identical with the mainland Scottish also occur; the exact conditions at present unexplained) and the Shetlands (there the only race) and is found among heather and "fern" (? Pteris). — ab. **strigulata** (nom. coll.) *nov.*, that is to say the form with the median area of the forewing black (not, as in the type *pythonissata*, mottled) occurs with it in both groups of islands, although — at least in the Shetlands — the mottled are predominant. — **unicolorata** *Stgr.* (= islandicaria *Heydem.*, nom. praeocc.) (11 g). Heydemann correctly points out that the Iceland forms, variable though they are, constitute a recognizable subspecies: on an average smaller, the forewing generally broader and shorter, the general effect more uniform (sharp colour-contrasts rare), with a high percentage of almost unicolorous forms, the hindwing above and beneath weakly marked. As Staudinger only named "aberrations", Heydemann was within his rights in proposing a new name for the race, but unfortunately chose one which is already current in the unwieldy genus *Cidaria* (*C. designata islandicaria Stgr.*, 1871), thereby creating a secondary homonym. An a temporary expedient (until *Dysstroma* is accorded full generic rank) I therefore fall back on his second alternative and call the race *unicolorata*, which name originally embraced all the unicolorous forms (!), but has been restricted to the whitish or whitish-ashy ones. — ab. **ferruginea** *Prout* (= unifulvata *Culot*) has the whole forewing suffused with rust-colour or dull reddish-ochreous. Very prevalent in Iceland, whence came the types of both names, but also well-known in *pythonissata* and other Scottish forms, especially from the islands. — ab. **fusca** *Prout*, proposed for the unicolorcous fuscous forms of *unicolorata*, was perhaps sufficiently comprehensive to cover also those which Staudinger first diagnosed as "blackish", subsequently as "unicolorous black" and for which I tentatively proposed the name "ab. *nigricans*", with the comment that it was perhaps superfluous. I doubt whether anything on Iceland produces the same impression of blackness as *c. citrata* ab. *nigerrima Schawerda* and in any case it is not permissible to revive *nigricans* to the detriment of *fusca* or *nigerrima*. — ab. **thingvallata** *Stgr.* (11 g), in its extreme form, that is to say without any really dark markings in the terminal area except some subapical remnants, is perhaps confined to Iceland; but I accept, with Heydemann, the ordinary usage wherely the sub-aberration *cjornensis F. A. Walk.*, which retains also the interrupted zigzag presubterminal line, is included with it. This latter form at least, though characteristically Icelandic, is occasionally met with among other races of *citrata*. — **septentrionata** *Heydem.* (13 b), from Siberia, shows, on ample material, characteristic deviations from European *citrata*. General tone dall greyish (without the brown of *unicolorata*), really sharply or brightly marked forms scarcely occurring. — Even ab. **strigulata** *Heydem.*, though approximately corresponding to the like-named *citrata*, has the median area grey-black, not attaining to the deep glossy black of European *strigulata*. *septentrionata*, which seems to merge into *citrata* in the Leningrad district, is typical of the Sajan Mountains, Lake Baikal, etc., and extends right to Amurland. — **tibetana** *Heydem.* (13 b). Very different from typical *citrata* in that the pattern, normally formed of blackish and white lines, is suffused throughout with a smoky grey-brown tone which largely obliterates the colour contrasts, the divisions between the areas only shown by their boundary-lines; the whitish costal spot scarcely ever conspicuous. Tibet, chiefly from Koko-Nor; also 1 ♂ from Haining, N. W. China, 2500 m. Sometimes confusingly similar to *dentifera* (11 g), but much more weakly marked and unicolorous, median area narrower, hindwing lighter, and agrees in the genitalia with *citrata*. — **conformalis** *subsp. nov.* (11 g), from Japan, somewhat unexpectedly reverts more nearly to the Eureopan forms, so much so that Heydemann wrote that they differ so little, except in their rather larger size, that "separation does not seem justified". I have observed, however (Novit. Zool., Vol. 35, p. 304) that the ensemble of characters produces an impression which, to the eye accustomed to the European forms, is nearly always distinctive: the hindwing above is generally a shade darker and more unicolorous, the forewing often has the cell-dot more elongate, the proximal brown band is nearly always narrow, except posteriorly, the antemedian line rarely much bent, the central area broad, black-marked on the 2nd submedian vein, generally with its distal prong elongate (recalling *dentifera*), the white costal spot beyond it seldom well developed, a very frequent tendency manifest (except, of course, in the *strigulata*-like form) to produce a dusky suffusion from the antemedian band in the posterior part of the cell. I have chosen as type a grey-banded ♂ in my collection. — ab. **strigulata** (*Heydem.*, nom. coll.) *ab. nov.* has the band black (type ♂ from Nikko, 26 June), while in — ab. **punctumnotata** (*Heydem.*, nom. coll.) *ab. nov.* it is white, though perhaps never without the dusky proximal shade and distal costal streamer. — The bionomics of this race need investigation; I have seen specimens dated April, June, August and November, which seems to point to a succession of broods, a somewhat puzzling phenomenon in *citrata*.

pythonissata. *strigulata.* *unicolorata.* *ferruginea.* *fusca.* *thingvallata.* *septentrionata.* *strigulata.* *tibetana.* *conformalis.* *strigulata.* *punctumnotata.*

dentifera. **C. dentifera** *Warr.* (11 g), described from Sikkim and only touching the Palaearctic Region in N. W. India, is very much like a large *citrata* with still more projecting postmedian line, and was formerly assumed ta be a race of that species, but the genitalia show several differences — tegumen narrower, tip of uncus not scaphoid, valve of more equal breadth, aedoeagus longer and more slender, etc. The type was described as having the band dirty yellow. — ab. **punctumnotata** (nom. coll.) *nov.*, with the median area white, is also known. — **alexandrowskana** *Matsumura* (11 h) founded on a ♀ from Alexandrowsk, N. Saghalien, collected on 28 August. seems to have a more olive-brown tone than most of the Palaearctic specimens hitherto known, but Heydemann believes that the name may be employed for the entire race which ranges from Szechuan and the N. E. corner of Tibet through N. China to Saghalien and which has been proved by the genitalia to belong to *dentifera*. They have in general a somewhat more extended basal area and narrower, more sharply dentate and angled antemedian band than the *citrata tibetana* forms which occur with them. — ab. **strigulata** *Heydem.*, not rare in W. and Central China, has the median area and apex more strongly irrorated with black-brown. — ab. **marmorata** *Heydem.* has also an admixture of white in the median area, bringing about an increased resemblance to *citrata*, from which they may be distinguished by the stronger cell-streak of the forewing and the unicolorous brownish smoke-grey hindwing. Occasional in Szechuan and Central China.

punctumnotata. alexandrowskana. strigulata. marmorata.

fulvipennis. flavidula. **C. fulvipennis** *Hmps.* (11 h). Distinguishable at a glance from all the rest by its ochreous hindwing. In Hampson's type form the median area of the forewing is dark-mixed. — ab. **flavidula** *Bastelb.* (13 a) corresponds to the *punctumnotata* form of the allies in having the median area of the forewing predominantly white. Only known from Kashmir, the type series from Gurais Valley.

korbi. **C. korbi** *Heydem.* (11 h), earlier mistaken by Korb and Osthelder for *latefasciata*, by Püngeler and me for a *citrata* form, is really quite easy to recognize. The general pose of the markings, including the pale (but yellow rather than white) costal spot, is much as in *citrata*, but the broad median area bears little or no markings (except the usual dark streamer from costa) and even the cell-dot is minute. The latter character, the somewhat less glossy wings and the much less straight antemedian distinguish it from *planifasciata Prout* (Vol. 4, pl. 13 d), which in some respects it somewhat recalls. The type form has the median area of the forewing grey-dusted. — ab. **punctumnotata** *Heydem.* has the median band broadly whitish, only at the costa and the sides finely irrorated with grey. Amur and Ussuri, the typical series of both forms, June and July; Gensan; Transbaical, 1 ♂; also a few localities in Japan: Hakodate (June—July), Oiwake (October), etc.

punctumnotata.

ochreogriseata. **C. ochreogriseata** *Heydem.* Size of the smallest *korbi* (length of a forewing 14 mm), evidently intermediate between that species and *planifasciata*. Probably more glossy than *korbi*, the cell-dot equally minute, the median area in the unique type densely powdered with grey, its posterior end strongly narrowed, marked with a darker grey spot; hindmargin with a strong ochreous spot, formed as in *cinereata*, *japonica* and *proavia* (11 e). Hindwing unmarked, silky grey-yellow, lightening towards the base. Szechuan, 1 ♂, apparently without exact locality.

planifasciata. **C. planifasciata** *Prout* (Vol. 4, pl. 13 d). The smooth, glossy appearance was not sufficiently stressed in the original description; the broad median area is even clearer than in *korbi*, which see for further distinctions. When first my attention was called to this species in the British Museum, nearly 30 years ago, I suggested that it might fit Staudinger's description of *latefasciata*, which species I did not then know. Heydemann is quite correct in saying that the two have little in common, either in resemblance or relationship.

corussaria. **C. corussaria** *Oberth.* (Vol. 4, pl. 8 k). I have already remarked that this is a somewhat outstanding species. It is therefore not very surprising that Heydemann has found the genitalia "very aberrant and differently built from all the rest of the *Dysstroma* species". The commonest form in E. Siberia (loc. typ.) and Japan seems to be that in which the median area is more or less markedly irrorated with grey. — ab. **punctumnotata** *Heydem.*, with the median area white, occurs with it occasionally, but it is interesting that it becomes almost constant in Szechuan; at least an enormous series from the Oberthür collection consists almost exclusively of this form. Matsumura records *corussaria* from S. Saghalien.

punctumnotata.

rotundatefasciata. **C. rotundatefasciata** *Heydem.* A very peculiar species which, in the absence of anatomical investigation, is provisionally placed next to *corussaria*. The markings somewhat suggest a *Thera* and it is interesting, in this connection, to notice that the ♂ valve of *corussaria* has actually some resemblance to that of *firmata*. Palpus hairy. Only the type known, a ♀ from Ta-tsien-lu.

singularia. **C. singularia** *Heydem.* (13 b). The only known example, a ♂ in the Püngeler collection, from Koko-Nor, has not been examined anatomically, but is certainly very distinct. Length of a forewing 14 mm. Striking on account of the characteristic clear markings of the forewing and its almost uniform grey-olive colour; the extreme posterior tapering of the darker olive-grey median band, caused by the very oblique course of the antemedian, creates a slight suggestion of a member of the *Sauris* group, a suggestion which is perhaps enhanced by the dark mark (1.5 mm broad) in which this band ends; the outward sweep of the postmedian in its anterior part is strong, but less extreme than in the *citrata* group. Hindwing shining dirty-white, at the termen slightly dusted with grey; the convex (not angled) postmedian showing through faintly from the underside.

C. albovenosata *Heydem.* (11 h). Another somewhat isolated species, unless possibly related to *singularia*; the genitalia show considerable divergences from true *Dysstroma*. The antemedian line — somewhat obliterated by the rubbed condition of this part of the wing — is as oblique as in *corussaria* and the narrowed end of the median band is marked with velvety black. Very characteristic is the pair of very fine, parallel white lines which succeeds the median band distally and sends inward deep projections on the veins between the lobe of the postmedian and the hindmargin. Founded on 3 ♂♂ from Tse-kou, S. W. China, in the Wehrli collection. *albovenosata.*

(*C. brunneata Pack.*, mentioned in Vol. 4, p. 222 on account of its reputed occurrence in Belgium (!), has of course nothing to do with the Palaearctic fauna and must be delcted.)

Subgenus **Xanthorhoë** *Hbn.*

(See Vol. 4, p. 222.)

I have removed from this subgenus its section C, which could be easily defined separately, but have not redistributed the residue except in the few cases where some structural character had been overlooked which contradicted the diagnosis. For *hortensiaria* see the subgenus *Loxofidonia*; for *apiciata*, *Coenotephria*; for *divergens* the genus *Piercia*.

A. Antennal pectinations fully developed, usually one pair to each segment (but see *fluctuata*, *disjunctaria*, *incursata*).

C. munitata *Hbn.* (12 b). Schawerda considers that Hübner's figure represents the northern form of this species, which is generally recognizable by its smaller size and darker colouring. A glance at the figure, however, raises doubts concerning the correctness of this judgment; and the inherent probability of a Central European origin has become a certainty in that Hübner's manuscript writes "*munitata Hw.*" (i. e. Hochenwarth, M. S.) and indicates that he is reproducing a painting by Schiffermüller. I therefore continue to cite as a synonym *collinaria Metzn.*, well described from the Austrian Alps. — **arcticaria** *Kef.* consequently, with locality "Iceland", is the correct name for the North European race. The figure in Germar is crude and much too brightly coloured, but evidently represents the brightest of the variable Icelandic forms. — ab. **infuscata** *Prout*, or something closely similar, is apparently the prevailing form (ab. loc.) at Muonio, Lapland, unless Lord Rothschild's series of 6 ♂♂, 3 ♀♀ was specially picked. — ab. **interrupta** *nov.* (= algidata *Culot*, nec *Möschl.*) is an aberration from Iceland with the band much narrowed, behind the middle interrupted. — ab. **fuscifascia** *nov.* (Vol. 4, pl. 8 l, as munitata) is another northern aberration, the band blackish, the rest of the forewing and at least the distal part of the hindwing remaining whitish. Wolff has figured a pretty example from the Faroe Islands. — ab. **pauperrimata** *Christ.* The original series came from Kurusch, S. Daghestan; we have not been able to obtain a figure. *munitata.* *arcticaria.* *infuscata.* *interrupta.* *fuscifascia.* *pauperrimata*

C. castanea *Warr.* (12 b). Slightly narrower winged than *munitata* (12 b), termen of forewing a little more oblique, proximal group of lines well developed almost as far as the antemedian line, which is less curved than in *munitata*; median band in the ♂ rather narrow, in the ♀ broad, without sharply black edges, but with dusky brown traversing lines, postmedian line bent inward close to costa, distal area, especially in the ♀, more suffused than in *munitata*, showing a tendency to develop a costal patch somewhat as in *designata*. Kashmir, the type ♂ from Gurais Valley, a variable series subsequently collected at Gulmarg. Warren saw in it a near resemblance to *C.* (*Euphyia*) *subangulata*, but this does not seem to me particularly obvious. *castanea.*

C. kamtshatica *Djakonov.* Probably related to *munitata*, which occurs with it in Kamtshatka in forms that do not differ from the European; quite distinct in the ♂ genitalia, as well as in some external characters. Perhaps on an average larger (length of a forewing 16 mm). Ground-colour much lighter and more uniform (than in *m. arcticaria*?), yellowish white with an admixture of grey-brownish scales; the only conspicuous marking is the median band, which is darkened in its anterior half only, then (behind the median vein and its 1st branch) suddenly narrowed and appearing to be of the ground-colour, chiefly defined by its indistinct boundary-lines; a weakly darkened basal patch, the other markings shadowy. Hindwing a little lighter, almost entirely without markings. Valve and calcar much longer than in *munitata*, saccus quite differently shaped, aedoeagus without the strong backward-directed spines, etc. Petropavlovsk in the first week of July, a good series. *kamtshatica.*

C. inconsiderata *Stgr.* (13 b). Wehrli records this species from Marasch, at 400 to 900 m, flying in September. *inconsiderata.*

C. fluctuata *L.* (Vol. 4, pl. 9 a) does not absolutely conform to the diagnosis of *Xanthorhoë* given in Vol. 4, but would fall into Turner's "genus" *Diploctena* ("antenna in ♂ with two pairs of fine pectinations on each segment"), for the secondary, cilia-bearing processes, though short, are veritable pectinations and are so treated by Forbes in his analysis. As regards the geographical distribution. I cannot find definite confirmation of its occurrence in North Africa and suspect there has been some confusion with its nearest ally *disjunctaria*; on the other hand *iduata Guen.* (North America) may well be considered its representative species. *fluctuata.*

Boldt notes that the *fluctuata* larvae found on cabbage are green almost entirely without markings. while
abstersata. those which feed on wild crucifers are much less green and more variegated. — ab. **abstersata** *H.-Sch.* (Vol. 4, p. 223). Dr. Wehrli, who was evidently at the time unacquainted with Herrich-Schaeffer's Deutschl. Ins. (pl. 165. 2), challenged my application of this name to a *fluctuata* form, being very excusably misled, by a mistake of the compiler of the Alphabetical List with references on p. 425, into a confusion with *abstersaria H.-Sch.* Laharpe, it is true, considered *abstersata* (Austria) to be *disjunctaria*, but I still believe it to represent an ex-
immaculata. ceptionally well banded *fluctuata*. — ab. **immaculata** *Tutt.* F. Wagner has figured under this name an interesting ♂ from Transsylvania with the markings copious but indistinct, the anterior half-band of the median area reduced to a loop round the cell-dot and I have seen an almost identical specimen in the Zeller collection and a photograph of one from Breslau in the Hamburg Museum. Tutt's form, however (Ent. Rec., Vol. 1. p. 322), was described as "pure white", with the median band entirely obsolete (compare B. Stonell's record
geomella. in "The Entomologist", Vol. 68, p. 233). — ab. **geomella** *Woodforde* (14 c) is a remarkable-looking development from ab. *abstersata*, the band unusually broad, grey, with some white markings on the veins. both it and the basal patch only blackened at their edges, the postmedian line anteriorly less sinuous than usual, the distal
neapolisata. area and the hindwing suffused with grey. The unique type, a ♂, was taken near Dunbar. — **neapolisata** *Mill.* In Vol. 4 (p. 223) this name was applied to the aberrations, more or less frequent in many localities, in which "the ground-colour is much darkened with brown-grey". This, however, it not correct according to the original description and figure. It is dark grey "faintly washed on the forewing with greenish", the figure is quite unlike anything that I have seen, its author also considers it so curious as to suggest a different species, and he repeatedly emphasizes that it is at least a constant local form, peculiar to the volcanic country about Vesuvius, especially the vicinity of Pompeii. He further asserts — and his figure seems to confirm — that the ♂ antenna is more strongly pectinate; but this may be an error of observation. I cannot find that the question of its status
syriacata. has been reopened of recent years. — **syriacata** *Prout.* I unfortunately published this name in 1896 on very inadequate material, founding it on a trade designation and stating that "if it proves to be a marked local race at all, it will be distinguished through the weakly marked ground-colour and whitish hindwing, perhaps also by the lack of some of the abdominal spots". I do not now think that these forms from Palestine and Syria are worth naming, but as the name exists it is necessary to call attention to it.

acutangula-
ta. **C. acutangulata** *Christ.* (13 b). We now figure this very distinct species, which differs appreciably from *fluctuata* in the shape of the ♂ abdomen and the somewhat less developed pectinations.

disjunctaria.
multistriga. **C. disjunctaria** *Lah.* (Vol. 4, pl. 7 f). Locally plentiful from the Algiers district eastward and reaching Tunis. Extremely variable, some examples nearly approaching the form *oxybiata* (12 a). — ab. **multistriga** *Oberth.* (12 c) seems to be a quite unusually dark ♀ aberration, on the underside with the costal spots at the origin of the ante- and postmedian lines rather strongly developed. In any case not a *Cataclysme*, as was tent-
jucundula. atively suggested (Vol. 4, p. 265). — gen. aut. **jucundula** *Stauder* (12 a) is smaller than the type form and on an average paler and more weakly marked, often with an admixture of white in the median area. The type series was collected on Sicily (Palermo, etc.), October to the middle of November, but the autumn specimens in Algeria (where emergence commences in March and there are probably three broods) are also small. —
lutescens. ab. (?) **lutescens** *F. Wagn.* Three specimens from Albarracin, September and October, were treated as provisionally a race, on account of their clay-yellowish ground-colour, buc I doubt whether the distinction will prove constant; the only Albarracin specimen before me, though also belonging to the autumn brood. is not at all
herculeana. yellowish. I have no Andalusian, so cannot compare *iberaria Rmb.* — **herculeana** *Zerny*, from the Moroccan Great Atlas, is a large race (length of forewing 14—16.5 mm), smooth-scaled, grey-white, the grey median band seldom sharply contrasting, posteriorly often indistinct (recalling *fluctuata*), the black cell-streak always very
oxybiata. distinct. — **oxybiata** *Mill.* (12 a). In France this interesting and beautiful form reaches Bouches-du-Rhone.
restricta. It is also now well known from the Dalmatian coast. — ab. **restricta** *Schwingenschuss.* founded on a ♂ from Gravosa, taken in October, has the white areas greatly extended, the median band of the forewing much narrowed, irregular, not reaching the costa, interrupted behind the 2nd median, resumed only as a small spot at hindmargin.

tauaria. **C. tauaria** *Stgr.* (Vol. 4, pl. 9 a). According to a communication from Mr. Bang-Haas, his *infernaria* is nothing but a large, unicolorous form of this species.

alexandra-
ria. **C. alexandraria** *Stgr.* (= alexaria *Meyr.*) (12 a). We figure a ♂ belonging to the Tring Museum. Sometimes the median area is considerably broader. The whitish subterminal line is present also on the underside, though weaker and more interrupted than above.

fidonaria. **C. fidonaria** *Stgr.* (Vol. 4, pl. 9 c). In this immediate vicinity belongs *icterica Djakonov*, described on p. 232 of Vol. 4; its discocellulars are not, as in *didymata*, biangulate and I am not yet certain that these variable. bright ochre *Xanthorhoë* represent more than a single species.

incursata. **C. incursata** *Hbn.* (Vol. 4. pl. 9 d). Regarding my remark on the variability of the hibernating stage, Boldt records that the only larva which he has reared pupated in October and produced the imago in May.

The flight-time extends at least to the middle of July, indeed most of the specimens before me are dated from that month, while the northern race probably does not begin to emerge till well on in June and continues into August. Hübner's type was a large, pale ♂ (though probably figured too white), with rather broad median area. — ab. **stenotaenia** *Dannehl* has the median area of the forewing strongly narrowed, so much so in the posterior half as to consist merely of 3 small rings. Davos. — **cindrelaria** *Dannehl*, said to constitute a well-defined geographical race in the South Carpathians at 1400—1800 m, has shorter and broader wings than the typical *incursata* of the Alps, ground-colour light grey rather than brownish, markings mostly very strongly developed, the bands often almost black. Hindwing also well marked, but with the cell-dot very small. Perhaps this should be referred to *monticolaria*? *stenotaenia.* *cindrelaria.*

C. annotinaria *Zett.* (= ? polygrapharia *Bsd.* = septentrionalis *Dannehl*) (12 a). According to some researches which were initiated by Djakonov and have been followed up during the past two years by Heydemann, several species have been confused as *incursata* and are well separable by the genitalia. He will, I hope, publish a full account, but he has very kindly permitted me to correct the outlines of my classification in the light of his investigations. The present species, so far as I know it in its N. Scandinavian forms, is rather small, dull and rather uniform in appearance, the markings being less strong than in *incursata*, the greyish irroration more distributed. The types of the cited names came respectively from Lapland, Dalecarlia and N. Finland. — ab. **decrepitata** *Zett.* is merely a darkened aberration of *annotinaria*, with the markings of the median area better expressed. The name was applied by Stichel and others to the typical form, but Wahlgren has adjusted the synonymy to Zetterstedt's types. — **monticolaria** *H.-Sch.* (Vol. 4, p. 224). Herrich-Schaeffer stated that his *monticolaria* was constant in the Alps; it seems to be more sharply marked, but Heydemann's studies have not confirmed its existence there and we suspect the originals were from Lapland; probably the forms from Murmansk, Leningrad, etc., which Djakonov refers here, belong to *annotinaria*. The shape of the valve differs considerably from that of *incursata*. *annotinaria.* *decrepitata.* *monticolaria.*

C. sajanaria *Prout*. Dr. Heydemann has examined originals in the Püngeler collection and tells me that the genitalia agree with those of the Kamtschatka representative of the group. Although I cannot see that they bear out Djakonov's characterization in the other particulars, they have rather sharp cell-dots and rather less strong projections of the postmedian line than *incursata*. It is possible that two of the members of the group occur in the Sajan district, as an earlier note by Djakonov reports "*incursata*" as very variable there. — **derzhavini** *Djakonov*, founded on 2 ♂♂ from the alpine meadows of the Kljutschevskoi Volcano, Kamtshatka, is said to be smaller and narrower-winged than *incursata*, the ground-colour very pale and the markings weak, cell-dot of forewing large, postmedian projecting very little between the 3rd radial and the 1st median. *sajanaria.* *derzhavini.*

C. semenovi *Alph.* (= lugubris *Stgr.*) (Vol. 4, pl. 10 d). The type locality is Myn-dyn-scha (Amdo), but the well-known Koko-Nor form which was described a year later as *lugubris* shows no significant difference. On the other hand — **ouanguemetaria** *Oberth.* (= ? semenowi *Sterneck*) (12 a), from Szechuan, is a well differentiated local race. This was recognized both by Staudinger (in his original description) and by Alphéraky in 1897, but I was misled by the synonymy given in the Staudinger-Rebel Catalog into quoting all the three names together. Alpheraky emphasizes the presence of a bronzy suffusion over a part of the subterminal line on the forewing beneath as distinctive of the typical race; but the most obvious difference is the increase of black in *ouanguemetaria*, at least on the hindwing above; the median band of the forewing is strongly variable, its white central part occasionally as broad as in typical *semenovi*, generally somewhat or considerably narrower, sometimes incomplete, in extreme cases limited to a small ring around the cell-spot. The specimen from Sunpanting, recorded by Sterneck as *semenowi* (sic) should presumably be referred here. *semenovi.* *ouanguemetaria.*

C. montanata *Schiff.* (Vol. 4, pl. 9 d) has perhaps a more extended distribution than was given: the Tring Museum has a worn ♀ from "Kuliab, Afghanistan" (Kuljab, S. E. Bokhara) which appears to be identical with European forms. Eltringham has used this species as the basis of a very careful investigation and description of the Geometrid tympanum (Tr. Ent. Soc. Lond. 1923, p. 444). — ab. **nigrofasciata** *Osthelder*. Median band blackish instead of the usual brownish brown; frequently also broadened. Said to be characteristic of the lowlands, particularly in dry pine-woods. — ab. **pseudolapponica** (Schawerda M.S.) *Osthelder* is the opposite colour-phase, the band weaker and lighter, sometimes almost evanescent, and is chiefly a mountain form. It recalls the subspecies *lapponica* but is normal in size, etc. — ab. **divisa** *Osthelder* has the band more or less broadly pale throughout its central part, after the manner of *incursata* or *semenovi*. This and the two preceding were described from the South Tyrol; Schawerda adds the Austrian Schneeberg and North Tyrol for *pseudolapponica*. — ab. **candidata** *Nitsche*, a perhaps unique aberration from Piösmös (Pitztal) lacks the median band, which is only represented by a quite weakly indicated triangular spot near the costa. Apparently a more extreme development of ab. *limbaria Hbn.*, I suppose without the heavy subterminal shades. — ab. **feisthamelaria** *Bsd.* is, according to Culot (who figures a fine ♀ from Seine-et-Oise), a rather striking development of ab. *continuata Krulik.*, with the median band broad and bright, the rest of the markings quite weak. Boisduval's type was said to come from Sardinia. *montanata.* *nigrofasciata.* *pseudolapponica.* *divisa.* *candidata.* *feisthamelaria.*

deflorata. **C. deflorata** *Ersch.* (12 a). We figure a ♀ from Transbaikal, belonging to the Tring Museum. As with *montanata*, the median band can be either entire or divided by a pale central stripe.

rectifasciaria. **C. rectifasciaria** *Led.* (12 b). A long series from the Elburz Mountains, N. Persia, shows this to be variable, especially in size and in the colour of the band; as the small specimens are mostly dated April and May, the large ones (none quite as large as Herrich-Schaeffer's figure) June and July, there may probably be two generations, but there are some irregularities in this respect. The band shows exactly the same colour-dimorphism as in *ferrugata*, to which it is evidently more nearly related than to *fluctuata*, wherewith Lederer compared it.

ferrugata. — ab. **ferrugata** *nov.* As the name-type had the median band blackish, it is the red-banded form which requires a separate name; on account of the analogy mentioned above, I call it ab. *ferrugata*. The traversing black lines of the band are strong, more as in some *spadicearia* than in *ferrugata*.

conspectaria. **C. conspectaria** *Mann* (Vol. 4, pl. 12 c) is only known definitely from Madeira. I was not quite accurate in saying that it was "discovered in Sicily"; Mann merely bred a ♀ on 16 November from pupae brought by him from Sicily and determined it as agreeing with a Madeira series in the Vienna Museum, from which — at least as regards the ♂ — his description and figures were taken. I venture to suspect, therefore, that some error crept in concerning the determination or the source of the pupa.

inaequata. **C. inaequata** *Warr.* (Vol. 4, pl. 12 c). In addition to the range of colour-variation which was summarized in Vol. 4, a few ♂ specimens are known in which the median band is differentiable into a paler band in the centre

albodivisa. and a dark one on either side. — ab. **albodivisa** *nov.* (12 b) is the extreme of this development, the central part of the band becoming clear white. Type ♂ from Furnas, S. Miguel, in Museum Tring.

quadrifasiata. **C. quadrifasiata** *Cl.* (= atrofasciaria *Schille*, thedenii *Rbl.*, *Prout*, nec *Lampa*). Our figure (Vol. 4, pl. 9 d, as quadrifasciata) shows the ordinary ♂-form and such forms can occur also in the ♀. The latter, however, shows a much stronger tendency to produce specimens in which the median band is solidly black or (as Schille says of his *atrofasciaria*, a good specimen from Rytro, Galicia) "only a little lightened at costal end". In the interests of exactitude, it is desirable to note that Clerck's type figure shows a large example (presumably ♀) of this black-banded form and even approaches, in the weakness of the markings of the distal area, the

thedenii. extreme aberration *thedenii*; I do not propose, however, to make any further separation. — ab. **thedenii** *Lampa* (= contrastaria *A. Fuchs*). As this name has been indiscriminately applied to all the forms with solid black median band, I give Lampa's original description in extenso: "Median area of forewing almost black, edged distally by a narrow white transverse stripe; distal area brownish ochre-yellow, without markings, only the apex itself with grey spots and a short subterminal. Upland." It will be seen that this is the ♀ of the following, which

brunneofasciata. was described 32 years later. — ab. **brunneofasciata** *F. Hoffm.* "Distal area of forewing of a fine light-brown with very weak markings and scarcely perceptible subterminal line. Central band of ♀ almost black." Described from Styria. Some entomologists may like to separate *brunneofasciata* and *thedenii* as ♂-ab. and ♀-ab. respectively; personally I do not think it necessary. See above on the sexual dimorphism of *quadrifasiata*. — ab.

stenotaenia. **stenotaenia** *Kautz* is a modification of ab. *thedenii* with the median band strongly narrowed, only 2 mm in width, though retaining its distal angulation. Founded on a single example from Upper Austria, but certainly liable

assignaria. to recur. — ab. **assignaria** *Nitsche* (= asignaria *B.-Haas*, *Osthelder*) is not very well described, but has subsequently been recognized by its author to be a transition between *quadrifasiata* and *stenotaenia*, the band

reduplicata. less extremely narrow and less black than in the latter. The type came from Matrei, E. Tyrol. — ab. **reduplicata** *Heinrich* has the black median band cut into two stripes by a complete, moderately broad grey central stripe.

tannuensis. A ♀ was bred from a Berlin larva. The extreme form is rare, but transitions can occur. — **tannuensis** *Prout* (12 b) is a dwarfed mountain race from E. Tannu-ola, N. W. Mongolia, 2500 m, the distal area and the whole of the hindwing and underside relatively weakly marked, otherwise varying in the same way as the name-type.

ignobilis. — **ignobilis** *Btlr.* (12 b). Leech, who sinks this as a s y n o n y m of *quadrifasiata*, says of the Japanese forms that "some of the specimens are much suffused, others agree with the type of *ignobilis Butl.*", thus allowing us to assume some geographical differences from the European. Rebel associates it with aberrations from Upper Hungary and Graz, under the diagnosis "strongly grey coloured". It is certainly best to conserve the status as a race, for in the aggregate the impression is definitely of a duller, more unicolorous insect that *quadrifasiata*, the white line outside the postmedian slight, the brown shades of the proximal and distal areas apparently never conspicuous, the blackening of the median area very seldom strong, the tendency much rather

divisa. in the direction of the *dissolutaria* (*Petersen*) forms, see Vol. 4, p. 226. — ab. **divisa** *nov.*, which I have only seen well developed in a few specimens of the Japanese race, has the median band broadly bisected by a pale central stripe.

spadicearia. **C. spadicearia** *Schiff.* (Vol. 4, pl. 9 e). The distinctions between this species and *ferrugata* are now very generally understood and it is probably unnecessary to recapitulate or extend the enumeration of them. It may, however, be mentioned that Fritz Hoffmann, in an excellent differentiation which had already been published before the appearance of our Vol. 4, gave as further recognition-marks for the larva the much darker ventral stripe and the much better developed black spots below the spiracles. Reference may also be made

to Niesiolowski (Polsk. Pism. Ent., Vol. 6, p. 90), Lempke (Ent. Ber., Vol. 9, p. 2), Derenne (Lambill., Vol. 34. p. 74) and particularly Warnecke (Int. Ent. Zeitschr., Vol. 25, p. 77, 85). The last-named author correctly observes that the readiest distinction in the genitalia (easily seen with a quite moderate hand-lens) is in the costa, which in *spadicearia* is more produced and much more strongly curved (to at least a right-angle with its base). — ab. **tromsoënsis** *A. Fuchs* (= tromsoeënsis *Strand*) (Vol. 4, pl. 9 e, as alpinata). As this is a rather s m a l l and not very sharply marked local aberration in northern Scandinavia, it was probably inaccurate to sink to it the following. — ab. **alpinata** *F. Hoffm.* (12 c), rather prevalent at high altitudes in Central Europe, etc. (1300 m and upward), is generally large and well coloured, though with the same strong expression of the black lines on the light red median band as in *tromsoënsis*. — ab. **griseocamparia** *Vorbrodt* is a development of *alpinata*, still more variegated, the centre of the median area being narrowly light-grey, only its margins cherry-red. Noticed from Novaggio and Mte. Generoso. — ab. **emutata** *F. Wagn.* is a still further development, mainly yellowish white, the centre of the median area b r o a d l y pale, the markings standing out strongly by contrast. The type was from Riva, Gardasee, but a few other examples are known. — ab. **georgi** *Meissl* has been recorded from S. Bavaria by Osthelder, but his figure and description shows that he uses the name for any much darkened (grey-black) form with the markings obsolescent. Meissl's type came from the Vienna Schneeberg. — ab. **radiata** *Dioszeghy*, from the Retyezat Mountains, seems to be a curious individual aberration, dirty white-yellow, the lines obsolete, the median band brown-grey, its distal teeth rounded off, the terminal area (from the position which would normally be occupied by the subterminal) rayed with brown on the veins. — ab. **effusa** *L. Müll.*, like the *citrata* aberrations which are thus designated, has the pale band outside the median area fused with the brown terminal band. A ♂ from Warscheneck, Upper Austria. It is by no means certain that. — ab. **extrema** *C. Schneid.*, a weakly marked Württemberg specimen with the median band of the forewing shading off into the (poorly marked) distal area, deserves separating. Dr. Müller himself occasionally applied his "collective name" to this fusion of the median band with the pale area beyond (e. g. *alternata* ab. *effusa*). — ab. **nigrofasciata** *Djakonov* is a rare form with the median band blackish, as in *ferrugata* ab. *unidentaria*. Described from the Sajan Mountains. I have seen a slight modification from the same district, with the ground-colour unusually white. Lempke has recorded ab. *nigrofasciata* from Holland. — The supposed races of *spadicearia* are really closely allied species.

tromsoënsis. *alpinata.* *griseocamparia.* *emutata.* *georgi.* *radiata.* *effusa.* *extrema.* *nigrofasciata.*

C. asiatica *Stgr.* (12 c). Described in Vol. 4 (p. 226) as a race of *spadicearia*, seems to differ constantly not only in the almost straight postmedian line, the reduced or obsolete cell-dot of the hindwing and in the ♀♀ the absence of the dark border of the hindwing but also in the ♂ genitalia, the valves being more compressed. I have seen it from various localities, Alexander Mountains to Lake Baikal. It varies a little in coloration and in the strength of the markings, but apparently far less than *spadicearia*.

asiatica.

C. insperata *Djakonov* (= inspersata *B.-Haas*), described without reference to *asiatica*, must surely be nearer to that than to *spadicearia*. From the very careful description I can gather nothing that would differentiate it except its rather smaller size (expanse "19,5—20 mm"), the subterminal spots at the radials still more obsolete, cell-dot of hindwing more distinct, both wings beneath more strongly darkened proximally and possibly the wings narrower and more produced. The shape and orientation of the valves perhaps also differs and there may be differences in the aedoeagus. Buiba Lake, Sajan Mountains, 27 June and 2 July, 1 ♂. 1 ♀.

insperata.

C. stupida *Alph.* (12 c). This is also a separate species and notwithstanding its superficial likeness to pale *ferrugata*, has nearly the genitalia of *spadicearia*, the costa of the valve ("harpe" of Vol. 4, p. 226) lacking the angular prominence which characterizes *ferrugata*; spines at orifice of aedoeagus more numerous than in either. It seems to be widely distributed in eastern Palaearctic Asia; Sterneck has added Szechuan and Corea to its recorded range. The latter may belong to the following race. — **aridela** *subsp. nov.* (12 c) is smaller (25—28 mm), paler, distal area of forewing except at costa weakly marked, the spots at the radials generally very small. Saccus more abruptly narrowed near its end. Chabarovsk, Ussuri, 2—17 June (E. Borsow), 9 ♂♂, type in Tring Museum. Specimens from the Inn-shan and perhaps from Szechuan may, to judge from very insufficient material, be somewhat intermediate between *stupida* and *aridela*.

stupida. *aridela.*

C. ferrugata *L.* (Vol. 4, pl. 9 e). Perhaps less variable individually than *spadicearia* but more prone to develop geographical races, both in the Palaearctic and the Nearctic Region. Those of the latter fauna, comprehensively known of *f. inclinataria Walk.*, will be considered in Vol. 8. — ab. **ruficostata** *Prout*. In dealing, many years ago, with the minor variations which are often transmitted by heredity (Trans. City Lond. Ent. Soc., Vol. 8, p. 30) I used this name for the forms in which the median area of the forewing, predominantly black (ab. *unidentaria*), was definitely reddened at the costa. I now doubt whether it needed a name, but think it necessary to put its existence on record. — ab. **obscura** *Dahlström*. "Forewing with median area dark red, base and outer margin dark ochreous, almost brown; hindwing dark grey." Hungary. As this was erected (1900) at a time when continental entomologists had not learned the delimitation of typical *ferrugata* and *spadicearia*, there is no certainty that this does not refer to a very dark aberration of the latter; in fact, my nearest match to it is a (rubbed) *spadicearia* from S. Devon. Without access to the type, no certainty can be

ferrugata. *ruficostata.* *obscura.*

violacearia. reached. — ab. **violacearia** *Vorbrodt*. Dark violet grey, without the cell-dot, a broad violet-grey shade developed proximally to the subterminal, the distal border of the forewing grey. Recalls *unifasciata*. Novaggio. — ab. *hoyeri.* **hoyeri** *Prüffer*. Median band uniformly black, cell-dot obsolescent, distal area orange-brownish, feebly marked, space between basal patch and median band also distinctly orange-tinged. Described from Cracow district. *malaisei.* but of general occurrence. Parallel to *quadrifasiata* ab. *thedenii* — **malaisei** *Djakonov* (12 c) from Kamtchatka, has the forewing rather narrower and more pointed, the ground-colour more uniformly ochre-yellowish, the postmedian almost or quite without projection. As the genitalia shows some slight deviations, this reads rather *nigrofasciata.* like another separate species. I only know one worn specimen, which somewhat recalls *asiatica* (12 c). — ab. **nigrofasciata** *Djakonov* has the median area black, corresponding to *f. ferrugata* ab. *unidentaria*.

B. Antennal pectinations rudimentary, bearing fascicles of cilia.

The name *Ochyria* is not applicable to this subsection, for the type of *Ochyria*, selected by Hulst, is *quadrifasiata Cl.* As it has — at least in part — a really close relationship to some *Xanthorhoë*, the division is more a matter of convenience than of phylogeny. *C. apiciata*, with elongate forewing and appreciably bi-angulate discocellulars of the hindwing, has been removed to *Coenotephria*.

saturata. **C. saturata** *Guen.* (Vol. 4, pl. 7 f). It has not yet been found possible to establish the existence of separate races of this widely distributed but not particularly variable *Cidaria*. Tonkin and Formosa should be added to the given range; on the other hand South Africa is to be cancelled (see Vol. 16, p. 86, pl. 9 c. *exorista Prout*). The type locality of *saturata* is Pondicherry, of *exliturata Walk.* "S. India", of *livida* and *inamoena Btlr.* Yokohama. Sterneck, in recording abundant material from Szechuan (Stötzner) stresses the probability of its near relationship to *ferrugata* and the phylogenetic value of wing-pattern as compared with that of ♂ antennal structure.

angularia. **C. angularia** *Leech* (12 d) remains rare and has been little studied, but will probably prove to be a dark form (ab. loc.) of the following, with broader band than in typical *biriviata*.

biriviata. **C. biriviata** *Bkh.* (Vol. 4, pl. 9 e. as pomoeraria). Japan should be added to the range. Two Hokkaido ♀♀ are almost typical; Hondo specimens seem to be *angularia* (see above). Some E. Siberian may be transitional. *abditaria.* — ab. **abditaria** *H.-Sch.* (12 d) is somewhat strange-looking on account of the different shape of the median band, but I would delete Staudinger's query regarding the determination. The type, a ♀, came from Erlangen. *latianaria.* — ab. **tatianaria** *Krulik*. Basal area of forewing yellowish grey, with lighter lines very weakly marked, marginal area the same, with the postmedian double stripe very little lighter, apical region strongly darkened. Viatka. *reduplicata.* very rare, typical *biriviata* common. — ab. **reduplicata** *Heinrich*. Median band divided into two separate bands by a grey central part. Bred in Berlin. As ab. *divisa*, Osthelder redescribed the same form from S. Bavaria. Extreme developments of it are rare, but intergradations quite frequent.

designata. **C. designata** *Hufn.* (Vol. 4, pl. 9 e). Corsica has recently been added to the range, on a specimen taken at Vizzavona. Mr. W. G. Sheldon, however, took *designata* at Bastelica in 1905. I have also before me a dark-marked example from the Elburz Mountains. The North American race, *emendata Pearsall*, differs slightly from the Old-World forms in the ♂ genitalia and has some claim to be treated as a separate species. — ab. *interrupta.* **interrupta** *Hannemann* is merely described as having the median band of the forewing interrupted. — ab. **suffusa** *suffusa.* *Hannemann* has the forewing brownish grey with washed-out markings, the hindwing whitish. Both this and *inversa.* the preceding were described from Berlin. — ab. **inversa** *Vorbrodt* is dark ash-grey suffused with chestnut-brown, the median band of the forewing white, slightly dusted with yellow-brown. Haggen-Bruggen, Switzerland. — *binderi.* ab. **binderi** *Stauder* (12 d). Median band delicate rosy flesh-colour, with its dark markings relatively weak. *hafneri.* Type a ♂ from the Innsbruck district. — ab. **hafneri** *Stauder*. Median band paler than usual, the ground-colour also pale, therefore not identical with ab. *suffusa*, though perhaps scarcely worthy of a name. Founded on *islandicaria.* a pair from Crna Prst, Carniola, 1300 m. — **islandicaria** *Stgr.* (12 d). To the description in Vol. 4 (p. 228) add: distal area of forewing sometimes quite without markings except the pale brownish costal mark. Djakonov *faeroensis.* notes some Sibirian forms as approaching the Icelandic. — **faeroensis** *Wolff* (= faroensis *B.-Haas*) (12 d). Median area of forewing whitish, with very little tinge of red, its proximal dark band broadened and intensified, its distal also greatly strengthened; basal patch usually with a dark admixture, hindwing often with some tendency to darker as far as the postmedian. Faroe Islands, common. Occasionally *islandicaria* is very similar, but on the Faroes the peculiarities are fixedly racial and (at least in my specimens) the size is small. — The egg of *designata* is roundish oval, very slightly flattened at micropylar end; micropyle conspicuous; colour yellow.

rectantemediana. **C. rectantemediana** *Wehrli* (13 c). Very similar to *designata*, ciliation of ♂ antenna somewhat shorter. Head less brownish. Forewing with antemedian straight, subbasal also straight after its angle close to costa; median band little broader anteriorly than posteriorly; the reddish flush in the ground-colour, often observable in *designata*, wanting. S. Ussuri. In the absence of authentic ♂♂ from Japan, I refer here the rather variable Yezo ♀♀, of which at present I know only a few, which have the general tone and the straightish subbasal

and antemedian lines of *rectantemediana*; I rather suspect, however, that further material will show the Japanese to be a distinguishable race.

C. mecoterma *sp. n.* (12 d) is also similar to *designata* but with the antennal ciliation shorter, the valve without the projecting arm of that of *designata*. Forewing more elongate than in *designata* and *rectantemediana*, termen more oblique; subbasal and antemedian as in the latter, median band in both sexes rather narrow, postmedian weak, at least in posterior half, its sinuosities slight; distal area and hindwing weakly marked, similar in tone to *designata*. Kashmir Valley, 8500 feet, 14 June 1903 (Colonel Ward), type ♂ in the Tring Museum; a ♀ from Thundiani, larger but perfectly agreeing, in the British Museum. *mecoterma.*

C. bigeminata *Christ.* (13 c). As I have not been able to obtain any material of this species, I add to the description given in Vol. 4 (p. 228) a copy of the type figure; the original, a ♂, was taken on rocks, together with *acutangulata*, presumably in May. It will be seen that the "two narrow fuscous bars" of the forewing are pairs of lines, hence the name; Christoph points out as a further distinction from *designata* the more strongly (almost rectangularly) bent antemedian. *bigeminata.*

C. modestaria *Ersch.* (13 c). Here also we are only able to reproduce the already published figure. As Wehrli says, the lack of teeth or projections in the postmedian line is alone sufficient to preclude the possibility of a union with *rectantemediana*. *modestaria.*

Subgenus **Nycterosea** *Hulst* (= Percnoptilota *Hulst*). Antenna of ♂ with paired fascicles of cilia. Hindwing in both sexes with the 1st median at least connate, nearly always stalked, with the 3rd radial.

C. obstipata F. (♂ = quaerendaria *Costa*, brunneipennis *Hulst*) (Vol. 4, pl. 9 e). Although the distribution was known to be almost world-wide, I believe Japan was not added till 1915. Raebel in 1927 published some notes on breeding the species; he obtained 3 generations in 3 months (22 July to 21 October). — ab. **interrupta** *Schawerda*, like other Larentiid aberrations of the same name, has the median band interrupted behind the middle. Founded on a ♂ from the Croatian coast. Reisser has recently recorded one from the Riff Mountains. — ab. **purpurea** *Dannehl.* ♀♀ deep purple-red without the black-grey median band or grey-brown shades; ♂♂ with a strong red suffusion are also referred to the same aberration. South Tyrol. — ab. **albicinctaria** *Haw.* (= marginata *Mathew*). Haworth's name has been much overlooked, but certainly belongs to *obstipata* and I think supersedes Mathew's *marginata*. *interrupta.* *purpurea.* *albicinctaria.*

Subgenus **Orthonama** *Hbn.* Structure as indicated in Vol. 4, p. 228 (section C of *Xanthorhoë*), hindwing with 1st median separate.

C. lignata Hbn. (Vol. 4, pl 9 f) ab. **molarum** *V. Schultz.* White - brownish, with all the markings much lighter than in the type. Lippe. — ab. **microvittata** *Strand*, an undersized ♂ from Ignalino, Lithuania (length of a forewing 11 mm), was considered provisionally worthy of a name in case the dwarfing were a racial tendency, since Nolcken also noted the Baltic specimens known to him (2 only!) as small. — ab. loc. (? subsp.) **infumata** *Warnecke*. More or less strongly darkened with a brown suffusion, the markings remaining distinct. Apparently constant in the Petrosawodsk district, Russian Karelia. *molarum.* *microvittata.* *infumata.*

Subgenus **Colostygia** *Hbn.* (= Calostigia *Hbn.*) (see Vol. 4, p. 229). Of the two spellings given concurrently by Hübner, Aurivillius has preferred the former and I find this is supported by Hübner's own "Anzeiger".

C. albigirata *Koll.* (Vol. 4, p. 229). The synonymy given in previous works, including my own, is inaccurate; *albigirata Koll.* (Masuri) = *signata Moore* (Darjiling) = *thomasata Warr.* (Thundiani) is a common Himalayan species (Kashmir to Upper Burma), with the antennal pectinations rather long, the postmedian line as described in Vol. 4, on the hindwing also more or less angulated in the middle. — **serpentinata** *Led.*, founded on a ♀ from the Altai, also has, according to Alphéraky, long pectinations in the ♂ and is probably a race of the same, apparently with a less extreme inward angle of the postmedian, but I have seen no material for forming a definite judgment. *albigirata.* *serpentinata.*

C. jameza *Btlr.* (= askoldaria *Oberth.*, jamesa *Alph.*) (Vol. 4, pl. 9 b, as albigirata) has the pectinations only about ½ the length (scarcely twice the diameter of the shaft), the irregularities of the postmedian line much less profound. Oberthür, in erecting his *askoldaria* on a single ♀ from Askold, found some small differences from the type figure of the Japanese *jameza* (Hakodaté), but I must at present follow Alphéraky and Staudinger in uniting the two names. A small form from Szechuan probably also belongs here. — **viperata** *Alph.*, founded on a ♂ from Myn-dyn-scha, 4 June 1890, may well be a race of *jameza*, a possibility which its author did not overlook. The antennal differentiation used *serpentinata* for comparison, the colour-distinction which we quoted in Vol. 4 (p. 229) holds as against *jameza* also and the dark lines on the median area are hardly indicated in *viperata*; Alphéraky adds that *jameza* differs from both *viperata* and *serpentinata* in the more strongly marked hindwing. *jameza.* *viperata.*

ustipennis. **C. ustipennis** *Hmps.* (Vol. 4, pl. 11 f) remains very scarce in collections, but the Tring Museum has a ♀ from Simla. The ♂ pectinations are scarcely longer than in *jameza* and it is not absolutely impossible that *viperata* may prove to be a synonym. Angulations of the lines weaker than in *jameza*, distal area more weakly marked, etc.

aptata. **C. aptata** *Hbn.* (Vol. 4, pl. 9 a). In most localities very variable (but see subsp. *juracolaria*). Those entomologists who have had the advantage of collecting it in numbers in the field, and have made a careful study of it, find interesting geographical variation. The fading of the delicate green tone in preserved specimens makes some of the distinctions less apparent subsequently and I can do little but summarize the forms which *polonica.* have hitherto been named. — ab. **polonica** *Prüffer.* Median band of forewing almost normal in width anteriorly. *stenotaeniata.* much narrower (⅓ width) from the 2nd median hindward. Polish Tatra. — ab. **stenotaeniata** *Nitsche.* Median band of forewing only ⅓ of the normal width, that of the underside of the hindwing wanting. One specimen *griseata.* taken in the Grosse Fleiss valley, Carinthia. — ab. **griseata** *Djakonov.* Ground-colour on both sides of the band densely irrorated with grey, so that the forewing appears much darker than the normal. Lake Tiberkul, *suplata.* 2 ♂♂. — ab. **suplata** *Frr.*, founded on a specimen from Laibach (Carniola), was at first believed by Wehrli (as by earlier authors) to be identical with *pontissalaria*, described below; but further study has convinced hin that it is merely a strongly dark-banded aberration with the green tinge lost by fading. The median band is not, as I wrote (Vol. 4, p. 229), "unicolorous" fuscous, but contains, like typical *aptata*, a paler central stripe. *hesperina.* — **hesperina** *Wehrli* (12 e), from Valais and (on an average slightly smaller, but treated as synonymous) from the Maritime Alps, is a somewhat more pointed-winged form, with the green median band less sharply differentiated that in Hübner's type. Culot (fig. 509) correctly figures this from Zermatt as an "alpine form", without giving it a separate name; the preponderance of specimens collected in the localities named, at 1400—1800 m, *decompositata.* belong to it. The Albanian form is said to be closely similar. — **decompositata** *Dannehl*, evidently akin to *hesperina*, is another high altitude form, constant at sufficient elevations in the Gran Sasso (type) and on Monte Velino. Small and strikingly narrow-winged, dirty white, the markings light-grey with scarcely a touch of green, the median band somewhat dissolved into lines, proximally diffuse (not sharply defined), the distal *pontissalaria.* markings formed of fine faint lines. — **pontissalaria** *Brd.* (= suplata *Wehrli* olim, nec *Frr.*) is a really brown-banded form (contrast ab. *suplata*), even perfectly fresh specimens showing no trace of green or greenish in the median area; underside considerably darker than in typical *aptata*, in fresh specimens always with a brown tone which is wanting in even the darkest *aptata*. Perhaps (as both Bruand and Wehrli at first believed) a separate species, or at least a "species in the making", but no structural difference has yet been found. Constant in the French and Swiss Jura, though three colour-forms can be differentiated. Wehrli notes an extremely interesting and significant distinction in the resting-habit; whereas *aptata* sits on rocks or stones, he has taken all his *pontalissaria* on Abies, either among the branches or on the trunks, so that its coloration is probably adaptive. Bruand's type, from Mt. Larmont, near Pontarlier, had the band of an "intense brown", but the figure shows a reddish tinge and Culot has applied the name to the most red-brown banded aberration. — *nigrofasciata.* ab. **nigrofasciata** *Wehrli* (= nigrifasciata *Wehrli*) has the band uniformly blackish. — ab. **jurahelvetica** *Wehrli* *jurahelvetica.* (12 e) has the band of a "fresh light-brown". Overlooking the priority, Wehrli proposed this name for the whole race. — **juracolaria** *Osthelder* (12 e), from the Bavarian Jura, has a closely similar dark underside to *juracolaria.* *pontissalaria*, but differs essentially in that the upperside is very green, with the black element much reduced. Wehrli suggests that the two may have had a common origin in spite of their different protective guise. Unlike the other forms, *juracolaria* is very constant. It is very local at the foot of the Michelsberg, near Kelheim, its period of flight almost confined to the second half of June.

desolivata. *C. olivata Schiff.* (Vol. 4, pl. 9 a) ab. **desolivata** *Schawerda* is described from Herzegovina as blackish, without green scaling, recalling *aptata* ab. *suplata*. Culot has redescribed and figured it as ab. *nigricata*.

fitzi. **C. fitzi** *Schawerda*, originally erected as a very light race of *olivata* "superficially recalling *aqueata*", was discovered in Herzegovina. Subsequently it was taken at Zengg and treated as a separate species, as it was found that typical *olivata* occured with it in Herzegovina. Then it was discovered in some numbers at Gravosa by Schwingenschuss and Wagner in a form which lacks even the faint greenish tinge of name-typical *fitzi*; but it seems to me impossible, notwithstanding some similarity in the markings, to confuse any known form of it with *olivata*. The appreciably broader wings, as well as the entirely different coloration, with less *cinerea.* differentiated median band, create quite a different impression. — **cinerea** *Schwingenschuss* (12 e) is this prevailing grey, darker-sprinkled Gravosa form and is said to look confusingly like *salicata probaria*. A very few *argillacea.* name-typical *fitzi* have occurred among it as a rare aberration. — ab. **argillacea** *Schwingenschuss*, a very rare aberration, is the most striking form yet known, the median band assuming a definite hazelnut colour. Gravosa. — About a dozen eggs were obtained by Schwingenschuss from a captured ♀ and the larvae, which hatched at the beginning of November, placed on a plant of Galium mollago in a large glass. A few were successfully hibernated, attained their full growth about May and produced moths from 26 August to middle of September. The full-grown larva is short and stout, earth-brown, rugose; dorsal line red-brown, only distinct on the last segment, subdorsal, lateral and ventral lines equally indistinct. Head brownish, immediately followed by 4

characteristic red-brown spots; tubercles throughout with long setae; last segment above with 2 brownish, sometimes confluent-spots. Very sluggish.

C. pectinataria *Knoch* (Vol. 4, pl. 9 a). Cockayne has described and figured an interesting pathological aberration taken in Sutherland: along the costa of the forewing perfectly normal, the rest silvery grey with pale grey markings representing the usual black areas; under the microscope it is seen to be perfectly fresh, but with the scales unpigmented and sparse, showing the wing-membrane between, while the grey effect is due to normal black scales, greatly reduced in number. — ab. **constricta** *Prout*. Culot (13 c) has recorded and figured a ♀ from Bourg-en-Bresse (coll. Oberthür), here reproduced. — ab. **rosea** *Wehrli*. All the green changed to yellowish rose. The type, from Fringeli, Bernese Jura, is perfectly fresh, n o t a result of fading. — ab. **haemataria** *Henriot* is a further development, the ground-colour reddish brown with the normally black markings deeper red-brown; in ab. *rosea* they retain their black colour. Lacave (Lot), 1 ♂. — ab. **harcynica** *Boldt*. Ground-colour white instead of green. One example bred from Galium harcynicum in the Taunus. Boldt had earlier met with the form in good condition in the Radautal, near Harzburg, in sufficient numbers to make him believe it was not a mere case of fading but a genuine local modification. — gen. aest. **aslae** *Agenjo*. Much smaller than the type (7 to 9 mm against 12 to 14) and — probably attributable to humidity at the time of emergence — lacking the beautiful green colour of the forewing. Arceniega (Alava), rare in August at light. Second-brood *pectinataria* are generally small and I suppose the name, if used at all, should apply irrespective of the colour.

pectinataria. *constricta.* *rosea.* *haemataria.* *harcynica.* *aslae.*

C. turbata *Hbn.* (Vol. 4, pl. 9 a). Seifers has made a further attempt (see Int. Ent. Zeitschr., Vol. 23, p. 444) to elucidate the biology. He obtained eggs from a captured ♀ and describes them as long-oval, flattened, yellow changing to rose-red. The larvae hatched in about a fortnight and were brown with darker head. Unfortunately they accepted neither larch (among which the moths were taken) nor any of the low plants, lichens nor algae which were observed growing in the locality. — ab. **latifasciata** *Schwingenschuss*, a ♀ from the Triglav district, has the median band unusually broad, the rest of the forewing predominantly white (notably so the area between basal patch and median). — ab. **blachierata** *Culot*, also a ♀, is somewhat analogous to *latifasciata* in the weakening of the markings of the antemedian and distal regions, but very distinct in the curious smoky light-brown coloration of these parts and has the median band of about normal width, blackest at its edges; hindwing somewhat darkening from base to postmedian line, then suddenly pale, the terminal border narrow. Plans-sur-Bex (Alpes Vaudoises). — **pyrennaearia** *Oberth.* (12 e, f). F. Hoffmann has taken exception to my diagnosis, which was quoted from Staudinger's Catalog. The special characteristics of the forewing, particularly well developed in the ♀♀, are the whiteness of the ground-colour and a tendency for the central stripe of the median band to become markedly pale or white. On the hindwing the dark border is usually a little broader than in the other forms, but not at all constantly so. — ab. **rondoui** *Culot* is a pretty modification of *pyrenaearia* with the dark median band greatly narrowed, succeeded distally by a much broadened white band. — **altaicata** (*Stgr.*, M. S.) *Djakonov* is a local race from the Altai and the vicinity of Minussinsk, clear grey to black-grey, not mixed with olive-brown, markings on an average much less sharp, especially in the distal area, in which only the subterminal is developed.

turbata. *latifasciata.* *blachierata.* *pyrennaearia.* *rondoui.* *altaicata.*

C. kollariaria *H.-Sch.* (Vol. 4, pl. 9 b). Ova were obtained by Dr. L. Müller from 2 ♀♀ which were taken at light in June 1932 and the species successfully bred by Sigmund Hein. The larvae hatch in about 8 days. In the first stage they are light yellow-brown, without definite markings; such begin to assert themselves in the 2nd stage and in the 3rd the markings (under magnification) consist of dark red-brown dorsal, subdorsal and supraspiracular lines, the latter on each of the middle segments curved upwards, spiracular line broad, whitish, subventral strongly thickened in the middles of the segments. In the adult larva the light lateral stripe is still more sharply bounded above, dorsal line interrupted on the 5 middle segments by dark wedge-markings. Very sluggish, feeding only at night. They were fed on the blossom of Valeriana tripteris and would not take the leaves. Commenced to pupate, on the earth and in moss, on the 28th August, the pupae hibernating. Dr. Schawerda gives, as the ascertained range of *kollariaria* in Austria and eastward, the Schneeberg and Dürrenstein districts, Styria, Carinthia, Carniola, the Tyrol and Bosnia. For his further notes and comparisons with *laetaria*, see under that species. — ab. **bicoloraria** *Culot*, the original pair from the Austrian Alps, in the Oberthür collection, represent one of the well-known phases of Larentiid variation, the dark scaling of the forewing concentrated almost entirely in the basal patch and median line, leaving the other areas dirty whitish, with the lines obsolete. — **feusteli** *Dannehl*, according to a series of 13 ♂♂, 7 ♀♀, is a constant race in the Nonsberg district, S. Tyrol, large, scarcely greenish-tinged, all the markings rather blurred, median band not prominent, hindwing whitish silver-grey; recalls *caesiata*. In the Dolomites, according to Dannehl, the form is *k. kollariaria*, but a single specimen brought thence by Dr. Jordan happens to be almost a *feusteli*.

kollariaria. *bicoloraria* *feusteli.*

C. laetaria *Lah.* (Vol. 4, pl. 9 b) is now very generally recognized as a good species. It has been studied a good deal by Ehinger in its haunts in the southern Black Forest and bred both from the egg and from collected larvae and the early stages have been described in the "Archiv für Insektenkunde des Oberrheingebiets"

laetaria.

1930, p. 276, though of course without reference to those of *kollariaria*, which were at the time unknown. It, too, feeds on valerian, is full-grown about the beginning of October and the pupa sometimes hibernates, producing the perfect insect in May. According to Dr. Fritz, of Heidelberg, the l a r v a e hibernate and do not pupate until the beginning of May. Schawerda emphasizes that *laetaria* does not occur at all in the old Austrian monarchy, all the supposed records referring to *kollariaria* and its aberrations. *laetaria* is recorded from the Swiss and French Alps and locally in Baden. The Vogesen record is said to have been based on a misidenti-
culotaria. fication of *miata*, but Warnecke (1932) thinks it may have been the true *laetaria*. — ab. **culotaria** *Ehinger* is an abnormally coloured ♂ which its author bred in 1929: ground-colour of forewing black-grey instead of light green, basal patch black-grey, median band throughout dull black, the part around the deep-black cell-dot scarcely lighter than the rest, the white boundary lines of basal patch and of median band indicated. — ab.
insulata. **insulata** *Schawerda* has the median area divided into a number of isolated segments.

püngeleri. **C. püngeleri** *Stertz* (12 f). We now figure a ♂ of this fine species. We have no description hitherto of the early stages: Püngeler obtained eggs in captivity, but the larvae rejected the foods offered them.

varonaria. **C. varonaria** *Vorbr. & Müll.-Rutz* (12 f). According to Wehrli this should be placed between *püngeleri* and *austriacaria*; in colour and markings nearer to the former, in shape and antennal structure to the latter. The record by Osthelder of a possible new subspecies in S. Bavaria was rendered doubtful by the somewhat longer and more erect pectinations of the ♂ — more as in *austriacaria*.

austriacaria. **C. austriacaria** *H. Sch.* (Vol. 4, pl. 9 b). The altitude at which this occurs in Austria ob der Enns should, according to Dr. L. Müller, be 2200 m, not 1000 m, as formerly given by Hauder. There are a few apparently authentic records for Switzerland and its occurrence in the Pyrenees at great altitudes, sometimes in abundance, is well documented, see Rondou, Ann. Soc. Ent. Fr., Vol. 103, p. 282. The early stages have been very fully described by Kitschelt (28. Jahresber. Wien. Ent. Ver. p. 111—117), who bred it from eggs laid by a Raxalp ♀, feeding it on Galium verum and other species of the genus. The pupal stage was reacted in December, the moths developed in April, but failed to emerge, presumably on account of the artificial conditions in captivity. The larva is at first black-brown, but after the 2nd moult assumes the characteristic dorsal pattern of triangular (anteriorly pointed) spots.

kitschelti. **C. kitschelti** *Rbl.* is a recent discovery in the *austriacaria* group. Palpus long. Forewing length 18 to 20 mm. Nearest *püngeleri* but larger, median area broad, bandlike, its central stripe of the light-grey ground-colour, its margins, as also a narrow subbasal band, much darker grey, especially in the ♀, terminal paired dots strong. Adamello district, S. Tyrol. Antenna only $^2/_5$ length of forewing, ♂ pectinations longer than in *austriacaria*, not appressed, wings whiter grey, sharper-marked.

tempestaria. **C. tempestaria** *H.-Sch.* (Vol. 4, pl. 9 b). Our figure, taken from a ♂ from the Kermasattel, Triglav, somewhat exaggerates the strength of the markings of the upperside, but this fine species cannot be confounded with any other yet known. In sunny weather the ♂ is very shy, but when it is dull or cold both sexes become sluggish

aqueata. **C. aqueata** *Hebn.* (Vol. 4, pl. 9 b). There is a biological note in the Mitt. Münch. Ent. Ges., Vol. 13,
nevadensis. p. 58, by C. Schneider, who finds the larva will feed only on Galium mollugo. — **nevadensis** *Reisser*. Essentially darker than the other races, of a more ochreous grey, without any tinge of green, the markings on an
pyrenaeata. average much sharper than in *a. aqueata*, notably (in the ♂♂) the median band. Sierra Nevada. — **pyrenaeata** *Bubaček* = pyreneata *Bubaček*) is a race (or ab. loc.) from the Gèdre district of the Pyrenees, both wings smooth,
jurabia. glossy, leaden-grey without greenish tinge, median of forewing somewhat darker. — **jurabia** *Wehrli* (12 f) is a much lighter, more sharply and more contrastedly marked form from the Jura. The form from Digne appro-
hercegovinensis. aches it. — **hercegovinensis** *Rbl.* (12 g) occurs also in the Abruzzi in a very closely similar, of not absolutely identical form. Albanian specimens are without green, but are darker (greyer) than *hercegovinensis*.

stilpna. **C. stilpna** *Prout* (12 g). Distinguishable from *aqueata* by the somewhat narrower and more pointed wings, the outward projection of the postmedian line weaker or wanting; the wings at least as strongly glossy as in that species. Only known in a few ♂ examples from Digne, the ♀ still awaiting discovery.

cyrnea. **C. cyrnea** *Wehrli* (12 g) is another glossy species, the antennal pectinations shorter than those of *salicata* (not "ciliation", as described by Kitt), palpus considerably shorter than in either of the comparable *Colostygia*. Less dark than *olivata*, especially the hindwing; median band broader and with stronger projections than in *aptata*, but less broad than in *fitzi*, which morever is broader-winged; from all forms of *salicata* (sens. lat.) Wehrli differentiates it by its black-and-white ringed antenna, longer fringes and almost complete terminal line of the hindwing, etc. Corsica, discovered in 1925 on Monte d'Oro at about 1900 m. Type-form grey, with
gerda. a tinge of green. Flight-time July. — ab. **gerda** *Schawerda* has the forewing ochre-yellow, the markings normal.
incudina. A ♀ from Monte Renosa, another from Col de Bavella, 1300 m. — ab. **incudina** *Schawerda* is smaller (20—21 mm against 22—26) and lighter, with the basal patch and dark borders of the median area sharply contrasting. All the 3 *cyrnea* taken on Monte Incudine are referable here.

C. schneideraria *Led.* (Vol. 4, pl. 9 c). Specimens from Bscharre, Northern Lebanon, show, according to Zerny, pronounced transitions towards the form *taurica*, but not much material has yet been obtained from that locality and it was mostly in poor condition (June and early July). — **taurica** *Stgr.* (12 g). We figure a perfect ♂ of this form, somewhat less dark than some examples, but otherwise typical. *schneideraria.* *taurica.*

C. salicata *Hbn.* (9 b) with its forms and closest relatives still demands intensive study. Structural distinctions have not yet been demonstrated except in the case of *ablutaria*, where the ♂ pectinations are (as P. Schultze has correctly pointed out) decidedly longer; but even there, no difference has yet been found in the genitalia, so that those entomologists who rely almost implicitly on these differences are inclined to refuse it the status of a species. Klimesch in 1928 discussed some of the forms, figuring the aberrations *nigrotaeniata* and *stenotaeniata* besides a dusky, black-grey dusted ♀ from Waschenek, which is weakly marked excepting the boundaries of the median area of the forewing anteriorly. — ab. **nigrotaeniata** *Schwingenschuss* has the median band entirely dark, well contrasted with the lighter areas which border it, the premarginal region also darker than in the type form; a sprinkling of yellow scales in the basal and outer parts of the forewing. Founded on a ♀ from Grödental, S. Tyrol. The modification figured by Klimesch lacks (like all the *salicata* from the calcareous mountains of Upper Austria) the yellow scaling of the original. — ab. **stenotaeniata** *Klimesch*, from Warscheneck (ca. 1500 m) Upper Austria, is dusky grey. the median band excessively narrow (only 1 or 2 mm in width), partly marked with black, its posterior ⅓ lost in the dark ground-colour. — Gen. aut. **autumnalis** *Dannehl.* According to Dannehl a second generation occurs regularly in southern Europe, from the S. Tyrol onwards (except at the highest altitudes) and is distinguished by its smaller size and sharper markings. In the S. Abruzzi, for instance, this occurs up to about 1200 m. — Gen. (?) **aestivalis** *Dioszeghy.* In the mountains of Transsylvania Dioszeghy recognizes t h r e e generations, distinguishable, apart from slight differences in tone, by their average size. I give his analysis, but am sceptical as to its validity in the case of the later emergences (compare *ablutaria*): gen. 1 *vernalis*, 25—28 mm; gen. 2 *aestivalis*, 20—21 mm; gen. 3 *autumnalis* 17,5—20 mm. — **latentaria** *Curt.* (12 g). This name is available for the British race, which, besides being on an average more uniformly darkened (see Vol. 4, p. 231), is usually smaller than the corresponding European forms and has the cell-spot of the forewing usually more conspicuous. The type came from Westmorland (Ambleside); it is found in Devonshire, Wales, N. England, Scotland and Ireland, chiefly in hilly or mountainous country. *salicata.* *nigrotaeniata.* *stenotaeniata.* *autumnalis.* *aestivalis.* *latentaria.*

C. ablutaria *Bsd.* (12 g). For taxonomic purposes I give this the rank of a species, characterized (see above) by the longer pectinations of the ♂ antenna; even if confirmatory characters are not yet discoverable, it is entirely unlikely that it can ever revert to an identity with the preceding species. The browner or more ochreous tone, as against the grey or whitish of *salicata*, strikes the eye immediately in the examination of a series, but I can find no constant difference in the markings. It is essentially a Mediterranean species, though it appears that in the Balkans it and *salicata* meet. In N. Syria, according to Wehrli, there is an autumn brood, much smaller and greyer than that of the spring. This is also the case, at least as regards size, in most localities from which I have seen series, the small forms (when dated) generally taken in September and early October, or on Cyprus October to December. The first brood is on the wing in March and April. Some of the island forms (e. g. Cyprus, Malta and especially Capri) tend to lose the yellowish scaling and intergrade with *probaria*. The specimens which I have seen from Capri — 2 ♂♂ and an abundance of ♀♀ — all incline to whitish, irrespective of their size and will probably require a separate name unless they are indistinguishable from *probaria*. — **probaria** *H.-Seh.* (12 h) was published without indication of locality, but it is believed that Zeller (M. S.) founded it on Mann's Croatian booty; in any case the Croatian and Dalmatian coasts are its classical localities. — **ochrearia** *Stgr.* (= ochracearia *Prout*, ex err.) seems more probably an aberrant form of *ablutaria* than a separate race; some of mine from Syria approach it. — C. Schneider records receiving from Dannehl, on 6th June 1929, 50 half-grown larvae of *ablutaria* from S. Tyrol; they fed up very rapidly on Galium mollugo and by 23rd June there were 45 cocoons. 9 moths emerged on 5th—7th July, then no more; cocoons opened at the end of July and in the middle of September showed that their occupants had not yet pupated; but a number of further imagines appeared from 5th to 27th October and none went over the winter as larvae or pupae. *ablutaria.* *probaria.* *ochrearia.*

C. flavolineata *Stgr.* (= oberthuri *Rothsch.*) (12 h). Besides its rather wide distribution in the Iberian Peninsula, the range of this pretty little *Cidaria* includes Central Algeria (Guelt-es-Stel, fairly commonly), whence it was redescribed by Rothschild. It shows little variation and I have not felt able to conserve *oberthuri* as a race. I do not see any particular resemblance to *salicata;* the wings are more elongate (more *Ortholitha*-like), the band differently shaped, the ♂ pectinations not "as in *salicata*" but more slender, not at all fusiform. *flavolineata.*

C. hispanata *Fernandez* is unknown to me. Said to be near *flavolineata* but seems to be a distinct species by the white apical patch of the forewing, containing a grey central spot, by the central (in *flavolineata* more distal) pale band of the hindwing and by its different habitat and time of appearance. *hispanata* in *hispanata.*

early September at Bejar (Salamanca), is found near houses and among bushes; *flavolineata* in October (Andalusia) in arid and desolate places. Smaller: antennal pectinations moderate, etc.

nubilata. *C. multistrigaria Haw.* (Vol. 4, pl. 9 c) ab. **nubilata** *Tutt* (12 h). We figure a rather extreme ♂ from
olbiaria. Skelmanthorpe. — **olbiaria** *Mill.* (= olbiana *Culot*) (12 g, ♂ and h ♀). On an average considerably larger than name-typical *multistrigaria*, not always more weakly marked, but always very different in aspect on account of the white or white-grey, not brownish tone. It sometimes continues into February or even into March. The
sericeata. Pyrenees should be added to the range given in Vol. 4. — **sericeata** *Schwingenschuss* (= olbiaria *Kitschelt*, nec *Mill.*) has scarcely any connection with the preceding. While that is larger, paler and rounder-winged and has the lines dissolved into dots, *sericeata* — though also somewhat rounder-winged than the type — is in the ♂ smaller (at least as small as the ♀), both sexes white-grey with a characteristic silky gloss, markings less sharp than in *M. multistrigaria*, without a trace of the vein-dots; ♀ shaped almost as in the ♂, sometimes a trifle narrower-winged, perhaps as in the m a l e of *multistrigaria*. As it was bred in June-July and the sexual dimorphism is so slight, it is suggested that it may be a separate species, but in a state of nature it was only
holli. found in the late autumn. S. Tyrol (Arco and Mori) and Monfalcone. — **holli** *subsp.* (? *sp.*) *nov.* (12 h). In size, sexual dimorphism and time of appearance (October and November) similar to *olbiaria*, the wings perhaps relatively a trifle ampler. Very different in its glossy light-brown colour (considerably browner than in *multistrigaria*), the markings weak, the dark vein-dots, though present, not nearly so pronounced as in *olbiaria;* occasionally the median area of the forewing is appreciably darkened, or its boundaries are rather well defined. I have before me 9 ♂♂ and 1 ♀ from the Blida Glaciers, including the type, besides 1 ♂ from Guelt-es-Stel (all ex coll. Holl, who erroneously determined it as *multipunctata*, see below); also a splendid series from Lambèse, collected by H. Powell. As the genitalia differ slightly from those of *multistrigaria* and *olbiaria*, it may have to be treated as a species.

didymata. **C. didymata** *L.* (Vol. 4, pl. 9 c, ♂). ♂♂ from the Faroe Islands are often dark and with a blurred appearance, but have not received a separate name. We here add (pl. 12 i) a figure of the ♀ form which is considered typical; Linné's type ♀, described as "whitish with 2 obsolescent cinereous bands; a bilobed fuscous spot distally", was (as too often!) only given as from "Europe", but was collected by Solander and may be assumed to have come from Sweden or Lapland. In worn specimens the markings tend to become weak, and the subordinate ones would certainly have been overlooked or ignored in a brief Linnean diagnosis. It is possible, however, that the actual type approximated more nearly to *albidissima*. — In any case, the warm ochre-
lutescens. ous-brownish ♀♀ of the lowlands seem to need a special name, ab. loc. **lutescens** *nov.* (12 i). Type a ♀ from Tring in Lord Rothschild's Museum. I have been accustomed to take these ♀-forms almost exclusively in the woodlands and hedgerows of southern England, the paler ones in the North (with Scotland) and on the moorlands of Wales, Devonshire, etc. According to Boldt, *didymata* larva feeds chiefly on Vaccinium myrtillus, only occasionally on Rumex acetosella or Umbelliferae; but this observation can only refer to certain
albidissima. districts, although these are admittedly among the ones where the species is the most abundant. — ab. **albidissima** *Strand*, a single ♀ from Overhalden, is described as dirty white, the hindwing unicolorous, the forewing with the median area narrow, weakly indicated in grey-yellowish, its proximal boundary marked by a slender darker band. Assuming that the "twin" spots of the forewing are also present, together with faint indications of the other markings of the distal area, this would represent accurately the ♀♀ which I have collected in Aber-
brockenensis. deenshire, but which come so near the Linnean type as scarcely to require a distinctive name. — ab. **brockenensis** *Strand*, founded on a single ♂ from the Brocken (Harz Mountains), has the markings much greyer (grey-black to pure black), without the usual brown tone, at least in the marginal area with a bluish tinge. — ab.
cuneigera. **cuneigera** *Balfour*. Rather large and pale, with a conspicuous dark fuscous arrow-head marking, formed by a wedge-like extension basewards of the twin spots. A single ♂ from Whittingehame, East Lothian. — ab.
fremonti. **fremonti** *Rondou*. Larger and much darker than the type, the "twin" and subapical spots black, the subterminal strongly white throughout; dark border of hindwing not separated from the lighter part by any visibly darker line. Gèdre, 1 example, presumably a ♂; Culot figures a similar but less outstanding one from Liebenau
nigra. at fig. 555. — ab. **nigra** *Prout* (Vol. 4, p. 231) is not confined to Scotland; a large ♂ from Great Missenden, Buckinghamshire, in the collection of the late R. Adkin, is absolutely melanic except that, on close attention, slightly ochreous-tinged suffusions are discoverable at the base and about the radials of the forewing distally.
rebeli. — **rebeli** *Wnukowsky* (= hethlandica *Rbl.* nec *Prout*, hetlandica *Culot*) must be used temporarily for the Shet-
attenuata. land race, until *Xanthorhoë* and *Colostygia* are given generic rights. — ♀-ab. **attenuata** *Culot* is a somewhat extreme aberration of the small, pale northern forms of this sex, "bone white, the markings reduced to some vestiges on the forewing" (hardly more than ante- and postmedian line and twin spots), hindwing without markings. Tring Museum has a similar ♀ from Kincardine, less dwarfed, the antemedian line less feeble, per-
gedrensis. haps referable to *albidissima*. — **gedrensis** *nom. nov.* (= pyrenaeata *Bubacek*, nom. praeocc.; cf. *aqueata*). ♂ dark grey without brownish tone, strongly coloured and marked; ♀ pale yellowish grey. Gèdre district. If this is really a subspecies it requires the new name; if the reference is merely to an ordinary mountain form, it might sink to *brockenensis Strand*.

C. icterica *Djakonov* (Vol. 4, p. 232) proves to belong very closely to the *fidonaria* group in *Xanthorhoë*, but as I have not yet precisely matched the typical form I must postpone figuring for the present. *icterica.*

C. corydalaria Graes. **eurytaenia** *Rbl.* (Vol. 4, pl. 10 f). Most of the Albanian specimens yet known, according to Rebel and Zerny, agree exactly with this S. Bosnian form, though 1 ♂ approaches *bogumilaria* and 2 ♀♀ belong nearly to — ab. **continuata** *Schawerda*. This was founded on a ♂ and 2 ♀♀ from Suha (between Foča and Gacko, S. Bosnia) which were collected among typical *curytaenia*. It differs in having the white central band uninterrupted, more as in name-typical *corydalaria* (Vol. 4, pl. 10 e) though narrower; it retains, however, the characteristic white maculation proximal to this band. — **bogumilaria** *Rbl.* (12 i). We figure a ♀ from N. Bosnia for comparison with the other races. — **ichinosawana** *Matsumura*. "Differs from the typical race in the larger size (♂ 26, ♀ 28 mm), the presence of a wavy submarginal white band and a broader white band to each wing." S. Saghalien, 1 ♂ and 4 ♀♀, collected in July and August. It "superficially" resembles *C. hecate Btlr.* though "easily distinguished by the white underside of the hindwing and the presence of a narrower wavy fuscous median band beyond the discoidal spot"; I cannot feel sure, from the figure, that it really belongs here. — **japonica** *Hori*. Postmedian band of the forewing above narrowed, interrupted at cellule 2 (beginning to approach that of the European forms), the antemedian and subterminal each reduced to 3 anterior dots. Hindwing notably distinct in being wholly black (♀) or only with white cell-spot. Fringes with the white spots remaining large. Kiushiu: Gokanosho, near Kunamoto, several examples of both sexes, 1 to 6 May 1924, collected by the author. *eurytaenia. continuata. bogumilaria. ichinosawana. japonica.*

C. bellaria *Leech* (Vol. 4, pl. 7 k) occurs, besides Szechuan, in Yunnan (Mekong-Salween Divide) and Central China. *bellaria.*

C. pendearia *Oberth.* (Vol. 4, pl. 81 as *phaiosata*). To the synonymy is to be added *phaiosata Stgr.* (Vol. 4, p. 220). It seems to be very abundant in W. China, but I still know little material from Koko-Nor, though enough to satisfy me of the correctness of the union, in which also Sterneck concurs. Corea is added to its range. Generally not at all variable. *pendearia.*

C. exceptata *Sterneck*. Face smooth, with slight tuft. Palpus long. Antennal pectinations long. Expanse "38 mm" (i. e. about 43 mm). Shape compared with that of *Oporinia dilutata*. Forewing violet-brown with striking white markings: basal patch, subterminal spots, in part enlarged, and irregular, somewhat interrupted central section of median area, besides rows of dots bounding that area and a few between basal patch and antemedian. Hindwing white, with somewhat darkened terminal band (containing the irregular white subterminal spots) and faint indications of median and postmedian lines. Both wings with cell-dot. Ta-tsien-lu, 1 ♂. *exceptata.*

C. correlata *Warr.* (12 i). We figure a Gifu ♀, one of Warren's originals. No further specimens have been received at Tring, nor are any others known to me. *correlata.*

Subgenus **Psychophora** *Kirby* (see Vol. 4, p. 232).

Ps. sabini *Kirby* (= sabiniaria *Pack.*, sabinii *Stgr.*, sabinei *Strand*). Notwithstanding that the analysis of the Arctic American forms promised for Vol. 8 (see Vol. 4, p. 233) has not yet been made and that a good deal of controversy has taken place respecting some of them, it seems pretty certain that Staudinger was correct in making both *sabini* (*Kirby*, 1824; *Curt.*, 1835) and *frigidaria* (*Guen.*, 1858) subspecies of a single species, although by an oversight he reversed the priority. Kirby's type form, from a swampy part of Melville Island, was of a "uniform cinereous or fuscous-cinereous colour", rather paler beneath than above. It is not quite certain than any known race from the Old World absolutely agrees with it, but the form from Nova Zemlia is so much nearer to it than to *frigidaria* that it must be referred provisionally here. It is best known from Arctic America, with Greenland. — **frigidaria** *Guen.* (12 i). Generally larger and much less weakly marked than *sabini*. As our figure in Vol. 4 (pl. 9 a) was unsatisfactory, we substitute a figure of the type, a good ♂ from Lapland; most specimens, however, have not the indentations of the postmedian line so deep. — ab. **melanotica** *Strand*, founded on a casual aberration from Finmark, which was mentioned but not named by Staudinger, is "almost unicolorous black-grey", probably darker than the unicolorous forms of *S. sabini*. *sabini. frigidaria. melanotica.*

Subgenus **Lampropteryx** *Steph.* (see Vol. 4, p. 233). Discocellulars of the hindwing subject to some variation, the 2nd radial arising either at or behind (never before) the end of the cell-fold.

C. multipunctata *Stgr.* (Vol. 4, pl. 9 c). This is, according to the original description, so exceedingly similar to *holli*, that I am not surprised that the last-named should have been misidentified. My kind friend Dr. M. Hering informs me, however, that 3 Jerusalem ♂♂ (Paulus) in the Püngeler collection show that the antenna is really as Staudinger indicated, therefore entirely different from that of *holli*. In spite of this difference, I suspect the genitalia will show *multipunctata* to be a true congener of *multistrigaria* (Vol. 4. pl. 9 c). Our figure, from the Bastelberger collection, seems to show that the ♀ is not unknown, as our text stated; unless, indeed, it is a misidentification. *multipunctata.*

suffumata. **C. suffumata** *Schiff.* (Vol. 4, pl. 9 d). I was probably incorrect in stating that a second brood was
piceata. entirely unknown in a state of nature, but in any case it is very incomplete. — ab. **piceata** *Steph.* (12 i). We
porrittii. figure a ♂ from Darlington. — ab. **porrittii** *Robs. & Gardn.* (13 c). The English ♀ now figured gives a very good idea of this striking form; yet even more extreme manifestations are known. in which also the terminal
divisa. shading is much reduced. — ab. **divisa** *Nordström* has a moderate or broad grey-white or light brown-grey band centrally bisecting the dark median area. Described from Jämtland, Härjedal and Dovrefjeld. — ab.
decolorata. **decolorata** *Nordström* is a more washed-out form, the central area more or less dissolved into lines. Jämtland
defumata. and Dovre. — **defumata** *Stichel* (= arctica *Sp. Schneid.*, nom. praeocc.) (13 d). As Nordström has pointed out, the name *arctica* (1895) is much older than *defumata*, but it is a homonym of *artica Schöy.* (1881, sub *turbata*). Nearly the same form as in N. Scandinavia occurs in Kamtshatka and presumably in Arctic Russia.

otregiata. **C. otregiata** *Metcalfe* (= minna *auct.*, pr. p., nec *Btlr.*) (13 d). This interesting species, on its first discovery in Europe (Heidereichstein, Lower Austria) was mistaken for the closely allied *minna* of E. Asia. Subsequently the Rev. J. W. Metcalfe published it as a new species, founding it on good material from N. Devon, E. Devon (loc. typ.) and Cornwall. Teeth of the ♂ antenna somewhat stronger than those of *suffumata*, but not forming the definite pectinations of *minna;* discocellulars of the hindwing slightly angled at the origin of the 2nd radial. The genitalia show appreciable differences from those of *minna*. A long article in Russian, by K. Mjöberg, published in 1926, though using the name *minna*, presumably deals with *otregiata*, but I have
janssoni. no translation of it. — ab. **janssoni** *Nordström* is more uniformly dark-brown, with only the white lines which bound the areas, and parts of the subterminal, standing out distinctly. A ♀ from Markkarret, Örebro. — *otregiata* has been recorded from the Harz Mountains, Erfurt district, S. Tyrol, several Swedish localities, Finland and N. W. Russia; the Tring Museum has a worn ♀ from Karlsbrünn, Altvater. It frequents wet and dark places in woods, appearing well on in May and in a partial second broad in August and September. A. W. Mera succeeded in rearing a few from the egg on Galium saxatile, but they did not take kindly to that plant.

minna. **C. minna** *Btlr.* (13 d). Abundantly distinct from *suffumata* — antenna of ♂ pectinate, though the branches are very short (surmounted with cilia), etc. The addition of N. India to its range (Vol. 4, p. 233) was erroneous; see the following species. On the other hand, it may perhaps occur in W. China; a much damaged ♂ from Tu-pa-kö (Mupin) is at least very near it.

szechuana. *C. neëlys Prout* **szechuana** *Wehrli* (13 d). The *Lampropteryx* which, in 1922, I named *neëlys* had previously been determined in collections as *minna* and much resembles that species in aspect, but the ♂ antenna is scarcely even so strongly dentate as in *suffumata*, the face is blacker than in *minna*, the antemedian line of the forewing more direct. The name-typical race, which seldom exceeds *minna* in size, is dark and very broad-banded and is only known to me from Sikkim and the Khasis; it will be figured in Vol. 12. *szechuana* is considerably larger, less dark, the postmedian line less near the distal margin. Szechuan, few examples yet known.

producta. **C. producta** *Prout* (= suffumata *Leech*, nec *Schiff.*) (13 d). On an average larger than *szechuana*, the wings relatively somewhat more elongate; forewing with cell-spot large, antemedian line with the outward teeth (at both folds) long and acute, termen and fringe rather strongly marked, the fine white line from the apex generally long and conspicuous. Antenna of the ♂ slightly more strongly dentate-fasciculate than in
interponenda. *suffumata*. Discocellulars very definitely biangulate. Common in Szechuan, especially at Ta-tsien-lu. — **interponenda** *Warnecke*, from Koko-Nor, has the basal patch less definite than the median band, the yellowish tinge of the distal area perhaps accentuated, especially on the veins, the hindwing above apparently whiter, beneath less sharply marked.

rotundaria. **C. rotundaria** *Leech* (Vol. 4, pl. 13 n). Sterneck records from Ta-tsien-lu 2 specimens of the hitherto undescribed ♂. "Face rounded, smooth. Palpus moderately long, 2nd joint strongly hairy, terminal joint projecting. Antenna with long fascicles of cilia. The last 5 abdominal segments bear long, dense, yellow-brown lateral tufts."

nitidaria. **C. nitidaria** *Leech* (13 e, ♂) (Vol. 4, pl. 13 n). This is probably a race, somewhat narrower banded, of the *argentilineata Moore* of N. India. In any case a very close relative.

Subgenus **Loxofidonia** *Pack.* (see Vol. 4, p. 234, *Asaphodes*). Like *Xanthorhoë* but the areole undivided.

In employing Meyrick's name of *Asaphodes* for this section (or genus), I overlooked that its type species, *abrogata Walk.*, from New Zealand, had the discocellulars of the hindwing markedly biangulate. For the present group I have therefore substituted *Loxofidonia Pack.* (see Vol. 16, p. 93).

hortensiaria. **C. hortensiaria** *Graes.* (Vol. 4, pl. 8 l, as dimidiana). On account of its general resemblance to *spadicearia* or *munitata*, I had left this species in *Xanthorhoë* without, as it seems, examining the venation until Dr. Sterneck called my attention to it. The areole is always simple. Otherwise it is remarkably similar to *castanea Warr.* (12 b), especially in the ♀, which is broad-banded in both sexes, whereas in the ♂ it is oftener

narrowed in *castanea* than in *hortensiaria*. The name *dimidiaria Motsch.* (misprinted *dimidiana*) has sometimes been applied here; Motschulsky can hardly be said to have described his species, which he likened to *picata* (Vol. 4, pl. 10 b) though much smaller, but I cannot possibly reconcile it with *hortensiaria*. To the range must be added Szechuan.

C. muscicapata *Christ.* (Vol. 4, pl. 9 e). Sterneck records from Ta-tsien-lu and Omisien a larger form which belongs, if not actually to *muscicapata*, at least to this group in the strictest sense. I recognize 4 or 5 species thereof, almost exclusively Indo-Australian and probably very variable, but hope to give them closer attention in Vol. 12. — **obfuscata** *Warr.* (see Vol. 4, p. 234) is not at all likely to be a race of *muscicapata*, but scarcely concerns students of the Palearctic fauna unless the Szechuan specimens (see above) belong to it. The series recorded by Wileman from Japan (Oshima, Yezo, in May; Yoshino, Yamato, in June, July and September) as *plumbeotincta* was clearly misidentified and he himself later transferred it to *muscicapata*. If *muscicapata* has a race in India it is more likely to be *bareconia Swinh.* or *buda Swinh.*, for these have the sharply defined median band. *muscicapata.* *obfuscata.*

S u b g e n u s **Dasyuris** *Guen.* (see Vol. 4, p. 234). In the German translation a word is omitted; read: n i c h t doppelt gewinkelt.

D. polata Dup. (Vol. 4, pl. 9 f) ab. **contrastata** *Schawerda*, received from a dealer as from "Greenland", must be mentioned here, as the author suspected it was rightly from Lapland. Forewing with strong contrasts: median band dark, the adjacent areas broadly white-grey, unmarked. *contrastata.*

S u b g e n u s **Entephria** *Hbn.* (see Vol. 4, p. 234).

This subgenus and its immediate outliers may be recommended for more detailed anatomical research. The "special organ" of the ♂ genitalia (calcar of Pierce), which impressed Chapman as a striking differential character, certainly separates *Entephria* definitely from some superficially similar alpine *Cidaria*, but would seem, as he said, to bring in also *incultaria* — an improbable addition on biological grounds. The calcar of *Xanthorhoë* probably corresponds to it, but the so-called "calcar" of *Epirrhoë* is a very different formation. Forbes has called attention to the very narrow, "strap-like" scaling of the forewing in most true *Entephria* and I have to a large extent confirmed this.

C. ignorata *Stgr.* (13 e). We figure a topotypical ♀ from the Elwes collection (28 July 1872, Christoph); it has the median band perhaps slightly better defined than in the type. The discocellulars of the hindwing are scarcely more angled than in *ravaria*, the 2nd radial from about the middle, or very slightly before. *ignorata.*

C. caesiata *Schiff.* (Vol. 4, pl. 9 f) has been somewhat precariously recorded from Japan by Suzuki (as *caeciata*). I have not seen his form. — ab. **hauderi** *Stauder* (= insignata *Schawerda*). Median band solidly dark, much narrowed, proximal and distal areas uniform whitish grey, without the dark lines, only some weak dark shading to the white subterminal, at least proximally; white lines bound the median band. Salzkammergut (Stauder) and the Dolomites. — ab. **atrata** *Lange* is a slight modification of ab. *nigricans Prout* (Vol. 4, p. 235), with all the pale markings obsolescent excepting the subterminal. — ab. **paradoxa** *Lange* is a striking form (only 4 examples known), the forewing smoky black, only with the basal patch and a narrow central stripe white-grey; hindwing with proximal half white-grey, distal half blackish. — ab. **lacteofasciata** *Lange* has similar basal and median areas to *paradoxa*, the rest of the forewing less extreme, being rippled with light lines. — ab. **divisa** *Lange* (= mediodivisa *Stauder*). More nearly typical but with the median band tripartite as in some *lacteofasciata* (white centrally, rather narrowly black at either side). This and the rest of Lange's aberrations were obtained by breeding from larvae, which, in his experience, occur only on Vaccinium myrtillus. Upper Freiberger Mulde. — ab. **clarior** *Osthelder* is more whitish, the median band as in *divisa*, only with its central pale part typically narrower. Type locality: N. Tyrol. — **glaciata** *Germ.* (13 e). Like *caesiata* everywhere, this is decididly variable, but it is nearly always smaller than the typical race, certainly on an a v e r a g e darker, occasionally very similar to *norvegica*, which is also generally rather small. — **italicata** *Costantini* is diagnosed as paler, glaucescent, the stripes more diffuse and cloudy, "etc." and said to constitute a subspecies in the beech region in the Apennines, common in July and August. This was only intended as a preliminary note and was not mentioned by Dannehl in his studies of the Italian fauna. — **abruzzensis** *Dannehl*, however, does not fit accurately with the above characterization, though it is also in a sense "preliminary", being made contingent on its proving racially constant. Rather small and narrow-winged, lighter and more yellowish than the type, thus an antithesis to the following form. Abruzzi (Gran Sasso, etc.). — **cibiniaca** *Dannehl* (= cibiniata *Dannehl*) is a very large and robust, variegated form, prevalent in the Cibins Mountains (S. Carpathians). *caesiata.* *hauderi.* *atrata.* *paradoxa.* *lacteofasciata.* *divisa.* *clarior.* *glaciata.* *italicata.* *abruzzensis.* *cibiniaca.*

C. fuscaria *Leech* (13 e). We figure the type ♂, from Ta-tsien-lu. I have met with no further examples. *fuscaria.*

C. flavicinctata *Hbn.* (= flavicincta *Klem.*) (Vol. 4, pl. 9 g, as flavocinctaria). The forms from the Balkans are generally smaller and slighter than those of the Alps. The naming of the individual forms, especially those with the yellow scaling suppressed, has evidently proceeded too far. — ab. **grossi** *Hoffmann & Klos*, *flavicinctata.* *grossi.*

hilariata. described from Styria, has "the normally grey markings of the forewing yellow". — ab. **hilariata** *Schwingenschuss* (13 e), from Heiligenblut, founded on 2 ♀♀ (one more extreme than the other), has the forewing, except the (less strongly suffused) basal and median areas, wholly suffused with gold-yellow. Probably this is a synonym (better described) of *grossi*. — ab. **klemensiewiczii** *Prüffer*. Median band of forewing black-brown, standing out sharply from the ground-colour; hindwing darkened, especially at the distal margin. Polish Tatra. — ab. **divisa** *Osthelder*. Median band bisected by a pale central stripe. S. Bavaria. — ab. **flavopriva** *Schawerda* (= flavoprivata *B.-Haas*). Very dark, with blackish median area; the yellow scaling scarcely at all visible without a lens. Founded on a few specimens from the Campolungo Saddle, Dolomites. — ab. **subcaeruleata** *Rondou*. The yellow scaling entirely wanting. Gèdre, occurring together with the type form. I consider the name superfluous and would call all similar forms *flavopriva*, whether darkened or not and whether yellow scaling is absolutely wanting or has merely ceased to influence the general effect of the coloration. — **samnitaria** *Sohn-Rethel* (13 f), from the S. Abruzzi, is small, the ground-colour silver-white, the markings much weaker than in the type-form, the basal and distal areas often without darkening. — ab. **deflavata** *Sohn-Rethel* is an extreme form of *samnitaria*, without yellow scaling. Even if *samnitaria* is really a well-founded subspecies, I do not see why this aberration of it should not have been called ab. *flavopriva*. — **corsaria** *Schawerda* has also no yellow scaling in the type ♂ (Monte d'Oro, 2000 m), but a second ♂ (Col de Vergio) shows some; otherwise both agree, and have "nothing to do" with *flavopriva*. The forewing has much more white in the proximal and the distal third than the type, the hindwing is also whiter as far as the dark premarginal band; the base and the narrow median area of the forewing dark, as also a shade on each side of the strongly expressed, sharply dentate, pure white subterminal. — **altivolans** *Wehrli* (= bubačeki *Reisser*) (13 f). A rather large, well differentiated subspecies from the Sierra Nevada, 2000—2860 m. Markings of the forewing nearly as in *f. flavicinctata*, though with a more pronounced tendency for the median area to narrow progressively to the inner margin; the yellow colour lighter, not yellow-orange, its distribution different, occupying the light bands in varying intensity and leaving almost free the blue-grey median and terminal areas; terminal line stronger, more continuous. Underside paler and more weakly marked than in normal *flavicinctata*. — ab. **deaurata** *Reisser* (why not *flavopriva*?), taken with *altivolans*, lacks the yellow scaling. Püngeler and Wehrli have expressed some doubts whether the yellow scaling in this and some other alpine moths is ever entirely wanting when they are freshly emerged. — **septentrionalis** *Warnecke* (13 f), founded on 7 specimens from Kongsvold (Finmark), is very unicolorous bluish grey, the yellow scaling (which, as in *altivolans*, is light-, not orange-or ochreous-yellow) so weak as not to present any band-like appearance; superficially suggestive of *infidaria*. A further point of contact with *altivolans* is in the pronounced narrowing of the median band behind the submedian vein. My 3 Norwegian specimens (from Bossekop and Trondhjem) are, moreover, decidedly smaller than those from other localities.

klemensiewiczii. *divisa.* *flavopriva.* *subcaeruleata.* *samnitaria.* *deflavata.* *corsaria.* *altivolans.* *deaurata.* *septentrionalis.*

C. veletaria *Wehrli* (13 f) has also some of the characteristics of *septentrionalis*, in markings resembling *flavicinctata* but smaller and slenderer, in coloration more like *infidaria*, but is shown by the genitalia to be a good species, nearest to *infidaria*. Differentiated from *flavicinctata* by the even distribution of the gold-yellow tinge in the median, basal and subbasal bands, the stronger subcostal angulation of the light band outside the postmedian and the large blackish patch in the apical region; from *infidaria* by the presence of a subbasal band, the quite differently shaped median area, etc. Discocellulars about as strongly angled as in *infidaria*. Sierra Nevada: Veleta, at ca. 2850 m altitude, in July.

velelaria.

C. infidaria *Lah.* (Vol. 4, pl. 9 g). A detailed account of the distribution is given by Warnecke (Ent. Anz., Vol. 12, p. 81, 82). Its comparatively recent confirmation for Baden is there discussed, a record from the Taunus given and Speyer's old and almost forgotten record for the Thüringer Wald (apparently its "farthest north") cited and confirmed by a communication from Dr. Petry. — ab. **variocingulata** *Dannehl*. Proximal and distal areas of forewing white, with little marking except the strongly rust-yellow basal patch and yellow-red-mixed apical patch; median band sharply blackish-edged proximally and distally, its distal part strongly dusted with reddish yellow, its anterior part broadly forked, the cell-dot conspicuous in the enclosed pale space. Above Franzenshöhe (S. Tyrol) at 2700 m, one specimen. — ab. **mallászi** *Dioszeghy*. Ground-colour somewhat yellowish white, the irroration light-grey; the darker grey base, median band and subterminal shades sprinkled with rust-red (not yellow) scales. Hindwing darkened as far as the postmedian and in the distal area with a narrow indistinct dark-grey band. Retyezat Mountains.

infidaria. *variocingulata.* *mallaszi.*

C. cyanata *Hbn.* (Vol. 4, pl. 9 h). A synonym, or perhaps aberration or slightly differentiated geographical form, is *pseudocyanata Rbl.*, founded (as an ab. of *flavicinctata*) on a ♀ from towards the summit of the Zleb, Montenegro, and diagnosed as "much lighter grey" than type (*flavicinctata*), the yellow admixture largely wanting, being confined to the very narrow, short basal band and traces on the median band. Subsequently 3 entirely conformable examples (1 ♂, 2 ♀♀) from Albania showed it to be really *cyanata*. As the name implies, Hübner's original figure (319) shows a form with dark-blue (or rather, dark blue-grey) median band, about as in our figure or slightly intermediate towards ab. *gottrensis*; and as the pale parts show some yellowish tinge it is not very vitally different from the form *flavomixta*. — ab. **gottrensis** *Favre* (Vol. 4, pl. 9 g)

cyanata. *gottrensis.*

was published as a local race, but according to Oberthür the ab. *flavomixta* also occurs in the same locality. — ab. **atrofasciata** *F. Wagn.* is a very striking aberration, in effect parallel to *caesiata* ab. *prospicuata Prout* — chalky white, the forewing with black subbasal and median band and oblique subapical mark, the hindwing with cell-mark and blackish shade-like postmedian band. One specimen (apparently a ♀) from Upper Austria. — ab. **atroflava** *Galv.* combines the intensified bands of *atrofasciata* with the strong yellow admixture of *flavomixta*. Founded on a ♂ from Turrach, Styria. — **acyana** *subsp. nov.* (13 f) is much more uniform grey than the type, the median band less dark and less blue, the pale parts of the wing well rippled with grey, with no yellow tinge, and the proximal shade of the subterminal rather well developed. Founded on a good series in the Tring Museum from Pescocostanzo, latter half of July. Similar specimens from other localities (Savoy, Engadine, etc.) are rare; generally even when the blue and yellow tones are wanting, the median band remains darker grey than in *acyana*. *atrofasciata.* *atroflava.* *acyana.*

C. contestata *Vorbr. & Müll.-Rutz* (13 g). Wehrli points out that the markings show a general agreement with *caeruleata Guen.* (Vol. 4, pl. 9 g), while the coloration is more as in *cyanata*, without any yellow admixture, but, irrespective of differences on the upperside, there is a broader marginal band beneath, much as in *caeruleata* and *flavicinctata*. *contestata.*

C. bastelbergeri *Püng.* (13 g). We give a figure of a rather broad-banded but otherwise typical ♀ from Aksu. *bastelbergeri.*

C. poliotaria *Hmps.* (see Vol. 4, pl. 13 n). The reference to the figure was incomplete in the English edition (p. 237) and wanting in the German. The shape of the antemedian slightly approaches that of *infidaria*, perhaps more so than in our figure but never extremely; smaller and more glossy than that species and with numerous other distinctions. The genitalia show it to be a true *Entephria*. *poliotaria.*

C. argentiplumbea *Hmps.* Another very glossy species, probably nearly related to *poliotaria* although, on account of the smooth face, Hampson published it as an *Astheniodes*, with which it manifestly has no connection. Only ♀♀ hitherto known. Palpus rather short. Markings less sharp than in *poliotaria*, the median band more dissolved into lines, its distal edge not very sharply defined, cell-mark strong, blackish. Best known from Sikkim-Tibet and Bhotan, but mentioned here because Stevens (Kelley-Roosevelt expedition) took 3 ♀♀ at Tu-pa-keo, Mupin; we hope to give a figure in Vol. 12. A small ♂ which may well belong here, although it has a smaller cell-spot (dot), has only just come under my notice; it was collected (or bred?) by Colonel F. Kingdon Ward in S. E. Tibet, Tsangpo Valley, 10,500 m (Pemako); antenna simple. *argentiplumbea.*

C. nobiliaria H.-Sch. (Vol. 4, pl. 9 h) **flavata** *Osthelder.* Much lighter than the type, especially in the ♂, which is at times almost white, weakly marked; even the ♀ much more unicolorous than in the type, yellowish or yellow-grey. A well differentiated race in the chalk alps of S. Bavaria, the Dolomites, etc. *flavata.*

C. tzygankovi *Wehrli* (13 g), only known in a single ♂ from the Oija Range, Sajan Mountains, is a dark species, in the markings proximally and distally to the median band recalling some *cyanata*, with which it otherwise has no connection. Palpus very short; antenna with extremely short ciliation (⅓ or ¼); hindwing with discocellulars weakly biangulate. Forewing with the light yellow-grey ground-colour almost entirely covered by the grey-blue markings; differs from that of *intermediaria*, inter alia, in having the median area about twice as broad at costa as at hindmargin. *poliotaria* differs from *tzygankovi* in the form of the median band, the terminal dots and fringes and especially in the almost unmarked hindwing. *tzygankovi.*

C. intermediaria Alph. **muscosaria** *Christ.* The last sentence, "Founded on a ♀ from Kasbek, Caucasus", got dropped out of the German edition of Vol. 4 (p. 237). *muscosaria.*

C. neurbouaria *Oberth.* (Vol. 4, pl. 9 k). This name was wrongly spelled *neurbiaria* in the German edition and the indices; this should be corrected, lest the misspelling should be perpetuated. as has happened to the names *dissimilata* and (in England) *dolabraria*. Palpus rather long; antenna laterally compressed; discocellulars of hindwing strongly biangulate. The genitalia show that this is not properly an *Entephria*, but I have not yet learned what are its nearer affinities. *neurbouaria.*

C. stellata *Warr.* (Vol. 4, pl. 10 i, as adjouaria). To the distribution is to be added Kashmir Valley, a short series collected by Colonel Ward. This species also is no *Entephria* by the genitalia. *stellata.*

C. aurigutta *sp. n.* (13 g). Expanse 38 mm. Face tufted. Palpus elongate, dominantly black. Scaling and general design as in *Entephria* (not strongly glossy), but the a r e o l e u n d i v i d e d; unless this is an individual sport in the unique type, it may necessitate its transference to another position; discocellulars of hindwing rather strongly biangulate. Forewing with termen slightly less oblique than in most *Entephria*; the irroration on the whitish ground and the usual markings dark grey, the markings nearly solid; the band which closely follows the subbasal almost as dark as the subbasal itself (as in some *flavicinctata*, *caeruleata* and *ravaria*, or some American *Entephria*), the median band reduced in width behind the radials, followed distally, between 3rd radial and 1st median, by a white and then a conspicuous, bright ochreous spot; subterminal conspicuous, *aurigutta.*

but interrupted and irregular, recalling that of dark *caeruleata*. Hindwing dark, with the pale postmedian band correspondingly conspicuous. Forewing beneath dark, with traces of the principal markings; a black postmedian costal spot, succeeded distally by a white one; hindwing less dark than above, with the markings more distinct. Mt. Omei, at 11 000 feet, 17 July 1931 (G. M. Franck), a ♀ in my collection.

Subgenus **Coenotephria** *Prout* (see Vol. 4. p. 238).

As has already been indicated, this is a somewhat loosely-knit assemblage, but is conserved provisionally. The absence of the "special organ" ("calcar" of Pierce) which characterizes *Entephria* is of course only of negative value, especially as the genitalia of the group, and even the homologies of the so-called calcar, have not yet been studied exhaustively.

verberata. **C. verberata** *Scop.* (Vol. 4, pl. 9 h). Forbes points out that this differs from the rest of *Coenotephria* in the smooth face and short palpus, which are usually of taxonomie importance; he regards *verberata* as an *Oporinia*, transitional towards *Venusia*. Several aberrations, chiefly individual, have received names since *bifasciata.* the appearance of Vol. 4. — ab. **bifasciata** *Stauder*, founded on 7 strongly marked specimens (Salzkammergut), has, in addition to the postmedian of the hindwing, "a further, very distinct curved median band, besides faint indications of a third (subterminal) one". Wagner very reasonably doubts whether the name can stand; Scopoli saw "two, approximated" in his type, but as his figure shows only the postmedian the other was probably very *fuscofasciata.* weak; in Stauder's they are of equal strength. — ab. **fuscofasciata** *Osthelder* is a very rare form, with a brown-dusted median band. Kochel (S. Tyrol), 2 ♂♂. — ab. loc. **jurassica** *Wehrli* (13 g), from the higher altitudes *jurassica.* of the Solothurn Jura, has the irroration grey, not brownish, all the markings very strongly expressed. Best *rondoui.* characterized in the ♂, but even the ♀♀ are more strongly marked than in the type. — ab. **rondoui** *Culot* (13 h) has the forewing smoky, with only the subterminal and the narrow, divided band on each side of the post-median pale. Hindwing also darkened, especially a distal border. Type from the Hautes-Pyrénées. — ab. *reverdini.* **reverdini** *Culot* (13 h), a unique ♂ from Zinal (Valesian Alps) collected among typical *verberata*, is totally in-*judicariae.* fuscated. — **judicariae** *Fiori*, founded on ample material from a restricted district in the upper Rendena Valley (Mandron and in the zone of the lake S. Giuliano), has the white ground-colour of the forewing in the ♂ very finely but very copiously irrorated with grey, the basal and terminal areas and the median band intenser grey, the hindwing also rather strongly marked. Even the ♀ is more heavily marked than the typical form. The expanse (continental system) is "♂ 32—34 mm; ♀ 25 mm".

molliculata. *C. tophaceata Schiff.* (Vol. 4, pl. 9 h) ab. **molliculata** *Guen.* (13 h), from St. Sauveur (Hautes-Pyrénées), *kitti.* is not only dwarfed but, according to Culot's figure of the type, appreciably darkened. — ab. **kitti** *F. Wagn.*, which seems to be a recurrent aberration in the Oetztal, is probably at least as dark as *molliculata*, but quite normal in size and shape. My few specimen, from Locarno are also strikingly dark, the ♀♀ large. — ab. loc. *jurassica.* **jurassica** *Vorbrodt & Müll.-Rutz* (13 h). We give a figure of this form, which was already characterized in Vol. 4, p. 238. I gather that Wehrli, in repeating this name for other Jura forms, aims at giving a kind of "nom. coll." for a characteristic fauna rather than a zoological appellation; but as some, at least, are probably well-defined races, I fear he will be obliged to find distinctive names for them.

eteocretica. **C. eteocretica** *Rbl.* (13 h). A figure of this little-known species has been provided in Ann. Mus. Wien, Vol. 30, pl. 4, fig. 11, magnified; we reproduce it here, reduced to life size.

viduata. **C. viduata** *Stgr.* (13 h). We now give a figure; the description will be found in Vol. 4, p. 238.

neogamata. **C. neogamata** *Püng.* (13 i). We figure a ♀ from Aksu. Not unlike *petri*, but, apart from the different ♂ antenna, shows a different formation of the median band.

homophana. **C. homophana** *Hmps.* (13 i). Very similar to the *albigirata* group, especially to those members of it in which the postmedian is the least profoundly indented behind the middle. Easily distinguished by the almost simple (only minutely ciliated) ♂ antenna. The band of the forewing is on an average broader, with its proximal boundary more irregular (the indentations at both the folds generally deep, the lobe between them consequently pronounced), the hindwing on an average darker. Described from Simla and Dalhousie, it reaches Kashmir *petri.* (Srinagar and elsewhere). — **petri** *Prout* (13 i). Possibly — on account of its slightly slenderer build — a separate species. In any case a good race; both wings with the ground-colour whiter, cell-mark of forewing somewhat elongate, etc. Bokhara, Ferghana and, in a larger, somewhat transitional form, N. Zerafshan. Type locality: *sustenta.* Garm, Peter the Great Range. — **sustenta** *subsp. nov.* Build and dark coloration of name-typical *homophana*, from which the chief differences are in the subterminal region: proximal dark shade of forewing almost continuous and of nearly equal intensity throughout, the only interruption being a very narrow one in front of the 1st radial and the only noteworthy darkening the paired spots between the radials; subterminal of hindwing almost obsolete in its anterior part. W. China: Tse-kou, type and another ♂ and 1 ♀ (all in Mus. Brit.); Wa-shan, 1 ♀; Pu-tsu-fu, 1 ♂; Tchang-ku, 1 ♂.

C. homophoeta *Prout* (13 i) differs from *homophana* in that the ♂ antenna is somewhat dentate, with ciliation about ½ the length of the segment, the median band of the forewing less irregular in shape, the distal area with a bright brown suffusion behind the twin-spots, the hindwing whitish in its distal half, more as in *h. petri* than in the Kashmir form of *homophana*. Kashmir: Gulmarg and Yusimarg, 7500—8500 feet, in July and August. *homophoeta.*

C. championi *Prout* (13 i), from Kumaon (Nainital and Muktesar), is likely to be discovered in more purely Palaearctic localities and therefore deserves mention here. Larger than *homophoeta*, forewing with termen more oblique, median band much less dark and with less discrepancy between its anterior and its posterior part, hindwing not paler distally than proximally. *championi.*

C. apiciata *Stgr.* (13 h). This, as already intimated in the note at the head of *Xanthorhoë* sect. B, was misplaced in Vol. 4 (p. 227). We figure a ♀ from Aidere, Transcaspia. Much paler than *neogamata*, somewhat more pointedwinged. *apiciata.*

C. fortificaria *B.-Haas* (Vol. 4, p. 239, as fortificata). The locality (Juldus or Yuldus district, E.Turkestan) was omitted from the German edition. I have no further light on the determination. *fortificaria.*

C. nebulata Tr. (Vol. 4, pl. 9 i) ab. **senilaria** *F. Wagn.*, occasional among the type-form on the Vienna Schneeberg, is more dusted with brownish, recalling (even when fresh) the appearance of worn specimens; markings obsolete, with the exception of the median band, which is slightly strengthened. *senilaria.* — ab. **contraria** *Nitsche* is diagnosed as having the generally vague scheme of markings of the typical form darkened, standing out distinctly, the median band of the forewing especially pronounced. Founded on a ♀ from the Plöcken district of the Carnic Alps, determined by Rebel as referable here. *contraria.* — **albicans** *Sohn-Rethel* (13 k), from the Abruzzi, erected as a race, seems rather to be an aberration, occurring with more typical examples both there and in Savoy. White, the median area not darker, wanting the cloudy brown-grey irroration; all the markings very slender, scarcely indicated except by dark vein-dots. *albicans.* — **pirinica** *Züllich*, on the contrary, is a more sharply marked mountain form, believed to be racial in the Pirin Mountains, Bulgaria (Spanopole and Banderica Valley, 1800—2000 m). *pirinica.*

C. achromaria *Lah.* (Vol. 4, pl. 9 i). Rondou, in his new "Catalogue of the Lepidoptera of the Pyrenees" doubts the correctness of the citation of that district. I, probably also Culot, took it from Staudinger's Catalog and unless or until the record can be traced to its source it had better be omitted. *achromaria.* — ab. **albomarginata** *Hirschke* has the distal area of both wings pure white both above and beneath. Founded on a ♂, presumably Austrian; but no locality given. *albomarginata.* — gen. aut. **autumnalis** *Dannehl.* According to Dannehl, a second broad occurs regularly in southern districts, except in high alpine localities; sometimes (e. g. on Lake Garda in 1929 and 1930) he has even found it commoner than the gen. vern. Considerably smaller (18—21 mm as against 23—26), the markings sharper, simpler, the irroration being never patchy or obsolete. Early August to October. *autumnalis.* — **calcearia** *Wehrli* (13 k) is a light race from the Swiss Jura: chalk-white, rarely with a faint yellowish tinge, the irroration sparse, clear grey, the median band sharp, darker grey, relieved with white in its central part. *calcearia.* — ab. **fasciata** *Wehrli* denotes the extreme form of *calcearia*, in which only the median band and basal patch remain on the white wing. Wehrli points out that Laharpe's original was the darker grey form, such as he has from Martigny. *fasciata.* — **saxicolata** *Led.*, described from the environs of Vienna, would seem to represent an intermediate form between *achromaria* and *calcearia*, but as no racial distinction from *achromaria* has been demonstrated it is probably better to keep it as synonym thereof. *saxicolata.* — **tenebrata** *Dannehl*, from moderate altitudes in the S. Tyrol, is said to be distinguishable by its stronger black-brown irroration. Type locality: Mt. Baldo, 600 m. *tenebrata.*

C. ibericata *Stgr.* (Vol. 4, pl. 13 a, as alfacariata). The name *alfacariata Rbr.* was not preoccupied, as Staudinger assumed; but as it was not binomical, the name *Cidaria ibericata* (1871) is the oldest valid for it. Stertz reports that Püngeler bred both this and *numidiata* from the egg and found them identical in their early stages. I have not, however, seen any published account of the life-history of either. The specimens which I have seen from Syria, and which it is customary to refer to *ibericata*, look to me slightly longer-winged but otherwise quite similar. *ibericata.* — **numidiata** *Stgr.* (13 k), which is now known to be locally abundant in Algeria, March-May and September to November (or even December), is very variable and I doubt whether it is always racially differentiable from the pale, yellowish tinged *ibericata* of Spain and Sicily; but as the great majority conform to the characterisation already given, the race-name may be retained. The only example before me from Tripoli (15 February) is pale and quite weakly marked. *numidiata.* — ab. **convergaria** *Stättermayer* has the median band darker and more sharply marked than normal *numidiata*, much narrowed posteriorly. Founded on 3 ♂♂ from Guelt-et-Stel. *convergaria.* — ab. **costimaculariа** *Stättermayer*, also from Guelt-es-Stel (1 ♂), has lost entirely the posterior part of the band, which reaches only from costa to posterior end of discocellulars. *costimaculata.*

C. reclamata *Prout* (Vol. 4, pl. 13 b). The reference to the figure was accidentally omitted from p. 240 of Vol. 4 and should be added. Wehrli records 4 ♂♂ and a ♀ from Marasch, varying in the distinctness of *reclamata.*

the cell-mark (see *juvenilata Zerny*, below) and Zerny 2 fresh ♂♂ from the northern Lebanon. Wiltshire has also captured and bred the same or something very similar in the latter district, but his material in the group still requires detailed analysis.

senectaria. **C. senectaria** *H.-Sch.* (Vol. 4, pl. 9 i). An excellent article on this rarity was published by Rebel in 1917 (Verh. zool.-bot. Ges. Wien, Vol. 66, p. 137—41). My account in Vol. 4 (p. 240) was fairly correct, though I should not now describe the ♂ antennal ciliation as "long", for it certainly does not exceed the diameter of the moderately slender shaft. Herrich-Schaeffer's figure, a ♂ probably from Fiume, though the text only mentions a ♀ supposed to come from the "Tyrol", represents a very weakly marked form, no doubt belonging *metoporina.* to the 1st generation. — gen. II **metoporina** *Schawerda*, which appears about September, is smaller (length of a forewing 11 or 12 mm against 14 or 15 for the spring brood), more sharply marked and on the whole with *decipiata.* the yellow tone less strong. — **decipiata** *Stgr.* (13 k). According to a communication from Püngeler, quoted by Schawerda, this differs so little from *senectaria* as to be scarcely distinguishable. My experience accords with this and it appears that the suggestion made by Staudinger himself, that this is at most a "Darwinian species" of *senectaria*, was justified. On the whole a little browner and more strongly marked than 1st-brood *senectaria*. F. Wagner considers that some, at least, of his specimens from Akschehir (Anatolia), 26 April to middle of May, agree with Staudinger's description of name-typical *ludificata*. He obtained from eggs a much smaller 2nd brood in July. The full-grown larva is grey to reddish grey, somewhat flattened, with strong folds; head relatively large, somewhat lighter; each segment with 4 black posterior tubercles; supraspiracular *ludificata.* line somewhat darkened; venter with a dark longitudinal line. It readily accepted Galium. — **ludificata** *Stgr.*, which was unfortunately published before the principal form *decipiata*, was probably merely an aberration, as both forms are recorded from Greece and I do not see any clear colour-distinctions in the Asiatic material known to me. Under the name of *ludificata*, Zerny has added the northern Lebanon to the range of the species.

juvenilata. **C. juvenilata** *Zerny* (13 k). Extremely near the preceding, but with the ♂ antennal ciliation decidedly longer (1½), the forewing still more pointed, its colour a peculiar gamboge-yellow, the head clean pale yellow (in *ludificata* with dark irroration); markings quite as in *senectaria*, but more uniform in expression, no tendency observable to a darkening of the median area, no distinct discal streak. Underside without the costal thickening of the postmedian. Genitalia closely as in that species, but with more strongly developed tegumen and more strongly down-curved uncus. Founded on 12 ♂♂ from the cedar-woods above Bsharre, N. Lebanon (ca. 1900 m). The antenna must be about like that of *reclamata*, but that has more the coloration and typically the strong cell-mark of *ludificata;* I was, however, perhaps rash, in this difficult group, in uniting Syrian specimens with my Schahkuh type.

kalischata. **C. kalischata** *Stgr.* (13 k), comparatively rare when our Vol. 4 appeared, has been taken in large numbers in N. Africa (Morocco to Tunis), from May to July. The ♂ antenna is almost simple, closely lamellate or *dentata.* "laterally compressed". — **dentata** *D. Luc.* (see Vol. 4, p. 302) proves to be nothing but a slight aberration of *kalischata*, rather weakly marked (the centre of the median area almost entirely pale), with the teeth of the postmedian line unusually equal. It is not exactly matched in a long series before me, but does not appear to deserve a separate name. Much more striking, and much rarer, is a form with the median band uniformly *rubrotincta.* darkened throughout. — **rubrotincta** *Zerny*, a mountain race from Tachdirt, Great Atlas, 2200—2700 m, has the body and forewing above decidedly more purple-reddish, this colour on the hindwing (excepting the distinctly reddish fringes) and on the underside only faintly expressed. Forewing more weakly marked than in typical *kalischata*, hindwing of ♀ less dark. At Goundafa (1200 m), Zerny found only a typical ♂. — The life-history is described by Reisser. The egg-stage lasts about 8 days. The young larva is unicolorous dark-grey and rests, like several *Cidaria*, with the forepart of the body curled inward. After the 2nd moult, the head is yellowish, marbled with violet, the body shagreened, grey-violet, the tubercles blackish, in part pale-ringed, the setae short; lateral flange light yellowish grey, dark-spotted. The full-grown larva is about 20 mm in length, very elongate, tapered anteriorly; a continuous dark dorsal line is accompanied by rather inconspicuous lozenge-shaped dark spots, bordered with yellow-grey; venter yellow-grey, with broken violet-grey markings. The winter is passed as pupa, in a very slight cocoon under moss on the surface of the earth; the pupa is dark, almost black-brown.

flavistrigata. **C. flavistrigata** *Warr.* (Vol. 4, pl. 7 h). Here should have been added the synonym *pallidaria Swinh.*, as Hampson's citation thereof is evidently correct. The type of *pallidaria* seems to be lost, but was from the same locality (Kalapani) as Warren's, probably a specimen from the same collector. A better position for *flavistrigata* would probably be near *homophaeta*, notwithstanding its small size.

minuta. **C. minuta** *Btlr.* (Vol. 4, pl. 7 h) and the two which follow it on p. 241 of Vol. 4 (*hockingii* and *lacernigera*) are, on the other hand, perhaps better placed in *Perizoma*, which often has similar palpus.

hockingii. **C. hockingii** *Btlr.* (Vol. 4, pl. 7 k) is not predominantly Palaearctic. There is a rather large form in the Nagas, and I have recorded one ♀ (perhaps racially distinguishable) from Upper Burma.

C. lacernigera *Btlr.* (14 k). We now give a figure of the type from Dharmsala. To the differentiation from *hockingii* I would add that *lacernigera* is more glossy, the median band not formed of a pair of dark lines with costal blotch, the subterminal anteriorly more punctiform, the basal patch generally less oblique, the distal margin of the forewing perhaps slightly more sinuous; fringe sharply marked. It occurs in Sikkim and (perhaps a different form) in Upper Burma. *lacernigera.*

C. debilitata *Leech* (14 a). We figure Leech's type ♀ from Gifu. It is perhaps conceivable that it is merely a remarkably weakly-marked aberration of the very variable *amelia*, which occurs also at Gifu. *debilitata.*

C. evanescens *Stgr.* (15 a). Good material from Vladivostok and other S. Ussuri localities is now known. Discocellulars of the hindwing, as I assumed, biangulate; palpus rather shorter than in *amelia;* antenna of the ♂ almost simple. *evanescens.*

C. malvata Rmb. (Vol. 4, pl. 9 k) ab. **balva** *Th.-Mieg* (15 a), founded on an aberration figured by Millière (Iconogr., pl. 27, f. 13), is unusually dark, with the median band black. S. France, the exact locality of the type not specified. Our figured ♀ is equally dark, but without the blackened median area. — ab. **albifascia** *nov.* (15 a) is a further development of ab. *catenaria Rbl.* (Vol. 4, p. 241), with the central band of the median area uninterruptedly white. The Tring Museum has 3 ♂♂, collected by Holl in the neighbourhood of Algiers. *balva.* *albifascia.*

C. mariae *Stauder* (15 a). An interesting discovery of comparatively recent date, probably related to *obsoletaria* but with the subbasal dark area of the forewing narrowed, rather than widened, posteriorly, the median area also quite differently formed, its dark part consisting chiefly of a narrow band outside the conspicuous black cell-spot. Sohn-Rethel thinks it may be nearer to *coerulata F.*, but I can see little connection. S. Italy, the originals from Calabria. — ab. **wehrlii** *Stauder* is a large, almost melanic ♀ from Faito, at the foot of Monte S. Angelo, ca. 1200 m, collected with typical specimens. The moth, according to Stauder, rests on the grey bark of alder- and beech-trees and is well protected. — **erichi** *Schawerda*, from Corsica, seems differentiable racially, the tone being grey rather than brownish; perhaps also the average size is smaller, but I have only one Corsican specimen before me. One from the vicinity of Schio, Upper Italy, originally quoted to *erichi*, belongs, according to its brownish colour, to the continental race *mariae*. *mariae.* *wehrlii.* *erichi.*

C. obsoletaria *H.-Sch.* (Vol. 4, pl. 10 a, as alpicolaria). The discovery that this group occours in the Italian countries (see the preceding and following species) has caused me to re-examine Herrich-Schaeffer's original figure, which was believed to be from a Sicilian specimen; but I still fail to see in it anything but a typical form of the Alps, and suspect an error as to the locality. — **juracolaria** *Wehrli* (= juravolaria *B.-Haas*), although founded on material from the Jura, was believed to be a phytological rather than a geological form, as it was bred from larvae found on Gentiana lutea, while those of the name-type feed on G. purpurea and punctata. Median area of forewing lighter, the dark bands mostly narrower; particularly characteristic, however, are the marginal area and the fringe, the former being predominantly pale between the subterminal and the termen, the latter much more sharply chequered than in *o. obsoletaria*. *obsoletaria.* *juracolaria.*

C. reisseri *Schawerda.* Apparently closely related to *obsoletaria.* Somewhat smaller and more slenderly built; ground-colour reddish ochreous instead of dirty white, the bands dark grey, the median band uninterrupted, though with its central part paler, its posterior end strikingly narrowed, subapical dark spot somewhat more obliquely placed, distal area (except anteriorly) without dark markings, the subterminal line in consequence not shown; hindwing a little smaller in proportion than that of *obsoletaria*, somewhat approaching the proportions of an *Acasis;* markings of this and of the underside very slight. Founded on a ♀ taken at light in the Monte Rotondo district, Corsica, at 1600—1800 m, 31 July 1932; no others yet known. *reisseri.*

C. perplexaria *Leech* (Vol. 4, pl. 7 i). Attention should be called to the spelling of this name, which is rightly written on the plate but in the text is inaccurately given as *perplexata*, consequently also misquoted by Sterneck. The latter calls attention to a structural character which further indicates the close relationship to *obsoletaria*, namely the presence, in both, of distinct dorsal tufts on the first 4 abdominal segments. *perplexaria.*

C. ambustaria *Leech* (15 a). Sterneck records several examples from Ta-tsien-lu and one from Sun-panting and remarks on the presence of dorsal crests, about as in *perplexaria*, also on the shortness and conical thickening of the ♀ abdomen, in which, as well as in the wing-markings, it recalls a diminutive *taczanowskiaria*. I think, however, it is probably a *Piercia;* the Chang Yang ♂ before me has even a trace, on the distal part of the forewing, of the green tinge which is so general in that genus. *ambustaria.*

C. taczanowskiaria *Oberth.* (Vol. 4, pl. 10 m). Superficially, as well as in the form of the ♀ abdomen (already remarked upon in Vol. 4, p. 242), this definitely recalls *Pelarga*, but it cannot on our present taxonomic system be transferred thereto. Abdomen without the crests of the two preceding. Palpus in the ♀ somewhat longer than in the ♂. *taczanowskiaria.*

C. lasithiotica *Rbl.* (15 a). It appears from the way in which its author refers to this subsequently, that he regards it as scarcely more than an extreme form (race) of *berberata.* — **nevadensis** *Rbl.* (= lasithiotica *lasithiotica.* *nevadensis.*

Ribbe, nec *Rbl.*, andalusica *Wehrli*) (15 b). Wings slightly more elongate, the grey median band of the forewing somewhat broader, with much less irregular proximal edge, though more so than that of *berberata*. Sierra Nevada and Sierra de Alfacar.

berberata. **C. berberata** *Schiff.* (Vol. 4, pl. 10 m). Jensen has recently added Denmark to the range of this species. Cockayne has described an unusual colour variation in some larvae which were sent him from Bury St. Edmunds; one was of the usual brown colour, one black with some white markings, a third pale orange-brown with the usual markings of a slightly darker orange; the blood and fat of the first two were blue-green, the *grisescens.* blood of the orange larva colourless and its fat white. — ab. **grisescens** *Wehrli*. Ground-colour of upperside pure ash-grey, without brown admixture; even the bands, which are darker grey, have the brown tone reduced. *griseata.* Markings very sharp. Recurrent at Zermatt, probably adapted to the rocks. — ab. **griseata** *(Oberth.) Culot*, a ♀ from Gênes, is similar but more extreme, the grey darker, the antemedian band slender. Probably indi*constricta.* vidual; in any case the name is older than *grisescens*. — ab. **constricta** *Vorbrodt* (= interrupta *Sauruck*). Boundary lines of median area twice confluent behind the middle of the wing, so that the enclosed groundcolour forms *interrupta.* an oval anterior and two small, round posterior spots. Switzerland, etc. — ab. **interrupta** *Metschl*, on a ♂ from Kehlheim, had the confluence more continuous, leaving only a small costal and a small innermarginal pale spot. *carolinaria.* Dannehl (more indefinitely) re-described (from Tyrol and Bavaria) under the same name. — ab. **carolinaria** *(Oberth.) Culot* is brownish, with the median area fuscous, extremely narrowed, the postmedian line being placed very near the antemedian, neither of them quite reaching the costa, the outward prongs of the former wanting. The unique type from Austria; an interesting approach to it has been figured by Kautz from Dürn*sineliturata.* stein. — ab. **sineliturata** *Culot*. Median band tinged with brown, but containing in its centre 2 transverse oval patches of the greyer groundcolour, the discocellular one oval, the posterior one tripartite; apical streak *mauretanica.* wanting. Savièze, Valais. — **mauretanica** *Reisser*, from the Riff Mountains of Spanish Morocco, is more weakly marked (notably in the distal area) and much less variegated than typical *berberata*, the brown elements much reduced, the median area of the forewing appearing rather broader, partly through the stronger bend of the antemedian, partly through the narrowing of the proximal shading of the postmedian. In most respects a strong contrast to the sharply and copiously marked *nevadensis*, only perhaps in the hindwing somewhat nearer to that than to *berberata*. One specimen lacks the apical streak of the forewing (compare ab. *sineliturata*).

consanguinea. **C. consanguinea** *Btlr.* (15 b). We give a figure of a ♀ from the Pryer collection.

derivata. **C. derivata** *Schiff.* (Vol. 4, pl. 10 m). Possibly this species and *querulata* (misprinted quaerulata in Vol. 4) should be separated off under the subgeneric (or generic) name of *Anticlea Steph.*: texture and build somewhat different, more slender, hindwing elongate costally, weakly marked, face slightly prominent but not tufted, palpus shortish.

reductaria. *C. alhambrata Stgr.* (Vol. 4, pl. 10 m) ab. **reductaria** *Stättermeyer*, from Guelt-es-Stel (1 ♂) has the pale median area so narrowed that the dark bands which bound it touch posteriorly.

beduina. **C. beduina** *Trti.*, though described — probably by oversight — as *Entephria*, is very similar to *alhambrata*. The unique type was collected at Ain Maros, Cyrenaica, and is said to have the same brown colouring but to lack entirely the whitish "predistal band" (? the subterminal), while the median fascia is strongly suffused with reddish; a distal (? terminal) brown line with 3 or 4 projections on the veins; "predistal area" much clouded with brown.

callidaria. **C. callidaria** *L. Joan.* (14 a) was misplaced in Vol. 4 (p. 218), following Staudinger's Catalog. It is really very close to *adlata* (see below) and will perhaps supplant it as a slightly different form of a single variable species. But that careful entomologist the late Abbé J. de Joannis, on comparing his brother's type with a Palestine ♂ *adlata* (Staudinger det.) thought otherwise, and gave me the following differentiation: (1) costa of *adlata* straighter, wing more triangular; (2) *callidaria* type reddish, *adlata* more grey with a white "eclaircie" in median area; (3) the postmedian line differs; in *callidaria* between veins 3 and 4 it becomes oblique and almost straight in its course towards the costa; in *adlata* it has not this oblique direction, but rises more vertically, though with a slight retraction before reaching the costa; (4) the postmedian of the hindwing beneath is near the cell-spot in *adlata*, much more distal in *callidaria*. By these criteria, a ♀ from Cyprus is probably a light aberration or race of *callidaria*, while a Beyrout ♂ seems certainly a dark, rather weakly marked aberration of the same. Unfortunately I have scarcely any material available for further verification.

adlata. **C. adlata** *Stgr.* (Vol. 4, pl. 9 i). It is just possible that the Jerusalem species (or race?), which might retain Staudinger's name, is really separable from the Beyrout *callidaria* (see above). If so, the "*adlata*" larva recently described by E. P. Wiltshire from the latter district, presumably belongs to *callidaria*. It feeds by night on Poterium spinosum in January and February and is stoutish, brown to pale greenish grey, with diamond-shape dorsal marks, edged anteriorly with purplish; in the brown form these diamonds are whitish. Ventral line fine, dark, widely interrupted.

C. sagittata *F.* (Vol. 4, pl. 10 m). This, even more than the *derivata* group, appears to need taxonomic separation from the greater part of the *Coenotephria*. Abdomen crested; otherwise its form, as also that of the larva, perhaps shows more association with *Pelurga* than with the present group. Pierce, from the genitalia, has no fruitful suggestion to offer; for although he correctly urges that it has little connection with his *Cidaria* (the *fulvata* group, *Dysstroma*, *Chloroclysta*, etc.), it cannot be said that he makes out a very good case for bringing it into the vicinity of *Eulype* and *Calocalpe*. *sagittata.*

C. costinotaria *Leech* (Vol. 4, pl. 13 c). Sterneck, from a Ta-tsien-lu ♂, gives the following structural characters: joints of antenna projecting little, but provided with long fascicles of cilia; palpus quite short, not projecting beyond the eye, abdomen with small black crests; probably quite near *sagittata* genetically. *costinotaria.*

C. fractifasciaria *Leech* (Vol. 4, pl. 7 i). Sterneck records a pair from Ta-tsien-lu and adds that the face has somewhat projecting scales, the long, rough-scaled palpus has the 3rd joint distinct and the abdomen has small black knob-like crests, that of the ♀ not thickened as in *Pelurga*. On account of the different palpus he hesitates to accept the suggestion that *fractifasciaria* and *costinotaria* are closely related. *fractifasciaria.*

Subgenus **Euphyia** *Hbn.*

I have separated from this group the *Trichoplites* of Swinhoe, the *Ecliptopera* of Warren and those species which, although their morphology and biology have not yet been carefully investigated, seem to me to be related to *corylata Thnbg.*, which I have made the type of *Electrophaes Prout*; *tamaria Oberth.* is now referred to *Hydriomena*. Other taxonomic modifications will probably be necessary. The type of *Euphyia* is *picata Hbn.* and perhaps a really natural system of classification would limit it to that species, *unangulata Haw.* and their nearest relatives.

C. sintenisi *Stgr.* (Vol. 4, p. 244). I have still no material available for the further elucidation of this species. My valued friend and collaborator Dr. Wehrli is, however, able to make known through our pages a new race of it and has kindly lent a ♀ for figuring — **sultania** *Wehrli subsp. nov.* (15 b). „Differs from *sintenisi* in the grey-olive, often slightly brownish-toned bands, the broad whitish band outside the median area of the forewing, the distinct elongate cell-spot and the fine dentate postmedian of the hindwing and the broad black terminal area of both wings beneath, with white spot at the apex and in the middle. Sultan-Dagh, 1500 to 1700 m (Anatolia), July, August, leg. E. Pfeiffer, 1 ♂, 5 ♀♀". *sintenisi.* *sultania.*

C. adumbraria *H.-Sch.* (Vol. 4, pl. 12 c). This rare species, previously only known from Dalmatia, Herzegovina, Croatia, Carniola, the Taurus and Armenia, has since been recorded from Kleiner Göll, near Golling (Salzburg district) by Fritz Wagner in a new subspecies — **cretacea** *F. Wagn.* Much lighter, almost chalk-white. Osthelder records and figures the same race. It, or a closely similar form, occurs also in the Abruzzi; at any rate the form there is paler than the name-type. Sohn-Rethel describes the larva, which feeds on Galium and reaches maturity in the autumn; somewhat shorter and thicker than its nearest relatives, light greyish rose, marbled with grey-brown, the W-shaped dorsal markings mostly more connected than in *nebulata*, the dark dots sharply expressed, the head and prothoracic plate considerably stronger and broader. — ab. **inscriptata** *Dannehl*, from Montagna Grande, ca. 1400 m, is described as parallel to *nebulata albicans* (13 k) from the same district, with the characteristic whitening of the grey tone and weakening of the markings; here the lines are as good as wanting, only slight shadowy indications remaining; light grey costal dots further emphasize the central ones. Possibly Dannehl's name is meant to denote the entire race, though he calls it a "rare aberration". *adumbraria.* *cretacea.* *inscriptata.*

C. maximiliana *Reisser* (15 b). Perhaps nearly related to *frustata*, though the ♂ has much longer antennal ciliation (at least as long as the diameter of the shaft) and the coloration somewhat approaches that of *sandosaria*, the green and white-grey of *frustata* and *griseoviridis* giving place to a predominantly reddish sand-yellow or dirty fleshy ground-colour with black-grey markings. Median band broad, postmedian rather less rugged than in *frustata*, the paired terminal dots confluent. Underside very characteristic, the distal area dark, separated off by a broad pale band, the apex of the forewings whitish. Great Atlas, at altitudes of about 2300 m. *maximiliana.*

C. frustata *Tr.* (Vol. 4, pl. 9 k). Warnecke (Ent. Anz., Vol. 12, p. 118) has given a good summary of the distribution in Europe of this alpine species. Some limits which were not mentioned in Vol. 4 are Belgium (Virton and Rochefort) and N. Persia; a ♀ recently received by Lord Rothschild from the latter country (Demavend Mountains) is an aberration or geographical form. Warnecke was also able to add Thuringia: Meiningen, Freiburg b. Naumburg and Eschwege. — **fulvocinctata** *Rmb.* (14 b). Although this is generally a fairly well differentiated race in the Mediterranean countries, including Morocco, Wehrli in the Andalusian mountains has taken typical *frustata* with it (confirming the statement made in Vol. 4, p. 244). — ab. **iriguata** *Dannehl*, not rare among *fulvocinctata* (which seems to be the prevailing form in the S. Abruzzi), is quite deep *frustata.* *fulvocinctata.* *iriguata.*

olive, with all the dark lines fine and pretty uniform in expression, the whitish costal spots not clear, mostly cut by the lines, the yellowish shades suppressed, the hindwing rather dark. Montagna Grande, Majella, Rotella and Sirente, 900—2000 m. — ab. **plenifasciata** *Dannehl.* A fine and striking aberration with the dark median band solid, the distal area olive-grey, marbled, without lines, "on vein II 1 [sic] with 2 eye-like marginal spots" (? the blackish subterminal spots at the radials remaining and pale-surrounded). Mt. Paradiso (type) and Scanno. — **griseoviridis** *Kitt.* described from Corsica, is similar to some dark *fulvocinctata*, with less developed subterminal. Generally very dark, grey-green or deep sap-green, distal area without the yellowish or brownish admixture which is usual in the forms from the Alps. Schawerda finds it as a rule large and with an increase of whitish grey admixture in the median area. Bytinski-Salz records it from Sardinia and Reisser a single ♂ from A' Faska, Spanish Morocco, which differs slightly in having the green scaling less clean and sharp (? *fulvocinctata* ab.). — ab. **deblonayi** *Schawerda* is a Corsican aberration with the green replaced by brown-yellow, the grey admixture much whiter. — ab. **olivogrisea** *Schawerda*, also from Corsica, is of an olive-green colour, very different from the relatively bluish green which is typical of the race.

plenifasciata. *griseoviridis.* *deblonayi.* *olivogrisea.*

C. mesembrina *Rbl.* (= griseata *Schwingenschuss*, nom. praeocc.). On an average larger than *frustata*, relatively broader winged, not variegated with gold or orange and only very slightly with green; slightly more glossy, cell-spot of forewing wanting or quite weak, subterminal without dark marks proximally, a white spot in cellule 3. Underside white-grey, the hindwing whiter, the forewing with white apical maculation, outer white band very broad, its proximal line with only a central tooth strengthened. S. Carniola, Carinthia, Laquintal and Tarvis.

mesembrina.

C. sandosaria *H.-Sch.* (Vol. 4, pl. 9 k). Widely distributed in Algeria, not only in the south, as assumed in Vol. 4 (p. 244). — ab. **bellissimaria** *Stättermeyer*. Median band broad, dark black-grey; base, distal area and a band on proximal side of median band bright deep rose-red. Hindwing rather dark. A ♀ from Guelt-es-Stel. — **libycaria** *Trti.* Rather clearer ochreous than name-typical *sandosaria* and with the band rather darker. Said to be constant in Tripoli and Cyrenaica. The Algerian ab. (?) *bertrandi Rothsch.* is very similar to this, possibly less ochreous. — **cinneretharia** *Amsel*, from Gennezareth, is distinguishable from the Spanish subspecies (i. e., the name-type) in the stronger rust-red scaling and the less oblique termen, with resultant broadening, of the forewing; moreover the hindwing is lighter.

sandosaria. *bellissimaria.* *libycaria.* *cinneretharia.*

C. mosulensis *Schawerda* is closely similar to *sandosaria* but smaller and paler. Perhaps a race; Schawerda considered this improbable, chiefly on account of the wide geographical separation, but now that the gaps have been largely filled by the discovery of further *sandosaria* forms the question will have to be reconsidered. Founded on a single ♂ from Mosul, Mesopotamia; so far as I know, it has not yet been taken again.

mosulensis.

C. intersecta *Stgr.* (Vol. 4, pl. 9 i, misprinted internata). The ♂ has the antenna lamellate, with moderate teeth. The palpus is rather short. It is possible that its affinities are really with *Horisme*, but its thorax and abdomen are scarcely at all crested. — **aksuensis** *Wehrli* (14 b), founded on 2 ♂♂ from Aksu, is smaller, yellowish grey, with the median area of the forewing parallel-sided, without the usual distal projection.

intersecta. *aksuensis.*

C. scripturata Hbn. (Vol. 4, pl. 9 k) ab. **burgharti** *Dioszeghy* is only known to me through a reference by Kolar, who says that it has a darkened stripe on the forewing, but does not make it clear whether this refers to the whole median area or to a section thereof, or even an increase in the dark proximal shading of the subterminal. Perhaps it is identical with the following. — ab. **brunneolineata** *Dannehl*, from the S. Tyrol, and occasionally elsewhere, has the basal area light-brown and two broad light-brown to brown-yellow bands bounding the median area, the ground-colour light grey. — **poliata** *Schawerda.* Lighter and purer grey than *s. scripturata*, base of forewing tinged with blue, median area weak-marked. Herzegovina: Zelengora, in numbers. — **albidaria** *Sohn-Rethel.* Perhaps a synonym of *poliata*, as Balkan *scripturata* are said to be usually small. Smaller and much lighter than the type, markings lighter brown and less broad, the white ground-colour predominating. Hindwing above and beneath very weakly marked. A race in the Abruzzi, but not common. — **rilica** *subsp. nov.* (15 b). Even darker than *dolomitana Habich* (Vol. 4, p. 245) and of a somewhat less brownish grey; the basal patch, as well as the median band, of the forewing distinctly darker-shaded than the ground-colour. The underside of both wings, as far as the postmedian, participates in this additional darkening. Rila Mountains, Bulgaria, 3 ♂♂ in my collection; I have seen others. Length of a forewing 14—15 mm.

burgharti. *brunneolineata.* *poliata.* *albidaria.* *rilica.*

C. cupreata *H.-Sch.* (Vol. 4, pl. 9 i). The larva of this variable species has been studied by Wiltshire in Syria, on the coast near the Lebanon, where it feeds on Rubia olivieri; the larvae found were full-grown in March and agreed absolutely with Millière's account of *basochesiata*. The imago flies from October to March and the egg stage lasts 10 days. Cyprus is another well-known locality for *cupreata*. — **algiricata** *D. Luc.*, described in some detail on p. 233 of Vol. 4, is nothing but a chance aberration or synonym of *cupreata*. On the other hand, *vallantinaria Oberth.*, which Stertz claims to have taken commonly at Hammam Rirha and believes

cupreata. *algiricata.*

to be identical with *cupreata*, is quite distinct from it (see below); probably Stertz's captures were true *cupreata* and his reference incorrect. — I fully believe that Wiltshire will prove to be right as to the necessity of sinking *cupreata* as a form of *basochesiata*, but hesitate to abandon the long-established conception until thorough anatomical investigations have been made.

C. basochesiata *Dup.* (Vol. 4, pl. 10 a). Long before receiving Dr. Wiltshire's valuable communication. *basochesiata.* I had found increasing difficulties in drawing a sharp line between this species and the form (or forms) *cupreata* and had begun to suspect that all belonged to a single species. Culot's "easy distinction" (the presence of black on the borders of the median band in *basochesiata*) breaks down unless both occur freely together both in S. France and in Algeria. Moreover, so accurate an observer as Püngeler has labelled an Algerian "*basochesiata*" as *cupreata* and Oberthür (Et. Lép. Comp., Vol. 19) has figured a Moroccan "*cupreata*" as *basochesiata*. In any case, the *basochesiata* forms, as defined by Culot, occur not only in the countries named in Vol. 4 but also in Sardinia and N. Africa, probably also in the eastern localities. — ab. **virescens** *Schuringenschuss*, described *virescens.* from Spain as an aberration of *basochesiata*, has part of the inner band, costa, posterior half of outer band and a narrow band along the termen of the forewing metallic green, the intermediate parts cupreous. Chiclana, 1 ♂.

C. vallantinaria *Oberth.* (Vol. 4, pl. 9 k). Besides being larger than *cupreata* and *basochesiata* (see above) *vallantinaria.* this has a different antemedian and other distinctions and has altogether much of the aspect of a strongly darkened *picata*; basal and median areas of forewing dark and mossy-coloured, rather weakly separated. The specimens before me (one from Blida and one from Bône — Oberthür's type locality) are slightly broader and broader-winged than the figure of the original, but there can be no doubt about the determination.

C. putridaria *H.-Sch.* (15 b). The figures of Herrich-Schaeffer discussed in Vol. 4 (p. 246) should be *putridaria.* respectively 535 (the later *acutangulata*) and 536, which serves as the type of *putridaria*. Common in the northern Lebanon. F. Wagner records it from Akschehir, Anatolia, together with a number of very differently coloured (more grey-brown and less variegated) specimens which were determined provisionally as *renodata Püng.*, with the suggestion that the latter was only a form of *putridaria*. As I do not possess this *renodata*-coloured insect, I must leave it to the future for further elucidation and can only here say that the specimen figured by Wagner is quite different, notably in shape, from the true *renodata*, and that Dr. Hering, who compared it with Püngeler's type, declared it to have "nothing to do" therewith. The trouble seems to have arisen from the fact that Bohatsch had erroneously determined the present (*putridaria*?) form as *renodata*. Perhaps there is still another species awaiting definite differentiation in the group; at any rate, as my kind friend Wagner reports, I did not recognize it in his collection as anything known to me. — **bulgariata** *Mill.* (Vol. 4, pl. 10 a, as permixtaria). *bulgariata.* In the differentiation of name-typical *putridaria* from this western form, the sentence was made almost unintelligible by the omission of the word "size" after "rather larger"; the size differentiation, however, is probably quite unimportant and I am doubtful whether two separate names are required. The species rests on tree-trunks or rocks and flies wildly when disturbed.

C. permixtaria *H.-Sch.* (Vol. 4, pl. 10 a, as putridaria). Occurs in Macedonia, in Turkish N. Syria *permixtaria.* (Marash) and rather commonly at Akbès; I have it also from Baalbek, which seems to be hitherto its southerly limit.

C. renodata *Püng.* (15 c). The differentiation from *putridaria* has already been given in Vol. 4, (p. 246) *renodata.* and a somewhat similarly coloured form, provisionally referable to the latter, has been discussed above. True *renodata* is only known to me from a Kopet-dagh ♀ and apparently a few examples from N. Persia, and has definitely more produced apex, narrower cell-mark and browner proximal-subterminal shades (more continuous than in *permixtaria* but much weaker).

C. corollaria *H.-Sch.* (= noacki *Draudt*) (14 a). Warnecke has carefully analyzed most of the known *corollaria.* material of this colletive species and found that, irrespective of the *centralisata* of Namangan, Transalai and Issyk-kul, there are two well differentiated forms which, as no distinction had yet been demonstrated in the genitalia, he regarded as local races. Unfortunately no type locality was given for Herrich-Schaeffer's original, but it appears to represent the form which occurs in Central Spain (Albarracin), the Spanish Pyrenees and again the Crimea (Karadag), possibly also in Bulgaria. This is larger and lighter than the following, with weaker-marked hindwing and a more pronounced tendency for the median band to contain a pale distal patch in its central part; moreover the central veins on the median band are more or less strongly tinged with ochreous-brown. Guenée gives a detailed description of a specimen from "Dalmatia" in Lederer's collection; this is unfortunately lost and we have no confirmatory record from the district. Misled by the survival of the erroneous belief that *corollaria* and *unicata* were forms of a single species, Prof. Draudt recently (1935) redescribed *corollaria* as a new species. Mr. H. Noack having captured a worn ♀ at Angora among *C. unicata*, eggs were obtained and Draudt, who was breeding *unicata* at the same time (see below), saw that two such dissimilar larvae could not possibly appertain to one species. In its first stages, to be sure, the larvae, which were reared

on Galium verum, seemed close to those of *unicata*; but after the 4th moult they recalled a *Eupithecia*, perhaps *extraversaria*; pale sea-green to porcelain-white with a very fine blue-green dorsal line, which broadens at the hinder end of each segment into an irregularly quadrate, deep brown-red spot, laterally with irregular triangular spots of the same colour; head and legs light brownish green, venter and prolegs light greenish.

unicata. **C. unicata** *Guen.* (Vol. 4, pl. 10 a) is smaller, more sharply marked; probably much the more distributed species in collections. The type came from Amasia and it occurs freely in Anatolia and several parts of Asia Minor, N. Syria, Greece, Macedonia, Albania and even in the Caucasus. The genitalia show considerable dif-
centralisata. ferences. — **centralisata** *Stgr.* (131) generally represents *unicata* also at Angora and our figure is taken from a specimen from that locality; a minority of more typical specimens may also be found there. The early stages of *corollaria* have recently been described by Dr. Draudt. Egg reddish yellow. Newly hatched larva greenish, with somewhat browner head. The moults follow one another at periods of about 5 days and the larva develops dark subdorsal and lateral bands; after the 4th it closely resembles *cuculata* in markings: sulphur-yellow, with extremely fine violet-red dorsal and subdorsal and broad lateral and sublateral bands, the latter almost meeting ventrally. It readily accepted Galium verum.

anerythreia. *C. cuculata Hufn.* (Vol. 4, pl. 10 a) ab. **anerythreia** *Rbl.*, founded on a ♂ from the Mistelbach district, Lower Austria, has entirely lost the usual reddish admixture on the forewing, both in the basal and in the
sabinata. distal area. The specimen is quite fresh. — **sabinata** Dannehl, from the Sabine Mountains, is said to be a good local race, differing materially from the type in the colour-scheme; all the shades incline towards red, the bands being red-brown instead of black-brown, the normally brown parts quite light brown or fawn; no bluish sheen
brunneata. in the distal area; subordinate lines weak; hindwing lighter. — **brunneata** *D. Luc.* is also treated as a subspecies; if such it be, it requires a new name, as *brunneata* is preoccupied in *Cidaria* (Packard). Only 2 examples, however, are yet known, both from Le Tarf, Algeria (May and September); these agree in that the pale parts of the fore-
undulosa. wing are more yellowish, the dark parts paler mixed, the hindwing greyish. — **undulosa** Warnecke is founded on 9 specimens (both sexes) from Central Asia: Issyk-kul, Urumtschi (Thian-shan) and Djarkent. Larger, with one exception, than European *cuculata*; ground-colour of forewing more grey-yellowish, median area and posterior part of distal area occupied by distinct wavy lines which reach the hindmargin, so that these parts of the wing do not appear so light as in the name-type; hindwings correspondingly darkened by more conspicuous lines, the dark marginal area in consequence less differentiated. The dark parts of the forewing are not pure black, but more or less tinged with red-brown.

yokohamae. **C. yokohamae** *Btlr.* (15 c). We figure a ♂ of this apparently scarce species from Asamayama. I have not yet been able to find any constant difference in the E. Siberian *rogenhoferi Graes.* Sterneck records the species from Pekin.

subangulata. **C. subangulata** *Koll.* (Vol. 4, pl. 10 b). As in so many *Cidaria* with this scheme of markings, the ♀ shows some tendency to have the median band broader than in the ♂; the sexual dimorphism is not, however, so strongly marked here as in many others and our figure (from a ♀ from Gurais Valley, Kashmir) gives a good idea of both sexes. Antenna of the ♂ simple.

goniodes. **C. goniodes** *Prout* (15 c). Intermediate between *subangulata* and *mediovittaria Moore* (see Vol. 4, p. 247) but nearer to the latter. Median band as broad (or almost as broad) as in *subangulata* and with a similar (blunt) central tooth outward which is virtually wanting in *mediovittaria*; distal area nearly as in the latter. Hindwing similar to that of *mediovittaria*. A more detailed differentiation from that species will be given in Vol. 12. The type series came from Chumbi Valley, Sikkim Tibet, but it is mentioned here because it occurs also in Kashmir, particularly at Gulmarg.

tonnaichana. **C. tonnaichana** *Matsumura* (= tomaichana *B.-Haas*) is said to be "somewhat allied" to *unangulata* and although the figure is very small it could conceivably represent a member of that group. "♂ 27, ♀ 26 mm." Forewing with cellspot large, proximal and median bands about as continuously darkened as in *luctuosaria* and *cineraria*, with some reddish-brown and fuscous costal maculation, postmedian gently sinuous, not angled, white band beyond bisected, distal area and hindwing much as in *unangulata*, subterminal of hindwing broad. S. Saghalien, in July and August.

deangulata. *C. unangulata Haw.* (Vol. 4, pl. 10 b) ab. **deangulata** *Orstadius.* Outer edge of median band running in an even S-shaped curve, without the tooth at the 3rd radial. Founded on a ♂ from Angermanland, Sweden.
euscopus. I have an English example; the 'S' shape is of course exceedingly weak. — ab. **euscopus** *V. Schultz* has all the dark parts of the forewing much lighter brown, in the most extreme form (which was made the type) with the median area, excepting its narrow band-like boundaries, particularly light (almost whitish). Type from Viern-
orbiculata. heim (Hesse). — ab. **orbiculata** *Dannehl* has the cell-spot of the forewing set in a more restricted (light blue-grey) space than ab. *euscopus*, the median band otherwise complete; distal area with bluish suffusion strong

and extended. Type from Baden; also mentioned from Thüringer Wald. — ab. **triangulata** *F. Wagn.* Median band narrowed, broadly interrupted, forming merely a small costal patch and a hindmarginal triangle. Berlin, one specimen, bred from the larva. — **chinensis** *Sterneck*, if it be a geographical race or a separate species, will require a new name, as there is already a *Cidaria chinensis* (Leech, 1897). It is said to differ from *luctuosaria* (which it approaches in the uniformly darkened proximal and median areas and the sharply defined proximal edge of the distal area of the forewing) in having a smaller, more rounded postmedian projection of the central band, more sinuous proximal edge of the distal area (so that the white postmedian band is of almost equal width throughout), darkened proximal area of the hindwing above and beneath and lack of the white spot in the marginal area of the forewing beneath. Founded on 3 ♂♂ from Ta-tsien-lu. *triangulata.* *chinensis.*

C. luctuosaria *Oberth.* (15 c). I think this and the following must be regarded as species, not forms of *unangulata*, although the differences in the genitalia are but slight; the most easily observed are in the valve and the uncus; the latter in this species and *cineraria* tapers rapidly to its rounded and convex (not "indent") end; the part of the valve beyond its dorsal process is longest and narrowest in *luctuosaria*. *luctuosaria.*

C. cineraria *Btlr.* The uncus is shaped about as in *luctuosaria*, not (as in *unangulata*) nearly parallel-sided and terminally "indent" (Pierce). The part of the valve beyond the process is at least as short as in *unangulata*. *cineraria.*

C. coangulata *Prout* (Vol. 4, p. 247). Sterneck refers here, but with a query, a pair from Sunpaïting. W. China, which differ from *picata* and *brunneimixta* in the long, single prong of the postmedian of the forewing, which is not dentate; that of the hindwing beneath regularly rounded, not produced centrally. I have not seen them. *coangulata.*

C. ochreata *Moore* (15 h) was founded on a ♀ from Darjiling in the Atkinson collection and it now seems certain that the name was misapplied by Hampson and others to the common N. W. Indian *Euphyia* which we figured in Vol. 4 as *ochreata* (see *submarginata* below). The true *ochreata* is unfortunately not represented in our British collections, but a second Darjiling ♀ from the Staudinger collection has been kindly lent me by the Berlin Museum. Although it is not known to occur in the Palaearctic Region, we give a figure of it to allow of a comparison with the following form and to stimulate further investigation. It gives the impression of a separate species, but may be a race or conceivably (though I feel it to be extremely improbable) a mere aberration. Larger, the hindwing and underside considerably darker, the forewing with the area proximal to the median band less darkened, the dark band between median and basal sometimes evanescent, the outward prongs of the median band stronger, etc. — **brunneimixta** *Th.-Mieg* (= picata *Leech*, nec *Hbn.*) (15 c). Hindwing pale, forewing intermediate in appearance between *ochreata* and *submarginata*. ♂ genitalia perhaps nearer to these of *unangulata* than to *picata* and *submarginata*, the arm (called costa by Pierce, but apparently in reality no part of the valve but springing from the tegumental ring) bifid at end, with the two projections about equal, valve with a distinct costal projection. West China, distributed; also in almost identical forms from the Khasis. *ochreata.* *brunneimixta.*

C. submarginata *Warr.* (Vol. 4, pl. 7 i, as ochreata). On an average smaller; more soberly and uniformly coloured, generally more grey than greenish. ♂ genitalia with the arm narrow and scarcely befid, valve with a bulge on the lower edge, thus more associated with *picata* than with *unangulata*. Warren's type, a ♀ from Kashmir, is slightly aberrant in having the border and the hindwing a little darker than usual, but the species, which is very common in the Punjab and Kashmir and enters Afghanistan, is not on the whole particularly variable. *submarginata.*

C. picata *Hbn.* (Vol. 4, pl. 10 b). The references to Chinese forms (Vol. 4, p. 247) and the inclusion of China in the area of distribution must be deleted, as they refer to the erroneously determined material in the Leech collection and belong to *brunneimixta Th.-Mieg* (see above). *picata.*

C. luctuata *Schiff.* (Vol. 4, pl. 10 d). Two specimens have been taken in England, one in N. Kent in 1924, the other in Essex, not recorded until 1928; they were probably, however, accidental introductions. In the Taunus and in the lowlands, according to Boldt, the species is always attached to Epilobium, in the Black Forest to Vaccinium myrtillus. — ab. **atrolata** *Schawerda*. Subterminal line almost entirely obsolete, median and distal bands strongly blackened, proximal area of darker grey than in the type form. Founded on a ♂ from San Martino di Castrozza (Dolomites). Other examples are known; it should perhaps be merged in ab. *denigrata Gillmer* (Vol. 4, p. 248) and differs little from the prevailing northern forms (*borealis Petersen*). — ab. **dobayi** *Dioszeghy*, from the Retyezat Mountains, is said to be intermediate between *borealis* and the black-hindwinged *obductata Möschl.* Subterminal line obsolete, white band of forewing rather less bent than usual, that of hindwing rather narrow, sharply defined proximally. Probably another superfluous name. — ab. **separata** *Romaniszyn* is said to differ chiefly in the development of a prominent, distinct, uninterrupted, sinuous black line which bisects the white band. One of each sex, from different localities in Poland. A fuller account, in Polish, *luctuata.* *atrolata.* *dobayi.* *separata.*

indistincta. is given in Motyli Polski, Vol. 1, p. 439. — ab. **indistincta** *Osthelder* (= effusa *L. Müll.*). Outer white band blurred, without sharp dividing-line or sharply defined boundary. S. Bavaria, Austria, etc. Each author bases his name on the "nom. coll." conception.

undifraga. **C. undifraga** *nom. nov.* (= undulata *Leech, nom. praeocc.*) (Vol. 4, pl. 13 c, as undulata). It was overlooked that the name *undulata* was a secondary homonym, as there exists also a *Cidaria undulata* (*Warr.*), dating from 1888. *undifraga* perhaps belongs chiefly to S. E. China; I have it from Wenchow and the other localities from which I have seen it (Chekiang, Kiukiang — the type — and Ichang) leave some doubt whether it has much claim to be regarded as a Palaearctic species.

discomelaina. **C. discomelaina** *Wehrli* (= undulata *Sterneck*, nec *Leech*) (14 a). Smaller than *undifraga*, less black, the white markings more regular, the additional ones much weaker, the white apical spots wanting. Underside at least as sharply marked as upper. The ♀ is larger than the ♂. Pekin, not rare. Perhaps more nearly related to the Indian *contortilinea Warr.* than to *undifraga*.

molluginata. **C. molluginata** *Hbn.* (Vol. 4, pl. 10 f). Belgium has recently (1933) been added to the known distribution of this species. Although its variability is not very great, numerous aberrational names have been inflicted upon it. — ab. **completa** *Wehrli* is the form with the median area of the forewing completely filled with dark brown-grey, as in our ♂ figure. It is rare in its extreme form (Wehrli mentioned only 1 from Zermatt and 1 from the Jura) but is connected by all transitions with the type. — ab. **regressata** *F. Fuchs* is very dark, obscurely marked. Rhine: Vogesen. This was assumed by *A. Fuchs* to be the true *molluginata*, hence the synonym *poecilata A. Fuchs* (see Vol. 4, p. 248) was created for the light form which is prevalent in the Jura, etc. — **obscurata** *Schawerda* (a black-grey form, "about the colour of dark *salicata*"), described from Obersee, N. Austria, may have to supplant *regressata*; both were published in 1914, *regressata* on 11 July, *obscurata* probably in March or April. — ab. **inusitata** *Guen.* (14 a). A figure is given by Culot of Guenée's Hyeres type. We reproduce it here, for comparison with the somewhat more extreme forms last discussed. — ab. **constricta** *Wehrli* was not quite adequately described in my brief addendum (Vol. 4, p. 420), which was taken solely from the references in Vorbrodt and Müller-Rutz; those authors wrote "abgeschnürt", not "eingeschnürt", and the original account (Mitt. Thurgau. Nat. Ges., Vol. 20, p. 45) expressly gives the median band as "broadly interrupted with whitish in the middle, divided into an upper and a lower half". The locality of the type was Wellenberg, Frauenfeld district. It has been considered a pathological aberration, but this phase of variation is well-known in many perfectly healthy Larentiids. — ab. **divisa** *Osthelder*. Median band in its entire length interrupted by a lighter band". Described from S. Bavaria. Strictly speaking, however, this appears to be the form figured by Hübner. — ab. **kendeffyi** *Dioszeghy* (perhaps almost teratological) has the forewing somewhat narrowed, with acute apex, the hindwing also slightly reduced; median band dark, narrowed, its boundaries not very sharply defined, subterminal shade dark, blurred proximally. Retyezat Mountains, 1 ♂.

completa. regressata. obscurata. inusitata. constricta. divisa. kendeffyi.

unduliferaria. **C. unduliferaria** *Motsch.* (= eliela *Btlr.*) (Vol. 4, pl. 10 h, as albostrigaria). There seems to be sufficient local variation in this very distinct species to justify the employment of racial names. There can be no reasonable doubt that the generally large and more greyish tinged *eliela* of Butler, from Japan, is the same which was much earlier described (also from Japan) by Motschulsky as *unduliferaria*, the oldest name for the collective species. The form from Corea seems to be nearer to this than to the following. — **albostrigaria** *Brem.*, from the southern Amur district, is smaller and (very) slightly paler (more yellow-brownish) than typical *unduliferaria* and there are other very slight differences which help to give it a somewhat different aspect. — **geraea** *subsp. nov.* (14 a), from W. China, is about as large as *unduliferaria* but still more greyish, white lines nearly always slender, generally inclusive even of the more band-like postmedian; 4th white line (the first which is continued on the hindwing) generally less irregular, gently curved, on hindwing less band-like than in the other races. Distributed, the type series from Kunkala-Shan.

albostrigaria. geraea.

bilineata. **C. bilineata** *L.* (Vol. 4, pl. 10 h, i). Carl Schneider (Ent. Anz. Vol. 10, p. 31) doubts whether there is ever a second brood; in spite of very careful and protracted investigations he has never found the later larvae nor obtained ova until the late summer; probably we have here a parallel case to that of some Agrotids. Very many names, some more important, some less, have been given to aberrations of this extraordinarily variable species, although a few authors (e. g. Cockayne in Trans. City Lond. Ent. Soc., Vol. 17, plate) have been content to figure aberrations without giving them separate names. — ♀-ab. **fuscofasciata** *Meves* has the whole of the median area and a part of the outer intermediate area yellowish black-brown, except only the costal margin as far as the 5th subcostal and a quite narrow light-yellow stripe in the middle of the median area and almost interrupted between the 2nd submedian and the 1st median. The dark brown colour covers the usually white lines on each side of the median area, so that they are only visible at the costa. Described on a ♀ from Värmdö. — ab. **virgata** *Hawkins* lacks the lines of the intermediate areas of the forewing (i. e. between median band and basal patch resp. terminal line) and even the terminal line is faint; median band, on the contrary, almost solidly

fuscofasciata. virgata.

dark, only interruptedly pale in its narrow central stripe. A ♀ captured near Herne Bay, Kent. — ab. **illineata** *Prout* (Vol. 4, p. 248). To this is to be sunk, as Osthelder indicates, ab. *uniformis Kautz*, a ♀ from Attersee, with even the principal lines no longer white. — ab. **subillineata** *Strand* is the transition in which the principal lines (postmedian and on forewing subbasal and antemedian) remain white but the other markings (except a slight brownish shade at outer edge of median area) are obsolete. A small ♀ from Marburg. — ab. **unidentaroides** *Strand*. Chiefly distinguished by the reduction of the subordinate teeth of the postmedian, only a strong, scarcely bifid, central prong remaining. Median area somewhat darkened. Marburg (type) and Stuttgart. — ab. **margaritata** *Kautz*. Central part of median area broken, by partial confluence of its boundary-lines, into spots which are likened to a chain of pearls; some may be punctiform or obsolete, according to the strength of the anastomoses. Described from Austria. — ab. **prillingeri** *Kautz*, an erratic ♀ from Purkersdorf, has the white postmedian of the forewing almost without teeth, with sharp black-brown shade proximally, the 2 lines which bound the central stripe of the median area widely sundered (3 mm apart), the boundary-lines of that area near them, the subbasal and subterminal wanting; distal are of both wings unicolorous; hindwing with 4 distinct lines. The cell-dot of the forewing is merged in the 2nd antemedian line. — ab. **cuneata** *Osthelder* has the subterminal accompanied proximally by strong black-brown wedge-marks. Innsbruck. — **testaceolata** *Stgr.* (Vol. 4, pl. 10 i). much better differentiated from *b. bilineata* in the ♀ than in the ♂, is also the prevailing form on Corsica, accompanied by its ab. *infuscata Gmpbg.* (sens. lat.). Various individual aberrations from that island have also been named by Kautz; this is the source of the 7 which follow here. Bubaček adds that *bistrigata Tr.* does not occur on Corsica but only on Sardinia. — ab. **insignata** *Kautz*. Unmarked with the exception of the white lines, 3 on the forewing, 1 on the hindwing; even the subterminal is only weakly white; the Corsican representative (almost synonym) of ab. *subillineata*. — ab. **brunneata** *Kautz*. Forewing brown, hindwing yellow-brown; the markings normal. — ab. **coffeata** *Kautz* shows a further progression in the brown colouring, both wings being chocolate-brown; markings normal. — ab. **anaemica** *Kautz*. Strikingly pale, the forewing light grey-yellow, the hindwing pale yellow; markings normal. It is said to occur both in the name-typical form and in *testaceolata* and also to produce ab. *infuscata* (sens. lat.). — ab. **phaeotaeniata** *Kautz*. Ground-colour of both wings gold-yellow, the median area of the forewing (between the 2nd and 3rd white lines) filled up with deep brown. This and the following occur in similar forms in other localities. — ab. **bubaceki** *Kautz*. Striking on account of the development of an uninterrupted, pure white transverse stripe, broader or narrower, in the median area of the forewing. This aberration also can be combined with the *infuscata* development and is frequent in subspecies *atlantica*, etc. — ab. **stygiata** *Kautz*. Forewing much more strongly darkened than in *infuscata*, especially the distal part of the wing. — **balearica** *Schawerda* has both wings white banded, the forewing deep yellow, the hindwing of a grand red-yellow. Founded on a good series of both sexes from Mallorca. — **numidica** *Rothsch.* (15 d), proposed to cover the North African forms, from the extreme west of Algeria to Cyrenaica, is very variable but the ♂♂ show on the whole more contrast between the greenish or greyish yellow of the forewing and the bright orange of the hindwing anteriorly and the ♀♀ are in general more deeply coloured than in *testaceolata*; markings of hindwing generally obsolescent anteriorly; dark borders of underside generally strong. — **dumetata** *Schrank* (15 c) has assumed a further importance since the publication of Vol. 4, owing to the fact that it seems to be, as Heydemann expresses it, "ab. (et subsp. partim)". He finds this leather-yellow form (originally described from Bavaria) to be the prevailing ♀-form on sand-dunes of the North Sea Islands, occurring together with frequent examples of *infuscata Gmpbg.* As the result of an analysis of an Amrum series, he records that the ♂♂ are half-and-half (typical and a transitional form which he classifies as the ♂ to *dumetata*). I suspect that my record of *testaceolata* from the Scottish sandhills may have had reference rather to *dumetata*.

illineata. *subillineata.* *unidentaroides.* *margaritata.* *prittingeri.* *cuneata.* *testaceolata.* *insignata.* *brunneata.* *coffeata.* *anaemica.* *phaeotaeniata.* *bubaceki.* *stygiata.* *balearica.* *numidica.* *dumetata.*

C. bistrigata Tr. (Vol. 4, pl. 10 i) ab. **beata** *Bytinski-Salz*. Median area of forewing broadly white, on a dark ground-colour. — ab. **paulae** *Bystinski-Salz*. Median area broadly black, on a relatively light ground-colour. — ab. **selmae** *Bytinski-Salz*. Median area whitish for a normal breadth, bounded by dark blackish dentate bands, which stand out distinctly from the dark-brown ground-colour.

beata. *paulae.* *selmae.*

C. consentaria *Frr.* (Vol. 4, pl. 13 b as *russaria*). I know of no addition to the range of this species. Sterneck, indeed, doubtfully recorded it from Pekin, but in a later communication, reporting a Corean specimen of his Pekin species, he definitely asserted that it was not *consentaria*, which in the mean time he had learned to know. Probably it was a new species, but I have no further elucidation of it.

consentaria.

C. purpurariarum *Rbl.* is said to belong to the *bilineata* group and is compared by its author with Packard's figure of *albosignata* and Holland's of "*sitellata*" (i. e. *stellata Guen.*). It is thus certainly a representative of the last-named and *natalata Walk.* (cf. Vol. 16, p. 86); a passing examination of the ♂ and ♀ when I was in Vienna confirmed this relationship and I noted that they would be rather small for *natalata* and with an ochreous cast, especially between the postmedian and the subterminal. Perhaps a distinguishable island form. Madeira.

purpurariarum.

centrostrigaria. **C. centrostrigaria** *Woll.* (Vol. 4, pl. 13 b, as centrosignaria). The correct spelling of the name is as given here and in the text of Vol. 4, not as on the plate. This was first described from Madeira. An additional and somewhat unexpected locality is S. E. Peru. Until something is known of its bionomics, it is useless to attempt an explanation of its distribution.

polygrammata. **C. polygrammata** *Bkh.* (Vol. 4, pl. 13 l). N. L. Wolff records 14 from Frøslev (Sönderjylland), 2 with dark band, the rest agreeing with specimens which were collected at Løghøj Mose 70 years earlier and best referred to f. *conjunctaria*. Urbahn has recently investigated the life history and obtained, in captivity, no less than 5 broods in a single year (1935); in the warm July the cycle from egg-laying to appearance of the moths occupied only 30 days. He challenges Rössler as regards the alleged fewness of the eggs laid, having obtained as many as 50 from a single ♀. The pupa hibernates. His careful experiments (instigated by those of J. W. H. Harrison) failed to induce, in 11 generations, any trace of melanism through the introduction of a 1: 1000 solution of nitrate of lead or manganous sulphate into the food. — ab. **fasciata** *Hannem.* Lines of the median area of the forewing consolidated into a broad dark band. Founded on a Berlin ♀. — ab. **triangulata** *Heinrich* has the costal part of the proximal section of the median area of the forewing developed into a dark triangle, containing the black cell-dot. Finkenkrug, Berlin, also founded on a single specimen. — ab. **mesotypata** *Costantini*. "Forewing subfalcate, median area of forewing dissolved into slender transverse strigulae; hindwing much smaller than that of typical *polygrammata* (an hybr. inter istam et *Mesotype virgata*?!)." I can throw no light on this.

fasciata. *triangulata.* *mesotypata.*

Subgenus **Ecliptopera** *Warr.*

Characters almost as in *Eustroma* (Vol. 4, p. 207), but without the hair-pencil. Readily separable from *Euphyia* by the habitus, the hindwing generally more rounded costally, with the costal vein anastomosing more shortly with the cell. Warren created two genera: *Ecliptopera*, with the hindwing irregularly shaped (exemplified by *triangulifera Warr.*); and *Diactinia*, with more rounded wings (exemplified by *silaceata Hbn.*); but there is no very sharp line of demarcation. Swinhoe added a third, *Urolophia*, which will be considered in Vol. 12. Very prevalent in the group is the terminal dark patch of the forewing, bounded anteriorly by an oblique (generally white or quite pale) mark from the apex.

triangulifera. **C. triangulifera** *Moore* (Vol. 4, pl. 8 e). This and its nearest allies (*Ecliptopera*, sens. str.) are evidently Indo-Malayan in origin and even *triangulifera* itself, as indicated by the distribution given in Vol. 4 (p. 250), has only a very tenuous claim to inclusion in the Palaearctic fauna.

decurrens. *excurrens.* **C. decurrens** *Moore* (15 d). The Indian form, which is name-typical (the type came from Nainital), is rather dark and broad-winged and belongs chiefly to the Himalayas, but occurs also in Szechuan. — **excurrens** *Prout* (14 b), from Japan (also Corea and probably Central China), shows less sharp contrasts in coloration, the ground-colour not being quite so dark, the forewing less suffused with whitish between cell and tornal patch, the dark element in this patch less extended, less intense, the 3rd white line from costa (at 4 or 5 mm) apparently always slender; the two white lines on the middle of hindmargin are less extremely oblique. — f. (? sp. div.) *insurgens.* **insurgens** *Prout* (15 d), distributed on Hondo, is generally somewhat larger and longer-winged, termen of forewing generally slightly more bent in the middle; forewing browner, more inclining to cinnamon, subbasal line indistinct and curved, postmedian group almost always consisting of 3 only (in *decurrens* almost always 4), tornal brown shade still more uniform than in *d. excurrens*; hindwing and underside generally rather paler. It makes the impression of a separate species, but the genitalia have revealed no difference.

illitata. **C. illitata** *Wileman* (Vol. 4, p. 250) has not again been taken and I still incline to the view that it is a remarkable aberration of the preceding species. One hopes not, however, as the name would be valid for the entire Japanese race (*excurrens*).

capitata. **C. capitata** *H.-Sch.* (Vol. 4, pl. 10 k). The names *mariesii* and *pryeri* should be deleted from the synonymy; see below. Probably really typical *capitata* are confined to Europe, where it seems to vary little — chiefly in the degree of development of the irregular row of spots of the distal area, which occasionally reaches *capitulata.* the hindmargin. Sterneck has recorded a ♂ from Pekin, without comment. — **capitulata** *Stgr.* (15 d). We now *mariesii.* give a figure of this small dark E. Siberian race. — **mariesii** *Btlr.*, from Japan, is somewhat intermediate, but on an average slightly l a r g e r than *capitata*, median band scarcely so dark (more brown), its proximal edge rather less strongly sinuous, distal yellowish tone scarcely so well developed.

pryeri. **C. pryeri** *Btlr.* (15 d). Larger and darker than *capitata*, the forewing with relatively broader, differently shaped median band, rather recalling that of *fastigata*. The genitalia show considerable differences from those of *capitata*. Only known from Japan.

C. fastigata *Püng.* (14 b). By a misprint or oversight, it was stated in Vol. 4 (p. 251) that this was closely similar to the yellow-mixed form of *silaceata* (15 e); this should have read "less yellow-mixed" ("weniger gelb gemischten", Püngeler). Except in the less broad median band and acuter postmedian angle it rather recalls *pryeri Btlr.* (15 d). Its range extends to East Turkestan and East Bokhara. *fastigata.*

C. falsiloqua *sp. n.* (15 e), a ♂ from Mt. Omei, dated 9 August 1907, has for many years remained in my collection undescribed, in the hope that further specimens would come to hand. Mr. Burrows, who examined the genitalia in 1921, considered the structure to be so similar to that of *pryeri* that he would "suspect close affinity". It has shorter 8th segment, shorter and blunter saccus, head of the "anellus lobe" (if such it be; it seems to me to be at least fused to the base of the valve) less large; it shares with *pryeri* a pronounced concavity in the distal part of the valve. Very distinct from that species in the shape of the basal and median bands, the more *silaceata*-like colouring, the paler areas and the non-angled postmedian of the hindwing. Hindwing somewhat darker than in normal *silaceata*, becoming rather abruptly whitish in the costal region; the large anterior terminal patch of the forewing and the conspicuous, though small one at the fold, together with some reduction in the development of the "wedge" markings, at least posteriorly, and the rounded central projection of the antemedian, may aid in its recognition, but any of these characters may appear occasionally in the variable *silaceata*. *falsiloqua.*

C. silaceata *Schiff.* (15 e). As already noted at the head of the subgenus, this was made the type of Warren's *Diactinia*. Forbes regards this species (and therefore its nearest relatives) as intermediate between two main groups of Larentiids: those with the discocellulars not biangulate and with coremata on the ♂ abdomina; and those with the discocellulars biangulate and no coremata. It has more or less the habitus of the latter but the discocellulars of the former, and the (small) coremata, when present, are situate on the 9th segment, not on the 7th as in *Ortholitha*, *Xanthorhoë*, *Euphyia* (sens. lat.), etc. The *silaceata* group embraces a considerable number of Chinese and Indian species, most of which have hitherto been very insufficiently studied. In addition to the named forms enumerated below, Feichtenberger has just figured and described (1 March 1936) a pretty ♂ aberration from Graz, lighter and more variegated with ochre-yellow, the median band a good deal mottled with white-grey, the subterminal wedge-markings elongate. — ab. **boegli** *Strand* (= wehrlii *Niepelt*, diluta *Metschl*) is a rare but recurrent aberration; forewing with a cream-yellow median area, containing in its centre the remnants of the normal dark band, namely a small costal or subcostal patch, including the cell-spot, and a second on the inner margin; hindwing paler than usual. Regensburg, Eulengebirge, etc. — ab. **effusa** *L. Müll.* is similar to *boegli*, the median dark spots less strongly reduced, the creamy band outside it running out in vein-streaks into the succeeding dark area. Spital-am-Pyrha, Upper Austria. — ab. loc. **deflavata** *Stgr.* (Vol. 4, pl. 10 l). It was certainly inaccurate to confuse this dark mountain form with the *umbrosaria* of the far East. It was founded on Hübner's fig. 303 and Guenée's "var. B", from the Alps and Pyrenees respectively, and retains the structure and the acute antemedian of the type form. — **leuca** *Djakonov*, registered as the prevailing form in Kamtshatka, though "*deflavata Stgr.*" (perhaps really *umbrosaria*?) also occurs with it, has the median area broadly and uniformly light-grey instead of black, the lines very indistinct, the cell-spot small, black. — ab. **albomedia** *Djakonov*, occasional in Kamtshatka, recalls *silaceata* ab. *boegli*, median area entirely white, with only a few scattered light-grey scales and the black cell-dot; distal area generally normal, but one extreme specimen has that area also predominantly white. I have no personal knowledge of these forms (or species), though an *Ecliptopera* from Tunkun, Sajan district (2 ♂♂ in my collection), with the median band less dark than in *silaceata* and the pale areas whitish and weakly marked, may be a race of *leuca*, if that is a species. In genitalia they agree well with *dimita*, but the terminal markings and the hindwing seem to preclude a union with that. I have not yet seen undoubted *silaceata* from any other than European localities. — Ochmann (Int. Ent. Zeitschr., Vol. 26, p. 295—301) has an account of his breeding *silaceata*, with description of the egg, etc. *silaceata.* *deflavata.* *leuca.* *albomedia.*

C. dimita *sp. n.* (15 e). At first sight extremely similar to those forms of *silaceata* which show little yellow in the distal area (i. e., the intermediates towards *deflavata*) and with a similar tendency to develop pale vein-streaks on the median band. Forewing with the black terminal line much more continuous, accompanied proximally by a white line, both as a rule only interrupted by the buff veins. Hindwing with the cell-dot greatly reduced, on the upperside scarcely or not visible. Other distinctions — less reliable because more variable in both species — are the white (not yellow) colour of the 2nd line outside the postmedian, the reduced size of some of the dark spots beyond this, and the better development of two distal-subterminal spots, before and behind the 2nd median. The saccus (as also in the following Asiatic forms) is much broader and more rounded than in true *silaceata* and there are other small differences; Mr. A. H. Stringer, of the British Museum, has made some careful studies of the group, especially on material from the Oberthür collection. W. China and Chinese Tibet: Tse-ku (loc. typ.), Siao-lu, Tien-tsuen, Chia-kou-ho, Yaregong, Ta-tsien-lu, Tu-pa-kö, Tchang-kou. — **tranosphena** *subsp. nov.* I have not adequate material for study, but have little doubt as to the status *dimita.* *tranosphena.*

of this pretty form. Expanse 35 mm (larger than normal *dimita*). Lighter, both as to the ground-colour and the dark markings. Forewing with median band not very broad, the space between it and basal patch almost as broad as the basal patch; distal area with somewhat more yellow-brown admixture and with the dark wedge-marks before and behind the 5th subcostal large. The whitish hindwing shows in the type (but not in the paratype) a larger cell-mark than in any *d. dimita* known to me. Koko-nor, type ♂ in the Tring Museum; "N. Tibet" (almost certainly topotypical), paratype ♂ in my collection.

acalles. **C. acalles** *sp. n.* (15 e). Smaller and much darker and more uniform, quite the most dingy of the *silaceata* group. Median band broad, not at all marked with white, even the encroachments of the white postmedian line very slight; proximal-subterminal "wedge" markings, except the anterior two, weak or wanting; terminal black line nearly as in *dimita*, but not accompanied by a white line proximally. The hindwing, though dark, shows a conspicuous cell-dot above; its postmedian line somewhat more distally placed than in *silaceata*, the white band outside it narrowed. Kwanhsien in July and August, large numbers sent by Mr. G. M. Franck; type in my collection. The ♂ valve, unlike those of the two preceding species, is rounded, not "peaked" (tapered), its ventral margin somewhat more strongly chitinized.

postpallida. **C. postpallida** *sp. n.* (15 e). A larger species than *dimita* and with the distal margin of the forewing appreciably more oblique, though somewhat less than in *subfalcata Warr.* Pale dorsal line of abdomen generally less complete. Forewing with proximal area not very sharply marked; median area moderately broad, the white line which distally bounds it wider than in the related species, very conspicuous, straightish almost to the 3rd radial, where there is a very small indentation, bent inward between this and 2nd submedian and forming irregular teeth inward on the medians; the pale line beyond it not white, not sharply defined (more as in *falsiloqua*); subterminal at costal end strong and highly zigzag, the "wedge" marks here confluent proximally; terminal line generally broken into dots and strigulae, its white proximal line fragmentary, in cellule 3 confluent with a conspicuous white or white-yellowish spot on the (mostly cloudy) fringe. Hindwing pale, generally conspicuously white and rather glossy, its distal area with indications of postmedian line and with dusky subterminal and terminal shades. Distal area of both wings beneath more strongly marked than in *dimita*. Valve with apex rounded, not "peaked". W. China and Chinese Tibet: Ta-tsien-lu (loc. typ.), Ta-ho and Hou-kow. Also 1 ♀ from Narkundah, Kashmir, showing no tangible distinction. A short but adequate series in the British Museum.

subfalcata. **C. subfalcata** *Warr.* (15 e). Abdomen of ♂ at least as slender as in *postpallida*, perhaps still more so. Forewing, at least in the ♂, with termen still more oblique and sinuous; less dark shading between basal and median band; antemedian variable, in the type scarcely angled outward at median vein; postmedian with anterior part less straight, with small indentations at the veins and with an appreciable curve close to costa, which it therefore reaches somewhat obliquely outward; distal area more weakly marked, the dark terminal patch behind the white apical streak somewhat broken. Kulu (type) and Simla.

umbrosaria. **C. umbrosaria** *Motsch.* (15 f). Palpus longer than in *silaceata* and its nearest relatives. Wings more elongate. Forewing with the proximal boundary of the median band, which in the overwhelming majority of *silaceata* is angled inward in the middle, much more shallowly and roundedly curved, the distal on the whole more regular, approaching that of *capitata*. The dusky hindwing and (in the typical race) the suppression of the yellowish tone of the forewing recall *silaceata deflavata*. The genitalia show several distinctions — more pointed saccus, larger aedoeagus, etc.; and there is within the 3rd—4th abdominal somites of the ♂ a long and strong mass of densely compacted hair (without doubt a scent-organ), of which the outward manifestation is
insulata. a pair of latero-ventral hair-tufts on somite 4. Japan, common. — ab. **insulata** *nov.* An extremely rare occurrence in *umbrosaria*, the white ante- and postmedian connected by a white streak behind the 2nd median; represented by 1 ♂ from Tokyo, June 1926, in a series of over 100 Japanese *umbrosaria* in the Tring Museum.
phaedropa. — **phaedropa** *subsp. nov.* (15 f). On an average smaller, hindwing generally with some white costally, sometimes also in distal area; forewing with the area which succeeds the white postmedian line almost always paler and with more ochreous admixture. Bears much the same relationship to *umbrosaria* as does typical *silaceata* to *deflavata*. Ussuri and Mongolia, in fairly long series, also a few from some localities in E. China and Corea; type from Narva, S. Ussuri (Kardakoff), coll. Brit. Mus. As the few which I have been able to get together from Szechuan show a mixture of this form with almost typical *umbrosaria*, we have possibly to do with two species; but the differences in the genitalia are quite slight and unimportant.

angustaria. **C. angustaria** *Leech* (14 b) is clearly another species, even narrower winged. I still know only the original pair (Vol. 4, p. 250).

fulvotincta. **C. fulvotincta** *Hmps.* (15 f) is nearly related to *umbrosaria* but is quite the brightest and most contrastingly marked of the whole group. A further characteristic is that the dark terminal patch shows an ad-

ditional indentation at the 2nd radial. Simla (type) and Sabathu and again in the Khasis. Abdominal scent-organ about as in *umbrosaria*, genitalia similar, but not identical.

C. macarthuri *sp. n.* (18 a). In size and shape near *fulvotincta*, palpus similar; probably nearly related, but the ♂ still unknown. Head and body darker-mixed, abdomen showing the pale dorsal line which is so prevalent in this group of genera. Forewing with the yellowish markings and suffusions deeper than those of *fulvotincta* (more deserving that name); dark markings somewhat less deep, more chocolate-tinged; basal patch similar; median band with deeper excavations proximally and distally, thus markedly constricted behind the median vein, though variable, more or less expanded again before the 2nd submedian; subterminal and its proximal wedge-markings stronger than in *fulvotincta;* terminal line interrupted; fringe moderately spotted. Hindwing pale or moderate, with no sudden contrast of colour at the postmedian line; distal margin more or less dark-shaded. Kashmir: Koksar, July 1888 (H. Mc. Arthur), 3 ♀♀ from the Leech collection. *macarthuri.*

C. haplocrossa *sp. n.* (15 f). Face rather strongly prominent, palpus relatively short, reaching very little beyond it; antenna minutely ciliated; abdomen with projecting terminal hair-tuft, almost as in the Indo-Malayan section *Urolophia*. Wings elongate costally, the colouring as sombre as in *acalles*. Forewing with basal and median bands nearly as broad as in *acalles*, the outlines of the median very different: antemedian (as also the subbasal) with the chief angulation at the fold, quite weak, postmedian much as in the Javan *ctenoplia Prout*; "wedge" markings very weak; no white line from apex, the subterminal spots between the radials reduced, separated from the small terminal ones by a paler streak. Hindwing dusky throughout, the cell-dot small and inconspicuous, the faint postmedian line much less curved than in the *silaceata* group, its course much as in most *Urolophia*, to which section *haplocrossa* should probably be assigned. Szechuan: Kwan-hsien, 16 July and 6 August (G. M. Franck), type ♂ in my collection, paratype ♂ in the British Museum. *haplocrossa.*

C. fervidaria *Leech* (Vol. 4, pl. 7 l). Although this was brought, in Vol. 4, into association (or juxta-position) with the *silaceata* group, it is by no means certain that this is a satisfactory position for it. By the analytical key to the "subgenera" of *Cidaria* which I gave tentatively to my friend M. Lhomme it would probably fall into *Chloroclysta*, a still less satisfactory position. One can only say at present that it appears to belong broadly to the *Lygris — Ecliptopera* group, but has not the expanded costa of the hindwing. *fervidaria.*

C. subochraria *Leech* (Vol. 4, pl. 7 l, as subochreata). Sterneck records a pair from Ta-tsien-lu with nearly the markings of *fervidaria* except as regards the hindwing above; and accepts the conjecture which appears to be strengthened by his specimens, that there is a really near relationship between the two, notwithstanding the structural difference. It is well known that the discocellulars of the hindwing are more variable in the *Lygris* group than in many Larentiids, so that the character here, though certainly not negligible, may be less than generic. *subochraria.*

C. mactata Feld. (Vol. 4, pl. 10 l, as mactaria) **placata** *Prout* (15 f). I overlooked, when giving the distribution of this conspicuous species, that its Chinese race or representative shows some constant deviations from the name-type. The projections of the 2nd white line are less long and acute, the space between it and the median band broadered, the shape of the postmedian modified. *placata.*

C. albogilva *Prout* (15 g). Quite distinct from anything else yet known. Palpus elongate, at least twice as long as diameter of eye. Hindwing with costa only weakly curved. Underside *Lygris*-like, both wings pale yellow, the forewing with the principal markings of the upperside reproduced, the hindwing with strong cell-dot and curved postmedian and traces of several weaker lines. Szechuan: Kunkala-Shan. *albogilva.*

Subgenus **Electrophaës** *Prout.*

Palpus longish. Antenna of ♂ scarcely ciliated. Metathorax crested. Forewing with areole double. Hindwing with discocellars not or only very feebly biangulate. Anellus lobes *(corylata Thnbg.)* long, long-haired, coremata on 9th segment, rudimentary. Larva *(corylata)* with head bifid, supra-anal plate ending a single point.

C. corylata Thnbg. (Vol. 4, pl. 10 l) ab. loc. **albocrenata** *Curt.* (15 g). We figure an example approximately like the original named by Curtis, but, as has already been remarked, the name covers a wide range of variation; Cockayne (Trans. City Lond. Ent. Soc., Vol. 17) figured some good examples from Tongue, N. Sutherland. — ab. **glaucata** *Meves* has the normally brown markings changed to light grey. Founded on Swedish specimens, a bred ♂ and a captured ♀. A transition to *albocrenata*, in which it has hitherto been included; my only Danish "*albocrenata*" belongs here. — ab. **interrupta** *Schawerda* "has, like many Larentiids, the median band interrupted". A pair from Lunzbauer, Lower Austria. This was perhaps intended to denote a more extreme interruption than is seen in ab. *ruptata Hbn.*, but no comparison is made with that and I fear *albocrenata.* *glaucata.* *interrupta.*

the name is invalid, the more so as Hirschke's *interrupta* (1910), from the Harz district, seems to have been synonymous with *ruptata*. — **fabrefactaria** *Oberth.* (15 g). We figure a ♀ from S. Ussuri. It should be noticed that the differentiation in colour between the basal and subbasal areas is inconstant, though often a characteristic feature. — **granitalis** *Btlr.* (15 g) sometimes attains a considerable size, the ♀ forewing occasionally reaching a length of 19 mm. The interruption of the median band (as in ab. *ruptata*) is in this race almost constant.

fabrefactaria.

granitalis.

albida.

C. albida *Herz* (15 g). It is not unlikely that this may have to return to its first status as a form of *corylata*. V. G. M. Schultz (Int. Ent. Zeitschr., Vol. 25, p. 177), on the strength of the occurrence of a somewhat analogous *corylata* ab. at Göttingen (ibid., pl. 1, fig. 18) and of typical *corylata* in Siberia together with *albida* (teste Bang-Haas), proposes to sink the latter. His figures, however (he reproduces in black-and-white that of Bang-Haas) are not convincing as to the identity. Probably more important are the Asiatic records. Djakonov reports transitions from the Minussinsk district. Sterneck, in referring to a Ta-tsien-lu ♂ which agrees with the description of *albida* except in having the basal patch more (instead of less) dentate-edged than even in *corylata*. shows that the general conformation of the median area can occur in other races or close relatives than the actual *albida* and mentions also an "undoubted *corylata*" from Vladivostok which demonstrates the variability possible in the basal patch.

aliena.

C. aliena *Btlr.* (15 g), in its strictly typical form, is chiefly, if not exclusively, North Indian and I was certainly wrong in treating the following form as synonymous. Even Oberthür, in erecting his *tsermosaria*, noticed that the Tonglo form *(aliena)* had "some brighter nuances", though his figured ♂ and a form known from Tse-ku are almost *aliena* with reduced yellow colour (subsp. div.?). *aliena*, sens. str., occurs from the Punjab to Upper Burma; I have lent for figuring a ♀ from Kasauli, on the confines of the Palaearctic Region, but by far the larger part of the known material belongs to the Indo-Australian fauna. — **tsermosaria** *Oberth.* (Vol. 4, pl 10 l, as aurata). Oberthür's first figure, the ♀, has been made holotype. Basal patch generally much more jagged-edged, antemedian white area with the dividing-line nearly always less bright ochreous (either browner or pale and weak), median band on an average less extremely attenuated posteriorly, distal area considerably less gaily coloured. — **rhacophora** *subsp. nov.* (15 h) shows still further divergence from *alienaria*. The yellow-brown shades in the white areas give place to a scarcely noticeable olivaceous tinge; median band less dark, with much more distinct white marks at costa, its posterior part in some specimens broadening again behind the constriction at the fold (more as in *corylata*); boundaries of basal patch and median band strongly and irregularly jagged; subterminal line filled-in proximally with dark spots. Hindwing with more tendency to produce a (narrow) dusky terminal band. Koko-Nor; type ♂ in the Tring Museum. Perhaps a separate species; in most respects the account given by Sterneck of a Ta-tsien-lu ♂ taken among *tsermosaria* and provisionally determined as *albida* agrees very well with this.

tsermosaria.

rhacophora.

fulgidaria.

C. fulgidaria *Leech* (= aurata *Moore*, nec *Pack.*) (15 h) has already (Vol. 4, p. 252) been sufficiently differentiated from *aliena* and its group; the totally different antemedian is the most obvious distinction. I overlooked, however, that the name *aurata* was preccupied and I now believe *perpulchra Btlr.* to be a different species. If the Indian race of *fulgidaria* is distinguishable, which still seems to me very doubtful, the present is not the occasion for renaming it.

aspretifera.

C. aspretifera *sp. nov.* (15 h). 32—33 mm. Differs from *nigrifulvaria Hmps.* (Vol. 4, pl. 7 l) in having the face and palpus fuscous (in *nigrifulvaria* whitish to pale buff); colouring much less bright; forewing with basal and subbasal bands less sharply differentiated from one another, distal edge of the latter without the acute indentation on the median vein, postmedian also with less extreme irregularities. though rather variable; postmedian of hindwing, particularly beneath, less irregular. Kashmir, at 7000 feet (Colonel Ward), the type labelled Kashmir Valley, 7 June 1903, the figured ♂ (which shows still less ochre than the type and has the subbasal line less dentate) Srinagar. 20 June 1904. I have a ♀ from Murree, agreeing with the type but in poor condition.

albipunctaria.

C. albipunctaria *Leech* (Vol. 4, pl. 7 l). The suggestion that this might be an aberration of the following must be abandoned: the differences are too considerable and too constant. The present species has been taken also on the Mishmi Hills, Assam, at 4000 feet and is nearer to the *niveopicta Warr.* of Sikkim, though distinct in the shape of the markings and the extent of the white in the distal area.

chimakaleparia.

C. chimakaleparia *Oberth.* (Vol. 4, pl. 8 h). The few specimens which I have seen show some approach towards the biangulate form of discocellulars (hindwing), perhaps more so than in *albipunctaria*, where, however, it is slightly variable; in neither does it amount to anything of probable generic importance.

Subgenus **Mesoleuca** *Hbn.*

(See Vol. 4, p. 253.)

C. bimacularia *Leech* (Vol. 4, pl. 7 f). In recording topotypical ♂♂ from the Stötzner collections, Dr. Sterneck takes occasion to point out that the discocellulars of the hindwing are in this species more markedly biangulate than is allowed for in my diagnosis of the subgenus, which is probably not a strictly natural one. In *alaudaria Frr.*, on the other hand, and in the only *mandschuricata Brem.* which I have examined from this standpoint, the 2nd radial is generally about midway between the 1st and 3rd and the tract between its base and the end of the cell-fold more or less short — i. e. as in the type of *Mesoleuca, albicillata L.* *bimacularia.*

C. albicillata L. (Vol. 4, pl. 10 c) ab. **philippsi** *(Rangnow, M. S.) Hannemann* has the dark basal patch of the forewing broadly confluent along the costa with the subapical patch. Berlin district. I have an asymmetrical ♂ in which the right wing is normal, the left strongly approaching *philippsi*. It is interesting to add that Reisser has described and figured an asymmetrical *albicillata* from Markthof (Donauau) with a similar tendency on the right forewing, though the confluence is subcostal. — ab. **vestata** *Dadd*, described from Machnower Busch, near Berlin, has the basal patch much broadened, as also the distal bluish part, the (normally fine) dark postmedian line strong, double, nearly median, the white median area consequently very narrow. — **nigromarginata** *Heydem.* is a good race from the Sajan Mountains; Tunkinsk White Mountains, 2200 m. ♀ normal in size, ♂ smaller; further distinguished by the dark distal borders, which are more regular in breadth and not, or scarcely, interrupted by the white ground-colour, even the subterminal line weakened. Perhaps also, at least as an aberration, in N. Scandinavia and Finland. *philippsi.* *vestata.* *nigromarginata.*

Subgenus **Melanthia** *Dup.*

(See Vol. 4, p. 253.)

This subgenus is almost certainly misplaced; both the genitalia and the early stages show evident affinities with *Horisme* and, through it, with the *Eupithecia* group. Abdominal crests, which are characteristic of the group, are little developed in the type species *(procellata)*, but see *postalbaria* below.

C. procellata *Schiff.* (Vol. 4, pl. 10 c, as procellaria). In addition to its sometimes puzzling variability, this insect, so distinct from anything else which we know in Europe, is interesting as the centre of a group of races and closely related species which deserve monographic revision. Their distribution is from Europe through Siberia to Japan and Formosa, besides W. China and the N. E. Himalayas. English *procellata* is generally very constant and even in the rest of Europe striking aberrations are by no means frequent, but in the far East the reverse seems to be the case. — ab. **fasciata** *F. Hoffm.* Median band of forewing complete; general coloration not darkened. Described from Lower Austria. — ab. **effusa** *C. Schneider.* Median band of forewing nearly complete but a good deal blurred, the lines of the posterior part indefinitely fused into proximal and distal groups. Württemberg. — ab. **fulvomaculata** *Dannehl.* Ground-colour inclining to yellowish, the black-brown parts intense, the yellow-brown becoming fawn-brown between the posterior lines of the median area. Bad Reichenhall. — ab. **extrema** *Schwingenschuss.* Considerably more extreme than ab. *infumata Rbl.*, resembling the dark forms of *inquinata*. — ab. loc. **inexpectata** *Warnecke, f. nov.* "Four specimens, collected by Graeser. The ♀ has the size of European specimens, ♂ smaller. They are the antithesis of *inquinata Btlr.*, very near the name-form but considerably lighter, in the median area with the wavy lines behind the large costal spot wanting or obsolescent, so that the middle of the wing is particularly light." Collected on the Lower Amur and about Vladivostok, the originals in the Hamburg Zoological Museum. I add that in the type ♂, which is rather extreme, the border of the forewing is somewhat narrowed and the hindwing almost unmarked, only the (weak and narrow) border developed. According to the material known to me, *inexpectata* is a recurrent but by no means the only form of *procellata* in the district. I am indebted to my friend Mr. G. Warnecke for directing my attention to it. — **szechuanensis** *Wehrli* (14 b). Larger than *inquinata Btlr.* and *clathrata Warr.* (N. India and S. China), much cleaner white, the costal spot larger, at the costa broader, the postmedian band warm brown, rarely whitish, the white median area much more weakly marked, the marginal area ochre-brownish, containing 2 isolated white spots, the central one larger than that at the anal angle. A long series from different localities in W. China. *procellata.* *fasciata.* *effusa.* *fulvomaculata.* *extrema.* *inexpectata.* *szechuanensis.*

C. exserens *Wehrli* (14 c). Near *procellata* but so different in colour and markings that it must be regarded as a species. Glossy white, with the markings dark grey-brown, not ochreous brown. Basal patch larger than in *szechuanensis* and *clathrata*, distally angled; mid-costal spot irregularly quadrate, at the costa in the middle with white spots, the strong lines behind it characteristic, enclosing round white spots and distal triangles; but the best distinctions of all are in the two pointed teeth which project outward from the middle of the median area and in the lack, or extreme reduction, of the large white subterminal spot of the preceding species. 2 ♂♂ from Siao-lu and a larger ♀ from Ta-tsien-lu. *exserens.*

postalbaria. **C. postalbaria** *Leech* (Vol. 4, pl. 13 n) occurs also in the wonderfully rich district of Ta-tsien-lu. Sterneck calls attention to the presence of small semilunar abdominal crests and tufted end of abdomen in addition to the large thoracic tuft. He also provides a detailed description of the underside, which is more smoky than the upper.

Subgenus **Trichoplites** *Swinh.*

Face nearly smooth, slightly rounded-prominent. Palpus short or quite moderate. Antenna of ♂ simple. Forewing with areole double, on the underside in the ♂ with a ridge of hair in the cell, or more distributed but more appressed hair. Discocellulars of hindwing in the type species *(cuprearia Moore)* biangulate. A few species, almost exclusively Himalayan and Chinese, are provisionally associated under the above name.

A. Hair of ♂ forewing beneath distributed.

latifasciaria. **C. latifasciaria** *Leech* (Vol. 4, pl. 13 c) was founded on a ♀ from Wa-shan, W. China and the ♂ was only recently made known. Dr. Wehrli has one from Kunkala-shan and Lord Rothschild one from "W. China". This is somewhat smaller than the type ♀ and scarcely a true *Trichoplites*, as the hairiness of the underside is vestigial; yet the head, wing-shape and pattern show unmistakable phylogenetic connection. The sex-hair is well developed in its Indian relative, *lateritiata Moore.*

B. Hair of ♂ forewing beneath concentrated in the cell *(Trichoplites).*

cuprearia. **C. cuprearia** *Moore* (15 h). Easily distinguished from *latifasciaria* by the structural characters (biangulate discocellulars and ♂ ridge of hair), as well as by the pattern. Typically it belongs to N. India (Sikkim to Upper Burma). I have seen it from S. Szechuan if not also from the more Palacarctic parts of that province.

Subgenus **Eulype** *Hbn.*

(See Vol. 4, p. 254.)

flebilis. *C. lugens Oberth.* (Vol. 4, pl. 10 d) ab. **flebilis** *Th.-Mieg* is darker, both on the fore- and on the hind-
consolabilis. wing, and is the form figured by Oberthür, Et. Ent., Vol. 18, pl. 3, fig. 38. Ta-tsien-lu. — **consolabilis** *subsp. nov.* (15 h). Variable, but distinguishable at a glance, at least in the ♂. The white ground-colour lacks the creamy tinge which is so general in *lugens*, the principal veins are slenderly blackish, the black subterminal dots of the hindwing well developed. Forewing of ♂ with more white in proximal area, sometimes entirely white except extreme base and costa; black postmedian band more or less narrowed, occasionally scarcely more than a line. Hindwing often with terminal band broken into spots. Yunnan: Mekong-Yangtse Divide, E. of Tse-ku: Pei-ma-shan, 14 000 feet, July 1922 (Prof. J. W. Gregory), 9 ♂♂, 1 ♀; type in the British Museum. The ♀ is decidedly smaller.

hecate. **C. hecate** *Btlr.* (Vol. 4, pl. 10 d) is shown by the genitalia to be a distinct species from all the following
sachalinensis. three, notwitstanding some erroneous citations in the American lists. — **sachalinensis** *Matsumura* (15 i), described from 2 ♀♀, S. Saghalien, is "much smaller (34—36 mm), the white band broader, with one more black tooth at the outerside, i. e. in interspace 6", on the hindwing broadest in the middle, with a blunt tooth outward in cellule 3. The Yezo form of *hecate* closely approaches it.

chinensis. **C. chinensis** *Leech* (15 i). We figure a fairly typical ♂ from Pu-tsu-fong. As a rule the variation is relatively slight, chiefly in the direction of an increase of white subterminal maculation of the forewing. The genitalia deviate little from those of *hastata* and would probably have been regarded as subspecific only but for the occurrence of a nearly typical form of *hastata* in the same district (Ta-tsien-lu, etc.), on which see below. Mr. A. H. Stringer writes me that the extremity of the sacculus arm in the two examined is a trifle broader than in most *hastata* forms and the (2) spines on the aedoeagus are constantly longer than in that species".

hastata. **C. hastata** *L.* (= betularia *Gladb.*, nec *L.*) (Vol. 4, pl. 10 d) (15 i). On the geographical variation of this attractive species and the following there is doubtless still work to be done, but the essentials are at last pretty well understood. Both have an extremely wide range in the Holarctic Region and will be further considered in Vol. 8. The individual variation of both has led to a multiplication of names and I have perhaps
demolita. not apportioned them all accurately between the two. — ab. **demolita** *Prout* (= reducta *Osthelder*). 1 ♂ was taken at Schleissheim (S. Bavaria) with several ab. *laxata* (Vol. 4, p. 254) and was regarded as a new form,
subalbida. but quite agrees with ray type (Barrett. Lep. Brit., Vol. 8, pl. 336, fig. 1 c). — ab. **subalbida** *Marschner* has the black of the marginal area greatly reduced, especially on the forewing, where there remains only, outside the median band, a narrow section of the subterminal band, from hindmargin about to 1st median vein. Riesengebirge, 1 ♀, at 900 m, the highest altitude there reached by *hastata* and not far below the first
postalbidata. appeurance of the mountain *subhastata*. Similar to *h. thulearia* ab. *clara Prout.* — ab. **postalbidata** *Hörhammer.* Forewing almost normal; hindwing wholly white, excepting a small, irregular costal patch and some very

narrow terminal markings. The unique type a ♀ from Leipzig. — ab. **albopunctata** *E. Lange*, a small specimen bred from birch, has the black markings strongly developed, especially on the hindwing, which has only the white band and a small white subterminal spot. Freiberg (Saxony). In this district also, *subhastata* is the mountain representative, confined to the Erzgebirge. — ab. **depravata** *Galv.* is nearly the same, only a little further advanced, as the solid black border of the hindwing lacks even the small white spot, while that of the forewing shows only a minute central dot and same subterminal remnants at and near costa. A ♀ from Klein-Fleisstal, Carinthia. Closely like some *h. chinensis*. — ab. **semifusca** *F. Wagn.* adds to *depravata* an "*effusa*" element, the black border of the hindwing blurred where it meets the white band, which projects some white dashes into it. Bred from Middlesbrough, England, 1 only. — **plotothrymma** *subsp. nov.* Tone in the whole series strikingly distinct (clean white without the creamy tinge) but there is little else that is constant to differentiate this from *h. hastata;* on an average rather smaller, very generally with the cell-spot of the hindwing better detached, i. e. set in an ampler white space. Ta-tsien-lu (type series in the British Museum) and Siao-lu. — **thulearia** *H.-Sch.* (Vol. 4, pl. 10 e), notwith-standing its strong racial characteristics, seems to agree entirely in structure with *hastata* and should be treated as a subspecies. — **rikovskensis** *Matsumura*. "Both wings differ from typical specimens in the presence of a series of fuscous specks, which run along the median axis of the white band." N. Saghalien: Rikovskoie, 1 ♀, 3 August. The figure given is crude, small, median area with very little white, dots on outer white band scarcely shown on hindwing. Probably a form of *subhastata*. The *hastata* of Saghalien, July, (15i 5, 6) are, as Matsumura noted, different and were rediscoverd by Dr. Fritz Scriba in 1922.

albopunctata. *depravata.* *semifusca.* *plotothrymma.* *thulearia.* *rikovskensis.*

C. subhastata *Nolck.* (Vol. 4, pl. 10 e, not 8 e). Djakonov in 1926 demonstrated the long-disputed rights of this to rank as a species, the genitalia showing conspicuous differences in both sexes, notably in the long, distally curved arm of the sacculus, broad labides and substitution of a bunch of spinules on the aedoeagus for the 2 or 3 long, separated spines of *hastata*. These distinctions were already noticed in the British Columbian form *albodecorata Blackmore* by my late friend Rev. C. R. N. Burrows in 1922, but not published; the various American forms of this species will be dealt with in Vol. 8. It should be added here that — if is were needed — much supplementary argument for the distinctness of *subhastata* from *hastata* could be adduced from recent literature; several observers familiar with both species in the life have contributed bionomic data, e. g. E. Lange (who gave some careful differentiations), Osthelder, Marschner and C. Schneider. The latter attempted in vain to pair it with *hastata* and although it can be bred from the egg on birch (Lange and Soffner) and even Salix caprea, it always breeds true; its ordinary food-plant is Vaccinium (but see Vol. 4, p. 254) and its distribution is different. An interesting discussion took place recently at a meeting of the Zoologisch-Botanische Gesellschaft in Wien, occasioned by a fine exhibit, by Nitsche, of the Pitztal forms, and showed that there are still some divergent views to be reconciled; but such has usually been the history of the disentanglement of allied species. It has even been disputed whether the type figure of *subhastata* (Hübner, pl. 69, fig. 356 [bis]) represents the form which has since passed under the name. To me, this can scarcely stand in doubt, though there remains a (rather remote) possibility that (as Kautz has suggested) the alpine and the basal "*subhastata*" are distinct. — ab. **taunicata** *A. Fuchs* has the white markings reduced, in the median area very slight; resembles a larger, rather dark *moestata*, see below. One specimen, from Oberursel. — ab. **reducta** *Osthelder*. Parallel to *hastata* ab. "*reducta*" *(demolita)* though in the type (a ♀ from Schaftlach) the anterior remnant of the median band shows a slight angle outward at its hinder end. — ab. **effusa** *Kautz* (nom. coll.). Kautz figures aberrations "inclining to *effusa Müll.*" (see *luctuata* ab. *effusa*), but they do not seem to me very striking. They came from Plöckenpass, Carinthia, at ca. 1300 m and represent the only two *Eulype* which were there taken. — ab. **radiata** *E. Lange* is much more striking and was founded on 5 ♂♂ and 1 ♀ bred with about 80 more normal forms from a batch of eggs laid by an Erzgebirge ♀. They combine remarkably the *effusa* and *radiata* types of variation; the extreme specimen which was figured has the median area marked with very irregular and quite ill-defined shading, while the principal veins are dark-marked, though the "rays" are not attached to the (broken) subterminal band. Other interesting aberrations appeared in the same brood and were in part described, but not named. It should be added that C. Schneider later (1934), overlooking the preoccupation of this name, applied it in the conventional sense ("nom. coll.") to a slight aberration from Oberreichenbach, Black Forest, with rays running inward from the subterminal band nearly to the median band. — **moestata** *Nolck.* (15 i). If, as now seems probable, the smaller, darker northern forms can be separated as a race apart, this is the correct name, as it was founded on specimens from Talvik, Finmark and matches well with the generality of forms from that district, N. Finland, etc. From Scandinavia it extends right across N. Russia and Siberia to the Pacific. The more extreme ab. *hofgreni Lampa* (Jemtland) and the interesting ab. *undulata Strand* (Langöen) belong to it, but *taunicata Fuchs*, which I quoted as synonym of *moestata*, is an aberration of *subhastata* (see above). — ab. **apograpta** *Djakonov* is a peculiar albinotic aberration with the median band entirely wanting, only the cell-spot remaining; distal border interrupted in the middle by a broad white streek. Abakan, 1 specimen. — **nigrescens** *Ckll.* (15i). In addition to the biological

subhastata. *taunicata.* *reducta.* *effusa.* *radiata.* *moestata.* *apograpta.* *nigrescens.*

argument for separating our North British race (see Vol. 4, p. 254) there is a very pronounced tendency for the median band of the forewing to be weakened or interrupted about the fold. Everywhere, however, *sub-*
clarior. *hastata* is extremely variable. — **clarior** *Djakonov* from Kantchatka, is a characteristic light form the black median band reduced to a few spots and mere outlines enclosing the white parts; cell-spot encircled with white. Several specimens are known.

Subgenus **Solitanea** *Djakonov.*

Venation of *Eulype*, face almost smooth, palpus longer, genitalia with a down-curved "subuncus" (socins).

Only one species, somewhat anomalous, perhaps nearer to *Discoloxia*, in which case Djakonov must be followed in calling it a genus.

defricata. **C. defricata** *Püng.* (Vol. 4, p. 255). Djakonov records specimens from the Amur district, including ♂♂, one of which quite agrees with the Nikko type ♀, while another is more variegated, the distal area of both wings much darkened (black-grey), on the forewing with the dentate subterminal sharply expressed. A ♀, again, has also the distal area of the forewing broadly darkened, but the subterminal is here only developed posteriorly, while veins 4, 5, 6 and 7 are black-marked. Graeser supposed *Hydrelia testaceata* from the Amur were also this species; but Djakonov's suspicion that true *testaceata* does not reach that country is not confirmed.

Subgenus **Epirrhoë** *Hbn.*

(See Vol. 4, p. 255; Vol. 16, p. 93.)

C. costaria Leech has been transferred to the genus *Hydrelia*, see below; for the removal of the *placida* group (Vol. 4, p. 258) see the genus *Eucosmabraxas* above.

brephos. **C. brephos** *Oberth.* (Vol. 4, pl. 13 a). This species and the following three, which form together the "genus" *Phoenissa Warr.* (= *Scordonia Th.-Mieg*), probably require the separate subgenus. Mr. Burrows (in litt.) proposed to divide the Palaearctic *Epirrhoë* (so-called) into three, according to the form of the "calcar", but his second and third groups, typified by *alternata* (or perhaps *rivata*) and *tristata*, are — according to the more thorough investigations of Heydemann — so closely connected that I would not regard them as tenable. *C. brephos*, described from Ta-tsien-lu, is locally abundant in W. China and the adjacent country and has occurred on Formosa. The type form has the white band moderately broad, the cell-dot of the hind-
ischna. wing nearly always present, though generally very small, its lines, though variable, mainly restricted to the posterior part. — f. **ischna** *nov.* (15 k). Postmedian band of forewing more slender, generally more strongly tinged with buff, frequently with slight continuations in cellule 3; correlated with this difference there is a general tendency towards a less reddish tone in the orange of the hindwing and an increase in the fuscous markings (extension of the 1st and 2nd lines forward and widening of the border). Forewing beneath with better developed line between the cell-dot and the angular band beyond. It was first thought that this might be a separate species, but as the genitalia show no difference and occasional (though rare) intermediates occur I do not now suppose so. Ta-tsien-lu and district, the type series consisting of 19 ♂♂ in the British Museum.
nora. — **nora** *subsp. nov.* The form from Koko-nor and district, so far as I know it, has also the costal mark of the forewing narrowed, but here it remains white and is somewhat constricted at or near its costal end; hindwing with cell-dot almost obsolete, the fuscous marking at termen, except near the apex, a mere line, and not (or scarcely) reaching the tornus. Type ♂ in my collection.

lamae. **C. lamae** *Alph.* (= nigrilinearia *Leech*, fausta *Th.-Mieg*) (15 k). All these three names refer to a relatively rare species to which the description given (Vol. 4, p. 255) applies well, although the differentiation from the following needs to be better emphasized: lines of hindwing above and beneath reaching nearly across the wing, antemedian and median of forewing beneath also extended, even if interruptedly. Mu-pin (coll. Joicey) and probably Kham (Alphéraky) are to be added to the specified localities.

uber. **C. uber** *sp. n.* (15 k). As the "*nigrilinearia*" (err. det.) figured at pl. 11 i of Vol. 4 represents a slightly aberrant *uber* ♀, we now figure a more typical ♂ (Ta-tsien-lu) under the correct name. Forewing with costal white mark cleaner than in *lamae*, less thin; boundary lines of median area less distinct, but the antemedian noticeably white-edged proximally at costa; lines beneath arrested at or before cell-fold and about cell-spot. Hindwing above with more suffusion proximally and posteriorly, above and beneath almost as fragmentary as in *brephos* (Vol. 4, pl. 13 a) only the 3rd line above (and that not invariably) extended anteriorly. Ta-tsien-lu (loc. typ.) and other localities in W. China and Chinese Tibet. Type in the British Museum.

leucophoca. **C. leucophoca** *sp. n.* (15 k). Costal cream-whitish patch of forewing much broader than in *uber*, with its distal edge well angled in front of 1st radial, though less acutely than in most *uber*, its proximal edge with a still weaker indentation at the 1st radial than in *uber;* subterminal dot at costa minute. Hindwing with the

dark posterior marks well defined, fairly broad but short, even the 3rd one not, in the topotypical series, crossing the 2nd median; basal irroration rarely reaching the conspicuous cell-dot; tips of fringe less chequered with whitish than in *uber*. Underside with corresponding dinstinctions. Yarégong and Yargong-Zambala (P. Soulié), 13 ♂♂; also a very slight modification from the Ta-tsien-lu collectors (1 ♂) and Moenia, Tibet (2 ♂♂), with faint and interrupted traces of the 3rd line as far as the 1st median vein or even towards the 3rd radial. All in the British Museum, ex coll. Oberthür.

C. excentricata *Alph.* (Vol. 4, pl. 8 l) occurs also in Szechuan. Sterneck records a ♂ (Ta-tsien-lu) *excentricata.* which has retained the proximal areole — distinct, though small, considerably more so than the distal.

C. virginea *Alph.* (15 k). Sterneck points out, as further evidence of the specific distinctness from *virginea.* *excentricata*, the materially longer palpus and more strongly tufted face. He adds Sun-pan-ting to its range.

C. kezonmetaria Oberth. (Vol. 4, pl. 13 b) **altivaga** *subsp. nov.* In addition to the distinctions noted in *altivaga.* Vol. 4 (p. 256), this has the hindwing beneath very weakly marked or unmarked. S. W. Szechuan (Capt. Bailey): Tsemala (type) and W. of Kiala; all in the British Museum.

C. tristata *L.* (Vol. 4, pl. 10 e). This and the rest of the most typical *Epirrhoë* (genotype *alternata Müll.*) *tristata.* are not arranged in the best sequence; Dr. Heydemann suggests the following: *hastulata*, *pupillata*, *fulminata*, *tristata*, *alternata*, *rivata*, *galiata*. Before dealing with the numerous *tristata* aberrations which have recently been described, I would record that Püngeler (in litt.) suggested that the puzzling — ab. **continuata** *A. Fuchs* *continuata.* (Vol. 4, p. 256) might be a *subhastata* form, parallel to *s. moestata* ab. *undulata Strand*, but I have been quite unable to reconcile its description with that, and must leave it here. — ab. **brunnea** *Nessling* has the normally *brunnea.* dark parts light yellowish brown, the white parts normal. Described from Finland. — ab. **actinaria** *Dannehl* *actinaria.* is a washed-out form, the dark markings indistinct and effused, the dots in the white bands only indicated by slender rays along the veins (in extreme developments wanting). Mendel and Penegal, founded on 8 ♂♂ and 6 ♀♀. — ab. **interrupta** *Heinrich* was merely diagnosed (on a ♀ from the Wendelstein, Bavaria) as having "the *interrupta.* black band of the forewing interrupted with white", but presumably referred to the same form as that which was later called *interrupta E. Lange* (Rechenberg, 1 ♀) and further elucidated by a figure from Galvagni (an Allentsteig ♀) and descriptions from Hellweger and Osthelder. The interruption, as would be expected, is in the submedian region. — ab. **divisa** (nom. coll.) *nov.*, with the band white-centred throughout, is a much *divisa.* rarer form, but Galvagni has a specimen from Türnitz. — ab. **hastatoides** *Nitsche* (= hastadoides *Osthelder*) *hastatoides.* has the white postmedian band broadened and the mid-subterminal white spot extended into a complete hastate mark which strongly recalls that of *hastata*. Type from Ramingstein, Lungau; several from S. Bavaria mentioned by Osthelder. — ab. **luctuolata** *Klem.* Brownish black, the median area not marked with white, *luctuolata.* bounded by narrow white, black-dotted bands. Muszyna, Galicia. An almost identical specimen has been figured by Kautz, Zeitschr. Oesterr. Ent.-Ver., Vol. 16, pl. 2, fig. 12, from Mariensee. — ab. **pseudoluctuata** *Vorbrodt.* *pseudoluctuata.* Much blacker than typical *tristata*, confusingly similar to *hastulata*. The typical series (13 ♂♂ and 2 ♀♀ from Novaggio) seems to have represented a rather more extreme form than *luctuolata*, the forewing being almost solidly black as far as the postmedian, the outer white band bisected by thick dots or a connected line, the subterminal vestigial; the characteristic (longitudinal) red-yellow terminal marks of ab. *limbosignata Nolck.* discernible.

C. hastulata Hbn. (Vol. 4, pl. 10 e) ab. **effusa-radiata** *Galv.*, the name compounded of two of the well- *effusa-radiata.* known nomina collectiva, has the proximal boundary of the black distal area blurred and throwing out dark rays on the veins proximally. Sonnwendstein, Lower Austria, only the type known. — **reducta** *Djakonov*, from *reducta.* Kamtshatka, has the black markings reduced, particularly in the median area, the cell-spots enclosed in a white ring, as in the parallel form *subhastata clarior*.

C. pupillata *Thnbg.* (Vol. 4, pl. 10 e, as funerata). C. Schneider 12 years ago recorded this as new *pupillata.* for Wurttemberg. The same author emphasizes that it is by no means restricted to peat moors and the like, but is found, e. g. in the Swabian Alps, on dry mountain pastures with a xerotherm character. Warnecke, more recently (1932) analysing its known geographical distribution, notices a great gap between its western localities and its reappearance in Moravia; in Scandinavia too, though widely distributed it is remarkably local, in Denmark confined to the dunes of West Jutland. Sterneck recognizes no racial difference in the Szechuan form, but we have little reliable information about the scattered oriental localities from which it has been recorded (*? orientalis Osthelder*). — ab. **defasciata** *Hirschke.* The white bands lack the dividing-line *defasciata.* and the outer one is much widened, nearly reaching the subterminal, on the underside still further extended, especially on the hindwing where it continues on to the fringe. — ab. **radiata-effusa** *Kitt* is strictly parallel to *radiata-effusa.* *hastulata* ab. *effusa-radiata Galv.*, described above; indeed it should probably bear that name, as Galvagni used it in mentioning the parallelism; and as I believe Kitt's note was still in the press at that time, Galvagni's

divisa. would have the priority. An excellent photograph was taken of the type, a ♂ from Oberweiden. — ab. **divisa** *reducta.* *Osthelder* has the median band divided into two by a complete, though slender, white central band. — ab. **reducta** *Osthelder* corresponds to those of *hastata* and *subhastata* which bear the same name, or to *tristata* ab. *kerteszi* *indistincta.* *Aigner*. — ab. **indistincta** *Osthelder*. The white bands and subterminal line remain, but all the dark markings are washed-out, unicolorous brownish. This and the two preceding are described from South Bavaria.

commixta. **C. commixta** *Matsumura* is either (as its author makes it) an unusually white member of the *tristata* group or (as is suggested by the large amount of white in the median area of both wings and the strongly developed *hastata*-marks of the subterminal) a *Eulype*. Only a ♂, expanding "30 mm", is known; this was collected at Furumaki, S. Saghalien, on 13 July 1924. Body black, with some white scales. "Wings snowy white, with black irrorated markings." The median band of the forewing, according to the figure, projects very little in the middle, is fairly broad near the hindmargin and almost completely interrupted between the median and (2nd) submedian veins.

galiata. **C. galiata** *Schiff.* (see Vol. 4, pl. 10 b). The strong tendency of this species to adapt itself to the soil on which it rests is probably further illustrated in some ♀♀ from the Great Atlas, which are said to have the *brunneata.* pale parts of the forewing strongly tinged with reddish. — ab. **brunneata** *Kitt* (= brunnescens *F. Wagn.*) has strong reddish-brown scaling in the distal, but especially in the basal, area of the forewing. Founded on a ♂ from Albarracin. Wagner inclines to think it a good race, but, judging from the Albarracin material which I have seen, I cannot regard it as more than a rather frequent aberration. Moreover, it occurs in several other *ochreata.* localities with typical *galiata* (compare also *cophanata*). — ab. **ochreata** *F. Wagn.*, also from Albarracin, is, as its author subsequently admitted, merely an exceptionally extreme development of *brunneata*, with the basal *emina.* and distal areas of the forewing reddish ochre-brown, almost orange. — **emina** *Schawerda* (see Vol. 4, p. 257), described from Herzegovina, is said to be a race in the Balkans, characterized by the purity of the white ground-colour and the blue-black colour of the median band, the brown tinge absent from both. Probably nearer to some of our S. English forms (from the chalk and limestone) than to the extreme Huddersfield aberration. *dissoluta.* Forms from Andalusia and the Riff have also been referred here (Reisser). — ab. **dissoluta** *ab. nov.* is a modification of these chalk "*emina*", with the median band predominantly light blue-grey, only blackened at its *cophanata.* extreme edges. Several specimens from Eastbourne in the Tring Museum. — **eophanata** *Krulik.* (misprinted cophanata in the German edition of Vol. 4, p. 257) has the basal and distal areas of the forewing suffused with red-brown, the hindwing also generally with a slight reddish tinge. E. Russia, in both generations and not rare. Krulikovsky had seen none like it from Germany.

timozzaria. **C. timozzaria** *Const.* (Vol. 4, p. 10 a) is locally common on Corsica, the typical form showing, when fresh, more or less brown in the white areas which border the blue-grey median band of the forewing. The larva has been found on the scrubby alder of the high mountains (Alnus suaveolens), which Schawerda suspects *gabrietta.* may be the food-plant also of *casearia*. — ab. **gabriella** *Schawerda* has both wings strikingly white, the median band broader than usual, filled from costa to hindmargin with pure white, so that only its borders are narrowly *stenotaenia.* blue-grey. — ab. **stenotaenia** *Schawerda* is also whiter than the type, but its special character is the extreme narrowing of the median area, which is occupied by a slender dark band crossing the cell-spot. Only the type known, a ♀ in poor condition.

parvularia. **C. parvularia** *Leech* (Vol. 4, pl. 7 h). Further localities are Sunpanting (Stötzner collections) and Tatsien-lu; the examples which I have seen quite agree with Leech's type.

latevittata. **C. latevittata** *Trti.* The position which I assigned (Vol. 4, p. 257) to this rare Sardinian *Cidaria* was perhaps inaccurate; I observe that Dr. Bytinski-Salz, in recording further specimens (Tempio and Aritzo, April—May), transfers it to the section *Euphyia*, though without comment.

rivata. **C. rivata** *Hbn.* (Vol. 4, pl. 10 a). Scholten (Ent. Ber., Vol. 7, p. 81—86) has published an article on *maculata.* this species and *alternata*, giving results of breeding, with careful comparisons of the early stages. — ab. **maculata** *Rbl.*, accidentally omitted from Vol. 4, has the median band of the forewing greally reduced, broken into a small costal spot, a wedge-shaped central mark and a somewhat less small hindmarginal. Type from Croatia. It was figured, but not named, by Aigner-Abafi (Ann. Mus. Hung., Vol. 4, pl. 14, f. 9) and in an almost equally *inexpectata.* extreme example by Barrett. — ab. **inexpectata** *Krulik.* (treated as a separate species) is somewhat more extreme, lacking the midcostal spot, so that the central band is reduced to the two spots shown in our figure of *alternata* ab. *degenerata*, but with similar reduction on the hindwing; the "cinereous" distal area much widened. Founded on a ♀ from Urzhum. Typical *rivata* (2 ♂♂, 1 ♀) were also collected there.

supergressa. **C. supergressa** *Butlr.* (15 k). The description in Vol. 4 (p. 257) was based on the name-typical Japanese form. I was, at the time, acquainted with very little, if any, E. Siberian material and depended on Staudinger's article in my allusion to "Amurland specimens"; but even he noticed that the two races were not identical

and it has since become evident that they need separating. — **albigressa** *subsp. nov.* (15 k). Variable, but on an average decidedly smaller than *s. supergressa*; nearly always with considerably more white, both in the proximal area (notably of the hindwing) and outside the subterminal line; a very frequent character, not even suggested in the Japanese race, is the white or whitish apical patch of the forewing, both above and beneath. Ussuri: Chabarovsk, Okeanskaja, Vladivostok, etc.; N. China: Kalgan; Korea: Gensan, this latter perhaps in some measure transitional. June to early August. Type ♂ from Russian Island, S. Ussuri, in the British Museum collection. *albigressa.*

C. alternata Müll. (Vol. 4, pl. 10 b, as sociata) ab. **tenuifasciata** *Schima* (= degenerata part. *Prout*, nec *Haw.*) has the median band of the forewing much attenuated (breadth 1—1.5 mm), but not actually interrupted. A ♀ taken at Dürnkrut yielded as offspring 11 ♂♂ and 7 ♀♀ which inherited her character, while 10 specimens were typical *alternata*; 1 ♂ was more extreme, a veritable *degenerata*. — ab. **degenerata** *Haw.* (16 a), as Schima points out, may be restricted to Haworth's own form, which "chiefly differs" (from *alternata*)" in the median band of the forewing, which is reduced to an i n t e r r u p t e d band-like stripe". He knew only one example, from Kent, but the form, though always interesting, is not excessively rare. A very extreme development, from Cannock Chase, has been figured and discussed in Trans. Ent. Soc. Lond., Vol. 76, p. 529. — ab. **divisa** *Osthelder* has the median band completely divided by a pale central stripe. Very rare, a particularly fine ♀ example from Schleissheim. — ab. **pseudorivata** *F. Wagn.* has the dividing-line of the white postmedian band more or less completely obsolete, the proximal part of the hindwing also less dark than usual, so that the whole appearance is more *rivata*-like, except as regards the distal area. A second generation, bred from a ♀ taken at Magredis (Udine) early in May, consisted almost entirely of thïs form. — ab. **eulampa** *Kautz.* Light grey, with violet reflections, the median band very broad, not darker, the white markings very narrow, but distinct. Seewalchen (Attersee), 1 only. — ab. **albinata** *Romaniszyn* seems to be semi-albinistic, "both wings very pale yellow" instead of dark brown-grey. Poland. — ab. **effusa** *L. Müll.* is a modification of ab. *pscudorivata*, with the white postmedian band very broad, the boundary between it and the median band ill-defined. Freudenau, Vienna, 1 ♀, taken on 30 April. — **dynata** *form. nov.* (16 a). An exceptionally large and ample-winged form, the median band of the forewing generally broad in proportion, in other respects a strong contrast to *rivata*; in particular the hindwing is well darkened and the line which bisects the white postmedian band is strong on both wings. Sicily: Liepo on the Ficuzza, 3 ♂♂, 2 ♀♀, besides a pair merely labelled Ficuzza, all collected in May by Ragusa, the only one with exact date "10.5". Possibly this is the regular first-brood form in Sicily; 2 from Palermo, 2 June 1926 (Stauder) are quite normal *alternata*. I know nothing of the "*rivata*" said by Spada (Nat. Sicil., Vol. 12, p. 222) to have been bred from larvae found on Cupressus sempervirens (!), but the same article contains also other highly improbable records of food-plants. — **pseudotristata** *Heydem.* On the whole smaller than typical *alternata*; markings normal but d e e p b l a c k - g r e y, without the brown and blue-grey hues, thus superficially similar (sometimes deceptively so) to *tristata*. Sajan Mountains, 2600 m. *tenuifasciata.* *degenerata.* *divisa.* *pseudorivata.* *eulampa.* *albinata.* *effusa.* *dynata.* *pseudotristata.*

S u b g e n u s **Perizoma** *Hbn.*

C. taeniata *Steph.* (= intrusata *H.-Sch.*) (Vol. 4, pl. 8 l). The genitalia, as was mentioned in Vol. 4, are not altogether concordant with those of the other European *Perizoma*, but the reference to "gnathos wanting" had no special significance, as that is a character of nearly all Larentiids; the very differently formed valves and uncus and other points in the structure show that it may need subgeneric or generic separation. So, too, does the whole life-history; Dr. Cockayne, who has studied this carefully, tells me that he is far from satisfied with the present position. Sterneck points out that this *taeniata*-group may easily be distinguished from the rest by the essentially larger distal areole. — ab. **brönnöensis** *Strand.* A ♂ from Brönnö (Nordland), rather worn, was considered to represent possibly a local race, but a second from the same locality was much more typical. The original has a wing-length of 11 mm and looks blackish, with whitish and greyish markings, the usual brownish or reddish tinge apparently wanting. The type of markings of the forewing is said to recall that of *coerulata F.*, the pale band beyond the middle extended at the expense of the median band, etc. I suspect that its condition may in part have been responsible for its abnormal aspect. — **saxea** *Wileman* (14 c). We figure a ♂ of this Japanese race. — **obsoleta** *Djakonov* from the E. coast of Kamtshatka (Petropavlovsk and Tarja, Avatscha Bay) is a light brownish-yellow form which, though moderately variable, always deviates strongly from typical *taeniata* in its unicolorous tone and weak, obsolescent markings. It is, as Djakonov says, very remarkable that in the interior (on the upper Kamtshatka River) *taeniata* is typical; the genitalia of the two forms show no differences. *taeniata.* *brönnöensis.* *saxea.* *obsoleta.*

C. albofasciata *Moore* (Vol. 4, pl. 7 h). The Dharmsala form, which constituted our authority for introducing this North Indian species into Vol. 4, is like the Sikkim type or with even more white in the median area. Sterneck records 3 from Kwanhsien, one twice as large as the other two. I suspect the latter two, at any rate, belong to — **mixtifascia** *form. nov.* Considerably smaller (19—22 mm), the white outer spot of the *albofasciata.* *mixtifascia.*

forewing somewhat, the median area considerably, more irrorated with dark grey; in the latter area the irroration extends, though not quite regularly, to the postmedian line of vein-spots, while in the type it tapers to a quite narrow ending posteriorly. Kachin Hills, Upper Burma: Htawgaw, 6000 feet, the type ♂; Hpimaw Fort, 8000 feet, 3 ♂♂; all sent to me by Capt. A. E. Swann. Probably a subspecies, but in view of Sterneck's experience I feel somewhat uncertain.

mediangularis. **C. mediangularis** *Prout* (Vol. 4, pl. 12 c, as mediangularia; also misprinted mediangularia in the German edition). The altitude at which the type was collected was only 3620 feet, but I have since received a slightly darker ♂ from the same mountain (Omei) at 11 000 feet. Besides, I know only the Pu-tsu-fong allotype.

variabilis. **C. variabilis** *Warr.* My description of this species in Vol. 4 (p. 259) was based on a confusion of several closely allied forms which at the time stood together in the British Museum and were assumed to represent a specific unit. I am not convinced that the true *variabilis* (erected on a series from Tenglo, Sikkim, 10 000 feet) occurs in the Palaearctic Region, but as it may well do so, and the related forms cannot be elucidated without some rectification of it, I would call attention to the following particulars, leaving the figuring and further details to Vol. 12. *P. variabilis* is, as I stated, a small species and perhaps even more glossy than any of its neighbours, but the references to the conspicuous and sometimes complete basal patch and the occasional red-brown bands bounding the median area, and the emphasis on the thickened costal and hindmarginal spots of the ante- and postmedian were misleading and our figure (pl. 13 m) was apparently taken from the following species though not quite successfully. A characteristic feature of *variabilis*, as mentioned in Warren's original description, is the presence of lustrous blue-white or greenish-white scales on the forewing, especially between the 2nd submedian and the hindmargin, where they commonly coalesce into small spots which define the dark lines; there are usually some similar dots at the termen and always some subterminal ones. The median area *albimacula.* is inclined to be very slightly darker, but not sufficiently so to form a definite band. — ab. **albimacula** *Prout.* Although not definitely stated, this was based on the topotypical (Tonglo) form described by Warren and figured by him on his Pl. 30, fig. 18 as *variabilis* (not "17", as erroneously cited in his text). It probably belongs rightly *condignata.* to *variabilis* and in any case is not identical with — **condignata** *subsp.* (? *sp.*) *nov.* (= seriata var. *Btlr.*, nec *Moore*) (16 a). This very small form (20—22 mm), unfortunately only known from 3 ♀♀, was referred to *albimacula* in Vol. 4 (p. 259), but it is doubtful whether it is even a *variabilis* form at all. Lustrous scales wanting, median and especially basal (or double subbasal) better darkened, subterminal dots before and behind the white central spot enlarged into (small) white spots; hindwing darker (and on the underside more weakly marked) than in *variabilis*. Dharmsala (Hocking), collected at sugar, feeding (like a good many Larentiines) with the wings erect.

antisticta. **C. antisticta** *sp. n.* (16 a). Expanse 23—27 mm. Nearly as glossy as *variabilis*. Anal tuft darker (less buff-tinged). Forewing less dark, its basal (or subbasal) band fuscous, very conspicuous; median area not appreciably darkened, generally broader than in *variabilis*, at least in its anterior part, its proximal and distal boundaries defined by dark costal and hindmarginal spots, sometimes also faint indications of dark antemedian line and whitish postmedian, the latter projecting slightly near the costa; and accompanied proximally by dark vein-dots or dashes; subterminal whitish, but slender and much interrupted, in the middle crossed by an irregular buff-tinged mark, which runs broadly along the 3rd radial and throws out a curved projection to the 1st median; terminal line interrupted. Hindwing slightly more tinged with grey than in *variabilis*, nearly always with a darker terminal shade; cell-dot visible above, rather stronger beneath. Thundiani, 2 ♂♂ and 2 ♀♀ in the British Museum, besides 1 ♀ from Sultanpur. A similar species, but with buff head, linking *antisticta* with *lucifrons*, has been received from Ta-tsien-lu as *variabilis* (*Sterneck*, nec *Walk.*), but I have seen no good specimens.

lucifrons. **C. lucifrons** *Prout.* This species, which was still mixed with *variabilis Warr.* when Vol. 4 was prepared, differs therefrom in its pale head and white spot or transverse line at base of abdomen above, followed on 2nd tergite by a bright, somewhat tawny line or narrow band. Forewing relatively somewhat broader, perhaps not quite so glossy; hindwing above scarcely so white, with apex slightly dark-clouded, beneath a little more powdery. I founded it on specimens from Upper Burma and mentioned others from Sikkim; but it has since been *lychnobia.* taken at Tu-pa-kö (Mupin) in the following race. — **lychnobia** *subsp. nov.* (16 a). Darker than the name-type, at least as regards the abdomen (which tends to show less strongly the characteristic maculation) and the hindwing, which is quite weakly marked beneath; on the contrary the relatively large white subterminal dots in cellules 3 to 5 and oblique buff spot outside them (across and behind the 3rd radial) well developed, apparently pretty constant. The typical series of 2 ♂♂ and 6 ♀♀ (30 August—7 September) has in general a more strongly blackened basal patch or subbasal band (at least at its edge) than *l. lucifrons*, but this is less manifest in 5 ♀♀ collected with them, which, however, are not in good condition.

fulvimacula. **C. fulvimacula** *Hmps.* (= fulvistriga *Warr.*) (Vol. 4, pl. 13 m, as affinis). *C. affinis Moore*, as I now understand it, belongs exclusively to Sikkim and Assam. The species which I called "the *fulvimacula* form"

has somewhat more claim to be considered Palaearctic, as it occurs also in the North-west Himalayas; *fulvistriga Warr.*, from Sikkim, apparently belongs to it. — **promiscuaria** *Leech*, the W. (and Central) Chinese race, is perhaps separable from typical *fulvimacula* by its slightly larger size, duller or more suffused appearance and absence of the "fulvous" shading in the pale subterminal patch which is generally developed in the nametype. — **liberata** *form.* (*? sp.*) *nov.* is a modification of *promiscuaria* with sharper contrasts than even in *f. fulvimacula*, the broad area between basal and median bands pale, traversed by a central brown shade which is edged distally by an angulated darker line, the distal area with a large pale central spot, much as in *seriata* though less sharply defined and proximally less pure white, the brown band proximally to the slender subterminal also bright, fairly broad, contrasting sharply against the double pale line which bounds the postmedian. Ta-tsien-lu, type and 2 other ♂♂ in the Tring Museum; Che-tou (1) and Pu-tsu-fong (1) in the British Museum. Distinguishable from *seriata* by the sharply angled antemedian and proximal markings. *promiscuaria.* *liberata.*

C. constricta *Warr.* (16 a), from Dalhousie, possibly a form of *fulvimacula*, has the brown parts less mixed with blackish (especially between the sharply dark subbasal and the antemedian line), the median band narrowed, its distal edge rather straight, the pale mid-subterminal patch extended but ill-defined, greyish, with no fulvous mark, the hindwing less white than in *fulvimacula*. *constricta.*

C. seriata *Moore* (Vol. 4, pl. 7 h). Although the type locality was Darjiling, the forms from Dalhousie, Dharmsala, Kujiar, etc., agree quite accurately and two of Leech's W. China (Pu-tsu-fong and Che-tou), besides one or two from the Kelley-Roosevelt expedition (Tu-pa-kö) also seem quite conformable, so far as can be judged in their not very fresh condition. I have therefore no reason for doubting Dr. Sterneck's further records for Omisien and Kwanhsien, except that he speaks of a "light y e l l o w spot in the outer area" whereas I should describe the characteristic spot of *seriata* as white. *seriata.*

C. variaria *Leech* (Vol. 4, pl. 13 m). Besides the Pu-tsu-fong specimens, Leech recorded also one from Che-tou, but this is at least an aberration — head more buff-tinged, dark markings weaker, median band rather less widened anteriorly, white subterminal dots stronger; a further locality, subject to the confirmation of Sterneck's determination, is Ta-tsien-lu. *variaria.*

C. puerilis *Prout* (16 a). Hindwing rather narrow and irregular in shape, the discocellular rather weakly biangulate. Palpus longish. The pattern of the forewing is curiously like that of some South American *Psaliodes*, for instance *olivaria Warr.* The type ♂ is from Upper Burma, but the Tring Museum has a ♀ labelled "W. China" and a ♂ from Tu-pa-kö (Kelley-Roosevelt expedition), both small and much worn, but upparently conspicific. Perhaps related to *hockingii* (Vol. 4, pl. 7 k), which (as has already been pointed out above, p. 142) should preferably have been referred to *Perizoma*. *puerilis.*

C. fatuaria *Leech* (Vol. 4, pl. 7 h), originally described as a *Plemyria*, was transferred by me to *Euphyia*, on account of its double areole and its evident relationship to *fasciaria*, not only in the wing-markings but also in the palpus, the discocellulars, etc. See below. *fatuaria.*

C. fasciaria *Leech* (Vol. 4, pl. 7 k). In my first account of this species (t. c., p. 247) I followed Leech's taxonomy and treated it as having non-biangulate discocellulars and therefore best fitting *Euphyia* in the totality of its characters. Whatever its exact affinities, I was, however, certainly mistaken in this and the discovery of the following very close relative has shown more definitely its incongruity with *Euphyia*. Probably near the N. Indian *conjuncta Warr.*, which has always stood in *Perizoma*, notwithstanding its rather strongly crested abdomen. *fasciaria.*

C. phidola *sp. n.* (16 b). Judging from the known variation in some *Perizoma* (*blandiata*, *conjuncta* and others), I at first supposed this to be a striking aberration of *fasciaria*. Median band apparently similar in shape but only conspicuous as a costal triangle, the rest indicated merely by weak grey lines and a blacker antemedian dash at the hindmargin; basal patch similarly dissolved into lines. But whereas the discocellulars of the hindwing in all the known *fasciaria* are almost simple, with the 2nd radial arising from the centre (only a little behind the cell-fold), all the 3 *phidola* have them very definitely biangulate, with the 2nd radial much behind the middle. The palpus does not look quite so long, but I somewhat exaggerated in giving that of *fasciaria* (Vol. 4, p. 247). W. China: Tu-pa-kö (Mupin), 7400 feet, 30 August (type ♂) and 5 September (paratype ♂), both collected on the Kelley-Roosevelt expedition, the type in the Tring Museum. The ♀, larger but otherwise identical, is here figured and was sent to me by Mr M. G. Franck, with the data "Pehlinting, 6000 feet, 50 miles N. N. W. of Chengtu, July-August". *phidola.*

C. contrastaria *Sterneck* is unknown to me, but may well belong in this vicinity. "18 mm." Palpus moderately long. ♂ antenna quite strongly thickened, simple (in the 3 preceding ciliate). Small abdominal tufts (crests) developed. Basal and subbasal areas of forewing black-brown, separated by an indistinctly lighter *contrastaria.*

line; median band weak, only formed by dusky vein-streaks and dots on a white ground (strongest in anterior half), the boundary lines remaining clear white; cell-dot very large, black; distal area black, the subterminal indicated by white vein-dots. Hindwing white, with distinct cell-dot and grey basal and terminal bands, darkest at anal angle. On both wings the outer band is strongly dark, with the white subterminal dots much more sharply expressed than above. W. China: Wasseku, 3 ♂♂.

prouti. **C. prouti** *Schawerda*. Palpus moderate or longish, heavily scaled. Antennal ciliation minute. Forewing with the proximal areole not very large; 1st radial well stalked with subcostals 3 to 5. Hindwing with the discocellulars well biangulate. Quite definitely a *Perizoma*, as Dr. Schawerda at first assumed; I cannot understand my former suggestion (formed from a good photograph) that it might be related to the Indian *Piercia imbrata*. Forewing slightly paler than in *alchemillata* but not so grey as in *hydrata*, cell-dot strong, the markings shaped somewhat as in *flavofasciata*, but with a white s u b t e r m i n a l (not terminal) spot behind the 3rd radial; fringe chequered. Beneath, the forewing is very weakly marked, only with a pale apical spot; the hindwing lighter, with well-expressed cell-spot and three lines beyond. Ta-tsien-lu, the type ♂ unique.

inconspicuaria. **C. inconspicuaria** *Leech* (Vol. 4, pl. 7 h) is less broad-winged than *prouti*, duller, the white markings less strong and clean, the postmedian differently formed, but I think there may be some real relationship. Ta-tsien-lu remains the only known locality for both.

affinitata. **C. affinitata** *Steph.* (Vol. 4, pl. 10 f). Osthelder has some interesting notes on the distribution of this and its race (? incipient species) *rivinata*. He refers all the S. Bavarian forms to *rivinata*, *affinitata* belonging chiefly to the Central and North European mountains; in Bavaria already in the deepest valleys, moderately variable in size and in the development of the white markings. Unfortunately he creates considerable confusion by making no nomenclatorial distinction between geographical and non-geographical forms, loosely giving all *rivinata.* as "var." or "mod." — **rivinata** *Fisch.-Rössl.* (Vol. 4, pl. 10 f). Osthelder, who correctly diagnoses this as having "broader white bands on the forewing, the hindwing lightened with whitish" and adds that it is generally larger, notes that even the darkest South Bavarian specimens have much broader white bands on the forewing than the name-typical race and even mostly a quite copious sprinkling of whitish, on the hindwing always some whitening, though of varying extent. But already in Central and Northern Bavaria one finds the forms *indistincta.* smaller and darker. — ab. **indistincta** *Osthelder* (16 b) has unicolorous washed-out (blurred) dark markings and unmarked white "antemedian" (postmedian) white band. 1 ♂ from Mangfalltal, S. Bavaria. I figure one from

effusa. Carniola which I assume represents it. — ab. **effusa** *C. Schneid.* has the dark colour of the d i s t a l area diffused into the distal half of the white postmedian band, giving some hint of the evolution of the following curi-
jenischi. ous aberration. Type from Tübingen. — ab. **jenischi** *C. Schneid.* Forewing to just beyond the middle white-grey strigulated with blackish, the rest forming a much broadened black distal band with the white subterminal indicated. The hindwing shows roughly the same style of modification. Winkelsdorf, N. Moravia.

alchemillata. **C. alchemillata** *L.* (Vol. 4, pl. 10 f). Boldt notes that the larva is occasionally found feeding on Stachys sylvatica when this is growing among patches of Galeopsis tetrahit, but that large unmixed growths of Stachys
indistincta. are devoid of it. — ab. **indistincta** *Wehrli*. White postmedian band of forewing not divided by a dark line, its distal boundary not sharply defined but diffused with the broad dark distal area. Founded on a Vienna specimen.
interrupta. — ab. **interrupta** *Boldt*. White postmedian band of forewing interrupted by the central projection of the ground-
unicolorata. colour. Quite frequent; it is estimated that ca. 30 per cent. of Taunus specimens are of this form. — ab. **unicolorata** *E. Lange* is almost melanic, the forewing almost uniformly dark, retaining only the costal commence-
mokrzeckii. ment of a whitish subterminal line. Bred from Bienenmühle, Freiberg district. — ab. **mokrzeckii** *Prüffer*, founded on 3 ♂♂ from Wilno, is diagnosed as having the forewing reddish-black, the base lighter, uniform; median area uniform reddish-black, no definite demarcation between this and basal area; postmedian white band simple, narrow, its dividing-line wanting; distal area uniform reddish-black, the subterminal line not clearly defined. I suspect that this is an over-elaborated account of ab. *indistincta* (which would antedate it by 8 years), or something very similar.

fennica. **C. fennica** *Reuter*. On re-considering the published evidence regarding this enigmatical "species", I can see no reason whatever why it also should not be one of the "*indistincta*" forms of *alchemillata*. If so, *fennica* would be the oldest name for that type of variation. Are the originals extant? If so, a report on them from a more competent lepidopterist than Gumppenberg would be very welcome.

hydrata. **C. hydrata** *Tr.* (Vol. 4, pl. 10 g). A misprint in the German edition (p. 261), "die Rp. überwintert", is
indistincta. to be corrected. The life-cycle is as in the allies. — ab. **indistincta** *Wehrli* exactly corresponds to the like-named form of *alchemillata*, the simultaneous publication of the two having inspired Osthelder to adopt the name
clarior. as a "nomen collectivum" for this phase of variation. 2 ♀♀ from Zermatt. — **clarior** *Schawerda*, from the mountains of Corsica, is much larger than the name-type, and is not brownish but clear light-grey; inner half of

forewing with sharply marked, strongly dentate lines, the white band beyond also sharp, broad, divided. Hindwing very light. Possibly other southern forms of *hydrata* should be united with it.

C. lugdunaria *H.-Sch.* (Vol. 4, pl. 13 e). Raebel has added Germany to the recorded range, giving a very interesting account of its discovery at Laband, near Gleiwitz, Upper Silesia. The proximal areole of the forewing is variable, sometimes minute or wanting. The life history was made known by Chrétien in 1922, Rebel in 1923 and Raebel in 1927. The egg is laid on a seed-capsule of Cucubalus baccifer, into which the newly-hatched larva burrows, feeding on the seeds. It is white with blackish head and, in its later stages, reddish subdorsal lines. It may be found in August and September and is full-fed in about 3 weeks from hatching. — ab. **apantharia** *Dannehl.* The white markings of the forewing wanting, the brown-black element scarcely noticeable in the unicolorous grey-violet ground-colour. Hindwing nearly as dark and uniform. Single specimens from Klagenfurt and Terlan. *lugdunaria.* *apantharia.*

C. bifaciata *Haw.* (not bifasciata, as generally misquoted). Millière says that the ordinary Marseilles-Cannes form is like the British and mentions also a Lyons "race", which is a little larger and a little lighter. Most of the southern French which I have seen seem to be s m a l l e r and lighter than our ordinary British *bifaciata*, sometimes showing a slight approach to *euphrasiata*. In the Balkan Peninsula *bifaciata* reaches Albania, as well as the Dobrudscha. The British Museum has even a few examples from Cyprus, too few and too imperfect to generalize upon. — **scitularia** *Rbr.*, from Corsica, is apparently a race, not a synonym as given in Vol. 4 (p. 261), yet is certainly variable. According to Reisser it is found among Euphrasia lutea and at an altitude of 850 m appears in August and September, not, as Rambur gave, in June. On the whole somewhat brighter and more variegated than the name-typical form. — **euphrasiata** *Mill.* (= flavosparsata *F. Wagn.*) (16 b). I have now seen examples of this strikingly distinct form from Albarracin, where it occurs from August to October and was first recorded as *minorata*, then as a new species. The possibility that it is a species is not yet entirely excluded, but it seems more probably a very small grey race of *bifaciata*. The original type-locality, which Zerny says was not given, is supplied by Millière's "Cat. Lep. Alpes Maritimes". *bifaciata.* *scitularia.* *euphrasiata.*

C. parvaria *Leech* (Vol. 4, pl. 7 k). This is evidently variable as regards the form of the median band, unless there are two very closely allied species mixed. The originals were 2 ♂♂ from Pryer's collection, thus almost certainly from Japan, and Leech suspected they came from Yokohama. This form agrees with the Ussuri *ablegata*, so far as I know it, and Franck has sent a very similar ♂ from the Yu Chi Valley, near Kwanhsien, slightly intermediate, in the width of the band, towards the following. — **albidivisa** *Warr.* The only other Japanese *parvaria* yet known to me is a ♀ from Yoshino, Yamato (Wileman) and belongs apparently to the form *albidivisa*, which otherwise I had supposed to be the Punjab and Assamese race. It has the median band considerably broader, especially at the costal end, where it is fully (or more than) twice as broad as at hindmargin; moreover its distal edge is acutely angled in the middle and the pale shading between its angle and the termen is increased. The distinction is not (unless on Japan) sexual. *parvaria.* *albidivisa.*

C. ecbolobathra *sp. n.* (18 a). Palpus moderate, triangularly scaled above. Abdomen slender, particularly in the ♂. Forewing distinguishable from that of the adjacent species by the whiter proximal area; base clear, bounded only by narrow dark costal and subbasal lines, the latter somewhat interrupted; band between this and central area weak; median band well darkened, rather narrow, with indications of a browner line near it on each side; white midterminal spot, unless in the ♀, much less developed than in *parvaria*. Hindwing above and beneath with ill-defined pale outer band. W. China: Yaregong, type ♂ and allotype; Ta-tsien-lu. 2 ♂♂; all in the British Museum. *ecbolobathra.*

C. haasi *Stgr.* (Vol. 4, pl. 10 f). In the long palpus and the colouring this shows more resemblance to *fasciaria*, *fatuaria* or the Himalayan *conjuncta Warr.* than to the species between which it is placed, but the abdomen is not exceptionally crested. *haasi.*

C. minorata Tr. (Vol. 4, pl. 10 g) **ericetata** *Steph.* (16 b). We figure a ♂ of this British race, from Scotston Moor, Aberdeenshire. — **norvegicola** *Strand* (= norvegica *Prout*) (16 b as norvegicata). Renamed to avoid (secondary) homonymy with *Cidaria caesiata norvegica Strand*; this change must be accepted so long as the unwieldy "genus" *Cidaria* is conserved, but as the present form was published as *Perizoma* it will ultimately revert to the name *P. m. norvegica*. We figure a ♂ of the original (Hammerfest) series. — **albidella** *nom. nov.* (= albida *Sohn-Rethel*, nec *Herz*). Here another homonym is created through the non-recognition of the smaller genera in the *Cidaria* group. The form, described from the Abruzzi, is said to be distinguishable by its very light colour and weaker markings; those of basal and distal areas commonly more or less obsolescent, even the median band mostly filled-in with white. *ericetata.* *norvegicola.* *albidella.*

C. perpusillaria *Fernandez* is unknown to me unless it can be a small, rather pointed-winged and strongly-marked aberration of *euphrasiata*, with which no comparison is made. "Antenna ciliate" (no detail). Basal *perpusillaria.*

patch and median band well defined, dark grey, bounded by white lines, the postmedian less sinuous than in typical *euphrasiata*; an ochreous tint in the same positions as in that; subterminal shading and apical dash rather strong. Hindwing whitish, the postmedian line distinct, even on the upperside. Cuenca: Uclés, not dated.

blandiata. **C. blandiata** *Schiff.* (Vol. 4, pl. 10 g). The larva eats the seeds of Euphrasia officinalis, as indicated in Vol. 4, but as they are much too small for it to live "in" them, it commonly hides among the moss where the plant grows. — ab. **costimaculata** *F. Wagn.*, as its name implies, has only a small dark costal spot in place of the median band; the other markings weak. Locality not given. — ab. **defasciata** *Sohn-Rethel* is merely a somewhat more extreme development of the preceding, a costal dot representing the basal band, 3 slender anterior lines the median band. Bavarian Alps. — ab. **bipuncta** *Stach.* Smaller, both fore-and hindwing almost without markings, unicolorous whitish; of the median band only a black dot remains. The culmination of the two preceding. Type from Podhala. — ab. **indistincta** *Osthelder* has the groundcolour yellowish brown, the median band entirely dark, unmarked, the rest of the markings washed-out, subterminal indistinct. Aggenstein, 1 ♂.

costimaculata. *defasciata.* *bipuncta.* *indistincta.*

nidarosiensis. *mundata.* *zimmermanni.* *pronunciata.* *subfasciaria.*

C. albulata Schiff. (Vol. 4, pl. 10 g) ab. **nidarosiensis** *Strand.* Smaller than the average, darker (grey rather than white), the subterminal line less distinct, the postmedian sharply marked and angular, the antemedian band with sharply marked dividing-line. Overhalden, Norway, a ♂ taken in August. — ab. **mundata** *Klem.* Forewing with the median area much narrowed, uniformly testaceous, scarcely angled outward, the black dots not definite. Galicia. — ab. **zimmermanni** *Rbl.*, a large ♀ from Tetschendorf near Auscha (N. Bohemia) has the base and a narrow median area of the forewing white, a broad almost perpendicular grey-brown band between, a broad distal area similarly uniformly grey-brown, with no trace of the subterminal line. Hindwing in basal half white, in distal half unicolorous grey-brown. — ab. **pronunciata** *Dannehl* is clean white, without any tinge of yellowish or brownish, the markings sharply expressed, but only as fine lines, with no tendency to form bands. Mostly this form is rather large. Described from the mountains of Upper Bavaria, later recorded from the S. Tyrol. — **subfasciaria** *Boh.* (16 b). We figure a Shetland ♂ of this northern race (see Vol. 4, p. 262).

candidaria. **C. candidaria** *Costantini.* "Near *albulata*. Differs in its larger size, altogether more whitened wings, median band of the forewing broader, formed of four (not three) fuscous lines: one, the antemedian, isolated, marked by dots, three postmedian nearer together, the outer one scarcely sinuate or angled (in *albulata* prominently angled outward, sinuate inward), but formed of black vein-dots, median white area much broader than in *albulata*." Le Pozze (Fiumalbo), Apennines, many taken in July. Unknown to me.

flavofasciata. **C. flavofasciata** *Thnbg.* (Vol. 4, pl. 10 h). Although the statement that "it has a pretty wide distribution in Europe" was correct, this is by no means a species of which one can say that it common everywhere. Staudinger gave "Central Europe, S. Scandinavia, Livonia, S. France, Andalusia, Corsica, Italy, N. E. Russia" [perhaps a misprint for S. E.] and I have not noted many additions; perhaps the most important are Bulgaria and Albania. No material variation has yet been observed. Forbes, probably on account of its short palpus, has misjudged the characters and referred it to the genus *Venusia*, sect. *Discoloxia*.

brevifasciata. **C. brevifasciata** *Warr.* (16 b). I am not certain whether this species has more affinity with *Perizoma* or with some "*Coenotephria*"; Warren placed it in a MS. genus which may ultimately be required. ♂ antenna shortly ciliate, palpus moderately elongate, proximal areole small, 1st radial not (as in most *Perizoma*) stalked with the last subcostals, hindwing not quite regularly rounded, discocellulars markedly biangulate (more so than, for instance, in typical *Electrophaës*). Well characterized by the form of the fuscous markings, especially of the truncate median band. Founded on a ♂ from Thundiani, Punjab; a second, from Darjiling, is the only other example known.

Subgenus **Hydriomena** *Hbn.*

(See Vol. 4, p. 262.)

This very natural group (properly genus) is extremely well represented in America, where it has several endemic developments (subgenera or closely related genera). The North American *Hydriomena* (between 20 and 30 species) have been the subjects of some excellent revisions, which merit serious study from our Palaearctic Lepidopterists, on account of their very close resemblance — in some cases identity — with our species. Those of Central and South America are still in chaos.

tamaria. **C. tamaria** *Oberth.* (Vol. 4, pl. 13 b). I have now seen specimens of this and consider it a *Hydriomena*, only slightly aberrant in having the first line of the forewing a little less oblique than usual. The figure did not show the biangulate discocellulars of the hindwing.

C. furcata *Thnbg.* (Vol. 4, pl. 10 k). Distinguishable structurally by the shorter palpus and by the remarkably differently shaped uncus. The other European species, together with the great majority of the Nearctic, have the palpus moderate or long, the uncus bifid. Vorbrodt has a puzzling note that pupae found in the winter produced moths from 14 April onward. As they were found on the borders of an alder thicket, one wonders whether there was a misidentification. As would be expected with so excessively variable a species, *furcata* has been a favourite plaything of the name-givers and no doubt many synonyms and superfluous names have been imposed upon it; in accordance with the promises of the present work, I have made an attempt to record faithfully the described characteristics of the so-called aberrations, but I have not been able to spare the many hours which would have been necessary for the (almost futile) task of correlating them all and working ont a synonymy, and must leave that task to others. — ab. **lucifasciata** *Meves.* Light rust-brown, with dark antemedian band and subterminal line, immediately inside the latter a white band from the 2nd submedian about to the 5th subcostal, where it is cut off by a short, thick black longitudinal streak. Rosersberg and Stockholm. — ab. **monetata** *Meves.* Pale grey-white, feebly marked, except a large, round, pale spot distally to the discocellulars, surrounded with black, and a similar semicircular spot between the round spot and the costa. Rosersberg. — ab. **albomaculata** *Kiefer.* Forewing black; median area bounded by narrow reddish bands, in the middle of which a black stripe (? line) stands out distinctly; in the median area are two white spots, preceded costally by a white lunule pupilled with black. Mühlau, 1 ♀. — ab. **roseoolivacea** *Schawerda.* Hindwing normal, forewing with basal area, a costal spot before apex and a broad median band, rosy red the rest banded with light and dark olive-green; the whitish subterminal spot normal. Vucijabara, Herzegovina. — ab. **stragulata** *Wehrli.* Dark specimens with the light (whitish) median area broadly interrupted with black so as to form isolated, broadly black-margined, light spots, analogous to *variata stragulata.* Delitsch and Gempen, Basle district. — ab. **contrastata** *J. D. Schröder* (= contrasta *B.-Haas*). Ground-colour black, the normally dark bands light in colour. The original description compares it in the general arrangement of the markings with our figure of ab. *obscura Peyer.* (Vol. 4, pl. 10 k as infuscata), but whether there is a complete reversal of the lighter and darker parts or some differences in their width is uncertain. Bremen. — ab. **suffumata** *Finke* and the three which follow were bred from Vaccinium larvae in the Harz, about 800 m altitude. Olive-brown, with the fine black subbasal line, sharply developed subterminal (not interrupted by the usually conspicuous white spot) and a roundish black spot in the anterior third of the broad median area, which again is broadly black-edged proximally. — ab. **marmorata** *Finke.* Analogous to *fuscoundata* in the seal-red or rust-red ground-colour, but the bands (apart from the subbasal) restricted to two; median area with a white-centred spot which reaches the costal margin. — ab. **radiata** *Finke* is said to resemble ab. *obscura Peyer.* in that it shows no regular arrangement of bands and (approximately) in its "black-blue" ground-colour, but is characterized by having outstandingly sharply marked veins (subcostal to 2nd median). — ab. **meinheiti** *Finke*, represented by 3 ♂♂ and 2 ♀♀ has the distal margin, boundaries of median area and narrow circumscription of basal area moss-green, standing out sharply on the black-blue ground-colour; median area narrow, showing 3 separated lighter spots. A striking form, which at first glance would scarcely be recognized. — ab. **czekelii** *Dioszeghy.* Ground-colour brown-grey, the markings of the forewing darker, grey-brown; these form bands which are broader than the ground-colour, so that the latter appears only as numerous fine, sharp lines separating them; only in the posterior part of the subterminal region does the pale colour become more dominant. Ciocă, 1400 m, Retyezat Mountains. — ab. **albidaria** *Nitsche.* Ground-colour whitish, fringes of both wings lighter than in typical forms. Oberharz. — ab. **albipunctata** *Nitsche.* Much darkened with black-brown, the light spot in the subterminal band of the forewing conspicuous. Norway (the type), Suhl (Thuringia) and Oberharz. — ab. **albonigrata** *Nitsche.* Deep black-brown, with sharply contrasting white markings, namely: the basal area, a central spot and 3 costal spots; towards the termen the black shows a seal-red bordering. Suhl, 2 examples. — ab. **fasciata** *Nitsche.* Ground-colour brown, the arrangement of the markings as in ab. *tricolorata Schrank*, which has the ground-colour green. — ab. **centrinotata** *Nitsche.* "In the median band of the forewing or in the roundish median [? mid-subterminal] spot of the forewing with a darker filling-in." Tyrol and other Austrian and German localities. — ab. **pluripunctata** *Nitsche.* In addition to the central distal spot, a band-like subterminal series of white-centred spots, so that in some cases there are two pale bands, median and subterminal. Hanover, etc. — ab. **tricolorata** *Schrank.* Nitsche gives a long list of localities for Central Europe and Latvia, which naturally could be extended. — ab. (?) **shibuyae** *Matsumura*, a ♂ from S. Saghalien, published as a new species and the type of a new subgenus *Karacidaria*, looks (from the rather crude figure) likely to be an aberration of *furcata*, notwithstanding that the "long" palpus is somewhat against the suggestion. "Differs from *Lyncometra Prout* in having long palpi, simple filiform antennae, not projecting frons, not crested metathorax"; terminal spurs of the hindtibia very small. Greyish, the bands fuscous, wavy, the postmedian strongly so, becoming narrower posteriorly, it and the subterminal nearly meeting behind; space between antemedian and median bands somewhat infuscated. — **nexifasciata** *Btlr.* (16 c), from Japan, is probably, on account of the different antemedian band, a separate race, of not a good species, but I still know very few examples (only the 2 originals from Tokyo, from Yokohama and 1 from Hokkaido plains). The *furcata* from Szechuan look to me to be *f. furcata*, but Sterneck, with probably

furcata. *lucifasciata.* *monetata.* *albomaculata.* *roseoolivacea.* *stragulata.* *contrastata.* *suffumata.* *marmorata.* *radiata.* *meinheiti.* *czekelii.* *albidaria.* *albipunctata.* *albonigrata.* *fasciata.* *centrinotata.* *pluripunctata.* *tricolorata.* *shibuyae.* *nexifasciata.*

better material before him, has referred them to *nexifasciata*. Djakonov has recently recorded a (probably
saga. similar) form from Kansu. — **saga** *subsp. nov.* (= infuscata *Stgr.*, nec *Tgstr.*) (16 c). It appears that Staudinger's original intention (1871) was to treat the small, dusky, weakly marked Iceland form as a distinct geographical race, but with similar forms which occur occasionally in N. England, etc. associated with it. Judging from considerable material I think this view was justified, although we find a small percentage more strongly marked, favouring ab. *fuscoundata*, etc. As the name *infuscata* is preoccupied, even apart from the subsequent ambiguities in its employment, I propose to substitute the name of *saga* for the subspecies. It is noteworthy that the whitish midsubterminal spot is here very rarely developed. The dark markings can scarcely be called "black", as in the original diagnosis.

coerulata. **C. coerulata** *F.* (= relictata *Zett.*) (Vol. 4, pl. 10 k, as autumnalis). This further synonym is given on the authority of Wahlgren (Ent. Tidskr., Vol. 40, p. 73). Zetterstedt's type specimen is small (length of a forewing 12 mm), the markings very indistinct, the white median band very narrow and the apical streak only faintly indicated. It might perhaps be cited as "ab. *relictata*", but the specimen appears to be somewhat worn. Orstadius records having found the larvae of the present species (or should it not rather be *ruberata*?) feeding in some numbers in leaf-galls on a species of Salix at Nordhallen, Sweden, frequently together with those
lineata. of the Tenthredinid *Pontania salicis Christ.* They devoured all but the outer shell of the gall. — ab. **lineata** *Heinrich* only differs from the normal in that the white subterminal line of the forewing is exceptionally well
beryllata. developed. Described from Berlin. — ab. **beryllata** *Dadd.* In the whole scheme of coloration and shading like the Machnow specimens which Dadd refers to ab. *arctica Paux*, except that the median band remains distinctly
marmorata. light-green, narrowed but not interrupted or constricted. Machnower Busch, Berlin, 1 ♂, bred. — ab. **marmorata** *Djakonov.* Forewing much lighter than in the type; the entire median band clear white, without cell-dot, sharply bounded by zigzag black lines; proximal area dirty light yellowish, with 2 lines besides the antemedian; distal area of the same colour, with termen interruptedly black and with a very incomplete dark subterminal line.
sanfilensis. Kamtshatka, 1 ♂, besides 1 ♂ of ab. *obsoletaria Schille.* — ab. (? subsp.) **sanfilensis** *Stauder* (16 c) is pale and rather well banded, with rather pale hindwing and underside, the latter with the line fairly near the cell-spot on the hindwing, but the "type" (cotype?) sent to Tring shows no sign of the slenderer and more pointed antenna, with single bristles directed backward, which Stauder noted as possible indications of a separate
insulicolata. species. Founded on 3 ♂♂ from S. Fili, Calabria. — **insulicolata** *Schawerda.* Perhaps somewhat larger than the name-typical race; iron-grey, without the rust-brown admixture; usually there is a strong admixture of white in the forewing, at times leaving little marking except the two bands (postbasal and subterminal) and a fine subbasal line. Corsica, Monte d'Oro district. Here, as elsewhere, the species is variable, but a series of about 30 indicates a good race.

ruberata. **C. ruberata** *Frr.* (Vol. 4, pl. 10 k). The genitalia, though very similar to those of *coerulata*, differ in the distally broadened lobes of the uncus and the more slender spines which arise near the base of the valve. First discovered in Bohemia by Soffner in 1925, together with ab. *grisescens* and ab. *variegata*; a short biological note is added to his record (Mitt. Münchn. Ent. Ges., Vol. 20, p. 119). Several other additions to its range are detailed by Warnecke in a useful summary given in the Entom. Anzeiger, Vol. 12, p. 140 and he has subsequently recorded it from the island of Sylt. Hoffmeyer gives details of its occurrence in Denmark. — ab.
infuscata. **infuscata** *Dannehl* is described as consisting "of almost unicolorous examples, strongly suffused with smoke-grey, the white lines wanting, the bands hardly distinguishable". Hindwing likewise darkened. Type from Mt. Stivo, Sarcatal Alps; also from Mt. Roën.

Subgenus **Earophila** *Gmpbg.*

(See Vol. 4, p. 264.)

atrox. *C. badiata Schiff.* (Vol. 4, pl. 10 m) ab. **atrox** *Schwingenschuss*, founded on a ♀ obtained by breeding (the locality not given), has the forewing darkened with violet-blue, the markings suppressed except the white subterminal dot, a yellow-brown spot around the cell-dot and cloudy indications of yellow-brown median area.

semna. **C. semna** *Prout* (= senna *B.-Haas*) (16 c). Best comparable with *malvata* (Vol. 4, pl. 9 k), but in our present provisional grouping it is an *Earophila*, on account of the dentate margin of the hindwing. Still broader-winged than *malvata*. Face without a cone. Palpus nearly 1½ times as long as diameter of eye. The markings of the upperside will be recognized from our figure. Underside browner than in *malvata*, more glossy, a great part of the forewing (except anteriorly) weakly marked and slightly more vinaceous; both wings with cell-dot, postmedian line (that of the forewing weak) and fine terminal line; some other markings indicated, including a narrow pale band outside the postmedian and double series of dark subterminal vein-dots, somewhat recalling a *Triphosa*. Algeria: Hammam-Meskoutine, a ♀ taken on 2 February.

60. Genus: **Zola** *Warr.*

(See Vol. 4, p. 264.)

Z. terranea *Btlr.* (Vol. 4, pl. 12 c). Thierry-Mieg suggests that this may be related to *lapidata Hbn.* (*Coenocalpe*), but does not give any particular evidence for the connection. He describes the ♂ antenna as "crenulate, a little more strongly than in *lapidata*". — **undata** *Stgr.* (16 c). Schawerda, who somewhat more accurately calls the ♂ antenna of the species "strongly serrate", points out that the subspecies *undata* is introduced twice into Vol. 4; first on p. 166, as sp. ignota, under Staudinger's erroneous generic location as *Mesotype*, and again on p. 264, in correct association with *terranea*. The discovery of the affinities was made during the progress of the volume and the first reference was cancelled in the English edition but it seems that the translation was already in progress and thus the emendation was overlooked. *terranea.* *undata.*

61. Genus: **Pelurga** *Hbn.*

(See Vol. 4, p. 264.)

No second species of this genus has yet been made known, but the very interesting discovery has been made that another, in many ways similar, single-species genus, *Hoplolygris Prout*, from so remote a country as Argentina, is, according to the build of the ♂ genitalia, so close to *Pelurga* that, on a classification based on that character alone, they would certainly be united.

P. comitata *L.* (Vol. 4, pl. 10 m). Szechuan has been added to the recorded range of this widely distributed species. — ab. **argentata** *Meves.* Smaller, with the ground-colour dull silver-grey instead of ochreous. Södertälje, Sweden. — ab. **limbofumata** *Romaniszyn.* A handsome aberration, characterized by the intensive darkening of the distal area of both wings. On the forewing this begins, sharply defined, at the first of the postmedian group of lines, on the hindwing at a corresponding position though somewhat less definitely; on the forewing the antemedian band is also accentuated. Type from Zaleszczyki (Polish South-Podolia). *comitata.* *argentata.* *limbofumata.*

62. Genus: **Cataclysme** *Hbn.*

(See Vol. 4, p. 265.)

C. riguata Hbn. (Vol. 4, pl. 9 i) **subtilisparsata** *Wehrli* (14 c). Much lighter above than *r. riguata*, yellow-grey, less unicolorous, finely mingled light and dark; lines less sharp and distinct, the white postmedian straighter. Founded on a pair from Bertiz Jaila (Maras expedition, Osthelder and Pfeiffer). — **elbursica** *F. Wagn.* has the grey coloration of typical *riguata* but is larger, with the distal boundary of the central area sharply white; other markings also inclined to be sharp, especially on the underside. Elburs Mountains. *subtilisparsata.* *elbursica.*

C. dissimilata *Rbr.* (= spissistrigaria *Trti.*) (16 c). This was described from Corsica and — as I think Turati was the first to point out — *spissistrigaria* from Sardinia is a synonym. It is definitely a more fuscous insect than the Spanish and in several details makes a different impression, so that Turati may even be right in assuming it to be a different species. — **uniformata** *Bell.* (Vol. 4, pl. 9 i, as dissimilata) is a lighter, more yellowish insect (our figure has come out a little darker than the ♂ from which it was taken. Variable in size, but easily recognizable. The type was from Barcelona, but it is distributed in Spain and known from Vernet-les-Bains, in the French Pyrenees. At Albarracin it is said to be very common from May to August. — ab. (? syn.) **disformata** *Trti.* (= uniformata *Mill.*). Turati, basing his judgment on the figures and descriptions only, considered the form figured by Millière to be distingnishable form Bellier's original and therefore gave it a new name. He makes it "lighter, but still always yellowish" and gives "Castile" for the locality; but Millière's were topotypical (!). *dissimilata.* *uniformata.* *disformata.*

C. plurilinearia *Leech* (Vol. 4, pl. 7 i) need not be separated subgenerically from *conturbata*; the ♂ antenna is really pectinate, though extremely shortly. — **murina** *Prout* (14 c) is a much darker race from Vriatong, Tibet, altogether without the yellow shadings of the name-typical form. *plurilinearia.* *murina.*

C. grandis *Prout* (Vol. 4, pl. 12 b). The ♂ is still unknown. Rebel adds as a synonym *Eucosmia tenerifica Rbl.* in litt., figuring a small ♀ ("♂", ex err.). He discovered the synonymy in time to suppress the new name and correct the generic position. *grandis.*

C. conturbata *Walk.* (Vol. 4, pl. 13 l). The typical race remains scarce, indeed I know only the ♂ type (from "N. Hindostan"), a ♀ from "N. W. Himalaya" and a larger one from Kasauli. — **sternecki** *subsp. nov.* A long series of both sexes from Pekin, determined by Dr. Sterneck as *conturbata*, evidently represents a good subspecies, rather smaller and less brownish grey, the underside with the whole postmedian band materially narrowed. *conturbata.* *sternecki.*

polygramma. **C. polygramma** *Hmps.* (16 d). Described as a "*Eubolia*" (*Ortholitha*), this has the venation of *Cataclysme* and slenderly pectinate ♂ antenna. A pretty species. darker and much more sharply marked than *obliquilineata*, termen and lines less oblique. ♀ a good deal smaller than ♂. Kashmir.

obliquilineata. **C. obliquilineata** *Hmps.* (Vol. 4, pl. 13 m). The distribution of this species extends to British Bhutan. It recalls an overgrown *Mesotype virgata*. Pectinations a little longer and less slender than in *polygramma*.

63. Genus: **Apithecia** *Prout.*

(See Vol. 4, p. 266.)

Since this genus was first published, much attention has been given to a number of other related Larentiine species which were formerly wrongly placed or have only more recently become known. None, however, seem to be strictly congeneric with *viridata*, although Sterneck provisionally associated *mononyssa* with it; see the following genus. To my original account one small correction and some amplification are desirable. The discocellulars are not merely "oblique" (by which would be assumed the *Xanthorhoë* form) but have the 2nd radial arising appreciably behind the cell-fold, so that I now classify them with the "weakly biangulate". The ♂ genitalia, though having (small) 7th-segment coremata, have no calcar (nor other special development of the central area), a more strongly developed subscaphium and a complex saccus such as I have seen in no other species.

viridata. **A. viridata** *Moore* (Vol. 4, pl. 13 e). The type locality is Darjiling and the N. E. Himalayas seem to be its head-quarters. But the Nilgiris and Tonkin have been added to its range and the Formosan form has been recognized as a separable race.

63a. Genus: **Piercia** *Janse.*

Abdominal crests, though complete, generally somewhat less large than in *Apithecia*. Antenna of ♂ very seldom fully pectinate, oftenest merely bidentate or biserrate, with fascicles of cilia, sometimes nearly simple. Venation somewhat variable, the areole at times (especially in the African species) undivided, the discocellulars of the hindwing varying from scarcely to quite markedly biangulate. The ♂ genitalia seem to preclude union with *Apithecia*: saccus normal; valve with highly chitinized costa and (frequently) ventral part; from near the base of the valve there arise very characteristic papillae, which support slender curved spines, the number varying (1 to 4) according to the species. Founded on a number of African species, the genus is already known to include a few Indian and Chinese and no doubt others await detection.

divergens. **P. divergens** *Btlr.* (Vol. 4, pl. 11 i). This was erroneously referred to *Xanthorhoë* (see Vol. 4, p. 227), but the crested abdomen and the general resemblance to *A. viridata* should have prevented this error and the genitalia prove it to be a true, though fully pectinate *Piercia*. Occasional greenish forms can still be distinguished superficially from *viridata* by their less bright colour, paler central part of the median band, dark s u b b a s a l instead of basal band and less white hindwing.

mononyssa. **P. mononyssa** *Prout* (16 d). Still more closely similar in superficial appearance to *A. viridata*, but easily distinguishable in the ♂ by the antenna, which has the joints very slightly projecting and bearing fine ciliation of about the length of the diameter of the shaft. The ♀♀ of the two are sometimes hard to separate, though the hindwing of *mononyssa* is more brownish than that of *viridata*; the median band and the subterminal spots between the radials are on the whole less solidly dark. Described from a long series from Upper Burma, but *pella.* has also been recorded from Omei-shan and Kwanhsien (perhaps only in the following form?). — **pella** *form. nov.* Darker on both wings than the name-type, the forewing with a conspicuously clear green, somewhat whitish-mixed subapical spot. Pehlinting, 6000 feet, 60 miles N. N. W. of Chengtu (G. M. Franck), 4 ♀♀ in my collection. Although the ♂ is unknown, there can scarcely be any doubt about the species; probably a valid subspecies.

albifilata. **P. albifilata** *sp. n.* (16 d). Larger than *mononyssa* (28—29 mm). Forewing perhaps relatively somewhat broader; median area whitish or quite pale, excepting the narrow brown stripe at each side, these stripes rather well defined, also faintly bisected by a dark line; cell-mark rather large and conspicuous; postmedian edged distally by a conspicuous white thread (much more regular than the white of *mononyssa*); pale streak from apex less broadened at the subterminal than in *pella*, the fuscous shading behind it extended; fringe (as also on hindwing) rather paler, the dark marks at vein-ends conspicuous. Hindwing more uniformly coloured than in *mononyssa*, but not so dark as in *pella*. Chinese Tibet: Tchang-kou, type ♀; Ta-ho, 1 ♀; 6—8 days' journey N. W. of Ta-tsien-lu, 1 ♀; type and paratypes in the British Museum. 2 ♀♀ from Kunkala-shan and 1 from Ni-tou, with darkened median area, agree with this in size as well as in the hindwing and perhaps a few other details, but are more likely another species or a giant race of *mononyssa* — perhaps an indication that *albifilata* is only

a very strongly differentiated form of that species; the discovery of the ♂♂ may probably throw further light on the question.

P. stevensi *sp. n.* (16 d). Expanse 23—28 mm. Antennal ciliation of the ♂ minute. Otherwise so extremely similar to *mononyssa* and so variable that constant distinctions can scarcely be found. Hindwing a trifle greyer (less brownish), above very uniform or with traces of cell-dot and postmedian, apparently never with conspicuous pale band outside the postmedian and subsequent darkening of distal area. Forewing with basal patch rather straight-edged, generally a little more obliquely than in *mononyssa* and separated by a broader green area from median band; the latter very generally (perhaps always, but many are very wasted) almost solidly dark; postmedian generally almost perpendicular from costa to the angle at 1st radial (in *mononyssa* slightly more curved), its angle inward at the 2nd radial sharper, almost rectangular; outer area commonly more weakly dark-marked (or at least much less than in *pella*), sometimes almost clear green so as to recall the Formosan *P. viridiplana Bastelb.* Tu-pa-kö and neighbourhood (W. China), 7300 feet or above (H. Stevens, Kelley-Roosevelt expedition), 31 ♂♂, 12 ♀♀; type in the Tring Museum. *stevensi.*

P. fumataria *Leech* (Vol. 4, pl. 7 h). In Vol. 4 (p. 260) it was suggested that this was "perhaps a *Perizoma*", but the facies and the abdominal crests (though they are not extra strong) leave little doubt it should be transferred here. ♂ antenna almost simple, the joints laterally compressed. *fumataria.*

P. bipartaria *Leech* (Vol. 4, pl. 7 k, p. 259, as *Cidaria*). Antenna of the ♂ dentate-ciliate in 8 small and very poor Tu-pa-kö ♂♂ which I refer here, though they may possibly be long-winged *zoarces* or a third species; Sterneck, who records 2 ♂♂ from Ta-tsien-lu, gives their antennae as "simple, only with minute pubescence". As they have the "green" parts (perhaps better described, even in true *bipartaria*, as olive-yellow) "not greenish, but red-yellow", there are evidently two different species before us, though the colour variation might be merely analogous to that of *divergens*. One ♀ of *bipartaria* has been sent me from Upper Burma. *bipartaria.*

P. zoarces *sp. n.* (16 d). Colouring closely as in typical *bipartaria*, the dark vinaceous-grey parts a little further darkened, more slaty. Smaller, the wings relatively a little shorter (termen of forewing not quite so oblique); forewing with subbasal dark patch a little less obsolescent, especially at costa; median band differently shaped, its proximal edge much more sinuous, its distal less near the termen, not making the strong outward bend to the 1st radial but merely undulate and culminating in a rounded lobe between the 2nd radial and the 2nd median; the greenish costal mark outside it less sharply defined but somewhat longer, fading away at the "lobe". Omei-shan, 4000—4500 feet, 11 July (type ♀) and Pehlinting, 6000 feet, 50 miles N. N. W. of Chengtu, July-August (paratype ♀); both in my collection, G. M. Franck leg. *zoarces.*

P. lypra *sp. n.* (16 d). Palpus rather long (at least twice diameter of eye), with projecting hair and hair-like scales above and beneath. Antenna of ♂ moniliform (lamellate and with the joints projecting laterally), rather closely ciliate. Areole double, the distal one large, the 1st subcostal from much before its end, 1st radial shortly stalked. Thorax and abdomen above blackish brown, head less extremely dark. Forewing with the area between basal and median band so strongly irrorated that the wing appears nearly unicolorous as far as the postmedian, which is shaped about as in *mononyssa;* distal area whitish, somewhat irrorated with brown-grey and with 3 subterminal patches, the costal one perhaps the best defined. Hindwing with discocellulars oblique, not biangulate, 2nd radial about central; dusky, but not quite so dark as in *mononyssa pella;* a distinct cell-dot and traces of curved postmedian line. Szechuan: Pehlinting, type ♂ and allotype ♀, collected with *pella*, both in my collection; also 2 ♂♂ from Mt. Omei, July 1931, at 4000 and 7000 feet (G. M. Franck). *lypra.*

64. Genus: **Atopophysa** *Warr.*

(See Vol. 4, p. 267.)

I have reversed the order of this genus and *Venusia* in order to avoid the unwarranted separation of the latter from the rest of its group. I have not personally made much further study of *Atopophysa*, but Dr. Wehrli has done much to elucidate the Chinese forms, though they scarcely seem to me, judged from a very long series from the Oberthür collection, to be fixed geographical races.

A. indistincta *Btlr.* (Vol. 4, pl. 13 e). A further Indian locality is Kumaon. Wehrli shows that the forms from W. China are extremely variable. — **sinotibetaria** *Wehrli* (14 d), treated as a subspecies, is the prevailing, but by no means the only form found at Ta-tsien-lu. Large, whitish, rather copiously and brightly marked, well variegated; hindwing white. Also at Ta-ho and some other localities. — **kunkalashana** *Wehrli* (14 d). The smallest and most delicate form, somewhat recalling, in the continuous dark bands of the forewing, a small *Cidaria salicata*. Hindwing with the lines very weak or wanting. Kunkala-shan, few specimens yet known. — **micans** *Wehrli* (14 d). Not much larger than the preceding but presenting the opposite extreme *indistincta. sinotibetaria. kunkalashana. micans.*

in the sharpness of the markings, the uniformly dirty yellow-grey, glossy forewing having them nearly obsolete, the black vein-dots small, much reduced in number, the light dots weak and inconspicuous. Hindwing also very weakly marked, the distal area darkened. The typical series came from Canton, but similar forms,
orphnina. larger and a trifle lighter, occur in several districts of Palaearctic West and Central China. — **orphnina** *Wehrli* (14 d). Another rather small, darkened form, similar in the scheme of markings to *sinotibetaria* but smaller, darker grey and at once distinguishable by the dark yellow-grey hindwing. Rather prevalent at Mupin, Siao-lu and Tchang-kou; also known from Ta-tsien-lu, etc.

65. Genus: **Venusia** *Curt.*

(See Vol. 4, p. 266.)

This genus and the rest of the "*Astheninae*" should not, I think, have been interposed among the *Larentiinae* proper. Not only the smooth face and some details of the venation but also the genitalia show that they stand somewhat apart. One recent investigator, however — Prof. J. W. H. Harrison, in his "Genetic Studies in *Oporabia*" — inclines to derive *Oporinia* and *Operophtera* from *Venusia*, thus lending some support to the Meyrick system of grouping in which I had had little faith. In any case, the Holarctic range of the 3 genera named points to their zoological antiquity. Forbes, who also considers *Oporinia* "close to *Venusia*", treats the latter as a composite genus, including *Nomenia* (entirely Nearctic) and *Discoloxia;* I am inclined to agree with him that the ♂ antennal differences are here only subgeneric.

cambrica. **V. cambrica** *Curt.* (Vol. 4. pl. 9 d). Recorded by Matsumura from S. Saghalien in 1925, by Derenne as new to Belgium in 1926. About the same time, Cockayne recorded finding and feeding the larva on birch in Aberdeenshire. A gynandromorphous specimen was recorded (but not described) by A. Doncaster (Ento-
erutaria. mologist, Vol. 10, p. 48) as having been taken at Sheffield. — ab. (loc.?) **erutaria** *Bsd.* In a detailed analysis of the variation, published in 1905, I pointed out that this has the ground-colour much whiter (less irrorated) than the name-type, the markings well pronounced, and that this form „seems commoner in Scot-
suffusa. land and on the continent of Europe than in England". „Switzerland and Savoy" (Boisduval). — ab. **suffusa** *Prout.* By a "hair-splitting" which I would not now justify, I proposed this name for the aberration figured by Barrett (Vol. 8, pl. 349, fig. 1 c) and described by him as "suffused with smoky clouding, through which the markings show in darker colour". No locality was given, but I think it is only a somewhat ex-
webbi. treme development of ab. loc. *lofthousei Prout.* — ab. **webbi** *Prout.* Schawerda notes a specimen taken in the Grossglockner district even more extreme than my type, only a narrow dark-brown line in the middle of the wing persisting.

brevipectinata. **V. brevipectinata** *sp. n.* (16 d). Pectinations of the ♂ a little shorter than in *cambrica*, mostly (excepting a few of the longest) surmounted with fascicles of cilia of about their length. Smaller (26—27 mm), termen of hindwing less regular, with more noticeable projections at 3rd radial and 1st median. Further distinguishable by the less black, near the costa more angulated postmedian line of the forewing and particularly by the more strongly marked hindwing, with less interrupted terminal line; on both wings the whitish band between median and terminal areas is more noticeable. N. W. India: Dalhousie, type ♂ in the British Museum; Kukli, a ♀ in the Tring Museum; a second ♀ in the British Museum, from Thundiani or perhaps Kashmir.

punctiuncula. **V. punctiuncula** *sp. n.* ♂, 28 mm. Closely like *brevipectinata* in antenna and wing-shape, but suffused with light-drab or drab-grey instead of white-grey, the hindwing weakly marked, more as in *cambrica;* abdomen with a dark anterior spot dorsally; forewing with subbasal and antemedian lines somewhat angled outward at fold, a blackish costal mark close to the cell-dot; the postmedian, the brown line beyond it and all the 3 subterminals largely broken into very characteristic coarse vein-dots, the whitish band of *brevipectinata* suppresed; terminal line more broken (more as in *cambrica*), fringe somewhat spotted. Tu-pa-kö, near Mupin, 7400 feet, 30 August 1929 (Kelley-Roosevelt Expedition), 1 ♂. A ♀ (31 August) is relatively large (32 mm), broad-winged, median area rather broader and cleaner, the last postmedian and the brown line outside it more continuous, but fine; hindwing sharper-marked. A weakly marked, but not very fresh ♂ from Chinese Tibet (ex R. P. Dejean) would with confidence be referred here but that the pectinations seem a trifle shorter still.

66. Genus: **Discoloxia** *Warr.* (pr. subgen.).

(See Vol. 4, p. 270.)

Here again I have transposed a few genera in order to bring about a more natural sequence. For the specialized section B of Vol. 4 (p. 27) I have instituted a new genus, numbered 66 a (infra).

laria. D. **laria** *Oberth.* (Vol. 4, pl. 8 b). The figure does not give a very satisfactory idea of this species: the antemedian line almost always throws out at the fold an acute tooth which reaches the 1st postmedian or often

cuts through to the 3rd postmedian, as also in *obliquisigna* (Vol. 4, pl. 13 f, as *marmoraria*). — **marmoraria** *Leech* (16 e) is a small, heavily marked race (or perhaps aberration) with darker hindwing. As our first figure (cited above) represents a Yatung *obliquisigna*, which Hampson in error had determined as *marmoraria*, we now figure the unique type. — **ilara** *subsp. nov.* is another small form (26 mm), similar to *marmoraria*, less dark (especially the hindwing, median area broader, reddish apical suffusion duller (more as in *C. laria*), postmedian of hindwing much less sinuous; cell-mark of forewing small. Honzawa, Japan, 26 July 1916, 1 ♂ in the British Museum collection. *marmoraria.* *ilara.*

D. blomeri *Curt.* (Vol. 4, pl. 10 g, h). Staudinger's record of Japan as a habitat (copied by me in Vol. 4, p. 271) may probably have rested upon Leech's misidentification of *semistrigata*, which I mentioned under the latter. — ab. **debrunneata** *Heydemann.* Apical red-brown patch undeveloped. Founded on a Dresden ♀. — **szechuanensis** *Wehrli* (14 e). A well differentiated race from W. China (Ta-tsien-lu and Kunkala-shan) and Tse-ku. Larger than the European, colour violet-grey rather than white; face lighter than in *b. blomeri;* proximal boundary-line of the apical patch red-brown, not deep black; the red colouring of the apical spot much reduced. *blomeri.* *debrunneata.* *szechuanensis.*

D. syngenes *Wehrli* (14 e). Very similar in habitus to *b. scechuanensis* but distinguishable at a glance by the long, prominent, black central streak, the considerably more strongly excurved postmedian and the white hindwing, with differently placed cell-streak. Face light yellow-brown (not dark-grey, as in *nigrifurca*). Founded on 1 ♂ from (Chinese) Tibet. *syngenes.*

D. nigrifurca *Prout* (16 e), founded on a few specimens from Hpimaw Fort, Kachin Hils, is recorded by Wehrli from Siao-lu, one example. Much less white than the preceding, cell-mark of forewing continued to costa, postmedian much less strongly and sharply outbent, etc. *nigrifurca.*

D. lilacina Warr. **melanogramma** *Wehrli* (14 f) is a small form (25—26 mm against 27—32) of a high-altitude Sikkim species, less reddish (more grey-violet), the lines dark grey to black instead of red-grey, the hindwing above with a more distinct postmedian, a visible (though faint) cell-dot and 2 visible subterminal lines, the fringes beneath more distinctly divided, with only the outer half whitish. Ta-tsien-lu, a series; also 1 ♂ from Kunkala-Shan. — **rala** *subsp. nov.* is much nearer to *melanogramma* than to *lilacina* in colouring, but is larger (31 mm) the black of the costal part of the lines of the forewing more intense, the hindwing without cell-dot, the fringes whitish throughout, only with very faint and strongly interrupted traces of a fine grey dividing-line. Kashmir: Rala (Mc Arthur) type ♀ in the British Museum; Kashmir Valley (Colonel Ward), an identical ♀ in the Tring Museum. *melanogramma.* *rala.*

D. violettaria *Wehrli* (14 e). At once distinguishable from the otherwise similar *melanogramma* by the much narrower median area and the slenderly black postmedian line not prominently thickened in the costal half. Palpus somewhat longer. Antennal ciliation shorter. 1 ♂ from Ta-tsien-lu. — **kukunoora** *Wehrli* is smaller, the forewing less strongly suffused with violet, lighter (especially in basal and subbasal part), postmedian more weakly excurved, hindwing whitish, almost without markings. Koko-nor, 2 ♂♂. *violettaria.* *kukunoora.*

D. eucosma *Prout* (Vol. 4, pl. 12 c). Sterneck records a ♂ from Chengtufu. Both he and I have seen examples from Ta-tsien-lu, the principal habitat of *kioudjrouaria Oberth.* With examples of both before me, I cannot substantiate the difference of shape (see Vol. 4, p. 271), which I assumed from Oberthür's figure. The other distinctions, however, usually suffice and if *eucosma* is really a form of *kioudjrouaria* it is a very pronounced dimorph, deserving of a separate name. Djakonov adds S. Kansu to its known range. *eucosma.*

D. inefficax *sp. n.* (16 e). Very similar to *kioudjrouaria*, of which it may well be a subspecies, although the termen of the hindwing is a trifle more produced; forewing much paler, the irroration on the white ground-colour being less dense and less dark, the lines, especially the thick postmedian one, less dark, the dots on the veins much less conspicuous, the dashes on the postmedian shortened; terminal dashes narrower. Hindwing more weakly marked, especially in its proximal part, the cell-dot almost or quite invisible. Fringes scarcely or not chequered. Koko-nor, probably several examples dispersed in different collections, first misidentified as *phasma;* but only the following yet known to me: type ♂ in the British Museum; 2 ♂♂ in the Tring Museum, one an aberration with the brown patch between the proximal parts of the 2rd radial and 1st median developed, though not intense (wanting in the other examples of which I have any information); 1 ♂ and 1 ♀ in the Wehrli collection, the latter considerably the more strongly marked (but partly because the ♀ is not very fresh). I was mistaken in assuming (Vol. 4, p. 270) that this was a possible race of *conisaria.* *inefficax.*

D. naparia *Oberth.* (Vol. 4, pl. 8 d). As will be seen from a comparison of our figure (copied from Oberthür) with that of *Atopophysa indistincta* (Vol. 4, pl. 13 e) there is no near resemblance between the two and Leech's incorrect synonymy (Vol. 4, p. 267) must be deleted. "Certainly no *Atopophysa;* palpus much shorter; fovea wanting; ♂ antenna slightly serrate, with ciliation about 1" (Wehrli, in litt.). Oberthür distinguishes *naparia.*

it from *tchraria* by the relatively broad clear median area of the forewing; evidently also the postmedian and subterminal lines are less angular. Dr. Wehrli tells me the serration and ciliation of the antenna are somewhat less strong and the face browner, less whitish (but perhaps damaged).

tchraria. **D. tchraria** *Oberth.* (Vol. 4, pl. 8 d). Dr. Wehrli (in litt.) tells me that I was probably correct in separating *accentuata* as a subspecies from this, of which he has 3 ♂♂ from Ta-tsien-lu. He has 2 very weakly marked ♂♂ from Koko-nor which may probably represent a race deviating in the reverse direction. —

accentuata. **accentuata** *Prout* (16 e). The original series consisted of 4 from Pu-tsu-fong and 1 from Chow-pin-sa; Wehrli adds 2 ♂♂ from Siao-lu, variable in that one has the blackening of the ante- and postmedian almost continuous, while in the other it is interrupted behind the middle, the latter being the nearer to the typical *tchraria;* structure the same. We figure the type ♂ of *accentuata.*

hypoconia. *D. conisaria Hmps.* **hypoconia** *subsp. nov.* (16 f). The topotypical *conisaria*, from Yatong, Tibet, and the Sikkim specimens, so far as known, are somewhat variable, but strongly black-dusted and the Koko-nor species mentioned on p. 270 of Vol. 4 is not conspecific (see *inefficax* above). We are left with the Kashmir form to which I have given the name of *hypoconia:* paler than the name-type, the irroration being less black. Although I know at present only the type ♀ (from Rala, Mc Arthur, in the British Museum) and the Kashmir Valley ♀ here figured, I suspect they represent a good local race.

phasma. **D. phasma** *Btlr.* (Vol. 4, pl. 13 m). Although the discocellulars of the hindwing are sometimes scarcely biangulate, I still think the present is the correct generic position. Corea is to be added to its range.

biangulata. **D. biangulata** *Sterneck* is unknown to me, but it is suggested that it might be placed next to *phasma.* The discocellulars, however, deviate from the normal in the opposite direction, being b i a n g u l a t e i n t h e f o r e w i n g a l s o , a character which is sometimes regarded as generic. ♂ antenna almost simple, only minutely pubescent. Size of a large *V. cambrica.* Whitish, dulled with a sprinkling of brownish scales. Forewing with 2 faint basal lines; antemedian somewhat dentate on the veins, arising from a rather large red-brown costal spot; postmedian slightly curved outward on the 3rd—4th subcostal, thence almost straight, strong and black as far as the 2nd median, thence only traceable as a quite slender line; a rather broad reddish brown line accompanying the postmedian, on the 1st radial with an acute projection, at the 1st median joined to the postmedian line by a dark brown spot; subterminal bordered by grey shades, which arise from small red-brown costal spots. Hindwing distinctly, though weakly, angled at the 3rd radial; 4 slender lines, the first crossing the cell-dot. Ta-tsien-lu, 2 ♂♂.

apicistrigaria. **D. apicistrigaria** *Djakonov*, only known from a single, rather worn ♀, agrees with *biangulata* in the unusual venation, but is much smaller (length of a forewing scarcely 12 mm). Palpus very short and slender, curved. Somewhat recalls *Hydrelia testaceata*, but is much narrower winged, with termen much more oblique; white, with copious black irroration; lines of forewing apparently very weak, but all strengthened at the costa; proximal lines merely indicated, incomplete, the 3rd one somewhat better developed, parallel with antemedian, ending in a small black spot at hindmargin; median area not darkened, of equal breadth throughout, its boundary-lines brown, thick anteriorly, slender behind, the postmedian (much as in *testaceata*) on the veins somewhat dentate outward and blackened, its projections at, and concavity between, radials 1 and 3 distinct but not extreme; cell-dot of forewing small but distinct, of hindwing indistinct; the latter wing is, as in so many of the group, weaker-marked proximally than distally. S. Kansu: Kung-ta in Ka-tien-kou, at ca. 2850 m, 18 July 1930. 4 ♀♀ from Yunnan (Mekong-Yangtse Divide, S. E. of Atuntza, 12000 feet, 20 July 1922, Prof. J. W. Gregory), all extremely worn, may belong here, though the hindwing looks darker, etc.

pallidaria. **D. pallidaria** *Hmps.* (16 f), founded on a single ♂, in poor condition, from Thundiani, has since been obtained from some localities in Kashmir; Prof. T. B. Fletcher collected a good series at Gulmarg in July 1931. Very distinct in its pale yellowish colour; median area of forewing narrow, its boundary-lines not much angled, the postmedian often forming a small spot at the base of 3rd radial and 1st median. Variable, the markings at times very weak, even in fresh specimens; least weak at costa; we figure an unusually strongly marked ♂ in order to show their arrangement. Antennal ciliation minute; discocellulars of hindwing well biangulate.

albinea. **D. albinea** *sp. n.* (16 f). Expanse 23—27 mm. Palpus and antennal ciliation extremely short. Recognizable at once by its clean white ground-colour and by the form of the double (on the forewing somewhat band-like shaded) postmedian and of the subterminal, both of which strongly recall those of the larger and much yellower *A. chrysidia Btlr.* (Vol. 4, pl. 10 h) but without the longitudinal streak; antemedian of forewing much closer to the (minute) cell-dot than in that, not angled, generally weaker; terminal dots minute, sometimes quite weak. Underside, at least of the hindwing, very weakly marked; forewing sometimes with the anterior half of the postmedian rather strong. Punjab: Khyra Gully, road to Rawalpindi (H. Roberts) 4 ♂♂. 5 ♀♀ (coll. Brit. Mus.).

66 a Genus: **Anydrelia** *nov.*

Face broad, smooth. Palpus very short. Antenna of ♂ almost simple. Forewing very broad, termen strongly curved. Areole ample, the 5th subcostal and the stalk of the other 4 arising nearly at its apex, 1st radial from about midway between apex of cell and that of areole. Hindwing relatively small; in the ♀ with the venation of *Discoloxia*, in the ♂ with abdominal margin broadly folded over beneath, the flap almost reaching the cell-fold, a large area in front of it distally (about to the 1st radial) with coarse specialized scaling. Genotype: **plicataria** *Leech (Brabira)*. Differs from *Discoloxia* not only in the ♂ hindwing, but in the subcostal venation of the forewing. All the known forms are dealt with here.

A. dharmsalae *Btlr.* (16 f). This form is always ♀ and it is suspected, though there are some (per- *dharmsalae.*
haps significant) differences, that the following may be its ♂. Dharmsala (type) and Kulu, the Kulu series collected "on alder trees, October" (Hocking). — **distorta** *Hmps.*, founded on a ♂ from the Nagas and erroneous- *distorta.*
ly referred to *Hydrelia*, is very similar to *plicataria* ♂ (16 f) but has the hindwing darkened, its underside with the androconia stronger apically; the straight central line of the forewing, if constant, is distinctive. Forewing rather paler than in *dharmsalae* ♀, especially beneath, 1st postmedian line a little straighter, mark at 3rd radial and 1st median rather stronger, 1st subterminal rather more distal, cell-dot rather less weak, lines of hindwing closely approximated; forewing beneath with 2nd postmedian shade well developed, curving away rather suddenly from the 1st postmedian from vein 5, angled just behind vein 4.

A. plicataria *Leech* (16 f, ♂; Vol. 4, pl. 7 g, ♀). On account of the differences just noticed, it was *plicataria.*
inaccurate to sink this; the ♀, moreover, is slightly shorter-winged than in *dharmsalae*, sharper-marked, the postmedian beneath retaining its band-like character, whereas in *dharmsalae* it is scarcely more than a line. Several specimens of both sexes have been received from Kwanhsien and Omei-shan and show but little variation.

67. Genus: **Hydrelia** *Hbn.*

(See Vol. 16, p. 116.)

It will be seen from the reference given above that Africa (chiefly the higher mountains) is to be added to the recorded distribution of this genus and that it there produces some special structural modifications. "*H.*" *tchrinaria* (Vol. 4, p. 268, pl. 13 d) belongs to the Geometrinae (neighbourhood of *Dischidesia*?), as I ought to have realized from examination of Oberthür's figure; it will be dealt with in its right place in the present volume.

A. Hindwing with 3rd radial and 1st median separate.

H. testaceata *Don.* (Vol. 4, pl. 10 g). I have before me typical examples of this species from Ussuri *testaceata.*
(Kardakoff coll.); see p. 160 above, on *Solitanea defricata*. — ab. **deochrata** *Stauder* (16 f), founded on a *deochrata.*
somewhat prevalent Innsbruck aberration (not a subspecies), is more unicolorous than the typical form, the markings blurred or obsolescent, scarcely showing up as bands. As it is said to have recurred for several years it is evidently hereditary and is perhaps in process of establishing a local race. — ab. **goodwini** *Bankes* (16 f). We figure a ♂ from the original locality in Kent. *goodwini.*

H. sachalinensis *Matsumura*, 4 ♂♂ from S. Saghalien, is said to be closely related to *testaceata* but *sachalinensis.*
much smaller. Forewing pale greyish, with dark greyish bands; subbasal distinct, ante- and postmedian wavy, the former ochreous, at costa dark greyish, the latter excurved at vein 3, accompanied by a faint slender line proximally, these lines and a wavy subterminal band arising from fuscous costal spots. Hindwing with 3 faint bands. Cell-dots small. Antenna simple, with fine cilia.

H. latsaria *Oberth.* (Vol. 4, pl. 10 g). By an oversight, the type locality, Ta-tsien-lu, was omitted from *latsaria.*
the German edition of Vol. 4 (p. 268). Sterneck, on 2 topotypical ♂♂, has supplemented my meagre description. He calls attention to the bent termen of the hindwing and its very oblique discocellulars, the very large areole of the forewing and the absence of the cell-dot of the hindwing. Underside somewhat lighter than upper, the lines as distinct as above. — **sublatsaria** *Wehrli subsp. nov.* (14 d). I am indebted to Dr. Wehrli for the *sublatsaria.*
following description, as well as for the paratypes there mentioned. "Smaller, purer light-grey, not yellowish; antennal ciliation of the ♂ about ½ diameter of shaft (in the original *H. latsaria Oberth.* much shorter, but the head is much deformed and possibly a ♀ head has been stuck on to the certainly ♂ body): the costal spots of the forewing black, not brown, much sharper than in *latsaria*, the postmedian near the costa stronger and more sharply angled, its black spot in the middle sharply defined exteriorly, not reaching nearly so far distad; cell-dot of hindwing considerably more distinct, all the lines much more strongly curved; terminal dashes of forewing thicker. 4 ♂♂, 4 ♀♀ Ta-tsien-lu, the types in my collection. 2 cotypes in coll. Prout". As both forms are from Ta-tsien-lu, I suspect that this will prove to be a separate species, although it is possible that the two belong to different altitudes or situations in this enormoulsy rich district.

undularia. **H. undularia** *Leech* (16 g). We give a figure of the type ♂. To the notice given in Vol. 4 (p. 268) I add: Face prominent, dark; ♂ antennal ciliation fully as long as diameter of shaft. From the preceding it differs in the characters just given, the somewhat more elongate wings, darker colouring and less punctiform maculation. Sterneck adds Chengtufu as a locality.

leucogramma. **H. leucogramma** *Wehrli* (? = musculata *Sterneck*, nec *Stgr.*) (14 d). Smaller than *undularia* (26 mm), dark brown with white maculation, lacking the black streak on the 3 radials and the brown band between the postmedians, etc.; certainly not the true *musculata* (Vol. 4, p. 268), which is smaller, the wings much more acute, the colour and the arrangement of the bands quite different. Fringe very striking, brown on proximal half, snow-white distally. Underside of forewing dark brown, with 2 black costal spots (at ¼ and towards the apex), cell-dot not sharp, a faint dark submarginal line, termen with black triangles, but without the short white streaks which interrupt them above. 2 ♂♂ from Ta-tsien-lu, besides another from the eastern boundary of Tibet.

implcta. **H. impleta** *sp. n.* (16 g). On the whole less small than the following (20—24 mm); less round-winged; slightly less brownish grey; markings darker, variable in strength, but always more or less heavy, the lines marked with larger black dots on the veins, particularly so the postmedian; typically there is a good deal of dark clouding about the postmedian group of lines of the forewing and oftener than not there is a consolidated patch about the (pronounced) central projection. Hindwing well marked. Pehlinting, 50 miles N.N.W. of Chengtu, 6000 feet (G. M. Franck), type series in my collection.

adesma. **H. adesma** *Prout* (16 g). Closely like *nisaria*, with which it has generally been mixed (perhaps even by Christoph himself, so that an examination of his type may be necessary). Slightly rounder-winged and markedly more suffused, with the cell-marks weakened. Antennal ciliation of the ♂ less minute, distally reaching about ½ diameter of shaft. Very readily distinguished in both sexes by having the 3rd radial and 1st median of the hindwing well separate at their origin (as in most *Hydrelia*), whereas in *nisaria* they are well stalked. Japan and Corea; probably also in Szechuan.

tchratchraria. **H. tchratchraria** *Oberth.* (Vol. 4, pl. 13 g, as *tschrachiaria*). This strikingly distinct species proves to be a *Hydrelia* and not, as provisionally placed in Vol. 4 (p. 272), an *Asthena*. It occurs also on Omei-shan and there is a race, or very closely allied species in Upper Burma, *opedogramma Prout*, which will be dealt with in Vol. 12.

castaria. **H. castaria** *Leech* (Vol. 4, pl. 7 k, as *costaria*). Another somewhat abnormal-looking *Hydrelia*, but obviously better placed here than in *Cidaria* (*Epirrhoë*) to which I erroneoulsy referred it in Vol. 4 (p. 255). The pattern somewhat recalls that of *Asthena defectata* (pl. 16 i). The relation of the 1st to the 5th subcostal is here somewhat unstable.

flammeolaria. **H. flammeolaria** *Hufn.* (= ? sinuosata *Giorna*) (Vol. 4, pl. 10 h, as luteata). E. Lange (Iris, Vol. 34, p. 226) has given a good life-history of this species and exploded the fable of the feeding of the larva on sallow catkins. — ab. *confluens.* **confluens** *F. Hoffm.* has the two central brown stripes confluent behind the cell-dot. Founded on a ♂ from Krieglach.

ochrearia. **H. ochrearia** *Leech* (Vol. 4, pl. 13 e). The hindwing is perhaps sufficiently bent to make this a good transition between the more simply-shaped species and the angle-winged; but its taxonomy has not yet been particularly studied and in any case I have not found any great value in the shape-distinctions in the present genus. Antennal ciliation in the ♂ minute.

bicolorata. **H. bicolorata** *Moore* (16 g). ♂ antenna almost simple. I give a figure, but still know no Palaearctic forms beyond those of such border-line localities as Dharmsala and Dalhousie. — ab. (?) *ferruginaria.* **ferruginaria** *Moore.* The blackish thorax, as well as the blackish parts noted in Vol. 4 (p. 269), gives this a distinctive appearance and I fully expect that it will eventually be found to be a separate species. I have not yet seen it from Palaearctic India.

aggerata. **H. aggerata** *sp. n.* (16 g). Very similar to *ferruginaria*, particularly in the black upperside of the thorax and base of abdomen. Ground-colour less mixed with red; the dark part (i. e., the anterior half) of the median band much broadened, the faint grey subterminal band not angled outward in the middle. Omei-shan, 7000 feet, 17 July 1931 (G. M. Franck), 4 ♂♂, type in my collection.

luteosparsata. **H. luteosparsata** *Sterneck.* Palpus minute. Antenna simple. Expanse of set specimen "22 mm" (i. e. an actual measurement of about 26 mm). Both wings with termen bent at 3rd radial. Reddish grey, with light yellow, slightly reddish-edged markings. Forewing with antemedian consisting merely of 2 large yellow spots, postmedian also macular, irregular in size, interrupted at the costa and in the middle; 2 interrupted subterminal lines. Hindwing with the end of the dark area (the true postmedian) close beyond the cell-dot, a broad yellow postmedian band outside it, also 2 narrow subterminal lines. Ta-tsien-lu, 2 ♂♂. Probably near *arizana Wileman* (Formosa), though that has strongly dark-dotted veins.

H. subobliquaria *Moore* (16 g). This fairly common Sikkim species, more recently recorded from Tonkin, occurs also on Omei-shan probably in a differentiable race, paler and with the lines more slender than in the typical form as here figured. But as both my specimens (collected respectively at 3500 and 11000 feet) are wasted I defer giving it a name. *subobliquaria.*

H. sericea *Btlr.*, which is very similar in markings but much darker grey-brown, with the median line slender and accompanied distally by a faint grey shade, also belongs chiefly to the N. E. Himalayas, but I have before me a form or close relative: — **pampesia** *subsp.* (?) *nov.* (16 g). Ground-colour as in *subobliquaria*, lines and grey shade almost as in *sericea*, all the lines of proximal area conspicuous, perhaps (as also the *Rhodostrophia*-like outer line) rather more sinuous. Kashmir Valley (Colonel Ward), 1 ♂, 2 ♀♀ in the Tring Museum. *sericea.* *pampesia.*

H. laetivirga *Prout* (16 h). Near *subobliquaria*, both wings with the midterminal angle rather sharper. Apart from the beautiful pink bands of the unique type (which may possibly prove inconstant, as in some Sterrhinae), it is further distinguishable from its nearest ally by the regularly curved antemedian and various differences in the outer lines, etc. Mt. Pehlinting, 6000 feet, 50 miles N.N.W. of Chengtu, 1 ♀. *laetivirga.*

H. sanguiniplaga *Swinh.* (Vol. 4, pl. 7 g). Various other localities in Szechuan are now known and I received a short series in beautiful condition from Hpimaw Fort, Kachin Hills. Very constant. *sanguiniplaga.*

B. Hindwing with 3rd radial and 1st median stalked.

H. nisaria *Christ.* (Vol. 4, pl. 13 e). The special characteristic of the venation has been brought out in the sectionizing of the genus and was also emphasized in the differentiation of the very similar *adesma* (supra, p. 178, 16 g). Sterneck records the present species from Pekin. *nisaria.*

H. parvulata *Stgr.* (16 h). Structure as in *nisaria*, to which it is certainly very close, though the darker median band, offset by broadened white outer band, gives it a much more variegated appearance. Sterneck records that Stötzner collected this together with the preceding at Pekin in July and there is perhaps a possibility that the two represent a single, strongly dimorphic species. A Noctuid, *Parascotia cognata Stgr.*, which also occurs at Pekin, is superficially so similar that Sterneck thinks there is suggested a possible mimetic group which would embrace all three. I have a ♂ from Kwanhsien, Szechuan, which is a probable darker race of *parvalata* and a further race (?) from Upper Burma was described by me as *enisaria.* *parvulata.*

H. bicauliata *Prout* (Vol. 4, pl. 12 c). Not particularly close to the two preceding, probably an independent development as regards the venation, but belonging to the present section. Actually it is even more specialized, for — as was noticed in the original description — the 1st median is here stalked in both wings. I have no fresh Palaearctic records, but a similar ♀ from Formosa has the same venation and is probably a subspecies. *bicauliata.*

67 a. Genus: **Agnibesa** *Moore.*

(See Vol. 4. p. 269.)

Although no very constant structural distinctions have yet been found between this and *Hydrelia* I doubt whether their relationship is really very close. There are usually differences in the subcostal system of the forewing, but this is so variable in both genera that it is difficult, if not impossible, to reduce it to a rigid formula. In *Agnibesa* the areole is rather long and narrow, the first 4 subcostals long-stalked from its apex, while the 5th typically arises from near its apex, occasionally from the apex and very rarely even from the base of the stalk of the other four. In *Hydrelia* the areole is very variable in size and all 5 subcostals are very frequently stalked beyond it; but the 1st can also arise from the areole and though it is almost always the first to separate, the 5th isc ommonly so little beyond it that it is possible — though exceedingly rare — for their relative positions to be reversed. *Agnibesa* consists of only 5 species, larger than ordinary *Hydrelia*, the ♂ antenna almost simple; all are very similar in shape and facies, their distribution restricted to the N. E. Himalayas and the mountains of W. China. Two *Asthena* species (*distinctaria* and *albidaria Leech*) which, on account of disarrangement in our national collection. Dr. Cockayne assumed to be *Agnibesa*, and in which he observed fluorescence, have of course nothing to do with the present genus; *Agnibesa* does not fluoresce.

A. pictaria *Moore* is the type of the genus and was described from Darjiling. I doubt whether it occurs in the Palaearctic Region, though it reaches Simla. — **brevibasis** *subsp. nov.* (16 h). I am somewhat surprised that I overlooked, in preparing Vol. 4, the quite evident racial distinctions of this form: subbasal patch of forewing shorter, postmedian blotch broader, cell-dots minute, etc. Ta-tsien-lu (type and others) and Wa-shan, ex coll. Leech; also in the Oberthür collection, various W. Chinese localities. *pictaria.* *brevibasis.*

A. recurvilineata Moore **meroplyta** *subsp. nov.* (= recurvilineata *Leech*) (16 h). Dark lines weaker than in the Sikkim *recurvilineata*, especially on the forewing; postmedian of forewing more incurved at the fold. subterminal obsolete, except the costal dash. Type ♂ from Omei-shan, ex coll. Leech. Also known from Siao-lu. *meroplyta.*

punctilinearia. **A. punctilinearia** *Leech* (Vol. 4, pl. 7 g). I have seen 2 further examples from the Oberthür collection, received from Ta-tsien-lu and district; Sterneck notes a very weakly marked ♂ from the same locality.

venusta. **A. venusta** *Warr.* (16 h) differs from all the others in its much extended brown markings. It was described from Sikkim and was until recently only known to me from that country. But I have found in the Oberthür collection a dwarfed ♂ (28 or 29 mm) from Siao-lu, which may possibly represent a different race, though I can see no other difference.

67 b. Genus: **Eschatarchia** *Warr.*

(See Vol. 4, p. 269.)

This also I now treat as a probable genus, but it is not *Autallacta* (type *subobliquaria*, an aberrant *Hydrelia*). The subcostal venation of the forewing is approximately as in *Agnibesa*, the areole ample. Only the type species is known.

lineata. **E. lineata** *Warr.* (Vol. 4, pl. 13 f). A form of this very distinct species is now known from Upper Burma and it will probably be discovered also in West China.

68. Genus: **Euchoeca** *Hbn.*

(See Vol. 4, p. 270.)

It is quite possible that I have overestimated the importance of the biological conditions which separate this genus from *Hydrelia* and that the several systematists who have sunk the latter to *Euchoeca* are justified; in any case the genitalia confirm the nearness of the relationship. But I hesitate to accept as the type of a rather extensive genus a species which stands somewhat apart from all the rest, and the law of priority prevents us from calling *Euchoeca* (1823) a section of *Hydrelia* (1826).

69. Genus: **Asthena** *Hbn.*

(See Vol. 4, p. 271.)

It was not accurate to summarize the distribution as agreeing with that of *Hydrelia*. *Asthena* is not known from North America nor from Africa. As a matter of fact it belongs chiefly to the Palaearctic Region and N. India; even the few associated species from New Guinea and Australia, and especially the one which I have described from Samoa, may have to be separated from it. I have discussed the venational variations in Ins. Samoa, Pt. 3, fasc. 3, p. 150.

chibiana. **A. chibiana** *Matsumura.* ♀, 18 mm. "Closely allied to *A. anseraria* but differs as follows: All bands of forewing much broader, subbasal and antemedian bands somewhat parallel with each other, the submarginal extended nearly to the termen; discoidal spot dark brown. Hindwing with 4 much broader wavy bands. Underside paler, with nearly the same bands as the uppersurface, but of a paler colour". South Saghalien, 30 July one only.

amurensis. **A. amurensis** *Stgr.* (16 h). Djakonov has shown that this is a good species, not an *albulata* race. The ♂ antenna is simply filiform, not serrate. Still more noteworthy are the distinctions in the ♂ genitalia; the "sacculus" is far more strongly chitinized and terminates in a broadly rounded prominence, at the base of which there is a strong ridge of chitin.

nymphacata. **A. nymphaeata** *Stgr.* (Vol. 4, pl. 13 e) occurs also in Corea and W. China and, according to Sterneck, at Pekin.

lactularia. **A. lactularia** *H.-Sch.* (= nymphulata *Guen.*) (Vol. 4, pl. 13 g, as nymphulata). The record "S. France" is to be suppressed, as it originated in a misidentification of *anseraria* from Gironde (Trimoulet).

albidaria. **A. albidaria** *Leech* (16 i). We figure the ♀ type (Chia-ting-fu) of this very faintly marked, somewhat *Scopula*-like species.

melanosticta. **A. melanosticta** *Wehrli* (14 e), from Lienping, S. E. China, is not yet known as Palaearctic, but looks as though it may have had a Palaearctic origin; attention is therefore called to it here. Probably nearest to *ochrifasciaria Leech* (Vol. 4, pl. 13 e) but well distinguishable; note the stronger development of the black hindmarginal spot of the forewing, the more angled hindwing, etc.

octomacularia. **A. octomacularia** *Leech* (Vol. 4, pl. 7 h). The type still remains unmatched, but confirmation of its relationship to the variable *ochrifasciaria* has been obtained through the receipt of a Tokyo ♀ with a similar, black-marked postmedian and no black marking at the hindmargin. Perhaps *octomacularia* is a broad-winged race of the latter.

A. albosignata *Moore* (16 i). This small white species, with its light-drab shadings and numerous irregular dark lines, is essentially N. Indian, but occurs in Kashmir (6000—8500 feet). The large vein-dots or dashes on some of the lines recall some *Hydrelia*, but a rather characteristic marking is a small patch which remains white about the middle of the forewing. Hindwing irregularly crenate. Antenna of the ♂ almost simple. *albosignata.*

A. undulata *Wileman* (= geminimaculata *Wehrli*) (14 e). This pretty and very distinct species was described from Formosa, but as a ♂ has been taken by Höne at Shanghai and a ♀ at Kiangsi it almost reaches the confines of the Palaearctic Region. The very weakly marked proximal area, contrasting, on the forewing, with the strong, angular outer band and the distal-costal markings, is quite characteristic. Underside similar, with the subsidiary markings still fainter or obsolete. Ciliation of the ♂ antenna very short. *undulata.*

A. defectata *Christ.* (16 i). As our figure in Vol. 4 (pl. 10 h) was from a poor specimen, we substitute a more distinctive one. Butler proposed a genus *Pseudostegania* for this species, while a note in our Vol. 4 (p. 273) hints at a possible relationship to *Laciniodes*; but the face and palpus are essentially as in *Asthena*. — **chrysidia** *Btlr.*, from Japan, is possibly a synonym, as given in Vol. 4, but seems generally distinguishable racially by its heavier markings. *defectata.* *chrysidia.*

A. stramінearia *Leech* (16 i). Unfortunately no further material is yet accessible to me, but I offer the best figure that can be obtained of the imperfect type. *straminearia.*

A. distinctaria *Leech* (Vol. 4, pl. 7 g). Perhaps more closely related to the *ochrifasciaria* group than to *defectata*; compare the note on *Agnibesa* above. *distinctaria.*

69 a. Genus: **Laciniodes** *Warr.*

Face less smooth than in *Asthena*, usually with a small projecting tuft below. Palpus less short than in *Asthena*, longer-scaled below. Venation about as in several *Asthena*, the discocellulars perhaps more strongly oblique behind than is usual in that genus. Genotype: *plurilinearia Moore*. A tolerably homogeneous group, belonging almost entirely to N. India, E. Asia and Japan.

L. plurilinearia *Moore* (Vol. 4, pl. 10 i). The name-typical form, described from Darjiling, is fairly common from Sikkim to Upper Burma and I have not yet been able to separate from it the few which I have seen from the N. W. Himalayas. The specimen figured is a ♂ in my collection from the Khasis and is only slightly aberrant in that the postmedian of the forewing is a trifle more bluntly angled than usual. The termen of the hindwing is perhaps slightly more sinuous than in *unistirpis*. Closely similar forms, together with others, occur in W. China, where the group is abundant and calls for intensive study. — **unistirpis** *Btlr.* (16 i), besides the slight difference in shape, shows on the whole a broader dark subterminal shade and broader longitudinal streak from postmedian outward and the postmedian on both wings is perhaps in general slightly more sinuous in its anterior part. Japan (loc. typ.), Corea and perhaps as far westward as Ichang. — There is also a race or very close relative on Formosa, at present undescribed. *plurilinearia.* *unistirpis.*

L. denigrata *Warr.* Much less variegated than *plurilinearia*, lacking the dark subterminal cloudings; the dark costal shading at the base of the forewing and across the thorax also wanting or reduced to a minimum. Postmedian line more sinuous, on both wings generally showing a very noticeable curve near the costal. In the name-typical form, from the Khasis, perhaps not occurring in the Palaearctic Region, the apical streak is also wanting or exceedingly faint, the antemedian line less acutely angled than in *plurilinearia*, and the absence of the longitudinal outer streak leaves the moniliform whitish band as clean between the 3rd radial and 1st median as in the rest of its course. — **abiens** *subsp. nov.* (16 i). Paler, though not quite so uniform, on an average rather larger, the apical dash retained, though slender, the longitudinal streak indicated, but weak, generally consisting in a thickening of the dashes which cut up the moniliform whitish band; antemedian line in the Mongolian specimens as angular as in *plurilinearia*. Locally abundant in W. China and extending from Chinese Tibet and Yunnan to Kalgan, Mongolia. Type ♂ in the British Museum, from Putsu-fong. — **ussuriensis** *subsp. nov.* is generally smaller and reverts more nearly to the yellowish tone of *d. denigrata* but is a little more variegated, conserves in the ♂, and sometimes in the ♀, the apical dash, and has the rudiments of the longitudinal streak, about as in *abiens*; the antemedian line varies, but is oftenest curved, while in *denigrata* and *abiens* it is angled. Ussuri, the type in the British Museum, from Russian Island, S. Ussuri. A very similar form occurs in Japan, especially at Yokohama. *denigrata.* *abiens.* *ussuriensis.*

L. stenorhabda *Wehrli* (14 e). Distinguishable at once by the straight postmedian line; the pale band outside it is generally narrowed and has no interruption between the 3rd radial and 1st median; apical dash wanting; cell-dots very small. W. China and Chinese Tibet. Occasional aberrations are confusingly similar to some *abiens* except in the straighter postmedian. *stenorhabda.*

pscudocondi-taria. **L. pseudoconditaria** *Sterneck*, founded on a single ♂ from Ta-tsien-lu, is said to be almost exactly intermediate between *plurilinearia* and *conditaria*, but I gather from the description that it is not impossible it may be a remarkable aberration of the latter, which is by no means rare in that locality. Reddish brown, as in *conditaria*; postmedian, unlike that of both the species named, acutely angled costally, scarcely incurved at fold; the light band beyond it not broken into segments by dark vein-marks, the central longitudinal streak almost wanting. Hindwing as sharply marked as in *plurilinearia*, coloured nearly as forewing and with similarly clear band outside the postmedian.

conditaria. **L. conditaria** *Leech* (Vol. 4, pl. 7 g). I have now a long series before me, from different localities in W. China. It varies very little, but some specimens with less weakly marked hindwing perhaps indicate a possibility that it might, exceptionally, assume the guise indicated by the description of *pseudoconditaria*.

70. Genus: **Eois** *Hbn.*

(See Vol. 16, p. 83.)

This genus, which was dealt with in Vol. 4 (p. 273) under its younger name of *Cambogia Guen.*, is probably not really represented in the Palaearctic Region; *Acolutha Warr.* is now regarded as a good genus (which can stand as 70 a) and I have had to erect a new genus for *phoenicosoma* (see below), so that only the unique ♀ of the following is even provisionally left here; in the rest (*Acolutha* and *Palpoctenidia*) I am inclined to see Sterrhine affinities, the small or obsolete areole, with all the subcostals stalked (the 5th generally branching off before the 1st), recalling the *Anisodes* group.

conspicuaria. **E.** (?) **conspicuaria** *Leech* (Vol. 4, pl. 12 b). I decline to erect a genus for this until the ♂ is discovered; it might be considered a *Hydrelia* (sens. lat.), with erratic shape and pattern. Face rather prominent; 1st subcostal arising first, 2nd—5th long-stalked, 1st median of both wings well separate. Really no *Eois*.

70 b. Genus: **Palpoctenidia** *Prout.*

Differs from *Eschatarchia* in the pectinate ♂, lack of areole and perhaps in the broader, slightly less flattened face, as well as in its superficial appearance; from *Eois* (vera) in having the 1st subcostal arising before the 5th and the 1st median of the hindwing well separate. Only one species is known.

semilauta. *P. phoenicosoma Swinh.* **semilauta** *subsp. nov.* (16 k). Rather broad-winged and pale, forewing with median band less clouded, hindwing with subsidiary lines almost wanting, outer line more angled than in *p. phoenicosoma*, the shade which proximally bounds it darker than the ground-colour. Japan: Oiwake, etc., 2 ♂♂, 6 ♀♀ (Pryer) (called *phoenicosoma* in Vol. 4); Takao-San, 1 ♀ in the Tring Museum.

71. Genus: **Physetobasis** *Hmps.*

(See Vol. 4, p. 274.)

By an oversight, I omitted to indicate that the areole of the forewing is double.

dentifascia. **Ph. dentifascia** *Hmps.* There are probably several subspecies embraced within this conception, but the species is seldem taken in numbers and I have not been able to arrive at anything decisive regarding them. From N. W. India I have seen a few from Simla and Dalhousie in addition to the Dharmsala type; these can in any case be safely kept together. Then from Lower Burma I have seen an aberration (?) rather weakly marked except the cell-spot and the principal lines, from Upper Burma a small dark ♂ and from Yunnan a small rufescent one, somewhat intermediate towards — *mandarina-ria.* **mandarinaria** *Leech* (Vol. 4, pl. 11 i). This is larger and more rufescent than typical *dentifascia*. The originals came from Ta-tsien-lu, Wa-shan and Pu-tsu-fong (Szechuan) and I have since seen a good many from the first-named locality, tolerably homogeneous. The Kiukiang ♀ mentioned in Vol. 4 (p. 274) bears nearly the same relation to *mandarinaria* as the Lower Burma ♂ to *dentifascia*.

73. Genus: **Eupithecia** *Curt.*

(See Vol. 4, p. 274: Vol 16, p. 100.)

No further monographic work, comparable with that to which attention was called in Vol. 4, has been published on this genus. Pierce's "Genitalia of the British Geometridae", which appeared in the same year as our account, has supplemented and in some details corrected Petersen's memoir (Iris, Vol. 22, not "20" as misprinted) and Janse's work on the moths of South Africa has considerably advanced our knowledge of the *Eupithecia* of a restricted fauna; for the rest, the additions made during the last twenty years are scattered and fragmentary. E. Lange's notes on the Freiberg *Eupithecia* (Iris, Vol. 38, p. 40—50, 159—80) are interesting especially for the notes on the habits of various species. In the following pages I would, for convenience

of sortation, have placed together at the commencement all the species which have retained the double areole (section *Eucymatoge Hbn.*) but that one or two are variable in this character and (especially) that a large number have not been available for study from that standpoint; an investigation of some of the Asiatic which were unknown to me whan Vol. 4 appeared, and even of one or two European which Meyrick had misplaced, has convinced me that even Dietze made very little first-hand examination from this point of view. I therefore maintain the sequence adopted by the last-named authority, but mention the areole, where necessary, in the individual descriptions. One species, *brevifasciaria Leech* (vol. 4, p. 289, pl. 13 i), as I already anticipated, has had to be removed to *Horisme*.

E. tenuiata Hbn. (Vol. 4, pl. 12 k) ab. **coaequata** *Dannehl.* Glossy grey, with strong brownish cast, the lines obsolescent or entirely wanting, in the latter case leaving only the cell-dot, sharp terminal dashes, subterminal line and traces of costal spots. S. Tyrol. — ab. **fuscosparsata** *Dannehl.* Large, exceptionally broad-winged, deep brown-grey, the lines very fine, the whole of the wings watered with dark strigulae. Not rare at Sigmundskron, S. Tyrol. — ab. **cinerae** *Gregs.* (= cinerea *V. Schultz*). Dr. V. G. M. Schultz, on a number of specimens bred from Aberdeen pupae, finds no support whatever for the belief in a distinguishable Scottish race. As their colour changed to lighter ash-grey after a few days' flight, he surmises that "*cinerea*" (*cinerae*) is merely a synonym for worn *tenuiata*. *coaequata.* *fuscosparsata.* *cinerae.*

E. inturbata Hbn. (Vol. 4, pl. 12 k) **clujensis** *Draudt* is a well differentiated local race, of large size, with relatively longer wings and sharper apex; strongly marked and, before all, with the ground-colour much greyer. Cluj, Roumania, not appearing until September. *clujensis.*

E. nigritaria *Stgr.*, previously known only from the Cilician Taurus, was taken by F. Wagner at Akschehir in some numbers in June. *nigritaria.*

E. haworthiata Dbld. ab. **coriolutea** *Möbius.* Coloration throughout leather-yellow, the markings distinct; said to give quite the impression of a separate species, so that, if it had not been obtained by breeding it would scarcely have been recognized. Dresden. — **transsylvanaria** *Dannehl.* More inclined towards a blackish red-brown, much darker than its author has seen it from any other European locality than Transsylvania; lines indistinct, the light band outside the median area broadly undulate, the fine white subterminal clear. Type from the Cibin Mountains; also from Kronstadt and in the Riu-Sadaluital. *coriolutea.* *transsylvanaria.*

E. homogrammata *Dietze* (Vol. 4, pl. 25 h). Several specimens have been collected in Kamtshatka (Klutshi and Petropavlovsk), 21 June to 12 July, by R. Malaise. *homogrammata.*

E. immundata *Z.* (Vol. 4, pl. 12 k). Distributed, but local; France (a few stations) and through Germany and Switzerland to Southern Scandinavia, Russia and Hungary. C. Finke (Göttingen) has a very interesting note. Having noticed the assembling of a "green leaf-bug" (? Pentatomid) about the berries of the Actaea at the time when the larvae were ready for pupation, he discovered — at first almost by accident, confirmed by hours of patient watching — that they were waiting for these like a spider for its prey. The larva pushes itself out from the berries backwards in order to drop by a thread to the ground for pupation and the moment the white skin of the larva shows itself in the opening, the bug plunges its mouth-parts into the body of its victim and does not let go until its immolation is completed. *immundata.*

E. plumbeolata *Haw.* (Vol. 4, pl. 12 k). I have seen a few Ussuri ♀♀ (in poor condition) which may belong here, but am not entirely satisfied about them. Neither can I confirm Sterneck's record of a ♀ from Wassekou, W. China. — ab. **singularia** *H.-Sch.* has the cell-dot definitely perceptible. Rare, connected with the type by transitions (Dietze). — ab. **enucleata** *Dietze.* Larger, coarsely scaled, its grey tone still less brownish. Oberdorf (Bavarian Allgau), in numbers in 1908. — ab. **uralensis** *Dietze.* Relatively small, with numerous light spots, recalling *spissilineata*. ♂ from the Ural. — ab. **flaveolata** *Dannehl.* Uniform light leather-yellow, with scarcely a trace of the grey markings. Schliersee. — ab. **plumbalbeolata** *Dannehl.* Dead white-grey, the dark-brown and grey-brown elements wanting, thus as good as markingless and (especially in fresh specimens) showing a silky gloss; size normal, scaling very fine, in marked contrast to *enucleata Dietze*. Numerous, Schliersee and Beuerberg. — ab. **explicata** *Dannehl.* Demarcation of the median area strongly defined, the whole of this area darker than the basal and distal. With the preceding, but rarer. — ab. **lividata** *Dannehl.* Densely irrorated throughout with dark-brown or black-brown, much recalling a very dark *immundata*, except in shape. With the two preceding, but rare. *plumbeolata.* *singularia.* *enucleata.* *uralensis.* *flaveolata.* *plumbalbeolata.* *explicata.* *lividata.*

E. cuculliaria *Rbl.* (16 k). We figure a ♀ from Zengg, Croatia. *cuculliaria.*

E. spissilineata *Metzner* (Vol. 4, pl. 13 f). Zerny records several from Becharré, N. Lebanon, collected in June. New for Syria. *spissilineata.*

E. interrubrescens *Hmps.*, described as a *Phibalapteryx* Sect. II (*Collix*) but with the midtibia not dilated, is clearly a close relative of *pini*, the areole double, as in that species. Considerably larger (♂ 38 mm, *interrubrescens.*

♀ 42 mm), indeed decidedly larger even than *gigantea*, to which it seems nearer in its darkened colour. The form
dalhousiensis. from Yatong, Indian Tibet, will be considered in more detail in Vol. 12. — ab. **dalhousiensis** *Strand* is more uniform red-brown. Only known from a ♀ from Dalhousie. A ♀ from Simla is greyer, a ♂ from Gurais Valley paler.

gigantea. **E. gigantea** *Stgr.* (Vol. 4, p. 276) I am now inclined to treat this as a separate species, but have not been able to make any first-hand examinations. I omitted to mention the large size (length of a forewing 16 mm).

karafutonis. **E. karafutonis** *Matsumura*, described as *Cidaria* (*Euphyia*), is evidently, from both figure and description, a close ally or form of *pini*. Palpus long, black. Abdomen with 6 black erests. Areole double. Forewing dark greyish, with fuscous reddish-brown markings; cell-spot large, conspicuous, with 2 costal spots near it; postmedian shaped as in *pini*, followed by a pale costal patch; reddish subterminal band also as in *pini*. Hindwing with 2 lines between cell-dot and postmedian, which is perhaps more distally placed than in *pini*. Underside perhaps more weakly marked, as only the cell-spots and postmedian line are mentioned. S. Saghalien: Ichinosawa, 2 ♂♂, 5 ♀♀, July and August.

pini. **E. pini** *Retz.* (Vol. 4, pl. 13 k). The areole, though generally double, is not invariably so. Stolze has recorded the successful breeding of a few ab ovo, on pine cones, the parent ♀ having been found by chance on the stem of an apple-tree far from the foodplant and the latter (spruce = Fichten) being inaccessible to him. Paul Spessivtseff has published (Meddel. Staatens Skogs-Försöksanst., Vol. 21, p. 295—307)
debrunneata. a long account of the ravages of this species and *bilunulata*. — **debrunneata** *Stgr.* I assume this to be the Ussuri race of *pini* and *gigantea* a different species (see above), thus restoring to them the status originally given by Staudinger, who relied on Bohatsch's observation that the palpus was too long (evidently a lapsus for too "short") for *bilunulata*. I notice, however, that both the Ussuri examples figured by Dietze have the median area narrowed and the postmedian of the hindwing not very sinuous, so that they bear a good deal of resemblance to *bilunulata*.

bilunulata. **E. bilunulata** *Zett.* (Vol. 4, pl. 12 e) is still unknown in Britain, but eastward its range extends at
nageli. least to Minussinsk, where it appears in a recently-described race, see below. — ab. (?) **nageli** *Skala.* "Very near *strobilata* (= *bilunulata*); small; the wing-form appears to me more stumpy; both wings show denser, darker irroration". Described provisionally as a good species, but with the acknowledgment that Prof. Rebel wrote:" darkened dwarf, very noteworthy; especially divergent in the uniformly grey-dusted hindwing. The characteristic palpus and the underside agree with *strobilata*". Fulnek, N. Moravia, taken by Sigmund,
analoga. 6 July 1917, in the zoological gardens. — **analoga** *Djakonov*, from Minussinsk, is a parallel form to *pini debrunnescens* which also occurs there. It will be noticed that Djakonov, without a query, accepts the original status of the last-named; see above.

rufescens. **E. rufescens** *Btlr.* (16 k). We figure a ♀ from Takao-San (W. of Tokyo), where a few were taken in June by M. Aigner. Matsumura records a ♀ from S. Saghalien.

linariata. **E. linariata** *F.* (Vol. 4, pl. 12 d). The larva is clothed with a short, velvety pilosity while that of
nigrofasciata. *pulchellata* is smooth, only with single long setae (Dietze). — ab. **nigrofasciata** *Dietze.* Darkened, the median
aestiva. area almost solidly blackish. Bred from the larva, Vienna. — gen. aest. **aestiva** *Dietze* is in general smaller, the markings on the whole less distinct.

granadensis. *E. pulchellata Steph.* (Vol. 4, pl. 12 d) **granadensis** *Bubacek* (= grenadensis *Wehrli*). Near *pyreneata Mab.* but immediately distinguishable by the dark-grey ground-colour of both wings. The rust-brown of *pyrenaeata* is here restricted to a weak indication in the proximal subterminal shade and the proximal boundary of the median area. Granada, bred from larvae found on Digitalis obscura. Wehrli records one from a higher altitude in the Sierra Nevada (2850 m) which apparently belongs to this form, and supposes that the foodplant there is Digitalis nevadensis. Reisser notices a probable further race from the Riff Mountains, Morocco, with the markings not much contrasted, the median area, especially in its outer part, often more strongly white-mixed; it "somewhat recalls *p. granadensis* and comes quite near Culot's figure of *laquearia* in its tone of colour". A very aberrant example from the same district is described but not named, its determination being
pyreneata. uncertain. — **pyreneata** *Mill.* The reputed breeding of this form at Kirchhellen (Ruhr) from larvae found on Digitalis purpurea should presumably refer to slightly aberrant *p. pulchellata* rather than to true *pyreneata.*

fletcheri. **E. fletcheri** *Prout* (16 k) somewhat recalls *linariata*; head and palpus paler, face quite pale; ♂ antennal ciliation nearly as long as diameter of shaft; forewing with the brown bands less bright, with little black maculation, the median band straighter, cell-dot weaker; hindwing without conspicuous pale postmedian band. Described from Kumaon (Muktesar, at 7500 feet), but the British Museum has a ♀ aberration (brown bands
hypognampta. still brighter, median band narrower), from Khyra Gully, road to Rawalpindi. — **hypognampta** *form. nov.* (16 k). A little larger, less deeply coloured, the large cell-mark consequently more conspicuous, the postmedian and

subterminal appreciably more incurved between costa and 1st radial. Dalhousie, May 1891. 2 ♂♂ in the Tring Museum.

E. laquaearia *H.-Sch.* (Vol. 4, pl. 13 f). The old record for Belgium (Liège) is not verified and indeed seems improbable. Mr. Wiltshire, on the other hand, has added the Lebanon; he took specimens at Shweir late in August and bred others in early October from larvae, found feeding on a Hypericum. *laquacaria.*

E. limbata *Stgr.* has been discovered at Trieste by G. Carrara, the larvae feeding in the flower-heads of Eryngium amethystinum at the beginning of September and yielding the moth in July. Further European localities are Mostar and Macedonia. — **tomillata** *Chrét.* (= occidens *Wehrli*) (16 k), published in 1904, was overlooked by me in Vol. 4 and Dietze in his monograph gave only a figure, as ? *limbata* from San Ildefonso, citing Chrétien "in litt.". It was discovered at San Ildefonso (Segovia), flying at the end of July and in August among Thymus, Helichrysum, Lavandula, Santolina, etc., and was described as a separate species. Wehrli later gave an independent account of it under the name of *limbata* var. *occidens*, based on 3 ♀♀ and ♂ quite fresh, Sierra Nevada, beginning of July. He differentiates it from the eastern race by its very large, sharply marked, deep-black cell-spots and the continuous reddish-brown proximal subterminal band. Zerny, in recording a number from Albarracin in July, finds the distinctions between *tomillata* and *occidens* quite negligible. *timbata.* *tomittata.*

E. liguriata *Mill.* (= bordigherata *Dietze*) (Vol. 4, pl. 12 d). In the absence of proof to the contrary, I continue to use the nomenclature adopted in Vol. 4 (p. 276), as has also been done by Culot and others. It is unfortunate, however, that Millière chose for his type the unique specimen which he took at Bordighera ("on a wall among dry rocks"), a locality which apparently has not subsequently yielded the species, so that the later determinations have remained conjectural. He afterwards took others which he assumed to be conspecific, from time to time in his garden at Cannes. Concerning *roederaria Stndf.*, discovered at Digne and published with good photographic figures, there is in any case no doubt. Culot points out that *liguriata* lacks the oblique pale subapical dash which is generally conspicuous in *illuminata*. Oberthür records "*roederaria*" from Morocco; Reisser records *liguriata* from the Riff Mountains (Izilan, a few in June), but somewhat doubtfully, on account of the synonymic and other difficulties; they are a little more strongly marked, with the blackish costal spots and cell-spots very prominent and I incline to think they may be nearly the same as those which I have seen from the Middle Atlas and determined as a form of *pantellata.* *tiguriata.*

E. pantellata *Mill.* (= pantellaria *Mill.*) (16 k). I restore the original orthography, which has been lost sight of. In both this species and the preceding, the outer proximal spur of the hindtibia is wanting or rudimentary. We figure the dark lava-form from Catania, which is at least so near the Pantelleria type as not to need a separate name. — **illuminata** *L. Joan.* (Vol. 4, pl. 25 e). Our figure gives a recognizable portrayal of this, the brightest and most warmly coloured race, which is prevalent in E. Algeria. The originals were from Philippeville. — **luteostrigata** *Stgr.* (= tedaldiata *A. Fuchs*), from Sicily, is similar but lighter, more inclining to clay-yellow than to red-brown. The specimens from the Ragusa collection are not quite so small as *illuminata;* those from the Blida Glaciers resemble the present race rather than *illuminata.* — **lusitanica** *Dietze*, from San Fiel, Portugal, is more black-mixed than the two preceding, intermediate towards *pantellata.* Similar specimens occur in the Sierra Nevada in May and June (n o t *andalusica*). — **andalusica** *Wehrli* (14 e). Very similar to *illuminata* but larger, the red-brown suffusions a little duller, the white markings somewhat reduced (unless costally), the hindwing more sharply marked than in *illuminata;* underside more glossy, weakly marked, more recalling that of *liguriata.* Sierra Nevada, 1500 m. Possibly a separate species. *illuminata.* *luteostrigata.* *lusitanica.* *andalusica.*

E. lecerfi *Prout* (16 k). Very similar to *deverrata*, but easily distinguished by its brighter sandy colour, sharper costal markings at the beginning of the lines, etc. It may however, as Zerny believes, be a race of the same, since two of the distinctions on which I relied (development of both proximal spurs of hindtibia and quite different ventral plate of ♂ from those of *liguriata* and *pantellata*) were conditional on the erroneous association of *deverrata* with *pantellata.* Antennal ciliation of the ♂ somewhat shorter than the diameter of the shaft. Great Atlas: Tinmel, S. E. slopes (zone of lavenders), flying in the latter half of May; more recently at Ijjoukak in June. 3 ♀♀ from Batna which I referred here (only one of them in good condition) appear somewhat intermediate between this and *deverrata*, perhaps another race. *lecerfi.*

E. deverrata *Dietze* (14 c) is now better known than when the original brief notes were published, but has not, so far as I know, been closely studied anatomically. In any case, Dietze's suggestion that it "might very well be a separate species" (from *pantellata*) is fully confirmed; in the less short ♂ antennal ciliation and the hindtibial armature it agrees with *lecerfi.* Mr. L. Lhomme has generously provided me with paratypes. The larva feeds in the umbels of *Pityranthus* (Deverra) in November and December, the imago appearing from July to November; the partial or complete aestivation of the pupa seems to have been confirmed. To the words "underside almost markingless" (Vol. 4, p. 277) should be added "excepting the cell-marks", which are as well developed as in *lecerfi;* the latter has, on an average, a much less weakly marked underside. *deverrata* *deverrata.*

prouti. has been obtained in some numbers from Guelt-es-Stel, Central Algeria. — **prouti** *Zerny*, erected as a subspecies of *deverrata*, was discovered in June in the Northern Lebanon and must have a different life-history, as Pityranthus is there wanting. On an average larger than the type (length of a forewing 9—11½ mm), lighter clay-colour, forewing with the cell-mark less characteristic, though thicker, costal marks darker, postmedian more distally placed. Similar but rather sharply marked specimens from the Taurus Mountains, formerly determined as *albidulata* form, probably belong here, though Zerny calls typical *prouti* "much more unicolorous and much less sharply marked" than *lecerfi*.

brunneata. **E. brunneata** *Stgr.* (14 f) is another species which in 1913 was comprehensively (but inexactly) quoted by Dietze under *pantellata*. Besides Mesopotamia, it occurs in desert localities in Palestine. We figure a ♀ from Ghor el Safieh, S. of the Dead Sea, where it was collected in March.

circumdata. *E. albidulata Stgr.* ab. **circumdata** *Dietze*. Clear white with pure black markings, without any trace of
limbofasciata. brown. Both sexes from Gudaur, N. E. Caucasus. — ab. **limbofasciata** *Dietze*. Borders almost uniformly black, the white subterminal line and its white central spot almost entirely suppressed. 2 ♂♂ collected with ab. *circumdata*.

schwingenschussi. **E. schwingenschussi** *Zerny* (14 f) was described as related to *liguriata*. Antenna of the ♂ very shortly ciliated; palpus as short as in *liguriata;* ventral plate totally different from Petersen's figure for *liguriata*, distally with a circular excision, the lateral parts rounded, convergent; "vesica" with 2 thick, elongate chitinous formations, placed side by side. Wings white-grey with a slightly yellowish tone, which in the distal area and on the forewing also at the innermarginal area is overlaid with light leather-brown; forewing with large cell-spot and with the lines arising from deep-black costal spots, terminal line sharp, black, narrowly interrupted at the veins; hindwing, except the marginal band, sprinkled with coarse dark scales, with 4 wavy blackish lines and a narrow pale subterminal band. Tachdirt, Morocco, 2300—2700 m, June and July. It looks to me much closer to *irritaria*, the face somewhat less prominent, the wings perhaps a trifle broader, the forewing with a cleaner white band outside the postmedian; the hindwing beneath with better developed cell-dot. For examples of this and many other rare species I am indebted to the generosity of my friend Mr. Leo Schwingenschuss.

irritaria. **E. irritaria** *Stgr.* (14 f). We figure a specimen from the Wehrli collection. The range extends to Demavend.

marasa. **E. marasa** *Wehrli* (14 f). Similar to *irritaria Stgr.* and *irriguata Hbn.* (Vol. 4, pl. 13 e) but larger. The palpus extends beyond the frons by about ¼ the diameter of the eye; the frons has a strong, bluntly conical protuberance, about double that of *irriguata;* both it and the palpus are darker. Antennal ciliation shorter. Forewing with apex more acute; ground-colour less white; markings similar, but the subbasal line looks different, more incurved in the middle etc.; cell-dot moderate, deep-black, smaller than in *irritaria* and not white pupilled, present beneath (in *irritaria* wanting beneath). Marasch, Syrian Taurus, 3 ♂♂ and 1 ♀, collected in March, whereas *irritaria* flies in July.

irriguata. **E. irriguata** *Hbn.* (Vol. 4, pl. 13 e). The protuberant frons in this species and *insigniata*, commented upon by Wehrli in erecting *marasa*, would remove these three and a few others (compare *tenellata*, Vol. 4, p. 295) to a separate genus (*Nasusina Pearsall = Prorella Barnes & Mc. D.*), according to the classification of the American systematists. This change may ultimately have to be adopted, but its taxonomic implica-
eriguata. tions have not yet been explored in relation to the Old-World faunae. — **eriguata** *Rmb.* (18 d) (not *erriguata* as in the German edition of Vol. 4 and the index). Perhaps this name should be applied comprehensively to the Mediterranean forms, which are very distinct from the whiter name-type. Like some other southern
franconica. forms, they prevail also in the Middle Rhine. — ab. **franconica** *Dietze*. Still more poorly marked, the black markings, especially in the ♀, dissipated into a regular grey irroration. Middle Rhine district, not rare among
mauretanica. *eriguata*. — **mauretanica** *Dietze* (Vol. 4, p. 287) is variable and I am not sure whether it can always be separated from *eriguata;* typically it has the median area darkened, the white stripe outside it well developed.
kurdica. Morocco is to be added to its range. — **kurdica** *subsp. nov.* (14 f) is another strongly darkened form, variable, but decidedly less brown-tinged than the *eriguata* series (including even *mauretanica*), the median area scarcely ever band-like, the white stripe outside it not well defined. As it is slightly intermediate, in the pointed wings and strongly protuberant frons, towards *marasa* (which Wehrli is convinced is a species), it is possible that *kurdica* should also be given specific right. On the 2nd median, the 3 lines and the 2 subterminal shades are about equidistant, though the latter are broader and less defined; in most *irriguata* the space between the two groups is a little wider and the "lines" commonly broken or mere vein-dots or dashes. From the somewhat larger but likewise grey (or still greyer) *marasa*, this new form differs not only in the structural details mentioned above, but also in the less strongly darkened costal markings and perhaps the less bidentate median lines of the forewing posteriorly (the only *marasa* before me is here rubbed and has lost both anten-

nae). Kurdistan: Malatya, 6—10 April 1932 (Prof. de Ajtaai Korvac), 7 ♂♂ and 3 ♀♀ in the British Museum; 1 ♂ in the Wehrli collection.

E. staudingeri *Bohatsch.* I omitted to notice that Dietze, besides the typical form, figured (Pl. 77, fig. 659, 660) as "? *staudingeri* forma *grisescens*", two specimens, respectively from Zerafshan and Askhabad, of which he gave no description beyond that which is indicated by the name. I have no further information about them, but if they represent a local race or a species they must be renamed to avoid collision with *innotata grisescens Petersen.* *staudingeri.*

E. wehrlii *F. Wagn.* (14 f). Near *staudingeri* but with some considerable differences; perhaps a 2nd or 3rd brood thereof, as Wehrli suggests. Somewhat more robust, the wings broader and of a purer, darker grey; the two lines which bound the median area of the forewing, in staudingeri wanting or only indicated, are here very distinctly expressed, the outer double, leaving free a lighter space which is divided by a fine black line. Cell-dots large and strong. Still more striking is the very light underside of both wings. Marasch, 700—900 m, September, 2 ♀♀, unfortunately somewhat worn. *wehrlii.*

E. exiguata *Hbn.* (Vol. 4, pl. 12 m) is well distributed in France, certainly not confined to the "south-west". — **muricolor** *subsp. nov.* Extremely distinct in colour, of an exceptionally cold grey, the general tone scarcely, if at all, more tinged with brownish that the "mouse-grey" of Ridgway; markings rather strong, particularly noteworthy being the black admixture in the dark spots at the bases of abdomen, of fore- and of hindwing and the conspicuous fuscous or "chaetura-grey" (really again brown mixed with black) subterminal patches. E. Aberdeenshire, bred by Dr. E. A. Cockayne from larvae on Pyrus aucuparia, the type in his collection. Although not many have yet been bred, they seem quite constant and to point to a well differentiated local race. *exiguata.* *muricolor.*

E. mesogrammata *Dietze* is misprinted as *nesogrammata* in Vol. 4 (p. 278), German edition. *mesogrammata.*

E. insignioides *Wehrli* (14 c). Larger and darker than *insigniata* (Vol. 4, pl. 12 e), ground-colour more brownish (not grey-white), maculation much less sharp. Palpus scarcely as long as diameter of eye. Forewing with the proximal markings quite different from those of *insigniata*, the median and postmedian lines also more sharply angled; subterminal line present, though not strong; terminal line more strongly interrupted than in *insigniata*. Shanghai, only the type ♀ known. *insignioides.*

E. valerianata *Hbn.* (Vol. 4, pl. 12 k). This widely distributed species, so much overlooked unless especially worked for in the larval stage, has been recorded for Sweden by Nordström (Ent. Tidskr., Vol. 42, p. 165) in a useful article which brings up to the date 1920 our knowledge of the *Eupithecia* of that country. *valerianata.*

E. palustraria *Dbld.* (Vol. 4, pl. 13 f). Grabe, who obtained larvae in abundance in the Ruhr district by gathering the food-plant, Cerastium triviale, worked out the life-history afresh and found it regularly double-broaded, the moth flying chiefly in May and July. — ab. **pseudozibellianata** *Dietze* (= pseudozibellinata *Dietze*). The type came from Kuusamo, N. Finland. — ab. **grabei** *Cornelsen.* Light fawn-colour, weakly glossy, the posterior white subterminal spot developed on both wings; underside much lighter than in the type, with distinct lines, the distal area of both wings darker than the rest, light smoke-brownish. Herne, Westphalia. *palustraria.* *pseudozibellianata.* *grabei.*

E. caliginea *Btlr.* (18 b). We figure this blackish, weakly marked form, which, so far as I known, is confined to Japan. — **zibellinata** *Christ.* (18 l), the Amur and Ussuri race, is slightly less long-winged, a little browner, the whitish markings generally somewhat less obsolescent above; beneath, the distinction is more pronounced: postmedian band double, subterminal present as whitish dots, proximal part of hindwing pale with dark irroration and lines (in *caliginea* predominantly dark). Djakonov records it from Kamtshatka. *caliginea.* *zibellinata.*

E. undata Frr. (Vol. 4, pl. 12 k) ab. **nigerrima** *Dietze*, from the Stilfser Joch, is a melanic form, unmarked except for an indication of the blacker cell-spot. — **abruzzensis** (*Sohn-Rethel*, M. S.) *Dietze* is essentially lighter than typical *undata*, looking almost exactly like a *graphata* form. Majella Mountains, at 1800 m, probably a race; Dietze had seen also a similar specimen from the French Alps. Ventral plate as in typical *undata.* — **puengeleri** *Dietze* probably occurs also at Marasch. Wehrli provisionally thus determines a ♀ from the Pfeiffer expedition, but the determination is not quite certain. *nigerrima.* *abruzzensis.* *puengeleri.*

E. melanochroa *Wehrli* (14 f). Antennal ciliation of the ♂ shorter than in *undata* (only about $^1/_4$ diameter of shaft), but denser. Palpus not quite twice diameter of eye. Darker, only surpassed (excepting the actually melanic forms) by *palustraria* and *caliginea*. Veins of forewing with interrupted black streaks; markings indistinct, the most conspicuous being the fine, regularly dentate subterminal, which sometimes ends in a small pale spot, somewhat as in *tripunctaria*. Hindwing above almost without markings, excepting the subterminal. Forewing beneath with sharp cell-streak, other markings indicated, excepting the first line; hindwing lighter, with about 5 lines. The genitalia show definite relationship with *undata*. In addition to the distinc- *melanochroa.*

tions indicated above. it differs in having the postmedian band of the forewing scarcely angled near the costa. Tunkinsk Mountains, Irkutsk, 2000 m.

variostrigata. **E. variostrigata** *Alph.* (14 f). The named forms. or at least the western ones, do not seem to represent very clean-cut races. In recording the species from Albarracin (new for the Iberian Peninsula), Zerny notes the name-type (?), *artemisiata* and *constantina* as all occurring together; they were bred in September, by *constantina.* Schwingenschuss and Predota from larvae collected on Artemisia herba-alba. — **constantina** *B. Bak.* I have not seen specimens from Morocco, but the Tring Museum has a long Algerian series, chiefly from Batna and Guelt-es-Stel. This shows the usual considerable variability in size (length of a forewing 9—12,5 mm). and a good deal in the sharpness of the markings; perhaps scarcely one-half show the strong contrasts which were indicated for *constantina*, of which Dietze knew only 3 specimens, topotypical (Constantine); 1 ♀ from Batna shows a remarkably clean (predominantly white) median area. None are like the heavily dark-banded form figured by Dietze from the Crimea, but Alphéraky's type (from Taganrog) was apparently not so extreme *artemisiata.* as that. — **artemisiata** *Const.* (14 g). We figure one of Constant's series from the littoral of the Maritime Alps. Bohatsch emphasized as distinctive the s m o o t h s c a l i n g of this race, and inclined to unite the Alge- *littorata.* rian with the S. Russian and Asiatic. — ab. **littorata** *Const.* Constant, who bred this simultaneously with *artemisiata* and from the same food-plant, published it as a separate species. though admitting that it might possibly be a very stable aberration. The 8 specimens on which he founded it (against "more than 20" of *artemisiata*) did not vary: smaller (15 mm instead of 16—18), very different in colour (whitish instead of brown-grey) and in the weaker and more confused markings. Dietze suggests that it is a "hunger-form".

albosparsata. **E. albosparsata** *L. Joan.* (14 g). Culot figures a topotype, Caesarea (Asia Minor, not "Palestine"), and maintains that this is a distinct species, not a form or synonym of the preceding. The median line of the forewing is less strongly angled about the cell-dot and the postmedian here continues nearly parallel with the termen or more oblique outward, instead of curving more or less strongly on approaching the costa. Unfortunately the type figure (here reproduced) shows much more nearly the normal (*variostrigata*) form of the lines and I suspect that the "paratype" is an aberration or even a different species, but refer the question to those who possess the material for its elucidation.

santolinata. **E. santolinata** *Mab.* (14 g). The areole is double, a further point of contact with *millefoliata*, wherewith Dietze — who overlooked the structural character — has compared it. Further localities are Aragon (Albarracin) and Sardinia. A smaller race (?), or possibly new species, has been discovered in the Great Atlas, but only ♀♀ are yet known.

bastelbergeri. **E. bastelbergeri** *Dietze* (14g). We figure a ♂ from the Alexander Mountains. — **korvaci** *subsp. nov.* *korvaci.* Smaller than the typical *bastelbergeri* of Naryn and Karagai, the lines perhaps on the whole more weakly marked, the postmedian of the forewing rather more oblique inward at costa; costal area of forewing with a more definite proximal-subterminal spot; cell-dot small but sharp. Kurdistan: Malatya, 3 ♀♀. Figured by Dietze (fig. 872, 873) as probable small form of *bastelbergeri* and I have accepted his decision provisionally. The "body-plate", which he describes from *korvaci*, seems to agree pretty well with that of the *b. bastelbergeri* ♂ which we figure.

silenata. **E. silenata** *Assmann* (Vol. 4, pl. 12 h) Marschner published in Vol. 7 of the Zeitschr. Oesterr. Ent.-Ver. a synopsis of the known forms of this local mountain species, of which he gives the range as the Riesengebirge (a few elevated localities), the Taunus, Galicia, Styria, the Swiss Jura, Valais, Basses-Alpes, Bavarian Palatinate, Oberstdorf in Allgäu and the Austrian Styrian Alps. He recognizes 3 forms in addition to the *pseudolariciata.* type. — ab. **pseudolariciata** *Stgr.*, only quoted by Marschner from the last-named locality, as already indicated in our Vol. 4 (p. 279), is perhaps a seasonal form in Albania; a pair taken at Bështriq were longer- *geroldiata.* winged and much lighter than the type, with the median area standing out more distinctly. — ab. **geroldiata** *A. Fuchs.* Uniform light yellow-brown, not lighter rippled, weakly waved, median area not defined distally, the light-marked stripe beyond not developed. 1 ♂ bred at the beginning of May from a larva found in the previous August in a seed-vessel of Silene (probably inflata) in the upper Wispertal (Taunus) at Geroldstein. *kolari.* — ab. **kolari** *Marschner.* Much darkened, the bands of the forewing wanting, the white subterminal remaining, as also the white terminal dots; a small pale spot on hindmargin indicating the position of the antemedian pale band; cell-spot not very distinct. Bred from a larva taken in the Blaugrund Valley, Riesengebirge.

dissertata. **E. dissertata** *Püng.* (14 g). Superficially somewhat like *arceuthata* but larger, palpus less long (projecting beyond the eye for less than a diameter of the latter), abdominal belt slighter, wings less broad, fringes less distinctly chequered, underside essentially less strongly marked. On the upperside the most striking distinction is in the sharp, irregularly broken ("kritzlig") lines; distal area cinnamon-brown, the rest of the wing brownish ash-grey. Zermatt (loc. typ.) and Laquintal. Dietze places it near the *venosata*-group. I have not seen the originals, but 2 ♀♀ from La Grave (Hautes Alpes) agree so perfectly with Püngeler's careful descrip-

tion that I venture to figure one as representing it, though possibly a race with less contrast between the greyer ground-colour and browner border. They differ from *cassandrata* in tone, weaker median line, developed cell-dot, more oblique antemedian line, etc.

E. carpophagata (*Rmb.*) *Stgr.* (Vol. 4, pl. 25 e). Authors are somewhat at variance as to the arrangement of the races. Dannehl, in erecting his new race, sinks *teriolensis* to *cassandrata*; I have too little knowledge of the latter to pronounce an opinion. — **cassandrata** *Mill.* (14 g). As our copy (Vol. 4, pl. 13 f) of the type figure has not come out very satisfactorily, I have asked Dr. Wehrli's assistance in providing a fresh model. — **benacaria** *Dannehl.* A contrast to *cassandrata*, without the characteristic reddish suffusion, on the contrary with dark olive-grey irroration; "the watered band before the termen" (i. e., the subterminal) stands out clearly. Bred from larvae from hugh altitudes (1800—2000 m) on Monte Baldo, while the low levels of the Lake Garda district produce typical *teriolensis*. *carpophagata.* *cassandrata.* *benacaria.*

E. venosata *F.* (Vol. 4, pl. 12 e). Recently recorded from Morocco (Riff Mountains) by Reisser. Dietze says that all that he has seen from England differ from the continental in tone, but the material before me does not confirm this; a specimen from "Lewis, England" which he figures as intermediate between *venosata* and *fumosae* is presumably from the Isle of Lewis, Outer Hebrides. — ab. **confluens** *Dietze.* Median line of forewing thickened; in part confluent (or connected by some black shading) with the antemedian. Transbaical (type and another); an asymmetrical one (*confluens* on the left wing only) from the Isle of Wight. — ab. **circumfusca** *Kitt.* Black lines of forewing in part thickened, especially at costa and inner margin, distal area somewhat suffused. Evisa, Corsica, 1 bred ♀. Should probably be merged with the preceding aberration. — **fumosae** *Gregson* (14 g). We figure a characteristic ♀, bred from Shetland pupae. *venosata.* *confluens.* *circumfusca.* *fumosae.*

E. schiefereri *Bohatsch* (Vol. 4, pl. 12 m). This also occurs in the Riff Mountains, by no means rare. The specimens are large (length of a forewing 12—14 mm, with the larger specimens in the majority), a shade darker than the Styrian, the bands not essentially lighter than the ground-colour, the hindwing mostly very well marked. The distinctions are not considered adequate for the establishing of a local race. — ab. **confluens** *Dietze.* A small ♀ from Meran, S. Tyrol, analogous to *venosata* ab. *confluens*, in the partial confluence of antemedian and median lines. — ab. **degeneraria** *Dannehl* has all the lines more or less reduced, sometimes altogether obsolete. Eisaktal, Tyrol. It may be here remarked that although, by courtesy, we are quoting Dannehl's aberration-names, few (if any) of his recently published ones are strictly valid; "*T. schiefereri*", "*T. silenicolata*" and the rest are not binomials without any generic name at the head. — ab. **tendicularia** *Dannehl* is said to correspond exactly to *silenicolata* ab. *tendiculata* (see below) and to have been observed repeatedly in the S. Tyrol; type from Sigmundskron. *schiefereri.* *confluens.* *degeneraria.* *tendicularia.*

E. silenicolata *Mab.* (Vol. 4, pl. 12 m as sileniculata). F. Wagner records a very large form taken at Akschehir (Inner Anatolia), not uncommon. — ab. **degenerata** *Dannehl* (14 g). Pallid light-grey, without violet tone; all the lines more or less reduced, sometimes obsolete; hindwing proximally almost unmarked. Fairly common in the mountains of Middle Italy, always with the name-typical form; type from Mt. Sirente, ca. 1000 m. Dannehl says that although these come freely to light they present the appearance of being under-nourished or "perhaps even weakened by parasites". — ab. **tendiculata** *Dannehl.* "The outer of the median lines forms with the cell-streak a distinct oval ring." Rare, but met with in various mountain localities in Italy; type from Tivoli. — **perdistincta** *Wehrli* (14 h). Lighter, of a more grey tone, somewhat as *venosata* or *schiefereri*, much more sharply and strongly marked, the cell-streak thicker, the ♀ mostly larger than the European form. "Has nothing to do with the smaller, more delicately-built *E. achyrdaghica Wehrli*, which is anatomically different". Northern Lebanon: Becharré. *sitenicolata.* *degenerata.* *tendiculata.* *perdistincta.*

E. carpophilata *Stgr.* (Vol. 4, pl. 13 f). Staudinger's suggestion that this Ussuri species might be a form of *alliaria* has been proved untenable, particularly by Petersen's investigation of the genitalia. On the other hand, the misidentified "*carpophilata*" of Aragon actually is a form of *alliaria* (see *notata* below) and it was a confusion of these two species which led to the double mistake. — **collega** *Dietze*, from Aksu and perhaps Korla, is paler than *carpophilata*, of a clayey earth-colour, approaching *cingulata Christ.*; all the black lines, with the exception of 2 basal, placed beyond the cell-spot. On account of the strongly elongate ♂ abdomen, Dietze formerly regarded *collega* as a separate species; later he treated it as a desert-form of *carpophilata*. *carpophilata.* *collega.*

E. extinctata (*Stgr.*, i. l.) *Dietze.* Length of forewing 11½ to 13 mm. Said to be easily recognized when one has seen it but hard to define in words, on account of its variability and weak markings. An approximate dea of it may be obtained by thinking of a much enlarged *distinctaria*, of slighter build, with long fringes and washed-out markings; the lines arise from costal spots, the first nearer to the base than to the median area (which is narrow), the antemedian near the cell-streak and giving rise to 2 characteristic dark lines. Kokonor, founded on 5 ♂♂. The genitalia suggest that it may be placed near the *carpophilata* group. *extinctata.*

alliaria. **E. alliaria** *Stgr.* (Vol. 4, pl. 12 e). F. Wagner records this from Inner Anatolia, apparently not differing from the European; that they look somewhat lighter, he attributes to their not quite perfect condition. —
notata. **notata** *Dietze* (= carpophilata part. *Stgr.*, err. det.) (14 h). It was long ago suggested by Dietze that the record of "*carpophilata*" from Aragon referred to this insect and it now seems certain. Wehrli has demonstrated that the *notata* of Central and South Spain agrees in genitalia with *alliaria*. Known also from S. France and recently discovered by Reisser in the Riff Mountains.

cingulata. **E. cingulata** *Christ.* (= lingulata *Christ.*) (Vol. 4, pl. 25 f). This was sunk in Staudinger's Catalog as a synonym of *stigmaticata Christ.* (Vol. 4, pl. 13 f) and the name was overlooked by me on p. 280 of Vol. 4. I gather from Dietze's monograph, however, that it is to be regarded as a separate species, nearer (at least in the ventral plate of the ♂) to *alliaria*. The type, a ♂, came from Aschabad and I know of no others. Christoph admits that it is nearest to *stigmaticata* in colour. Antennal ciliation "extremely short" (in *stigmaticata* he merely calls it "short"), colour lighter, basal area smaller, median area considerably narrower, on the forewing with both its boundary-lines angled.

achyrdaghica. **E. achyrdaghica** *Wehrli* (14 h) is related to *alliaria*, but easily distinguished from it and from *silenicolata* by its colour (light grey in the ♀, darker grey in the ♂) and fine black irroration and is smaller than either. The ventral plate of the ♂ is comparable to that of *silenicolata* but different in its proportions. The bursa of the ♀ has a different "appendix" from those of both the allies. Achyr Dagh, N. Syria, 1000-1500 m, flying in June. Superficially it rather recalls *distinctaria sextiata* than the *venosata* group.

terrenata. **E. terrenata** *Dietze* (14 h). We figure a topotype from the Wehrli collection. A ♂ from Turkish
unistrigata. North Syria is, according to the same authority, identical therewith in colour and markings. — ab. **unistrigata** *Dietze.* Median line of forewing strong, especially anteriorly, touching the cell-dot. Karagai-tau, its determination not quite certain.

egenaria. **E. egenaria** *H.-Sch.* (Vol. 4, pl. 13 e). The last line on p. 280 of the volume cited should refer to S. E. Siberia, not S. E. Russia. The life-history has just been made known by R. Lunak of Vienna. Following up the clues that it was probably associated with lime, he offered a captured ♀ lime-twigs with flower-buds and on these the eggs were laid, larvae hatching on 10 June, after 12 days. The duration of the larval stage is about 17 days, corresponding to the flowering time of the food-plant. The pupa hibernates.

extraversaria. **E. extraversaria** *H. Sch.* (Vol. 4, pl. 12 e). A further account of the life-history (by Ressler) will be found in the Int. Ent. Zeitschr., Vol. 26, p. 24—26. It has recently been recorded from the Great Atlas; the only specimen before me is smaller and more silvery than the European, but no subspecies is yet established.

albidior. *E. centaureata Schiff.* (Vol. 4, pl. 12 d) ab. **albidior** *Heinrich.* Markings slight, in particular the mid-
punctata. costal spot greatly reduced. Berlin district. Wehrli reports "weakly marked white examples" from the Sierra
centralisata. Nevada, which may be similar to this aberration or to *centralisata.* — ab. **punctata** *Hannem.*, merely diagnosed (also from Berlin) as having "the black discocostal spot reduced to a dot" is probably identical. — **centralisata** *Stgr.* (= centralasiata *Amsel*). The tendencies which are manifested in some of those western aberrations have perhaps become racial in some of the more easterly parts of the range. Amsel, however, says of the Palestine examples that they vary a good deal in markings and size. Specimens from the Elburs Mountains are quite strongly marked.

subpulchrata. **E. subpulchrata** *Alph.* Dietze suggests that this group (as far as *scalptata*) may be a link between *gueneata* and the *linariata* group; the early stages are still unknown; the form of the ventral plate perhaps sup-
iuxta. ports the suggestion. — ab. **iuxta** *Dietze*, a single ♀ from N. Tibet, is said to be more variegated and more sharply marked than Alphéraky's type. If it really belongs to this species it may represent a local race.
conviva. — f. **conviva** *Dietze* (14 h). We figure a topotypical (Aschabad) ♀ of this form.

scalptata. **E. scalptata** *Christ.* (Vol. 4, pl. 13 g). F. Wagner records this from Inner Anatolia, collected between the 12th and the end of June.

syriacata. **E. syriacata** *Stgr.* (Vol. 4, pl. 25 f). This species and the two following have differently formed pupae from the rest, more stumpy, the normally free segments immovable. On this important character Dietze considers them to be a quite isolated group.

gueneata. **E. gueneata** *Mill.* (Vol. 4, pl. 12 d). Zerny records a worn ♂ from Ploshtan, Albania, the first record for the Balkan Peninsula.

gratiosata. **E. gratiosata** *H.-Sch.* (Vol. 4, pl. 12 d). The specimens from Becharré, according to Zerny, are small, with very weakly marked basal and distal areas. Perhaps a race?

breviculata. **E. breviculata** *Donz.* (Vol. 4, pl. 13 g). Petry has added S. Baden to the known range. In the Balkans it is known from Albania and Macedonia.

extremata. **E. extremata** *F.* (Vol. 4, pl. 13 g). Here also some fresh records of the distribution have been published, particularly as regards the Balkans.

E. stertzi *Rbl.* (14 h). We figure a Tenerife example of this very distinct *Eupithecia.* *stertzi.*

E. actaeata *Walderdorff* (Vol. 4, pl. 12 f). Occurs in a few localities in the Balkans, at least in Bosnia and Albania. In N. E. Asia it reaches Kamtshatka. *actaeata.*

E. selinata *H.-Sch.* (Vol. 4, pl. 13 g). L. H. Scholten has some articles on its occurrence on the German-Dutch frontiers and gives (mainly after Dietze) careful differentiations from *trisignaria*, besides a useful survey of its geographical distribution (see Int. Ent. Zeitschr., Vol. 29). C. Schneider and V. G. M. Schultz supplement with records from Württemberg and Lippe. *selinata.*

E. addictata *Dietze* (misprinted addictaria, Vol. 4, p. 282), I have recorded this or a near relative from Japan (Takao-San), but the palpus is scarcely long enough and some other details do not exactly tally. *addictata.*

E. trisignaria *H.-Sch.* (Vol. 4, pl. 12 g). My friend Mr. H. C. Hayward made a careful study of the larvae of this species and *tripunctaria* for some 20 years at Repton, where both feed together on Angelica, and has published some interesting comparisons and contrasts (Proc. Ent. Soc. Lond., Vol. 7, p. 74). — **angelicata** *ab. nov.* By analogy with the melanic *tripunctaria* I apply this name to the black *trisignaria*, of which 3 were bred by Mr. Hayward at Repton, among large numbers of typical specimens. They are "hardly distinguishable from (*tripunctaria* ab.) *angelicata*". Dietze mentions "strongly blackened examples" of the larva, but I know of no other melanic specimens of the imago. *trisignaria.* *angelicata.*

E. glaisi *D. Luc.*. a good specimen from near Algiers, February 1937, is said to be near *trisignaria.* "15 mm". Above uniform brown-grey, beneath light-grey; cell-dots distinct, except on forewing above; forewing with the usual lines lighter, the subterminal triple, very slender, geniculate near costa, terminal parallel with fringe, only at costa incurved; hindwing beneath with a distinct subterminal, parallel to the fringe. *glaisi.*

E. intricata *Zett.* (= septemtrionalis [sic] *Dietze*) (see Vol. 4, p. 283). Although Zetterstedt's well-known work is dated 1840 on the title-page, part 6, containing *intricata*, appeared in 1839, so that this name antedates *helveticaria* (1840) and the small northern form becomes the name-typical race of the collective species. — ab. **mediofasciata** *Dietze* is a banded form, from N. Finland, corresponding to that of *helveticaria* which bears the same name. — **helveticaria** *Bsd.* (Vol. 4, pl. 12 g). J. D. Schröder notes the similarity of the larva to those of *Cidaria juniperata* which lack the red stripe, but finds the green legs constant (in *juniperata* brown or reddish). — ab. **suffusa** *Dietze.* Entirely or almost without markings except the dark cell-spot. Stainz, Austria. Corresponds to *abbreviata* ab. *hirschkei.* — ab. **mediofasciata** *Dietze.* Median area of forewing wholly or in part darkened, distal area relatively weak-marked. Erfurt. — **millieraria** *Wnukowsky* (= anglicata *Mill.*, nec *H. Sch.*) (14 h). The new name for this North British race was necessitated by the law of homonymy. — *arceuthata Frr.* (Vol. 4, pl. 12 g) ab. **suffusa** *Dietze* is similar to the same form in *helveticaria* and is recorded from the Middle Rhine, etc. *intricata.* *mediofasciata.* *helveticaria.* *suffusa.* *mediofasciata.* *millieraria.* *suffusa.*

E. pfeifferi *Wehrli* (14 h). Considerably larger than *helveticaria*, near it not only in the habitus but in the genitalia of both sexes. Palpus long. Antennal ciliation of the ♂ short (½ to ⅔ diameter of shaft.) Colouring rather more uniform than in *helveticaria*, the lines more indistinct, costal spots much weaker, terminal line of both wings also weaker; underside different from that of *helveticaria*, the sharp cell-dot of that species having become weak and blurred, especially on the forewing. N. Syria: Bertiz Jaila, Achyr Dagh, 1800 m, among cedars. *pfeifferi.*

E. scopariata Rmb. (Vol. 4, pl. 12 h) **orientata** *Stgr.* (14 i). The Tring Museum has received specmiens of this interesting dark form from Zonguldak, N. Turkey. We figure a ♂ which is probably still blacker than the original. *orientata.*

E. farinosa *Dietze* (18 e). If, as I believe, the Algerian specimens are correctly determined, Dietze was evidently justified in his conjecture that his Cuenca ♀ represented a separate species (see Vol. 4, p. 283). A series from Guelt-es-Stel, April, May and August, one of which is here figured, shows little variation; common also at Atlone. Lambèse, Geryville. June to September. Mr. R. E. Ellison has recently taken a specimen at Anosseur. Middle Atlas. *farinosa.*

E. rusicadaria *Dietze* (14 i). We figure a ♂ from Mt. Zaccar. Eastward the range extends into Tunis. *rusicadaria.*

E. veratraria H.-Sch. (Vol. 4, pl. 12 g) ab. **prüfferi** *Schille.* Smaller than the typical form; entirely without markings except only the black discal dot, the small white spot in the anal angle scarcely noticeable; ground-colour a light olive-grey. Bred from the larva, Stryj district, Poland. — **homophana** *Djakonov.* Also smaller than the name-type, more uniform grey, with weaker markings, the distal area somewhat darker than the ground-colour, the subterminal always present, but on the whole weaker, notably the spot in the anal angle; the characteristic vein-dashes of the type almost wanting. Sajan Mountains. Evidently it makes an approach to the extreme ab. *prüfferi* but is here a stable geographical race. *prüfferi.* *homophana.*

E. duplex *Sterneck* somewhat suggests a giant *veratraria* (30 mm from tip to tip in the set specimen), but with the discocellulars of the hindwing biangulate, on which account it is suggested that it might be given a separate section in the genus. Palpus rather long, strongly clothed. Forewing rather narrow, grey; *duplex.*

cell-spot very large, black; 2 black costal spots, at ⅓ and ⅔; 4 proximal lines marked by dark vein-dots; postmedian double, strongly excurved at costa, then parallel with distal margin; subterminal line weakly dentate, accompanied proximally by one, distally by two dark lines; fringe distinctly chequered. Hindwing light grey, the lines only distinct in posterior part. 1 ♀ from China, without locality.

mediopunctata. inanis. *D. fenestrata Mill.* (Vol. 4, pl. 13 h) ab. **mediopunctata** *Dietze* has more or less distinct cell-dot present on the forewing above. 6 examples known to its author, the type from Fenestre. — ab. **inanis** *Dietze* is pure white, with remnants of the brownish markings at the costa. Allos, France, obtained by breeding; as 4 out of

confuscaria. the 5 were small Dietze calls it a "hunger-form". — ab. **confusaria** *Dannehl.* Unusually strongly marked, often with a light brown tint; lines broadened, very brown. Monte Baldo, 1800 m (loc. typ.) and singly from

perlineata. the Ortler and Carinthia. — ab. **perlineata** *Dannehl.* Much rarer. White, the lines scarcely visible excepting the ante- and postmedian, which are very pronounced. Monte Baldo (type), etc.

cerussaria. **E. cerussaria** *Led.* (Vol. 4, pl. 13 g). According to Dr. Cockayne's researches this is the only fluorescent *Eupithecia*, on which account he suggests that it is not properly congeneric. The areole is also perhaps not quite normal, usually very narrow in proportion to its length, yet rather variable; but I can scarcely yet feel that the generic placing can be incorrect. Occurs on Cyprus in March and April.

cauchiata. **E. cauchiata** *Dup.* (Vol. 4, pl. 12 g). Dietze thinks that *majoraria Lah.* = *griseimarginata* (*Brd.*, ined.) *Lah.* may represent this species rather than *scabiosata*, to which it was provisionally assigned by Speyer and others. On a careful examination I conclude that Dietze is obviously right, though the type figure is crude. Sweden is a further locality for *cauchiata*.

amplexata. **E. amplexata** *Christ.* (Vol. 4, pl. 13 i). It was demonstrated long ago by Petersen that, especially according to the genitalia, this should be placed in the *satyrata* group, not near *subumbrata* or *denticulata*.

pryeriaria. — **pryeriaria** *Leech*, from Hondo and Yezo, is almost synonymous with *amplexata* and I formerly sunk it (though the name was accidentally omitted from Vol. 4). But as all the Japanese examples which I have seen have the cell-dot very small (which is a very rare occurrence in *amplexata*) I now regard it as a race.

scribai. **E. scribai** *sp. n.* (18 h). Palpus 1½. Ciliation even, about ½ or little over. Creamy white, with the markings light yellow-brown, as in rather pale *pryeriaria*, to which evidently it is nearly related. Forewing with cell-dot very small and weak; lines slender, costally somewhat expanded and darkened; first group otherwise indistinct except the antemedian, to which succeeds a clean space to just beyond cell-dot; postmedian series rather strongly angled outward, then oblique inward, the proximal one touching the cell-mark posteriorly; subterminals weak. Hindwing concolorous; about 4 proximal lines (weak except the last of them) and a lunulate postmedian. Underside well banded, differing especially from that of *pryeriaria*, the subterminal forming a broad white band. Sachalin, 28 July 1923 (Dr. Scriba), type ♂ in the Seitz collection.

aggregata. **E. aggregata** *Guen.* Djakonov finds the genitalia in both sexes indistinguishable from those of *pernotata* (Vol. 4, pl. 13 h) and therefore regards *aggregata* as merely a local race. This name has page-priority, but as Guenée knew b o t h sexes of *pernotata* and only a single ♀ of *aggregata*, Djakonov has made a wise selection in choosing *pernotata* as the name of the collective species; assuming his premises, this nomenclature must be accepted. Specimens from the Ussuri, and even from Japan, are sometimes confusingly similar to *pryeriaria*, except that the cell-dot is obsolete; I do not know whether any exact anatomical investigations have been undertaken.

serenata. **E. serenata** *Stgr.* I overlooked Dietze's statement that this "seems nearer to *pernotata* than to *satyrata*". I have no material for comparison, but as Staudinger refers to "an old ♀ from Altai, from Lederer's collection" as agreeing "almost" entirely and it is reasonably safe to assume that that specimen was one of the originals of *rivosulata* (see below), the synonymy given in Vol. 4 (p. 285) may probably be correct. Staudinger stresses as particularly characteristic of *serenata* the "very strikingly broad and light (almost white)" line which, "as never in typical *satyrata*", delimits the narrow, somewhat darkened distal area. The type came from Amdo; according to Dietze Koko-nor is to be added to its range.

rivosulata. **E. rivosulata** (*Led., MS.*) *Dietze* (18 a). Of this *Eupithecia*, Dietze's belief that "the types no longer exist" is fortunately not correct. Even if the Altai ♀, referred to under *serenata*, was not one of them, or is lost, there is in the British Museum, from the Zeller collection, a ♀ bearing the label "*rivosulata Led.*, Altai, Led. 1, 54". We figure this, which seems to agree well with Dietze's forms from Sojmonowsk, Central Ural, especially his figures 208 and 936. It has a more deeply dentate subterminal line, perhaps also a little nearer to the distal margin, than *pernotata* and this may also help to separate it from *serenata;* otherwise very similar, though the postmedian is perhaps somewhat more acutely angled at the 1st radial. To *aggregata* and *fuscicostata*, which are also compared, I take it to be less close.

italicata. E. **italicata** *Guen.* In Vol. 4 (pp. 291, 292) I followed Dietze, who has cited this name quite tentatively to *graphata Tr.*, sens. lat., but this was evidently erroneous. The type, a ♂ from Domodossola, measured only

16 mm, but closely approached in its markings *cauchiata* and especially *pernotata*. "Forewing lanceolate, white, with some fine grey lines, two of them non-dentate, approximated and parallel, following the cell-dot, which is black. Then comes a darker border, traversed by the subterminal, which is denticulate and zigzag, especially anteriorly, is very close to the termen and ends in a larger, triangular spot at the inner angle. Vein 3 (1st median) and the submedian are intersected with white and brown. Abdomen grey-white, without a brown ring." Staudinger saw the specimen and considered it certainly a dwarfed *satyrata*. Unfortunately it has since become a complete wreck and Dr. Wehrli, who has taken great pains to elucidate it, tells me that all that remain are a torso, without antennae and legs and with the abdomen much damaged, and the hindwings. The genitalia are lost and of the ventral plate only the oral $\frac{1}{3}$ or $\frac{1}{4}$ remains; this shows a heart-shaped excision proximally, as in many species (including *cauchiata*, *pernotata*, *satyrata*, *graphata* and *plumbeolata*) and is moderately broad, laterally almost parallel-sided That it might be a very small *pernotata* or *satyrata* is not an impossibility, but the glossy hindwing (small, light brownish-white) suggests that it may rather be an exceptionally pale and narrow-winged specimen of the very light *plumbeolata* form which is frequent in the Ticino; in any case this gloss and the darkening of the terminal area preclude *graphata*, but some points in Guenée's description of the forewing are hard to reconcile with any known form of *plumbeolata*.

E. satyrata Hbn. (Vol. 4, pl. 12 h) ab. **nigrofasciata** *Dietze*. In the interests of accuracy, I point out that this, which I misquoted as *nigrofasciaria* (Vol. 4, p. 285), is the original spelling of the name. — ab. **limbopunctata** *Dietze*. A further orthographical error, or more probably misprint, occurs in the German edition in respect of this name. — ab. **contrastata** *Dannehl*. Named from the strong contrast between the predominant colour, which is much darkened by black-brown irroration and speckling, and the white bands. Somewhat recalls *curzoni*. Described from Schliersee (Upper Bavaria); also from S. Tyrol. — **subatrata** *Stgr*. This form is quoted by Amsel as a subspecies and recorded (on a Tabgha specimen determined by Wehrli) as new for Palestine. — **juldusi** (*B.-Haas*, M.S.) *Dietze* (= concolor *Dietze*). I overlooked (Vol. 4, p. 285) that *concolor* (1913) was merely a "nom. nov." for *juldusi* accepted earlier (1910). Its tone of colour is its essential feature, for Dietze notes occasional examples among it in which the cell-mark is developed as in *subatrata*. Perhaps "ab. loc." is the best designation of this Juldus modification thereof. — ab. **medionotata** *Dietze*, perhaps another ab. loc. in Asia, as the given localities are the Altai and the Sajan district, shows more of the light ground-colour, so that it looks whiter than typical *satyrata;* at the same time, the cell-spot is strikingly black. This form came into the market as "*rivosulata Dietze*", but in error. — **curzoni** *Gregs.* (17 i). Wolff records that this race, in still more aberrative developments, inhabits the Faroe Islands; he names one of the Faroe aberrations — ab. **trifasciata** *Wolff*. Whitish ochreous, the forewing with brownish basal patch, both wings with 3 brown bands, all conspicuous on the hindwing, the central one slighter on the forewing and the postmedian less broad than the antemedian, the distal area almost without markings. — **zermattensis** *Wehrli* is a light, pure-grey, sharply marked and broad-winged form, which may be regarded as a local race. Zermatt, bred from larvae found feeding on low plants mid-July to mid-September, up to 1800 m.

nigrofasciata. *limbopunctata.* *contrastata.* *subatrata.* *juldusi.* *medionotata.* *curzoni.* *trifasciata.* *zermattensis.*

E. pseudosatyrata *Djakonov*. Erected as a species, though it is assumed that it has only recently branched off from *satyrata* and the possibility is not ruled out that it might be a modification of that extremely variable species. Over 20 specimens were received from Kamtshatka (chiefly Klutshi), unfortunately for the most part in very bad condition. Superficially similar to *callunaria*, but according to the genitalia certainly not that, unless the reputed identity in those of *satyrata*, *callunaria* and *curzoni* is inaccurate. Markings, when traceable, nearly as in *satyrata*, the white stripe outside the postmedian somewhat nearer the termen, sometimes dark-bounded distally; the distal area usually clouded, the subterminal line feeble. Best distinguished by the ♂ genitalia; valve somewhat longer and less pointed, with its ventral margin straighter, cornuti differently formed, ventral plate at its narrow end more pointed.

pseudosatyrata.

E. tripunctaria *H.-Sch.* (Vol. 4, pl. 12 f). Hayward, in the notes referred to under *trisignaria*, remarks on the great increase of the melanic ab. *angelicata* in his district within the last 20 years — from about 5—10 per cent. then to nearly 50 per cent. now. He finds the larvae of the present species extremely subject to the attacks of parasites, those of *trisignaria* hardly at all. — ab. **privata** *Dietze*, admitted to be rather an extreme piece of "name-giving", refers to very poorly-marked specimens, corresponding to *virgaureata altenaria*. Both sexes from Waidbruck, Tyrol. — gen. ♂♂ **aestiva** *Dietze*. Mostly smaller and less sharply marked than the 1st generation, but occasionally not distinguishable from those which result from hibernated pupae.

tripunctaria. *privata.* *aestiva.*

E. absinthiata *Cl.* (Vol. 4, pl. 12 f). A further synonym is *elongata Haw*. A possible addition to its range is Saghalien (Matsumura det.).

absinthiata.

E. goossensiata *Mab.* (Vol. 4, pl. 12 f). Klos and a few others revive the name *callunae Spr.* for this species, but all agree on the small size, while Speyer's puzzling form was "more than twice as large".

goossensiata.

expallidata. **E. expallidata** *Dbld.* (Vol. 4, pl. 12 e). This does not seem to have been known in Belgium until 1930, though a by no means unexpected occurrence. In France it is distributed, but it is somewhat surprising that Lhomme has only been able to register five localities for it. The very late dates at which the larva feeds probably renders it a frequent victim to the frosts and may help to keep it in check and even to restrict its range. This species may be, as Dietze confidently avers, the one represented in Wood's Index Ent. (ed. Westwood) as *elongata*, but if so, it is a misidentification; see *absinthiata*.

grisescens. *E. assimilata Dbld.* (Vol. 4, pl. 12 f) f. **grisescens** *Dietze* does not seem to be a fixed race; a single specimen from Minussinsk examined by Dr. Wehrli is neither smaller nor greyer than his Central European.

vulgata. **E. vulgata** *Haw.* (Vol. 4, pl. 12 f). From the latest discoveries regarding the dates of publication of Hübner's work, it is virtually certain that this name antedates *austerata Hbn.* (= clusterata *Hemming*, err. transcr.), probably by 3 or 4 years; Dietze has the priority reversed. — ab. **atropicta** (*Dannehl* in litt.) *Dietze.* Dannehl applies this name, no doubt correctly, to the dark (black-brown) form which he takes at Klausen; it was he who first proposed the name to Dietze. — ab. **nigrofasciata** *Dietze* is weakly marked, with the median area darkened. No locality is indicated. — **montium** *Dietze.* This is recorded by Zerny from the northern Lebanon. The form recently discovered in the Riff Mountains of Morocco is transitional, having a "dirty blackish-grey" tone. — **cyrneata** *Schawerda* (18 a). Darker grey and somewhat larger than *montium*, but equally devoid of any brown admixture, the whitish markings, especially the subterminal, strengthened. Corsica.

atropicta. *nigrofasciata.* *montium.* *cyrneata.*

ochraceata. *E. denotata Hbn.* (Vol. 4, pl. 12 f) ab. **ochraceata** *F. Fuchs.* "Both wings ochre yellow, almost without markings." Dietze, probably more accurately, applies this to the "weakly marked, somewhat more ochreous coloured" form which is frequent in Central Germany. — **jasioneata** *Crewe* (17 h). Feeding on Campanula in a garden in mid-Devon, larvae were found by the late Mr. F. C. Woodforde which produced moths which neither he nor I could separate at all from the *jasioneata* of the Devonshire coasts. Further, in breeding this so-called species in large numbers from N. Cornwall I obtained occasionally (though very rarely) a specimen little darker than some of our English *denotata*. As the genitalia have shown no differences, there seems no doubt left about the status of this interesting form.

jasioneata.

castigata. **E. castigata** *Hbn.* (Vol. 4, pl. 12 g). According to Matsumura this occurs also in Saghalien. — ab. **obscura** *Dietze.* Ground-colour more or less strongly darkened, only the subterminal remaining clear. The originals came from Stainz and Graz and in some degree make the passage to the extremely melanic ab. *obscurissima Prout.*

obscura.

diffisata. **E. diffisata** *Dietze* (= diffidata *Dietze*). Although Dietze in 1913 wrote without comment "perhaps ♂ of *aequata*" (see Vol. 4, p. 287), his original description definitely stated that it "does not belong to *aequata*, *kuldschaensis*, *sutiliata*, *biornata*, of which the types were compared in the Staudinger collection, where our insect is wanting". Length of forewing 10½ mm. Rabbit-grey, *scopariata* pattern, forewing elongate, but the apex not produced. In those species (*aequata*, etc.) the wing-form looks still more distinctive, perhaps an illusion due to their differently coloured costal region, whereas in *diffisata*, as in *scopariata*, the markings are nearly uniform all across the wings, though not very distinct. Ili, the type quite fresh; a rather worn specimen from Lagodechi possibly belongs with it.

bohatschi. **E. bohatschi** *Stgr.* (Vol. 4, pl. 25 f). Djakonov records one of each sex from Kamtshatka; further known localities in Siberia are Minussinsk and Tukuringra. Southward it reaches Kalgan, N. China. — **kawakamiana** *Matsumura.* This, as also the following species, is unknown to me personally, but a fairly good figure of *kawakamiana* shows that it is extremely close to *bohatschi*, probably a race, or even a synonym. White with a faint rosy shade, the dark border of the forewing, as I gather from the description and figure, less extended into the posterior part of the median area, the hindwing with a heavier dark border, and perhaps less dark suffusion proximally, than in most *b. bohatschi*. Founded on 2 ♂♂ which were collected in late July at Ichinosawa and Kawakami, both in South Saghalien.

kawakamiana.

jezonica. **E. jezonica** *Matsumura.* Ground-colour greyish white, the greater part of the forewing coppery brown, the apical two-thirds with 6 whitish spots (the 4 middle ones forming 2 pairs), the subterminal line excurved, nearest to the termen at vein 3, defined proximally by black interneural spots; the whitish parts (base, except costally, and cell) irregularly dark-marked; cell-mark linear. Hindwing with about 6 indistinct fuscous bands, the 1st conspicuous at inner margin, the 3rd the broadest (tapering posteriorly), the 5th partly double. Hokkaido: near Sapporo, etc., 3 ♀♀. "Near to *kawakamiana.*"

sophia. **E. sophia** *Btlr.* (Vol. 4, pl. 13 o) is usually much smaller than our figure (about 20 mm). It varies moderately in the extent of the two colours on the forewing. It is often closely similar to the Indian *ustata*, but the antennal ciliation is here about 1 (in *ustata* very short), the brown parts of the forewing a little lighter, the subterminal line on the whole weaker or more slender. — ab. (?) **simplex** *Dietze* (ex *Btlr.*, M. S.). Dietze

simplex.

figured a small, weakly marked Nikko specimen (coll. Püngeler) as"? *sophia Btl. (simplex Btl.)*", thus sponsoring the latter name, as from 1910. — ab. **griseipars** *nov.* Forewing with median area almost uniformly suffused with grey, excepting a small white patch between subcostals and 2nd radial just outside the cell; hindwing with proximal half grey, weakly traversed by one or two whitish lines. A ♂ from the Pryer collection, received through Leech. Apparently an extreme form of this variable species. *griseipars.*

E. sinicaria *Leech* (18 a). I still know only the type (a ♂, here figured), but do not now think it can be a giant form of *sophia* (see above). The hindwing seems too elongate, with the lines stronger, more denticulate or punctuated but almost lacking the cell-dot; the white of the forewing is more extended, but more sprinkled with blackish dots. *sinicaria.*

E. subicterata *Prout* (14 l). Comparable to the greyest forms of *icterata*, in which the brown admixture is not very bright and almost confined to the triangular area at the end of the median and along its 1st branch and the 3rd radial. Palpus rather longer (nearly twice diameter of eye). Forewing with the angle of the postmedian at the 2nd instead of the 1st radial and with some other differences in its course; black longitudinal dashes along the fold sharp, though extremely fine. Hindwing with termen slightly less convex than in *icterata*, the markings rather stronger. Takao-San, W. of Tokyo, 1 ♀, 2 May; a specimen from "Japan" is figured by Dietze (fig. 862) without a name. *subicterata.*

E. icterata Vill. (Vol. 4, pl. 12 h) **cognata** *Steph.* A specimen of this or perhaps (if the two differ) of *ligustigata Donz.* is recorded by Wehrli from the Sierra Nevada, quite fresh on 12 July, almost entirely grey, sharply marked, with no rust-colour except the central veins "below" (behind) the cell-dot. Probably one of the less extreme examples of the sub-aberration *excelsa Dietzè*. — ab. **melaena** *Dietze* is much suffused with blackish, almost melanic. The original was bred at Hochstadt, near Hanau. — **oxydata** *Tr.* is recorded from Tachdirt, Great Atlas, by Zerny, 1 ♀, 1 July, with the forewing too much mixed with reddish to allow one to think of *tarfata D. Luc.* *cognata.* *melaena.* *oxydata.*

E. succenturiata *L.* (Vol. 4, pl. 12 h). Apart from the distinctions in colouring, the ♂♂ of this species can easily be separated from those of *icterata* by the considerably narrower plate of the 8th sternite; its two posterior (caudad) prongs taper to a narrow ending, while in *icterata* they are much squarer. — ab. **extrema** *Dietze* is founded on an unusually large, exceptionally light ♀ from Kuldja, even the dark distal borders weakened. — **exalbidata** *Stgr.* (Vol. 4, pl. 12 h). Djakonov records this as common in Kamtshatka and says concerning its range that it is distributed throughout palaearctic Asia with the exception of the Amur-Ussuri district. *succenturiata.* *extrema.* *exalbidata.*

— ab. **malaisei** *Djakonov*, 1 ♂, from Petropavlovsk, is a remarkable aberration with wholly white forewing, strongly darkened costal margin, large black cell-dot touching the costal shade, a dark shaded median and strongly chequered fringes; hindwing likewise white, the base somewhat shaded, the fringes as on the forewing. *malaisei.*

E. denticulata *Tr.* (Vol. 4, pl. 12 i). Lhomme calls attention to a record from Cauterets by Oberthür and awaits with interest a confirmation of its presence in France. — ab. **famelica** *Dietze* is what Dietze calls a "hunger-form", small and with the median area not very sharply defined. Hungary. *denticulata.*

E. lacteolata Dietze (Vol. 4, p. 288) **sublacteolata** *Wehrli* (18 a). At first glance might be taken for a quite white, dark bordered *subumbrata* but has the areole not divided; the pure white ground-colour, with silky gloss, the white thorax and abdomen and obsolescence of lines, the pattern being more broken up into dots, are distinctive. Dietze figured a specimen, from the N. W. Caucasus, as "? *lacteolata*", but it differs therefrom in its smaller size (18 : 21 mm, tip to tip), has more distinct cell-dots and darker costal and terminal borders. Antennal ciliation of the ♂ about ½ diameter of shaft. Minussinsk. *subtactcolata.*

E. impurata *Hbn.* (Vol. 4, pl. 12 i). A fine specimen taken at Laroche-en-Ardenne, settled on a window, is recorded by Derenne as confirming previous reports of a wider distribution than was given in the old books. South-eastward its known range has been extended by the capture of a ♂ at Bështriq, Albania, the first known from the Balkan Peninsula. *impurata.*

E. lithographata **poecilata** *Püng.* (18 a). This can hardly be more than a race; Schawerda and Bytinski-Salz provisionally separate it from the Russian name-type by its less reddish tinge. Corsica and Sardinia. *poecilata.*

E. unitaria *H.-Sch.* (Vol. 4, pl. 13 h). The distribution was given by Dietze as Andalusia, Murcia, S. Oran and Tunis, but the context, as well as subsequent collecting in Algeria, suggests that he here included his *desertorum*. Typical *unitaria*, in any case, belongs chiefly to Spain and perhaps Morocco (Riff Mountains). — **desertorum** *Dietze* (= roseocinnamomaria *Rothsch.*) (17 i). The note on the early stages (Vol. 4, p. 289) refers to this race, the larva having been discovered at Gafsa by Chrétien; I have before me one of his bred examples. The distribution in Algeria is wide, the flight-time March and April or even into the beginning of May. Dietze mentions "Pont Caïd" and suggests that this may be a mistake for Port Saïd (!), but I presume it is Bordj du Caïd, near Sétif. *unitaria.* *desertorum.*

orana. **E. orana** *Dietze* (Vol. 4, p. 289) is probably not definitely identifiable without a study of the types, as the photographic illustration has not come out clearly and the description merely says: "All the markings with smoky blackening (rußig geschwärzt), only the inner half of the terminal area of the forewing lightened, likewise a transverse band on the hindwing." I gather that even the exact locality of the type (which was a unicum) was not known, inasmuch as only "Oran" was quoted. As so good an authority as Dietze judged it probable (though not certain) that it was a form of *unitaria*, it may be assumed that the external structure is the same; in this case, my former idea that the following species was identical with it was manifestly erroneous. Zerny refers here a form from El Hadjeb, Great Atlas.

pseudoscriptoria. **E. pseudoscriptoria** *Rothsch.* (18 b). Smaller than *desertorum* (length of a forewing 9 or 10 mm, very rarely 10½). Face appreciably more prominent, foreshadowing the *Nasusina* form; palpus short, not reaching appreciably beyond face (in *desertorum* almost 1½). Antennal ciliation of ♂ fully (or slightly over) half diameter of shaft, apparently a trifle longer than in *desertorum*. Forewing somewhat darker, less tinged with yellowish; general effect much more uniform, the rippled lines across the wing more regular in expression throughout, dark costal spots at the commencement of the 3 principal lines or bands scarcely noticeable; dark marks on median vein, especially at base of its 2nd branch, rather conspicuous, at least with the lens. Hindwing also appreciably darker and more uniform than in *desertorum*. Guelt-es-Stel, rather common at the end of March and in April. A few from scattered localities in Oran and E. Algeria show that it has a similar range to *desertorum*. By the size and the short palpus, it may have to sink to *elissa*.

elissa. **E. elissa** *Dietze* is still more inadequately made known than *orana*. We quote in full: "A further uncertain species is that figured from Tunis, pl. 76, fig. 588. Smaller [than *unitaria*], blackened, sparsely covered with light and dark spots. Looks like a small, darkened *semigraphata*, from which the unique example is well different in its short palpi." The figure looks a good deal like *pseudoscriptoria*, but I cannot see that this latter bears any resemblance to *semigraphata*.

orphnata. **E. orphnata** *Bohatsch* (18 b). Rondou, in his new catalogue of the Lepidoptera of the Pyrenees, challenges the mention of that locality in Vol. 4 (p. 289); I have therefore endeavoured to trace the source of my reference but have thus far failed and must regard the record as doubtful. On the other hand, it is now known from the Iberian Peninsula. Albarracin, from the end of June to the end of July, not rare at light. The only certainly authenticated French station is Digne.

obrutaria. *E. subumbrata Schiff.* (Vol. 4, pl. 12 i) ab. **obrutaria** *H.-Sch.* According to Dietze this is not a synonym, but a dwarf form with less copious markings, outer part of distal area very sharply marked, remaining darkened. The original came from Regensburg; the description is better than the figure. — ab. **aequistrigata** *Stgr.*, *acquistrigata.* treated by Dietze as virtually synonymous with ab. *obrutaria* (not, as stated in Vol. 4, p. 289, with the type), *limbofasciata.* is, as indicated by its author, much more equally marked throughout. — ab. **limbofasciata** *Dietze*. Here should be added as synonym *juldusi Dietze*, ex *Bang-Haas* M.S. I infer that Bang-Haas used the name twice in *bistrigata.* *Eupithecia* (see above, on *satyrata* ab. *concolor*). — ab. **bistrigata** *Dietze*. Weakly marked, leaving only the ante- and postmedian bands relatively conspicuous. Originals from Stainz and Vienna.

praealta. **E. praealta** *Wehrli* (18 b). On account of its large size and the divided areole, this can scarcely be confused with any other known species. Much larger and somewhat longer-winged than similarly coloured forms of *semigraphata*, veins without ochreous scaling, antennal ciliation of the ♂ almost as long as diameter of shaft. *rerayata.* Sierra Nevada at high altitudes (2100—2900 m). — **rerayata** *Reisser* (17 g). On an average somewhat larger still, i. e. the large specimens greatly in the ascendant. Tone more yellowish, often with a slight rosy tinge, the ground-colour not so entirely concealed by the dark irroration; markings much more distinct, the bands often narrowed, a distinct subterminal line present, almost always also a well-developed slender terminal line, *infuscata.* interrupted only at the vein-ends. Great Atlas, at 2300 to 3400 m. — ab. **infuscata** *Schwingenschuss*, occasional among *rerayata*, has both wings darkened with smoky brown.

calligraphata. **E. calligraphata** *F. Wagn.* Recalls *graphata* (Vol. 4, pl. 12 k), in the arrangement of the markings but is much more slender and pointed-winged. Areole double. Rather clean grey, more uniform and less brownish than *graphata;* cell-dots distinct; of the other markings, the least indistinct are the ante- and postmedian lines and the whitish subterminal, which is placed on a dark grey distal area. Underside whitish grey, very weakly marked, only the cell-dots distinct. Akschehir, Inner Anatolia, 1 ♀ at light, 13 July.

semigraphata. **E. semigraphata** *Brd.* (Vol. 4, pl. 12 i). Even in this species, generally so constant structurally, the tendency of *Eupithecia* to lose the dividing-wall of the areole is beginning to manifest itself; I have noticed among very many examined from time to time, one Sicilian ♂ (coll. E. Ragusa) in which the areole is simple on both wings. It is of course a pure coincidence that the same specimen has lost the black pigmentation of the eye; an unknown hand, in writing the determination of the specimen, has added "die hellbraunen Augen

waren vielleicht erblindet??" Otherwise it is a perfectly normal *semigraphata*. — E. Lange, who first discovered the species in the Freiberg district, has some interesting notes on its biology (Iris, Vol. 38, p. 175—77). — ab. (loc.) **ochroradiata** *Preissecker*. On the forewing veins 7 and 6, the median, veins 4, 3 and 1 are broadly light ochre-yellow; sometimes also the subcostal and on the hindwing the principal veins. Out of 20 specimens from the Waldviertel of Lower Austria, 18 belonged to this form, though varying in other respects. — ab. **confusata** *Naufock*. The numerous fine blue-grey transverse lines are blurred and evanescent, so that the whole wing looks to be irrorated with blue-grey; only the ante- and postmedian remain recognizable, besides traces of the subterminal. A pair from Istria. — ab. **virgulata** *Dannehl* has the median area darkened into a band. "Seems extraordinarily rare"; the author only knows the type from Torbole and 1 from Mt. Sirente. — ab. **extralineata** *Dannehl*. Postmedian on both wings intensified. Type from Nago. — ab. **exquisita** *Dannehl*. The slightly brownish tinged distal area differentiated by fine dark irroration; in it stand 3 large cloudy, blackish brown-grey spots, costal, tornal and "somewhat above the middle" (i. e., radial); median area, on the contrary, somewhat lightened, with the cell-spot large and conspicuous. Mt. Autore, Sabine Mountains, ca. 1000 m type; also Sirente and Montagna Grande. — ab. **extraradiata** *Dannehl*. The distal area, which is bounded proximally by a strong black line, has fine white lines along the veins. Mt. Sirente, 2000 m. — **nepetata** *Mab.*, described from Corsica. Schawerda proposes, on the strength of 2 ♀♀ which are darker than the Austrian *semigraphata*, to resuscitate this as a subspecies. It seems doubtful whether this will prove tenable. — **porphyrata** *Zerny* (17 g), from the Great Atlas, and the only *semigraphata* form yet recorded from Africa, is readily distinguished by its reddish tone, which, though somewhat variable in strength, is at least manifest in the seal-red shading of the principal veins. — **arida** *Dietze* (Vol. 4, p. 289), which I registered as "ab." and for which I gave no locality, is recorded by Wehrli from Marasch as a race. The original came from Zeitun (Taurus), a more doubtful representative from Anatolia.

ochroradiata. *confusata.* *virgulata.* *extralineata.* *exquisita.* *extraradiata.* *nepetata.* *porphyrata.* *arida.*

E. tarfata *D. Luc.* (17 h), originally described as *succenturiata* var. (!), but now considered a species, has been well figured by Culot, who, however, still compared it with that species and *subfulvata*. According to the specimens before me, which include a rather dark paratype from the author (here figured), the areole is double and the obvious relationship is with *semigraphata*, of which it is probably a race; darker, browner, more coarsely scaled, the cell-dots large, etc.; very closely like Sicilian *semigraphata*. I have not seen the ♂♂. Le Tarf and occasional in the neighbourhood of Algiers, September and October.

tarfata.

E. millefoliata *Rössl.* (Vol. 4, pl. 12 h). This has been added, of recent years, to the rich list of *Eupithecia* of Albarracin — new for Aragon. According to Zerny the specimens from that locality are very light, with sharper markings, and he says they are perhaps referable "to the form *maeoticaria*". But it is now almost certain that the latter name cannot be applied to any form of *millefoliata;* see below. There are also records from the Great Atlas and a very large ♀ from "Sicily", in poor condition, may belong here, though rather recalling *praealta*. — ab. **uniformis** *Dietze*. "an individual aberration from Vienna", has the markings and ground-colour of the forewing confluent into a uniform sepia-grey colour, only the cell-spot remaining conspicuous.

millefoliata. *uniformis.*

E. maeoticaria *Bohatsch* (17 g) was badly erected in 1893 on specimens from the Ukraine collected by Alphéraky in 1875 and other old and (at least for the greater part) faded material. It was regarded by its author, and even by Dietze, as a form of *millefoliata*: "ground-colour whitish yellow, instead of brownish grey, in consequence of which all the markings stand out distinctly." Dietze found no type in the Bohatsch collection, but had before him for examination 7 examples from Uralsk, all caught and somewhat worn. Probably the name is based on a confusion. I do not know the Ukrainian insect, but two of Christoph's Kasikoparan "*maeoticaria Alph.*" (unfortunately both ♀), collected in July 1888, represent a very large species, with a forewing measurement of 14 and 13 mm respectively, the areole simple, and certainly neither conspecific with the preceding nor the following. Both are in very good condition and the paler one is here figured as a further contribution to the elucidation of the species. With the same object I have made very full notes on the differentiation from *millefoliata*, although a longer series may probably modify some of them. Palpus shorter, more as in *subfulvata*, to which it may well be nearer. Tegula perhaps whiter. Forewing with cell-spot slightly broader, with a few pale scales in the middle; the acute-angled (median) line reaching the 1st radial more distally, only touching the cell-spot (behind) on its return; both this line and the next (which are separated by a rather clear white line) become yellow-brown just in front of the median vein and continue so across a slightly buff-tinged area to the black dots on the 2nd median; postmedian almost interrupted between its subtriangular costal spot and 2 very noticeable spots which are placed on radials 1 and 2; the white line between the postmedian white band and the subterminal, less obsolescent than in *millefoliata* though ill-formed and by no means conspicuous except costally, where it is bounded proximally by a sharper dark line than in *millefoliata*. Hindwing weakly marked, but with a relatively well-defined, irregularly and rather strongly dentate, dark line bounding the whitish postmedian distally.

maeoticaria.

spadiceata. **E. spadiceata** *Zerny* (= maeoticaria *Wehrli*, ? *Bohatsch*) (18 b). Dr. Wehrli is convinced that this is the *maeoticaria* of Bohatsch, at least in part, and has given a very careful account of the species, including studies in the genitalia and ventral plate. In any case it is quite nearly related to *millefoliata*, though certainly a good species. Ventral plate narrower. Generally larger; forewing broader, notably in the ♀, with less oblique termen; brownish grey, rather coarsely scaled, the median and submedian veins (as also in the preceding species) with some yellowish scaling, recalling *subfulvata;* cell-spot of hindwing considerably larger than in the two preceding. Northern Lebanon (loc. typ.), throughout June; also a worn specimen from the Amanus Mountains which, according to Wehrli, agrees entirely with Dietze's Uralsk "*maeoticaria*". Areole double, as may also probably be assumed of the Uralsk.

praepupillata. **E. praepupillata** *Wehrli*. It is suggested that this may be provisionally placed near *subnotata*, although the areole is undivided. Palpus long, more than twice the diameter of the eye. Forewing dark grey-brown, a rust-coloured costal streak bearing dark spots at the origin of the lines; the deep black cell-dot surrounded with white; lines indistinct; subterminal line ending in a characteristic, light ochre-yellowish spot. Underside lighter, the hindwing more strongly marked, the postmedian of the forewing black. Sutschansk, S. Ussuri, 1 ♀.

collustrata. *E. subnotata Hbn.* (Vol. 4, pl. 12 g) **collustrata** *Dietze*. A synonym which I neglected to quote is *issyka Dietze* (ex *Bang-Haas*, MS.), which indicates, I suppose, that Issyk-kul should be the type locality. Karagaitau (Issyk-kul), Altyn-dagh and Naryn were specified as producing the form.

druentiata. **E. druentiata** *Dietze* (Vol. 4, pl. 5 e, misprinted tricentiata; p. 421, tricendaria; p. 424, tvicentiata!). The type locality was Digne and when Dietze's monograph was published the species was only known from that locality and in Istria. It is now known from the Alibatuš Planina and (1 specimen) Albania and there
significrata. may be other records which I have overlooked; but it is certainly very local. — ab. **significrata** *Naufock*, belonging to the Istrian local form, which I do not think has been separately named but is of a "more uniform brownish-grey colour" than the name-type, is a striking aberration with the median area much narrowed, its boundary-lines heavy, almost black.

marginata. **E. marginata** *Stgr.* (18 b). We figure a ♀ from Kurdistan.

bella. **E. bella** *Stgr.* (17 k). This species and probably all of the *suboxydata* group have the areole double. We figure a ♀ *bella* from the Kardakoff collection.

sutiliata. **E. sutiliata** *Christ.* (17 e) is now figured from one of Christoph's originals (a ♀, Schahrud) and I take this opportunity to call attention to a misprint in the name (Vol. 4, p. 290, "*subtiliata*"). It is, I suppose, incorrectly placed, for the areole is simple. In coloration and the weakness of the markings it is not unlike some forms of *extensaria*, though the hindwing in slightly less narrowed.

thermosaria. **E. thermosaria** *Hmps.* (14 e). A large, long-winged species with somewhat the coloration of the brightest *pimpinellata* but — especially in the type — with much more extended white, particularly the basal area and much of the costal region, as well as on the hindwing; cell-spot large (broad as well as elongate); the clean brown band proximally to the subterminal conspicuous anteriorly, but losing itself in the bright brown suffusion posteriorly. Areole double. Only known in 2 ♀♀ examples from Kashmir.

sinuosaria. **E. sinuosaria** *Ev.* (Vol. 4, pl. 12 m). The species is indigenous also to parts of Scandinavia and a comprehensive article on its northern distribution, with a sketch-map showing every recorded habitat in Scandinavia and the Baltic countries, was published by Wahlgren in 1922. See further, for its occurrences in Germany, P. Schulze and Warnecke Zeitschr. wiss. Ins.biol., Vol. 11, p. 40 and 276. The Tring Museum has a very small from Kalgan, N. China. In captivity the larva will accept such varied food-plants as Chrysanthe-
dilutaria. mum, Capsella, Caragana, Achillea and Trifolium. — ab. **dilutaria** *Kolossow*. Very occasional weakly-marked
pallescens. examples from E. Russia are thus named. Perhaps similar to the following. — **pallescens** *Dietze*. Dietze seems to have introduced some confusion into his work either by employing the name *modesta* twice for allied forms or else by indexing (on p. 166) the same form twice and giving discrepant localities. His type, from Aksu, is
modesta. an extreme form, his other 5 (Yarkand) "essentially more strongly coloured". — ab. **modesta** *Dietze* (1913), from the Alai Mountains, Ferghana, is a transition from *pallescens* back towards typical *sinuosaria*. The *modesta* of 1910 (Dietze's fig. 380), given with a query as a form of *exactata Stgr.* (see our Vol. 4, p. 277), came from Aksu and does not fit this diagnosis. If intended for the same, why was the name not given precedence
obliquaria. over *pallescens* (his fig. 385)? — **obliquaria** *Leech* (17 g). Sterneck, who accepts the status assigned in Vol. 4 (p. 290), adds Sunpanting as a locality.

acolpodes. **E. acolpodes** *sp. n.* (13 i), evidently a further development of the *pallescens-modesta* series of *sinuosaria*, differs essentially in the loss of the sinuous median line, for which is substituted an anteriorly straight postmedian; subterminal preceded by a s t r o n g brown shade, which is r e s u m e d b e h i n d t h e 2 n d m e-

d i a n , on the underside scarcely interrupted; hindwing beneath with 2 outer lines of equal development. Kashmir Valley, 7000 feet, August 1903 (Col. Ward), 1 ♀ in the Tring Museum.

E. rubellata Dietze (Vol. 4, pl. 25 e) ab. **mediopuncta** *Dietze*. Forewing with a black cell-dot, encircled by a white ring. Makan Desert, Aksu. *mediopuncta.*

E. distinctaria *H.-Sch.* (= ? caliginata *Dup.*, err. det., nec *Tr.*) (Vol. 4, pl. 12 e). Meyrick, in his 1892 classification, misplaced this, which should have gone into his *Eucymatoge* (areole double); I cannot say whether this was by oversight or whether he examined a sport with the areole simple (compare *semigraphata*, or *gemellata*), but the inconsistency does not seem to have been noticed. 2 ♀♀ collected in the Great Atlas by Le Cerf and Talbot (the first record of *distinctaria* for Africa) are large and rather dark grey, possibly a subspecies; the genitalia of one have been examined. Zerny adds a few specimens collected at Sidi Chamarouche, Upper Mizane Valley (H. Dürck), without comment as to the form. — ab. **famelica** *Dietze* (nom. coll.). Small and poorly marked, probably a result of malnutrition. Type from Jugenheim, ex larva. — **constrictata** *Guen.* Mr. W. Parkinson Curtis has made the interesting discovery that the plate of the 8th sternite in *distinctaria* ♂ assumes 3 very recognizably different forms which, although not yet absolutely constant, coincide so closely with the 3 principal named forms as to furnish a clear case of what Petersen called "beginnende Art-Divergenz". In *constrictata*, the British race, the plate is more weakly chitinized (especially its proximal part), less angular and ending distally in a much less produced point than in the Continental forms. — **sextiata** *Mill.* (17 h). This pale, slenderly marked S. European race has the body-plate smaller, much more heavily chitinized, its proximal end more weakly concave, with two even sweeps of the curve, its distal point produced. In typical *distinctaria* the chitinization plate is intermediate and it has a rather "square-shouldered", long-pointed form, though the exact length of the point varies. Herrich-Schaeffer's type, a ♀ from Regensburg, was figured as large, probably too dark (violet-grey), with costal and discal spots of forewing heavy, and certainly represents the widely distributed, well marked European form. Both it and *sextiata* have occurred at Digne (perhaps at different altitudes?). *famelica.* *constrictata.* *distinctaria.* *sextiata.*

E. laterata *Dietze*. Of this also, and a number of others in which Dietze did not notice it, the areole is double. The topotypical specimens which I have seen are not perfectly fresh, the antennae mostly lost, but apparently with the ciliation a little over ½ the diameter of the shaft. *laterata.*

E. gemellata *H.-Sch.* (Vol. 4, pl. 12 m). Areole variable, the wall of partition generally weak, as if in process of degeneration, sometimes entirely wanting; I have noted its absence in individuals from Corsica, N. Italy, S. Tyrol and the Austrian littoral. — ab. **nigrofasciata** *Dietze*. This name was misspelled in Vol. 4 (p. 291, German edition). Dietze treats it as a subaberration of ab. *schmidii*, the ante- and postmedian lines, which in *bistrigata* are thickened into bands, being connected by blackish suffusion. — **mystica** *Dietze*. Further localities from which this has been recorded are Marasch and the Northern Lebanon (Becharré). *gemellata.* *nigrofasciata.* *mystica.*

E. relictata *Dietze*. A synonym, or probably an accidental deviation from the name originally given, is *relinquata Dietze* (1910). *relictata.*

E. cooptata *Dietze* (18 c). Areole double. A characteristic touch, not mentioned in my brief description (Vol. 4, p. 291), is the ferruginous tint on the forewing from the bases of the 3rd radial and 2nd median outward. *cooptata* has also been found at Albarracin, in June and July. Our figure is topotypical (Digne). *cooptata.*

E. sacrimontis *sp. n.* (18 c). Frontal cone developed. Palpus over 1½. Ciliation of ♂ antenna at most ½. Forewing with areole double, but not at all suggestive of any other Palaearctic species yet known to have that structure . Except in shape, perhaps comparable to a small, dark *assimilata*, at least in its large, slightly rough-scaled cell-mark and conspicuous white spot near tornus, though that of the h i n d wing is here minute; blackish costal spots, recalling the *selinata* group. Underside rather less dark than upper; cell-spots and rather thick postmedian line developed, besides traces of the subterminal shades and sometimes of the median. Mount Omei in July (G. M. Franck); the type ♂, from 4000 feet, in my collection, others from 7000 feet. *sacrimontis.*

E. ogilviata *Warr.* (17 f) is evidently misplaced in Vol. 4 (p. 291), but its true affinities have not yet been made out; possibly near *aegyptiaca?* *ogilviata.*

E. graphata Tr. (Vol. 4, pl. 12 k) **hesperia** *Wehrli* (18 c). Somewhat larger than *g. graphata* and distinguishable at once by its b l u i s h grey colouring; *graphata* is more brownish, *setaceata* darker, with more distinct bands. In markings nearer to the former, but the cell-mark of the forewing is stronger and sharper, the subbasal band of the forewing strikingly different, rectangularly interrupted near the costa, the fringes much more sharply spotted; the underside is totally different in colour from that of *setaceata*, very light bluish grey-white, and has the cell-spots still larger and sharper than above. Sierra Nevada, at about 1500 m, 1 ♀: perhaps a separate species, but awaiting further specimens. — **mayeri** *Mann*. This "lost" form is recorded in *hesperia.* *mayeri.*

Lhomme's excellent Catalogue for Mont Cousson (Homberg), Digne and La Grave (Chrétien), but I suspect
drupisaria. the form indicated is our *setaceata* and the *setaceata* of the same Catalogue an aberration (?). — **drupisaria** *Petersen* (= drypidaria *Dietze*, drypisaria *Dietze*) (18 c). It is probably better to conserve this name for the well-known race of the Majella Mountains, at least until more assurance is reached regarding *riparia H.-Sch.* At any rate Dannehl has so decided, or rather, he has registered "*drypisaria*" as though it were a separate
amarensis. species, in erecting the following aberration. — ab. **amarensis** *Dannehl.* White-grey, almost without markings; of the macular markings only a tiny punctiform remnant is conserved. Mt. Amaro, Gran Sasso, among what
sproengertsi. Dannehl calls "the normal mountain race of the S. Abruzzi and Gran-Sasso, 1500—2000 m". — **sproengertsi** *Dietze.* This name is also apparently regarded by Dannehl as only doubtfully a form of *graphata;* he finds it
indescripta. "extraordinarily variable" in the Majella and names the following 2 aberrations of it. — ab. **indescripta** *Dannehl.*
infulata. Considerably lighter, especially the ♀♀, the lines weak, at times evanescent. S. Majella. — ab. **infulata** *Dannehl* is a modification of *indescripta* with a broad white band proximal to the distal area, bounded on each side by an indistinct grey line. Type from Scanno; not very rare among the Montagna Grande race.

indigata. **E. indigata** *Hbn.* (Vol. 4, pl. 12 d). E. Lange notices the habit of this little moth and some of its treetrunk-resting allies (especially in the ♀♀), of flapping or vibrating their wings for some time before flying
tristrigata, off on being disturbed. — ab. **tristrigata** *F. Fuchs.* Both wings with 3 sharply expressed black lines. Frequently
limbofascia- captured and bred on the Rhine and in the Taunus. — ab. **limbofasciata** *Dietze.* About three-fourths of the
ta. distal area of the forewing uniformly darkened. Waidbruck, Tyrol and 1 specimen from Innsbruck. — **turfo-**
turfosata. **sata** *Draudt.* In his valuable work on the *Eupithecia* eggs (1905), Dr. Draudt treated as indistinguishable those of the two races of *indigata;* but Petersen (1924), recording *i. turfosata* from Esthonia, adds a footnote that a subsequent letter from Draudt reported that some differences had been found in the sculpturing.

pimpinella- **E. pimpinellata** *Hbn.* (Vol. 4, pl. 12 e). Djakonov records 1 ♂ from Klutshi, Kamtshatka, collected in
ta. a birch wood, 20 June. An unexpected locality, habitat and date; can there be some mistake regarding the determination or the exact status of this Kamtshatkan specimen? We have no record of the species for E.
affinis. Siberia. — ab. **affinis** *Dietze,* as far as can be made out from a poor figure unelucidated by any accompanying description, has the cell-spots weaker, the forewing more evenly traversed by weak, waved lines. Juldus.
retheli. — **retheli** *nom. nov.* (= elongata *Sohn-Rethel* M.S., *Dietze,* nom. praeocc.) (17 g). As the name *elongata* was long previously used by Haworth for a member of this genus, a new name is required for this Italian form of
lantoscata. *pimpinellata* (see Vol. 4, p. 292). — **lantoscata** *Mill.* (17 i). The more whitish hindwing and underside, as compared with typical *pimpinellata*, are perhaps more distinctive than the reduction of brown shading on the forewing. I can scarcely concur in the opinion of Vorbrodt that *lantoscata* is an "unimportant" alpine deviation from typical *pimpinellata*, though his wide knowledge of the Swiss Lepidoptera entitled his views to respect. Admittedly the brownish tint is often weak even in lowland specimens, but the general difference is in my
variata. experience considerable. — **variata** *Schwingenschuss,* the only form yet known from Africa, is variable, but in the aggregate distinguishable by its larger size and more variegated forewing, with heavy markings, commonly with more extended black costal maculation. The ash-grey ground-colour is strongly mixed with white, the hindwing and underside also with much white. Great Atlas: Tachdirt and Tizi n'Tachdirt, 2300—3200 m. Sometimes approaches *retheli* in shape; in any case nearer to *lantoscata* than to typical *pimpinellata?*

subsequaria. **E. subsequaria** *H.-Sch.* (Vol. 4, pl. 13 i) was unknown to me when Vol. 4 was prepared and it seems that I entirely misplaced it. The areole is double and it should probably be placed nearer to *subumbrata*, etc. Wehrli has pointed out that *dubiosata F. Wagn.* is for all practical purposes a synonym and that Dietze has
dubiosata. figured a "*subsequaria*" from Akschehir. "Herrich-Schäffer's type came from Amasia. — ab. (? syn.) **dubio-**
sata *F. Wagn.* (17 k). As our figure of *subsequaria* was quite unrecognizable, I figure one of the *dubiosata* paratypes kindly given me by Herr Wagner, who took a series at Akschehir. Rebel subsequently recorded it from Ankara. If Herrich-Schäffer's type really l a c k e d the cell-dot (as his description indicates) this form is not quite typical, though the dot is weaker than in *cauchiata*, which, as Wagner says, it superficially resembles. Palpus rather short; antennal ciliation short.

euphrasiata. **E. euphrasiata** *H.-Sch.* (Vol. 4, pl. 12 e). As this species found its way into the pages of Klöcker's useful handbook "Danmarks Fauna", Vol. 17, it is well to make equally prominent Wolff's recent correction. An examination of the genitalia, undertaken by the last-named entomologist, has shown that the specimen on
weissi. which the Danish record was based is merely *pimpinellata.* — **weissi** *subsp. nov.* (= euphrasiata *Weiss*) (17 k). Much greyer, with scarcely a tinge of brown, the dark lines on the whole stronger, in part coarser, interrupted subterminal maculation generally developed. Albarracin. August and early September.

bytinskii. **E. bytinskii** *nom. nov.* (= prouti *Byt.-Salz & Brandt*, nec *Zerny*) (18 c) on the whole larger than *furcata*, markings standing out more contrastingly, white element purer and broader, etc. Keredj, Elburs Mountains.

E. furcata *Stgr.* (18 c). A ♂ from Marasch (Pfeiffer expedition) and a lighter ♀ in the British Museum from Shar-Deresy, N. Syria (here figured) add somewhat to the range of this species. *furcata.*

E. chalikophila *Wehrli* (= chalicophila *Wehrli*) (18 d). Ciliation of the ♂ antenna a little longer than the diameter of the somewhat slender shaft. Palpus over 1½ times diameter of eye. Wings rather narrow and elongate, quite distinct in shape from the variable *semigraphata*, for which it was at first passed over; areole simple. Separable at once from light grey *innotata* by its much less sharply angled postmedian, strongly spotted fringes, etc.; from *nanata* by its less extreme shape, larger size, somewhat longer antennal ciliation and lack of the oblique pale apical shade and of the enlarged tornal white spot of the forewing. Sierra Nevada, locally common on calcareous rocks in July. The genitalia demonstrate that its nearest relative is the smaller, less sharply marked, more violet-grey *hyperboreata* of N. E. Europe, though those of the ♀ suggest a transition to *innotata* and Wehrli proposes, as a better sequence, *nanata*, *hyperboreata*, *chalikophila*, *innotata*. There can be very little doubt that an early record by Staudinger of *hyperboreata* at S. Ildefonso (Castile), 2000 m altitude, on rocky terrain among Erica, referred really to the present species. *chalikophita.*

E. gelidata *Möschl.* The type of *gelidata* was a ♀ from Labrador, but there is every reason to believe that it belonged to the same species which is distributed in Greenland. Although this is sometimes curiously like some dark forms of *nanata* (see Vol. 4, p. 293) the genitalia associate it with the species which has since been named *hyperboreata* and the occurrence of the typical *gelidata* in the Palaearctic fauna is very improbable; it will be further discussed in Vol. 8, but in order that the Palaearctic subspecies may be understood it must be noted that *gelidata*, though very variable, is definitely a good deal darker and less brownish, the wings slightly narrower. — **hyperboreata** *Stgr.* (17 h). I follow McDunnough in attaching this to *gelidata*, though it is at least a good subspecies; the aedoeagus quite agrees, the thorn on the lower edge of the valve is very similar but somewhat more developed, the saccus seems larger. The foodplant of the larva is Ledum palustre (Ericaceae), not "Sedum" as erroneously given in Spuler and in the German edition of our Vol. 4 (p. 293). Heydemann discovered *hyperboreata* in Schleswig-Holstein in 1925, but it was not found there again until 1931. *getidata.* *hyperboreata.*

E. nanata *Hbn.* (Vol. 4, pl. 12 k). A remarkable record for this generally monophagous *Eupithecia* is that L. Joannis reared it on apple. — ab. **pauxillaria** *Bsd.* To this is to be added as a synonym *obscurata Stgr.*, diagnosed without locality in 1871. — ab. **mediofaciata** *Dietze* (= nigrofasciata *Dietze*). Median area of forewing more or less strongly blackened. Founded on a well developed example from the Taunus (with white central spot) and one bred from Rhein-Hessen which "looks albinotic-anaemic". It does not seem to have been remarked that Hübner's original figure of *nanata* nearly approached this form. — **angusta** *nom. nov.* (= angustata *Haw.*, praeocc.) (17 k). Wings narrower, the forewing very lanceolate, of a purer grey and without admixture of reddish or yellowish; angulation of the last pale band generally more acute; extrabasal line much more elbowed, more oblique, straighter; the threads which traverse the bands very distinct" (Guenée). This our most usual English form is, I am informed by Dr. Debauche, constant in Belgium, perhaps there even more absolutely without brown admixture. — ab. **oliveri** *Prout.* Forewing almost entirely black, with a tinge of brown, especially in the parts which show that colour in typical forms; faint traces of the white postmedian band and extremely slender subterminal line. Hindwing equally black posteriorly, a little less so anteriorly; subterminal weakly indicated. A few bred at Wolverhampton. — **zebrata** *Wolff.* Average length of forewing 10 mm. Ground-colour whitish grey, the forewing with sharply-marked dark fuscous basal patch, ante- and postmedian bands and partial median and submarginal, the last-named interrupted by the ground-colour between its main part and its (more proximally placed) costal spot; the pale subterminal line coarse, serrate. Hindwing beneath whitish, with 3 dark bands. Faroe Islands, a good local race, the genitalia typical. — **kozhantschikovi** *Wehrli* (18 d). Large to extremely large (length of a forewing about 11½ to 13 mm), very weakly marked and altogether so similar to some forms of *innotata* that, without a study of the genitalia, they had actually been referred there. Djakonov at first determined them as *innotata* f. *grisescens* and it seems highly probable that even some of the forms figured by Dietze as belonging to *innotata* properly belong here (e. g. perhaps *corroborata*); if so, of course a correction of the synonymy will be necessitated, but for the present it must remain unaltered. Minussinsk, in two generations, May (very large) and August (much less large). *nanata.* *pauxillaria.* *mediofaciata.* *angusta.* *oliveri.* *zebrata.* *kozhantschikovi.*

E. pliniata *Stauder*, a puzzling ♀ from Boscoreale, Sorrente Peninsula, S. Italy, 450 m, captured on 21 June 1928, looks (as Dietze says of 5 second-brood *nanata* from S. Tyrol) "like a cross between *innotata* and *nanata*". Unfortunately it is not in perfectly fresh condition. In the relatively weak markings (both wings) and rather uniform greyish tone it suggests at first sight a small *innotata* and the form of the postmedian line anteriorly is more as in that species, perhaps also the elongate cell-mark. Size, shape and the complete subterminal line (though a trifle less angulated near costa and near tornus) as in *nanata*, but with the oblique dash from apex scarcely discernible; with attention, the double whitish line outside the postmedian, the interrupted blackish marks on the veins, and on the hindwing the principal markings of *nanata*, are clearly visible; postmedian line closer to the cell-mark than is usual in either this or *innotata*. *pliniata.*

innotata. **E. innotata** *Hufn.* (Vol. 4, pl. 12 l). Dietze, who lived, as he said, "in a district where this appears, in the larval stage, annually in millions", undoubtedly had (and used) exceptional opportunities for studying it, and I continue to follow in general the arrangement and nomenclature of his fine monograph. But I must protest against the continued use of the name *fraxinata Crewe* for the "gen. aest." of Continental Europe, for it obscures important bionomic facts. I have not yet obtained any evidence whatever that *fraxinata* in Britain ever originates as a summer brood of *innotata* and suspect that the latter — so local on our coasts — is here a recent introduction while the single-broaded ash-feeding *fraxinata* is with us an old-established subspecies, notwithstanding that it has not yet begun to show any structural divergence. — ab. **rotundata** *Bastelb.* Fore-wing less elongate, with definitely rounded apex; discocellular and median vein blackened. A ♀ ex ovo, Mainz. — gen. aest. **suspectata** *Dietze* (18 d) is perhaps the oldest name which can be legitimately applied in a comprehensive sense to the small and on an average more weakly marked 2nd brood. I figure from Darmstadt a bred ♂ of this blackthorn-fed form, but they are not always so small. — **meridionalis** *Mab.* (17 h), according to Mabille a race in S. Europe and Corsica, is also more unicolorous grey than the type-form of Germany and N. Europe, the subterminal and its accompanying white markings much weaker. Dietze adds that the cell-mark is particularly distinct. The distinctions, however, seem to be no more than slight tendencies. — ab. (?) **contracta** *Dietze* is a small form from Syr-Daria and district, also suspected of belonging to the summer brood, distinguishable by its straighter, sharply angled postmedian line, which recalls that of *unedonata*. But other specimens from the same source are like the European. — ab. **unicolor** *Prout*. A small second-brood form, of almost absolutely unicolorous dark grey; the cell-mark deep black; very faint indications of some of the principal markings discernible with close attention. Bred in Durham. Perhaps a superfluous name, but it seems to represent the nearest approach to a melanic form yet known in the present species. — form. **tamarisciata** *Frr.* (Vol. 4, pl. 12 l). We have not advanced much further in our understanding of this form, but it cannot be ignored; I endorse Dietze's words that "in our quest after the causes of the origination of species, one is bound to mention the unfinished and to test it with exactitude". It is interesting to British entomologists that one or two tamarisk-feeding colonies of *innotata* (sens. lat.) have been found to occur on the north coast of Cornwall where — so far as I have heard — we do not get the Artemisia form. The more leaden-grey tone of the moth ("blaugrau" is a misprint for "bleigrau"), as compared with *fraxinata*, is said to fade with age, leaving practically nothing whereby to distinguish the two in this stage. — **fraxinata** *Crewe* (Vol. 4, pl. 12 l). The necessity of restricting this name to the single-brooded, ash-feeding race of Britain has been emphasized above. The brown, generally small 2nd-brood insect which is sent us from Leipzig, etc., under the name bears no special resemblance to it. On the other hand, a few references (e. g., Laplace, Verz. Hamburg-Altona Groß-

rotundata. suspectata. meridionalis. contracta. unicolor. tamarisciata. fraxinata.

schmett., p. 107) suggest that the true *fraxinata* does also occur on the Continent. — **grisescens** *Petersen* (= petersenaria *Wnukovsky*) has really a more "blue-grey" tone than typical *innotata*. It is said to be constant in Esthonia, for which reason Petersen in 1909 named it as a good race (subspecies); later (1924), with more than a hundred before him, he confirmed the validity. The new name was proposed in order to avoid a collision with the *grisescens* form of *assimilata* (Vol. 4, p. 286), but it is not yet demonstrated that that is anything more than an "ab. loc."; if it is, then that and not this, which dates from 1913 only, is the preoccupied name. — **uliata** *Stgr.* (see Vol. 4, p. 294). A synonym is *ulicada Dietze* (1910). — For the possibility that some of the assumed Asiatic forms of the present group really belong to *nanata*, see under *n. kozhantschikovi*.

grisescens. uliata.

praesignata. **E. praesignata** *Bohatsch* (= insignata *Stgr.* ined., *Bohatsch*, nom. praeocc.). Although I have not been able to study this *Eupithecia* I think it must be separated from *innotata*.

parallelaria. **E. parallelaria** *Bohatsch* (= magnaria *Stgr.* ined., nom. praeocc.) (18 d). In describing this (Vol. 4, p. 294) I placed it with *innotata*, following Bohatsch and (as I supposed) Dietze; but I note that the latter considers it to have crossed the "solstitial point" and to incline more to *unedonata*, especially as regards some of the ♂ forms. It was described from Samarkand, but has probably a wide distribution in Central and West Asia. According to Amsel, very large specimens from Kiriath Anavim and Kasr el Jehud, taken in March, agree almost exactly with those from Turkestan, both superficially and in the genitalia. We figure a ♀ from the Alexander Mountains, one of 5 weakly marked examples determined, I believe, by Dietze. Extremely similar to the species which I have called *decipiens* (infra), but Petersen says the genitalia are scarcely distinguishable from those of *innotata*.

unedonata. **E. unedonata** *Mab.* (Vol. 4, pl. 13 i). Another foodplant, according to Chrétien, is Thymelaea hirsuta. Notwithstanding the very wide distribution of this species (given as S. Spain and Algeria to Mongolia) and its undoubted variability, no definitely racial differences have yet been demonstrated. — hybr. **hybrida** *Dietze* (*Prout* restr.). As it is impossible to employ the same name for both the crossings (see Vol. 4, p. 294), I restrict Dietze's name to the one which he described first, namely *innotata* ♂ × *unedonata* ♀. These emerged in May and were more grey than brownish, the markings not at all clear. — hybr. **reciprocata** *nov.* (*unedonata* ♂ × *innotata* ♀) did not appear until late August and September and is very sharply marked and more brownish.

hybrida. reciprocata.

E. marmaricata *Trti.* (18 d). "20—22 mm. Forewing iron grey with blackish lines relieved distally with light colour. In cut of wings, general course of lines and arrangement of markings recalls *unedonata*. That species, howewer has a more violacecus brown colour, the lines more slender and not sharply light-outlined. The postmedian forms an extremely acute angle opposite to the black cell-mark, the subterminal sends out a light dash from the angle into the apex." Hindwing lighter, the anal region darker and well marked. Bengasi (type), the differentiation confirmed on a fine series of 20. A similar iron-grey specimen from "Syria" stands in the British Museum as "*unedonata parallelaria*". *marmaricata.*

E. aequistriaria *Trti. & Krüger.* "20 mm". Greyish cinereous, with a white effect produced on the forewing by numerous equidistant transverse lines; predistal line white, twice angled near costa (inward and outward); subterminal white, more slenderly waved; cell-dot black, standing out little among the striae. Hindwing a little lighter in the disc, with 2 curved lines in the disc; fringe concolorous, preceded by a terminal series of slender black marks. Underside pellucid ashy-grey, with the transverse lines and cell-dots of the upperside rather confusedly indicated. Scleidima, Cyrenaica, 20 November 1934, 1 example. "Might be placed near *marmaricata Trti.*" *aequistriaria.*

E. acutula *Trti. & Krüger.* "16 mm." Noteworthy in its wing-shape, apex of forewing acute. Forewing with greyish markings on a slightly brownish ground; all the lines maintain their width from costa to hindmargin; "praeapical" [predistal] white line with a bay inward towards costa, preceded proximally by an undulate line [postmedian] of a more intense black; distal area uniform grey, fringe concolorous. Hindwing with the abdominal region (perhaps ⅓) dark, well lined, the rest whitish. "Might be placed near *innotata*." A ♀ from Zuetina, Cyrenaica, 20 November 1934. *acutula.*

E. undulataria *Trti.* (18 d). Antennal ciliation of ♂ 1. In shape and tone resembling a pale *relaxata*, but with the frons more strongly protuberant, the cell-mark still smaller, the lines of the forewing very slender, very numerous, almost equal in development throughout, the postmedian group (3 or 4) just distinguishable by their slightly whiter interspaces, their subcostal angulations somewhat less acute than in the 3 preceding. Cyrenaica: Porto Bardia, several examples, the type ♂ dated 30 November. *undulataria.*

E. relaxata *Dietze.* It is, unfortunately, quite impossible to conserve the nomenclature which Dietze in his monograph adopted for this species; for it conflicts with his own original. In 1904 (Iris, Vol. 16) he erected *relaxata*, on a ♀ from Schahkuh, as a possible subspecies of *unedonata* and described the form with the lines thickened at the costa into blackish spots as — ab. **costisignata** *Dietze* (Vol. 4, pl. 25 e). This was founded on specimens from Schahkuh and Korla, the latter subsequently declared holotype and a series from Yarkand added. He very justifiably concluded that "*relaxata* is thus (biologically) only a secondary form of *costisignata*, not vice versa", but forgot that it is impossible to modify a stable priority-law of names in favour of changing views on phylogeny. — ab. **famelica** *Dietze*, which its author was later inclined to suppress, is a clayey-toned specimen from Makan Desert, Aksu, with the transverse markings sharp but without strongly broadened black costal spots. Intermediate towards *parallelaria*. — I have made several attempts to arrive at some understanding of this complicated group of Central Asiatic forms, but have been defented by the total inadequacy of available material. To judge from a ♀ *relaxata* from the Elburs Mountains, the frons is somewhat more protuberant than in *unedonata*. I notice also Petersen's pronouncement (in litt., quoted by Dietze) on the genitalia: "♂ and ♀ as distinctively (eigenartig) formed as possible, especially the ♀ . . .; so that it would not be in the remotest degree possible to confuse it with any of the species known to me." I do not think that this passage can refer to *decipiens*, which Petersen erected on the genitalia alone (see below), as the references to the ♀ organs do not agree; but I wonder whether the *euphrasiata*-like ductus seminalis and bursa, which he ascribes to *relaxata*, may point to a false abdomen. *relaxata. costisignata. famelica.*

E. decipiens *Petersen.* This and the other forms (*privata* to *mitigata*) cited in Vol. 4 (p. 294) under "*costisignata*" were similarly handled by Dietze, together with one *(lutulenta)* which I overlooked; but he was entirely non-committal regarding their status. Only the present species appears to have been examined anatomically and the life-histories of all remain unknown. The type of *decipiens* was unfortunately a good deal worn (ziemlich abgeflogen), but two larger, very *relaxata*-like ♂♂ from Transcaspia and Ladak (both unica, in the British Museum) are reported by Mr. A. H. Stringer to have closely the form of genitalia described and figured by Petersen: uncus curved, 2-pointed; valve running to a point dorsally, its ventral margin bent rectangularly at posterior end; vesica strongly scobinate, cornuti weakly chitinized, consisting of a curved plate and below it a smaller, posteriorly pointed piece; body-plate broad, n o t tapering hindward, anteriorly and posteriorly emarginate, the posterior excavation so strong as to leave two hooks which curve inward. *decipiens.*

E. lutulenta *Dietze.* "Intermediate between *vicariata* and *adjunctata*. Earth-grey, thus neither ash-grey nor clayey." Mus-tag-ata, Yarkand, both sexes. *lutulenta.*

virgaurcata. **E. virgaureata** *Dbl.* (Vol. 4, pl. 12 f). Zerkowitz in 1927 recorded one example from Zugliget, near *nigrofascia-ta.* Budapest, and stated that it was new for Hungary. — ab. **nigrofasciata** *Dietze.* Median area of forewing darkened; corresponds to the forms of other *Eupithecia* species of like name. Stainz. — ab. **nigronotata** *Dietze* (= *nigronotata.* notata *Dietze*). Cell-spots, or at least that of the forewing, unusually large. — ab. **bistrigata** *Dietze.* *bistrigata.* Median area of forewing bounded by dark lines. Has been confused with the somewhat larger *egenaria.* This and the preceding were also described from Stainz.

detritata. **E. detritata** *Stgr.* (18 d). We figure one of a series collected by Kardakoff in the Vladivostok district in April and determined by him as *proterva* but almost certainly referable to this species (see Vol. 4, p. 294). Paler and more thinly scaled than *proterva*, on the whole larger, the postmedian seldom quite so near the cell-spot. Antennal ciliation of ♂ shorter (scarcely ½ as long). Staudinger's originals came from Vladivostok, *accessata.* taken in May (types), and Askold and have, with the exception of a worn ♂, been figured by *Dietze.* — **accessata** *Dietze* is not described beyond an indication that it is intermediate between *inconstans* and *daemionata* (Vol. 4, *inconstans.* pl. 297). Kasaketvitsch, Ussuri, 2 examples. — **inconstans** *Dietze*, figured from Yokohama but nowhere described, was considered to be a form or forms (very variable) of *detritata;* I have not seen the originals, which are darker and more definitely banded than *detritata*, but it seems to me likely, if Dietze overlooked the antennal characters, that his Yokohama "type" is a *proterva*, the only Japanese representative of the group with which I am acquainted.

proterva. **E. proterva** *Btlr.* (Vol. 4, pl. 13 i). After having been able, to examine Ussuri material (see the preceding and following), I see no evidence of the occurrence of *proterva* outside Japan, but, as Dietze remarks, eastern Asia yields "a whole series of very variable species" in this group and much further research is needed.

subbreviata. **E. subbreviata** *Stgr.* (17 k). An Ussuri species, described from Askold. More thinly scaled than *proterva* and — according to all the available evidence — with very short antennal ciliation. When our Okeanskaia ♂ was placed for figuring I supposed it to represent *subbreviata;* but I am now doubtful whether it differs specifically from the forms which I call *detritata;* indeed, since neither Staudinger not Dietze gives any differentiation between these two short-cilia forms, it may be that the sharply marked one was named *subbreviata* and the washed-out examples *detritata.* The type figure of the latter, however, shows the antemedian line less angled, the subterminal shades reduced.

hirschkei. *E. abbreviata* (Vol. 4, pl. 12 l) ab. **hirschkei** *Bastelb.* The description given in Vol. 4 (p. 295) of this aberration, after Dietze, was incomplete. Bastelberger emphasizes that the ground-colour of the forewing is darkened, more grey than yellow-brown, so that quite a different impression is produced. I have not seen Rhine specimens, but a number have been collected this year (1938) in the Wye Valley by Mr. C. G. M. de Worms, together with the type form, and look almost, though not altogether melanic. I learn that it has likewise been taken in Leicestershire.

quercetica. **E. quercetica** *sp. n.* (14 i). Length of a forewing 11 to 12 mm. Palpus almost twice as long as diameter of eye; pale beneath, as also the breast. Abdomen dorsally with some brown admixture, especially on the crests. Forewing a trifle narrower than in *abbreviata* but not so elongate as in *unedonata;* grey, only costally more tinged with brown, the markings there thickened somewhat as in *virgaureata;* cell-spot fairly strong, though not so large as in *virgaureata;* markings somewhat as in *abbreviata;* antemedian without band-like shading; postmedian with proximal dashes present, but short and pretty regular (more as in *virgaureata* than in *abbreviata*); subterminal dentate, not much inbent near costa; fringe somewhat spotted on proximal half. Hindwing shaped much as in *abbreviata;* cell-spot distinct. Underside much as in *abbreviata* but greyer. Arayah (Lebanon), 2 ♀♀, bred 22 February and March 1935, from larvae found feeding on oak (E. P. Wiltshire). They are found at middle heights in the Lebanon in April and May and their discoverer records them also on buckthorn, hawthorn and cistus; apparently similar in build and in type of maculation to those of *abbreviata* and *massiliata*, occurring in at least two forms, the one ochreous, with a pink tinge and with yellowish or white oblique lateral marks, edged in front with pink, the other darker, with the dorsal line developing a series of purplish V-marks pointing forward, blackish-grey under the lateral dashes.

dodoncata. **E. dodoneata** *Guen.* (Vol. 4, pl. 12 l). Oberthür records, from Beni-Amar, Morocco, at the end of December and beginning of January, "a form with the markings blackish rather than brown". As I have no *dubiosa.* further knowledge of it and cannot vouch for the determination, I do not propose to give it a name. — **dubiosa** *Dietze.* Very variable inter se. Brownish, with all the markings much finer. Slightly recalls *massiliata* or even the *tempestivata* form of *G. pumilata*, among which Dietze's 5 originals were mixed. Beirut. Wehrli adds Marasch and declares it, a "good race, an spec.?", with less distinct lines than *d. dodoneata.* Mr. E. P. Wiltshire has 2 ♀♀ from Beirut, prettily variegated, which are quite evidently *dodoneata.*

cocciferata. **E. cocciferata** *Mill.* (17 i). The original locality is given as Ardèche. We figure a ♀ from Vendée. — ab. *semitincta-ria.* **semitinctaria** *Mab.* More brightly marked, in part slightly suffused with purple-red, lighter about the cell-

spot. Somewhat nearer in colour to *abbreviata* than to *cocciferata*. According to Mabille the commoner form on Corsica; in the Department of Aude both forms about equally numerous. Transitions occur.

E. insignifica *Rothsch.* "Uniform dark sooty grey with a very large number of paler crenulated transverse hair-lines. Length of forewing 13 mm." A ♀ (not "♂", as published) from Guelt-es-Stel, 4 November, unfortunately rubbed. It looks similar to a dark *cocciferata* with the markings of the forewing more evenly expressed throughout, but the frons, wing-shape and palpus seem to associate it with a still more worn ♂ from the same locality dated 15 October. The latter, which has a wing-length of 11 mm and may well be a smaller, more dusky form of *arenitincta*, differs from *cocciferata* as follows: face more protuberant; palpus 1½ or scarcely (in *cocciferata* at least 1¾); abdomen somewhat less robust, body-plate scarcely so strong, its distal margin less indented in the middle, laterally produced into pointed teeth, recalling that of *pini;* forewing slightly more elongate, hindwing with less suggestion of the sinuosity which in *cocciferata* is almost as pronounced as in *abbreviata*. *insignifica.*

E. arenitincta *sp. n.* (181). Length of forewing in both sexes about 13 mm. Ciliation of ♂ antenna, as in the two preceding, about 1. The confusion which already hangs over *insignifica* prevents my describing as a form of the latter, but the structural differentiation from the former is applicable. Very distinct in aspect, much lighter and with a sandy tinge, generally inclining to pinkish buff; dark dashes on the veins obsolete or short and inconspicuous. Algeria, February—April: Colomb Bechar, the type series; Bou Saada; El Kantara. All in the Tring Museum. *arenitincta.*

E. tenerifensis *Rbl.* (Vol. 4, p. 295). A single worn specimen was determined by Bohatsch as long ago as 1893 (Iris, Vol. 6) as *variostrigata Alph.* and this determination was accepted until better specimens were obtained many years later. *tenerifensis.*

E. massiliata *Mill.* (Vol. 4, pl. 13 i). Although the range was given comprehensively in Vol. 4 (p. 295) as Mediterranean, I do not think it had been found in Morocco until Le Cerf and Talbot took it in the Great Atlas in 1927. Subsequently Reisser has added the Riff Mountains. — **peyerimhoffata** *Mill.*, bred from larvae from "Spain" which fed on the flowers of evergreen oak, was said to be less round-winged than typical *massiliata* but not so acute-winged as *ultimaria*, to which it was likened in markings. Dietze says that large specimens from Catalonia have been distributed under this name. *massitiata.* *peyerimhoffata.*

E. gomerensis *Rbl.* (= boryata ♂ *Rbl.* olim, err. det.). The receipt of a pair of true *boryata Rbl.* (see below) from K. Schumacher in 1913 convinced Rebel that he had mixed two species and he restricted the earlier name to the ♀. *gomerensis* is at once distinguishable by the much longer ciliation of the ♂ antenna and the pronounced brownish coloration (in *boryata* clear grey); postmedian of forewing distally light-edged, cell-streak much thicker, abdomen with much shorter anal tuft. Orotava, Tenerife. *gomerensis.*

E. boryata *Rbl.* (Vol. 4, p. 295). Rebel has revised this species in the light of the discovery of the preceding. Antennal ciliation of the ♂ only short; a long white-grey anal tuft. Cell-mark of forewing long, oblique. The narrow wings and their light-grey colour easily distinguish it from *massiliata;* ♂ ciliation similar, shaft more slender. Type ♀ from St. Cruz. As we have not been able to obtain coloured figures of this and *gomerensis*, I would refer the reader to Dietze's fig. 885 and 884 of the respective types. *boryata.*

E. ultimaria *Bsd.* (Vol. 4, pl. 12 k). The distribution of the name-typical race should have been given as S. Europe and Egypt, though perhaps the Egyptian will have to be transferred to Turati's *inversaria*, if tenable. According to Amsel, 2 ♀♀ from Ain Karim (about 10 km W. of Jerusalem) form a transition between the f. *minusculata Alph.* and *opistographata Dietze* and he inclines to refer his Biskra specimens to the same; but one taken at Jericho must, he says be referred to (ab.) *dilucida Dietze.* It appears that the forms are, for the more part, aberrations rather than subspecies, or that the right differential characters have not yet been made out; Dietze determines a Gafsa (Tunis) specimen as typical *minusculata* and an Egyptian one as ab. *dilucida.* — ab. **dilucida** *Dietze.* Smaller, much paler both above and beneath. Type from Haifa. — **tornifascia** *Rothsch.*, a ♂ from midway between Ouargla and El Goléa, unfortunately not in very frish condition, seems to be a narrow-winged, rather pale *ultimaria* (ab.?) with the cell-dots somewhat reduced and the anterior part of the hindwing whitened. More material from the district would be welcome. — **arenicola** *Rothsch.* is very pale above (whitish with a sandy tinge), rather sharply banded beneath though not like *opistographata.* Oued Mya, Central Sahara, 2 only known. — **inversaria** *Trti.* (17 i). The types of this and several others of his recently described *Eupithecia* have been very kindly lent by Count Turati for study in connection with this work. *inversaria* appears to be a dwarf form (length of a forewing 6 mm), not very sharply marked above and with the postmedian somewhat less angled near the costa than usual, the underside showing a decided approach to that of *opistographata.* Cyrenaica. — **opistographata** *Dietze* is widely distributed in Asia, though not always equally extreme. My brief diagnosis (Vol. 4, p. 295) did not adequately express the striking character of the *ultimaria.* *dilucida.* *tornifascia.* *arenicola.* *inversaria.* *opistographata.*

terminal area beneath, which has the almost continuous blackish border marked with large or smaller white spots which represent the subterminal. My specimens from Amara (Iraq) belong definitely to it, as also a few from Karachi (T. R. Bell). Some Algerian also closely approach it.

cugiai. **E. cugiai** *Trti.* (18 e). On account of its much larger size and whitish ground-colour (on the fore- and a part of the hindwing above irrorated with "cinereous-rusty") I am strongly inclined to follow Turati in keeping this separate from *ultimaria*, but I can point to no distinction in structure or markings and the ground-colour really does not differ greatly from that of *arenicola*. From the similarly coloured *tenellata deserticola* it is of course easily separable by the very different face, as well as some details of wing-shape, etc. The underside has very strong cell-marks, moderate postmedian line and weak subterminal shades; otherwise it is very clean-looking. Cyrenaica: Giarabub.

strigatissima. **E. strigatissima** *Trti.* (17 k) bears some resemblance to pale grey forms of *ultimaria*, but is relatively much longer-winged, the lines of the median area about as strong as those that bound it, the underside less strongly marked than even in typical *ultimaria*. Cyrenaica: Giarabub, the type a ♀.

tenellata. **E. tenellata** *Dietze* (= gelinaria *D. Luc.*) (17 g). This species is now well known and its synonymy indisputable, though it is very variable. The reference to *gelinaria* on p. 280 of Vol. 4 was of course altogether out of place and must be removed; Commander Lucas's description was good, except that he entirely overlooked the remarkably protuberant face. — *deserticola.* **deserticola** *Trti.* (17 i) seems to be a paler or greyer form of *tenellata*, founded on a ♂ from Maaten Giofer, Cyrenaica. Actually I cannot distinguish it from the forms from some localities in southern Algeria, but as I have not compared Dietze's type I do not exclude the possibility that there is a racial difference, though he calls the forewing "earth-grey"; *gelinaria* is in any case browner than *deserticola*.

sobrinata. **E. sobrinata** *Hbn.* (Vol. 4, pl. 12 l) was recorded from Mostar (new for Herzegovina) by Schwingenschuss in 1922 and has since been found in the Alibotuš by Drenowsky and in Albania by A. Winneguth. Oberthür's addition of Morocco seems to need confirmation. For *albiplaga Spitz* see under *ericeata.* — ab. *scotica.* **scotica** *Dietze* (ex *B.-Haas*, M. S.) is a dusky form from Aviemore (nor "Archimore" as printed), almost certainly too variable for the name to have any definite use. — ab. *luneburgensis.* **luneburgensis** *Dietze.* Small, dark, weakly marked, nearly like *scotica*. Lüneburg Heath. Presumably in the same rank of superfluities as *scotica*. — ab. *expressaria.* **expressaria** *H.-Sch.* Sharply marked, at least as regards the darkening of the boundaries of the median area. On a single specimen, of which the locality is not given, its author considered it a separate species, with narrower wings and without yellowish on the veins, and drew up an elaborate differentiation; but later authorities have been inclined to agree with Staudinger, who writes "vix nominanda". Dietze figures it from Stainz and says "sometimes among typical examples"; Dannehl finds it chiefly in the Dolomites. — ab. *confluens.* **confluens** *Dietze.* This name was first employed for two similar aberrations, both figured (Biol. Eupith., fig. 689, 690) from Stainz and with no further description than "median area almost entirely darkened". Afterwards, the two were separated, as follows. — ab. *conjuncta.* **conjuncta** *Dietze* (with fig. 690 cited). "Median area nearly, but not completely, occupied by blackish". — ab. *nigrofasciata.* **nigrofasciata** *Dietze* (fig. 689 cited). "Median area of forewing completely blackened"; 3 specimens. In the index, b o t h these new names are referred to fig. 689 (!) but the text must by followed, and *conjuncta* sunk to *confluens*. — ab. *achromata.* **achromata** *Dannehl* is a quite light form, recalling the race *anglicata;* white-grey, the markings considerably reduced, mostly indicated only by weak strigulation, in extreme individuals almost obsolete; in the latter case, even the cell-dot is much weakened. Upper Bavaria and the S. Tyrol. — ab. *rittichi.* **rittichi** *Diószeghy* presents the same type of variation as ab. *nigrofasciata* and ab. *confluens* in that the median area is darkened, but it is apparently a brighter form: reddish grey, median band reddish brown with dark brown costal and postmedian maculation. Borescul mare (Retyezat Mountains), 2160 m. — *latoniata.* **latoniata** *Mill.* (17 i), described as a species and common at St. Martin Lantosque (Alpes-Maritimes), has usually been sunk to the similar (and variable) Swiss *graeseriata* or, apparently in Dietze, overlooked. F. Wagner, however, thinks it a good local race, distinguishable by its purer grey or even b l u i s h - grey colour (not so dark and brown as *graeseriata*); he and other collectors have taken it in numbers at Albarracin, August to October. Millière called the originals "vinous grey", which seems to me more exact, but the sharp though slender markings do make a different impression from the ordinary *graeseriata;* cell-dot of forewing large. Our figured is from Albarracin. — *castiliana.* **castiliana** *(Stgr.) Dietze*, figured from "Castile", was merely described as having the dark markings more sparing than in *guinardaria* and was subsequently suppressed, perhaps to *matertera* (see Vol. 4, p. 283).

corticosa. **E. corticosa** *Prout* (Vol. 4, p. 296). Palpus unusually long ("gewöhnlich" is a misprint for "ungewöhnlich"). Although Dietze founded this species on a ♂ and 3 ♀♀, it has not become at all generally known. I cannot understand why he placed it between *sobrinata* and *ericeata*.

ericeata. **E. ericeata** *Rmb.* (Vol. 4, pl. 12 l). I have not seen specimens from "North Africa", but obtained the

locality from Staudinger's Catalog. It could hardly refer to *peterseni?* In any case an essentially Mediterranean species. — **millierata** *Stgr.* (= expressaria *Mill.*, err. det., nec *H.-Sch.*, pauxillata *Mab.*, err. det., nec pauxillaria *Bsd.*). I am not prepared to say that this is a separable form from typical *ericeata*, but it should be borne in mind that these names belong to the juniper-fed *ericeata*, distinguishable in some forms of the larvae, so that it is possible a divergence of species is beginning. Bastelberger found no difference in the genitalia. — **albiplaga** *Spitz* (17 k) was erected as a very distinct form of *sobrinata*, but Reisser has recently pointed out that it belongs to *ericeata*, presumably to the juniper-feeding form *millierata*, as it was bred among *sobrinata*, in the proportion of about one in three, from a very large number of collected larvae. Its occurrence in Lower Austria — the type series came from Hundsheim near Hainburg — is an interesting addition to the range of the species and some geographical variation may be looked for; but the light-grey (not brownish) tone and the extended pale outer patch of the forewing, on which Spitz relied, are characteristic of most ♂♂ of typical *ericeata*. We figure a Hundsheim ♂. *millierata.* *albiplaga.*

E. peterseni *F. Wagn.* Near *oxycedrata* (Vol. 4, pl. 12 l), with about the same brownish-grey colour and similar markings, the forewing less narrow, with more rounded apex, the outer line rather less oblique, the lines which bound the central area more angulated near the costa; but especially characterized by the outward course of the median line posteriorly and the very conspicuous, strong, dentate white subterminal line. Hindwing without discal dot. Really, as the genitalia show, nearer to *abbreviata*. Larva on Juniper in April, similar to that of *oxycedrata*, green or brown. Pupa dark amber yellow with greenish wings, or uniform yellowish brown. The larvae were discovered at Hammam-Lif, near Tunis, 1913. The moths appeared at the beginning of September. I have no record of further captures. *peterseni.*

E. oxycedrata *Rmb.* (Vol. 4, pl. 12 l) seems to have been unknown in Morocco until 1920—1921, when Powell found it at Beni-Amar; more recently Hartert and Young took it in the Reraya Vallay, Great Atlas and Reisser in the Riff Mountains. — **provinciata** *Mill.* (= provincialis *Siepi*) is said by Millière to be larger and usually washed with reddish, but admittedly not always distinguishable; the larva — feeding on Juniperus oxycedrus 25 or 30 days later than typical *oxycedrata* — quite different, not carinated, anteriorly hardly attenuated, colouring generally more brown, pattern more chequered, etc. Dietze shows that this variation is only seasonal and inconstant, but in view of his remarks elsewhere (see under *tamarisciata*) it is not quite consistent to drop the name entirely. *oxycedrata.* *provinciata.*

E. rhoisata *Chrét.* Forewing less elongate than in *oxycedrata*, more rounded at apex, not washed with violaceous, its pale parts more ochraceous-yellow, especially at costa, median lines not strongly divergent posteriorly. Colour and pattern perhaps more as in well-marked *abbreviata*, though without whitening outside the cell-mark; pale band outside the postmedian quite narrow and simple, only becoming broader and double (divided by a fine line) towards hindmargin. Hindwing whiter proximally than in *oxycedrata*. Single-brooded, appearing in October from larvae found, October to December, on Rhus oxyacantha. Biskra and Gafsa. *rhoisata.*

E. phoeniceata *Rmb.* (Vol. 4, pl. 12 l, 13 o). This has also been added to the Moroccan fauna, but only at present tentatively as the single specimen (Izilan, Riff Mountains, 8 June, Reisser) is worn and the determination uncertain. The date would suggest that it was an aberration of *oxycedrata*. — ab. **albescens** *Dietze*, founded on 2 bred from Hyères larvae, is "albinotic, perhaps anaemic"; ground-colour very light earth-grey, the sparse markings sepia. Similar but much more strongly marked specimens from Catalonia are also known. — ab. **multistrigata** *Dietze* has additional dark lines developed, after the manner of *Horisme tersata*. Hyères, 1 captured; the character was inherited by its offspring. — ab. **uniformis** *Sohn-Rethel* is unicolorous black-grey, almost unmarked, only conserving the blackish saddle on the abdomen and the black at base of hindwing. Capri, occasional; probably also elsewhere. — **mnemosynata** *Mill.* (17 g). The larvae of this large, heavily marked form can probably, according to Schwingenschuss and Wagner, feed also on Juniperus phoenicea, as cypress was very rare in the place where they collected the form in South Dalmatia. *phoeniceata.* *albescens.* *multistrigata.* *uniformis.* *mnemosynata.*

E. adscriptaria *Stgr.* Besides (N. W.) Asia Minor to Transcaucasia, the distribution which was known in 1914 (see Vol. 4, p. 296, ed. angl.), this species occurs in Inner Anatolia, where it was discovered by F. Wagner in 1930 at Akschehir, in small numbers, end of April and beginning of May, mostly in good condition. *adscriptaria.*

E. rosmarinata *Mill.* (Vol. 4, pl. 13 o). Oberthür has added Morocco to the known distribution. *rosmarinata.*

E. lariciata *Frr.* (Vol. 4, pl. 12 g). A record for Albarracin (Zapater and Korb) is considered by Zerny to be most probably erroneous; *lariciata* is otherwise not known from the Peninsula and even Gèdre (Rondou) is apparently a rather isolated habitat. — ab. **nigra** *Prout.* Uniformly sooty black, with deeper black cell-marks and veins. Scarcely distinguishable from other melanic *Eupithecia* except by shape and structure. Warwickshire. — ab. **ferrearia** *Nitsche.* "Strongly darkened with iron-grey", presumably transitional to the preceding. One specimen among typical *lariciata* from Tamsweg (Lungau). — ab. **uniformis** *Dietze* *lariciata.* *nigra.* *ferrearia.* *uniformis.*

luxuriosa. is so destitute of markings that scarcely anything but the dark cell-spot remains visible. — ab. **luxuriosa** *Dietze*
strigata. shows the opposite extreme, being more copiously marked than usual. No locality is indicated. — ab. **strigata** *Dietze* recalls *egenaria* (Vol. 4, pl. 13 g) in its scheme of markings and its large size. One specimen, without
mediofasciata. locality. — ab. **mediofasciata** *Dietze* has the median area of the forewing darkened. — ab. **bifasciata** *Dietze*
bifasciata. has the entire basal half of the wing (as far as the cell-spot) darkened. The type came from Saxony; no others
mediopallens. are mentioned. — ab. **mediopallens** *Dietze*. Median area of forewing, from the cell-spot outward, broadly paler. Singly among typical specimens; Wallis and Saxony are cited as localities in Europe; in the Sajan district and Transbaikal it seems to occur in a higher percentage, 5 among 20 known to Dietze from those places belonging to it. It is pointed out that if the enigmatical *residuata Hbn.* represents *lariciata* at all it must be the present form and that this would then become the name-type of the species. I cannot, however, reconcile Hübner's figure with any known form of *lariciata*. It looks, notwithstanding the narrowed median area, less unfitting for a faded *bilunulata Zett.* and as Herrich-Schaeffer had before him the evident type, I incline to accept his determination; but as Hübner's manuscripts are at present being overhauled, it would be prema-
mesodeicta. ture to resuscitate the name without awaiting further possible light from that source. — **mesodeicta** *subsp. nov.* (? *sp. div.*) (18 e). Larger than most *lariciata*, the raised posterior spot of the thorax rarely at all conspicuously whitened. Palpus and ♂ antennal ciliation possibly a trifle longer. Forewing with cell-mark very heavy; a conspicuously pale space (though generally bisected by one line) between the median group of lines and the postmedian; postmedian generally very uniformly thickened throughout (excepting the small tract between 5th subcostal and 1st radial). Genitalia essentially as in *lariciata*; ventral plate beginning to narrow earlier (a very rough analogy to the divergence in shape noticed in *oxycedrata* as compared with that of *phoeniceata* or of *ericeata*), sacculus process (a key character in Petersen's analytical tables) somewhat sharper. Kashmir: Gulmarg, in July (T. B. Fletcher), a short series of both sexes in the British Museum; also a rubbed ♀ from Scind Valley in June (Leech).

lavicaria. **E. lavicaria** *A. Fuchs.* This name, as has been pointed out by Strand, was wrongly transcribed in Vol. 4 (p. 297) as *lavicata*. I have no further information about the supposed species. A study of the type may well show it to be an aberration of *lariciata*.

propagata. **E. propagata** *Prout* (18 e). Palpus about 1½. Antennal ciliation of the ♂ minute. Abdomen with a black lateral line, which is interrupted on the first few segments. Forewing with a slight ochreous tone about the median and the proximal part of its 1st branch and of the 3rd radial, much as in *lariciata* and some others; the lines outside the cell-dot (as far as the postmedian) are rather well expressed, their angulation opposite the cell-mark not quite so acute as in *lariciata*, the shadings of the postmedian generally more irregular than in that species, strengthened about the radials. Founded on a good series from Muktesar and district (Kumaon), but I refer here also some undersized specimens bred by Hocking at Dharmsala from Cedrus libani (= deodara).

emanata. **E. emanata** *Dietze* (= korbi *Dietze*). Dietze's handling of this little-known species was very unsatisfying. Although from the first he doubted its belonging to *lariciata*, and in 1908 quoted with approval Püngeler's opinion that it was probably a good species, yet even in his beautiful monograph of 1910—13 he continued to write "*lariciata* f. *emanata*", at the same time noting the appreciably longer antennal ciliation (adduced in our Vol. 4, p. 296) and a distinction in the ventral plate of the 8th abdominal of his "type" ♂ (neallotype). His original publication of the name *emanata* (Iris, Vol. 19, pl. 2, fig. 11, 1906) is not even cited in the later and fuller accounts. Moreover, the suggested name of *korbi* is an absolute synonym, proposed in 1908 as a substitution "should *emanata* be a good species". The type is a ♀ from Radde, Amur, 15 July 1903. My mention of Hokkaido (Yezo) as a further locality was based on the assumption that *sordidata* was a synonym and this, though not impossible, is not yet proved; a specimen in the Püngeler collection, from Nikko, was mentioned by Dietze as "perhaps" belonging to *emanata* and may probably be referable also to *sordidata*.
sordidata. — **sordidata** *Wileman* (18 e). Considerably larger in both sexes (forewing length in *emanata* only 9 to 10 mm), perhaps less dark, the longitudinal blackening of the 2nd median vein and the fold not intense, mostly broken into isolated dashes. The termen of the hindwing is sinuous but, except near the apex and anal angle, not at all convex. Founded on one of each sex from Tobetsu, prov. Ishikari, Hondo plains, 6 and 8 June.

tantillaria. **E. tantillaria** *Bsd.* (= laricis *Spr.*) (Vol. 4, p. 297). E. Lange observes that this species, when at rest on tree-trunks, is extremely shy and an approaching footstep or a shadow cast on it is sufficient to disturb it
nigricata. and put it to flight. — ab. **nigricata** *Vorbrodt*. Blackish grey, sharply marked examples, collected by Dr. Wehrli, 7—19 May, near Gempen and Blauen (Switzerland). Said to form a "transition to *tantillaria*".

unistrigata. *E. conterminata Z.* (Vol. 4, pl. 13 k) ab. **unistrigata** *Dietze*. Both wings with a dark median stripe, touching the cell-spot; other markings weak. Helsingfors.

E. lanceata *Hbn.* (Vol. 4, pl. 130). E. Lange notices that the Freiberg specimens are more ochreous than those from other localities. He has not given them a separate name; probably the difference is too slight or too inconstant. *lanceata.*

E. conjunctiva *Hmps.* (14 l). Only the type ♀ and a Masuri ♀ are yet known. We figure the latter. Cell-mark of forewing somewhat raised. *conjunctiva.*

E. latimedia *Hmps.* Postmedian line of forewing straightish and touching the cell-spot, somewhat as in *lanceata*, which, however, it does not otherwise resemble. Wings less narrow, hindwing more rounded, forewing with cell-mark large, median area less constricted (though not warranting the name *latimedia*), containing some dark shading, especially at the costa. N. W. India, the type from Dalhousie. *latimedia.*

E. nigrilinea *Warr.* (17 h). Less warmly coloured, the markings further reduced, particularly in the outer area, which lacks the dark subterminal spots at the radials and at tornus. Cell-spot small, the fine dark postmedian line shortly beyond it conspicuous, very characteristic. Kashmir to Kumaon, the type from Kasauli. *nigrilinea.*

E. incurvaria *Hmps.* (14 l) somewhat recalls in its coloration and markings a larger, rather light, rather broader-winged *exiguata*, but has a very large cell-mark on the forewing, the postmedian very little beyond it, scarcely indented near the costa but with a characteristic inward curve between the folds. Kashmir: Gurais Valley, a pair; we figure the ♀ (allotype). *incurvaria.*

E. lineosa Moore **gulmargensis** *subsp. nov.* (18 e). The name-typical, N. E. Himalayan form of this very easily recognized species will be dealt with in Vol. 12. Subsp. *gulmargensis* is larger (length of forewing in *lineosa* 9—11 mm), considerably lighter, the pale parts almost white, the lines which traverse the pale postmedian band almost obsolete, the brown bands brighter, the subterminal one rather broad and well defined. Kashmir: the type a beautiful ♂ from Gulmarg, 19 July 1931, presented to the British Museum by Prof. T. B. Fletcher, the allotype ♀, 6000—8500 feet, without exact locality. *gulmargensis.*

The following *Eupithecia* are quite imperfectly known and I can only introduce them as "species incertae sedis".

E. latimarginata *Matsumura.* ♀ "20 mm. Palpus greyish, with fuscous bands; forewing with subbasal, antemedial, postmedial and submarginal band, the first 3 scarcely wavy, of equal breadth, the submarginal broad, extended to termen, interrupted at vein 7; four costal spots, the fourth near apex; discoidal spot small and roundish. Hindwing with two bands beyond the discoidal spot, the outer extended to termen. Underside with two broad obsolete fuscous bands, discoidal spots not very distinct. Abdomen with white band at base." S. Saghalien: Ichinosawa, 25 July, 1 ♀. *latimarginata.*

E. ichinosawana *Matsumura.* "21 mm. Wings pale grey, with many oblique fuscous bands: forewing at innerside of medial band with about 4 small bands, the innermost geniculated at costa; a black discoidal spot; postmedial band gently excurved at outerside of discocellulars; submarginal band double. Hindwing with 4 or 5 obsolete fuscous bands, discoidal spot fuscous. Terminal bands to both wings fuscous, fringe grey, with some fuscous scales at ends of veins. Underside pale grey, forewing with 2 and hindwing with 3 obsolete fuscous bands; discoidal spots distinct. Body whitish grey, abdomen with a row of small fuscous crests." Likewise founded on a single ♀ from Ichinosawa. Said to resemble closely *E. extensaria leuca* "but much smaller and discoidal spot more conspicuous". *ichinosawana.*

E. specialis. Under this name Elsa A. Schultze (Arch. Nat., Vol. 85 A: 1, p. 9 and 28, 1920) gives some larval detail, but as no author is cited I suppose this may be a lapsus for "*Tephroclystia* sp.", i. e. an undetermined species. I call attention to the reference in the hope that some further elucidation may be forthcoming. *specialis.*

E. trita *Trti.* "19 mm." Said to be distinguishable at once from all other *Eupithecia* by its very unusual colour; forewing greyish with a rosy tinge, marked with a multitude of blackish-brown dots and waved striae, cell-mark black, narrow and elongate; hindwing without the rosy tinge, the markings only developed in the part which is not covered, in the resting-posture, by the forewing. The figure shows the wings to be moderately elongate but not acute, the markings, as its author says, minute and "trite". One specimen (probably ♀) from Bengasi. Unless it may belong to the *unitaria* assemblage. I cannot suggest a position for it. *trita.*

E. minimaria *Trti.* "The smallest *Tephroclystia [Eupithecia]*, only 8 mm from tip to tip." Whitish, the lines yellowish-reddish, not (excepting the "predistal") forming conspicuous spots at costa; discal dot of forewing small, black, the line outside it forming here a cuspidate angle, then running to the hindmargin in three undulations; even the terminal line is not black but lutescent, on the hindwing punctiform; hindwing with the cell-mark rather diffuse. Both wings beneath with the cell-mark enlarged. Cyrenaica: Giarabub, *minimaria.*

1 example, taken in February. Perhaps near *ultimaria*, which at times has a wing-length of scarcely 6 mm (by artificial measurement little over 10 mm expanse).

bardiaria. **E. bardiaria** *Trti.* (18 e). Of this species I have seen only ♀♀ and I know no other with which it is definitely comparable. Head and palpus much as in *variostrigata*, or the palpus more heavily clothed. Forewing elongate, the costal margin, however, not quite straight; anal angle very weak. Tone about as in the palest and weakest-marked *variostrigata* or *scopariata;* a faint reminiscence of some pale *ericeata* or *oxycedrata* is discounted by the lack of furcation of median and postmedian lines behind; indeed only the 2 principal lines are well expressed, the former scarcely so oblique as the latter, so that the median area narrows a little posteriorly. Cyrenaica: Bardia, in November and December.

meandrata. **E. meandrata** *Trti.* (18 e), founded on "2 only" (Cyrenaica: Barca, Bengasi), is said to bear some resemblance to *castigata Hbn.* but with the ground-colour more as in *subumbrata Schiff.* Affinities still quite undetermined; areole simple; the rounded costa more as in *virgaureata Dbld.*, than which it is much paler, less brown, more weakly marked (notably at costa on the upperside) and with the hindwing somewhat more elongate. The type ♀ has been kindly lent us by Count Turati for figuring.

74. Genus: **Gymnoscelis** *Mab.*

(See Vol. 4, p. 298).

The diagnosis given in the place cited was not quite accurate, as the genus is a derivative of *Chloroclystis* rather than of *Eupithecia*, the 1st subcostal of the forewing anastomosing with or running into the costal. Also the indication of the distribution needs rectification; the American species which were placed here do not really belong to it but to *Nasusina Pearsall*, while on the other hand Africa produces a few species. see Vol. 16, p. 112.

pumilata. **G. pumilata** *Hbn.* (Vol. 4, pl. 12 m). The biology of this species is dealt with by Candura, Boll. Soc.
incertata. Nat. Napoli, Vol. 43, p. 353—359. — ab. **incertata** *Mill.* is, according to Dietze, a subform of *tempestivata*, not sharply separable, in which the numerous fine dark transverse markings are more coalesced into broader,
nigrostriata. dentate bands. He mentions large specimens from Murcia. — ab. **nigrostriata** *Dietze.* Outer and inner boundaries of the median area standing out as dark stripes, about as in the *subaerata* form of *rectangulata*. Graz,
nigrofasciata. Digne, etc. — ab. **nigrofasciata** *Dietze.* Entire interior of the median area blackened, much as in the *cydoniata* form of *rectangulata*. Digne. — ab. **tenebrata** *Dietze* is comparable to *rectangulata* ab. *nigrosericeata;* both wings
tenebrata. almost wholly dark, only fragments of the ground-colour remaining. Founded on a specimen from the Middle
bucovinata. Rhine. — ab. **bucovinata** *Hormuz.*, a large specimen from Bucovina, originally assumed to by a separate species, is lighter (ash-grey, almost silver-grey), all the light lines broader, pure white, sharply defined.

schulzi. **G. schulzi** *Rbl.* Founded on 2 ♂♂ and 2 ♀♀ from the Canaries (Orotava), agrees structurally with *pumilata*, but is so different in appearance that Rebel thinks it must be a separate species. Unicolorous rust-brownish, lighter or darker, with all the subordinate lines almost or absolutely suppressed, the ante- and post-median black, the latter continued on the hindwing; even the terminal line and on the hindwing the cell-dot obsolete. Abdomen with a broad deep-black lateral stripe, instead of the indistinct dark dorsal saddle near the base. From what I know of the variability of *pumilata* and of the phases of Larentiid variation. I am somewhat sceptical about its status; yet the occurrence of 4 such extreme specimens in one locality is interesting.

bicoloria. **G. bicoloria** *B.-Bak.* (18 f). We figure the unique type ♀, which has been presented to the British Museum. Hindlegs and abdomen lost; the tufted palpus, the venation and the glossy wings, with white median area, recall a few exotic *Gymnoscelis*, e. g. *roseifascia Hmps.* (Vol. 12).

harterti. **G. harterti** *Rothsch.* (17 i), founded a pair from Oued Nça, M'zab Country, S. Algeria, appears to be correctly referred as regards the tibial armature (though only one hindleg remains intact), but the face is smooth, rounded-prominent (though not so protuberant as in *Eupithecia tenellata*) and the 1st subcostal of the forewing does not touch the subcostal. Perhaps a *Nasusina* (see the preliminary note on *Gymnoscelis*). I strongly suspect that this is a race or synonym of *dearmata Dietze* (Vol. 4, p. 298), which I have now seen from S. Palestine; perhaps a little more brownish, the ♀ large.

75. Genus: **Chloroclystis** *Hbn.*

(See Vol. 4, p. 298; Vol. 16, p. 108).

coronata. **C. coronata** *Hbn.* (Vol. 4, pl. 13 k). Sterneck, recording 2 ♀♀ from Kwanhsien, remarks on their resistance to the action of xylol, while the wings of their apparently near relatives are rendered almost transparent by the same treatment. I have already remarked on the claims of the *coronata*-group to generic separa-

tion and hope to return to the subject in dealing with the Indo-Australian fauna. — **stabiensis** *Stauder* scarcely needs to be considered even an aberration and it is doubtful whether Stauder would ever have described it if he had not unaccountably referred his specimen (a ♀ from Castellammare di Stabia) to *Eupithecia*, where (naturally) he could not find a determination for it. Apart from its small size I can see nothing exceptional about it. *stabiensis.*

C. chloërata *Mab.* (Vol. 4, pl. 13 k) occurs also in Sweden (Nordström). — ab. **nigrofasciata** *Dietze.* Median area darkened; corresponding to a similar form of *rectangulata*. Mecklenburg, one example, taken among the type form. *chloërata. nigrofasciata.*

C. hypopyrrha *West* (14 l) is near *rectangulata*, with a similar scheme of underside, but is gayer (red-mixed), with red suffusion round the cell-spot, the subterminal dark band strongly interrupted between the dark costal spot and the pair at the radials, which are heavily darkened. Honshu, Japan. *hypopyrrha.*

C. obscura *West* (14 l), also from Honshu, is very close to *consueta* (Vol. 4, p. 298), very likely a giant form of the same, but the palpus may be slightly longer in proportion (it looks slightly over twice the diameter of the eye in *obsura*, about — or scarcely — twice in *consueta*) and the ochreous tint of the abdomen above seems more extended. It was founded on 1 ♀ and one feels that more material is needed. *obscura.*

C. subcinctata *Prout* (18 f). I have not yet seen further specimens, except, apparently, a defective ♀ from Tobetsu, Ishikari, Hokkaido Plains (Wileman); but am now able to provide a figure of the characteristic underside of the type ♂. *subcinctata.*

C. rectangulata *L.* (Vol. 4, pl. 13 k). Andres and Seitz record this as occurring in Egypt. — ab. **anthrax** *Dietze.* Both wings darkened throughout, even the subterminal obliterated. Probably not separable from *nigrosericeata Haw.*, in which Dietze thinks to detect traces of the green colouring of the type. — ab. **brunneata** *Dannehl*, described from the S. Tyrol, has the ground-colour light brown instead of green and at first sight suggests old and discoloured specimens, but has been bred and taken quite fresh. — ab. **ochrea** *Derenne* is another (?) colour-modification, described as ochre-yellow. A specimen from Surrey, figured by Culot (fig. 908), is referred here and Derenne took one at Ixelles, Brussels. — ab. **bistrigata** *Dietze.* Ante- and post-median lines of forewing considerably strengthened. Schlern, S. Tyrol; perhaps pathological. — ab. **joannisata** *Culot* combines the bright green of the type with a black-brown median band. A beautiful specimen in the Joannis collection; locality not indicated. *rectangulata. anthrax. brunneata. ochrea. bistrigata. joannisata.*

C. chingana *Wehrli.* Ciliation very short. Face projecting. Yellowish grey-brown, dulled with numerous fine dark atoms. Forewing with the basal, 2 subbasal, the double antemedian and the median line (which touches the black cell-dot) rectangularly bent near the costa, thence straight and parallel, in this distinguishable at once from *rectangulata;* postmedian much as in that species, but more strongly waved and dentate, the band outside it scarcely paler; subterminal regularly dentate, below the costa and above the middle with macular dark shading on each side; termen with shallow black lunules. Hindwing with the lines more distinct than in *rectangulata*, the postmedian more weakly angled. Underside lighter; forewing with sharp black cell-dot, costal part of median line and similar postmedian to that of upperside; hindwing with lines and cell-dot sharper than above. Inn Shan, Chingan Mountains, Mongolia, 2000 m, 1 ♂. *chingana.*

C. debiliata *Hbn.* (Vol. 4, pl. 13 k). This name is only precariously held by the present species, as Hübner figured a prior *debiliata* (pl. 90, fig. 462) which was by no means certainly the same as our bilberry insect (pl. 91, fig. 466). The plates may, however, have been issued simultaneously and it is to be hoped the name can stand. I had thought to add as a synonym *clerci Krulik.*, which is unknown to me and was sunk by its author, though as an "aberrative" specimen. — ab. loc. **grisescens** *Dietze* (= clerci *Krulik.*) seems, however, to be the more accurate synonymy, as Kolossow says that *clerci* is "entirely light-grey, without a trace of greenish". According to Dietze this is in many localities the sole or the prevailing colour-form of *debiliata.* — ab. **mediofasciata** *Dietze.* Median area largely darkened, much as in *rectangulata* ab. *cydoniata.* A ♂ from Mürztal, Styria. *debiliata. griscscens. mediofasciata.*

77. Genus: **Collix** *Guen.*

(See Vol. 4, p. 299; Vol 16, p. 95).

It is very doubtful whether this genus, in the restricted sense, belongs at all to the Palaearctic Region. In addition to the characters noted, the ♂ almost always has the midtibia thickened, with a groove on the innerside and both sexes the outer spur thereof less than ½ the inner. "Section B", *Pseudocollix*, can, I think, be merged in *Horisme*, with the exception of *sparsata*, which is regarded as sui generis, see below.

C. griseipalpis *Wileman*? (= hypospilata *Wileman*, nec *Guen.*). The Japanese ♀ (Chinan, Satsuma, August 1895), mentioned in Vol. 4, p. 300 under *hypospilata*, is not very fresh, but seems to agree closely with *griscipalpis.*

this Formosan *Collix*, which will be described and figured in Vol. 12. No confirmatory Japanese material has come to hand.

77a. Genus: **Anticollix** *gen. nov.*

Meyrick is probably justified in separating the species *sparsata* from the rest with which it has been associated and in writing (Revised Handbook, p. 235) "monotypic"; but he is definitely wrong in employing the name *Collix* for it, inasmuch as Guenée explicitly says that he does not know how far *sparsata*, which he does not possess, participates in the diagnosis which he has given for *Collix*, and repeats his doubts under "*Collix? sparsata*". Apart from the presence, in the ♂ hindwing, of a long subcostal hair-pencil on the upperside, lying beneath a slight hindmarginal lobe of the forewing, *Anticollix* differs from both *Collix* and "*Pseudocollix*" (*Horisme* part.) in the form of the discocellulars of the hindwing; the 2nd is in both sexes r a t h e r s t r o n g l y o b l i q u e i n w a r d , angled to become oblique outward, as is also the 3rd. Palpus moderate, rough-scaled. Antenna of ♂ scarcely ciliated. Abdomen slightly crested throughout. Areole double (the statement that it is single, first erroneously made by Lederer, then repeated, probably at secondhand, by Guenée and Rebel, may possibly arise from occasional variability, but I have found no exception to the general rule). Hindwing irregularly dentate, scalloped between the radials. Genotype: *sparsata Tr.*

sparsata. **A. sparsata** *Tr.* (= lysimachiata *Tr.*) (Vol. 4, pl. 130). V. Schultz records an unusual coloration of the larva, the green ground-colour strongly suffused with reddish, the dorsal stripes and white lateral line much more sharply prominent, as also a dark line bounding the latter above; segment-incisions reddened, some orange marking ventrally, the anterior proleg strongly reddish. Two specimens among a number of typical ones.

78. Genus: **Coenocalpe** *Hbn.*

lapidata. **C. lapidata** *Hbn.* (Vol. 4, pl. 13 l). According to Nitsche the form from the Pitztal is strikingly dark,
zerhounaria. perhaps a well-differentiated local race. — **zerhounaria** *Oberth.* (= zehrounaria *Oberth.*) (18 f). Livid light-brown, with sharp black cell-dots, the dark central shading of the postmedian accentuated. Beni-Amar, Zerhoun, Morocco.

79. Genus: **Horisme** *Hbn.*

(See Vol. 4, p. 300; Vol. 16, p. 99.)

I place here provisionally, as was indicated in Vol. 16, not only the typical clematis-feeding group by which it is best known in Europe, but also most of the others which show Eupitheciid structural characters, including most of the special features of the genitalia, but which lack the "body-plate" of the 8th sternite. This necessitates the inclusion of some which are as small as many *Eupithecia*; one or two of them have actually been assumed to belong there, though the relatively larger hindwing gives to them (as also to *Piercia*, see above) a different aspect; see *subrubescens*. In this sense, too, I believe that even South America, which I excluded in Vol. 4 from its area of distribution, may claim to possess a few representatives; but I have not yet studied them exactly from that point of view. For *dentata D. Luc.*, erroneously referred here by its author, see *Cidaria kalischata* (p. 142).

agilata. **H.** (?) **agilata** *Christ.* (18 f). As the figure in Vol. 4 (13 k) gives little idea of the hindwing shape and the colour, I substitute that of a ♂ from Narva, S. Ussuri, the only specimen which I have yet seen. Face and palpus blackish. Crests very small (I cannot find any definite thoracic one), anal end tufted. Hindwing shaped nearly as in *Anticollix*, with which Dietze inclined to associate it, but the pencil is wanting and the discocellulars are simpler. Systematic position doubtful until dissections can be made, but the comparison with *Chloroclystis debiliata* was quite misleading; by the shape, the development of the anal tuft, etc., it can hardly be a *Eupithecia* of the *Eucymatoge* section; I therefore refer it provisionally to *Horisme*.

subrubescens. **H. subrubescens** *Warr.* (17 e). Abdominal crests apparently rather weak, but most of the available specimens are by no means perfect; the other characters entirely indicative of *Horisme* as defined above. Evidently related to the Australian *cristata Walk.*, which has already been assigned by Turner to this genus. Cell-mark of forewing strong, rather obliquely placed. Fairly common in N. W. India. The type, from "Berham Gully" (? Campbellpur dist.), is the form with the median area of the forewing darkened into a band. — ab. **decipienda** *Butl.*, the commoner form, has the median area not or scarcely darkened. The type was from Dharmsala.

eurytera. **H. eurytera** *sp. n.* (17 e). Closely related to *subrubescens*, the typical series considerably larger (26 to 28 mm), the apical part of the forewing a little mere rounded; much darker and greyer, strongly glossy, "dusky drab" or fuscous, the lightest specimen perhaps better described as "drab densely irrorated with black-grey"; forewing with cell-mark less thick, subterminal showing chiefly as 2 whitish dots (in front of the 1st median and behind the 2nd; hindwing as dark as forewing and not (as in *subrubescens*) showing a lightening costally;

underside also much darker and more uniform in colour than in *subrubescens*. W. China: Pehlinting, 6000 feet. 50 miles N. N. W. of Cheng-tu, July to August (G. M. Franck), type ♂ and allotype ♀ in my collection, together with an equally large ♀ from the same collector, taken on Mt. Omei, 7000 feet, 17 July 1931; a smaller ♂ from Mt. Omei, 3000—4000 and ♀ from Kwanhsien in the British Museum.

H. brevifasciaria *Leech* (Vol. 4, pl. 13 i). Further localities are Kwanhsien, Ta-tsien-lu and Tse-ku. Sterneck in publishing the first two, points out that the areole is double, but does not comment on the relatively large hindwing as compared with normal *Eupithecia*. The genitalia, combined with the absence of the body-plate, confirms its removal (see Vol. 4, p. 289). *brevifasciaria.*

H. sternecki *sp. n.* (18 g). Expanse 21—24 mm. Not unlike *E. brevifasciaria*, forewing relatively shorter and less pointed, hindwing slightly more ample still, rounder-margined and continuing more fully the colouring of the forewing; median area less band-like (merely traversed by wavy lines), pale band (double line) outside it less strong, distal area more regular (without the conspicuous cloudings). Pekin: Western Hills, 7—18 August 1913 (J. S. Hughes), 2 ♂♂, 1 ♀ in the British Museum. Sterneck records (without naming) 60 ♂♂, 26 ♀♀, May-June, also from Pekin. M. Joicey received a worn ♂ from Tientsin. *sternecki.*

H. flavovenata *Leech* (17 k). We figure one of a short series of ♂♂ from Chungking. Notwithstanding the *separata*-like hindwing, this has none of the distinctive characters on which *Anticollix* has been erected and must be placed for the present in *Horisme* (certainly not *Collix*, as in Vol. 4, p. 300). *flavovenata.*

H. minuta *Btlr.* (17 h). This also may be provisionally transferred from *Collix* to *Horisme* although, except in its yellow-veined underside, it shows little connection with the preceding. Good specimens remain a desideratum. *minuta.*

H. macularia *Leech* (Vol. 4, pl. 11 c, p. 300, as *Collix*) occurs also (perhaps in separable races) in the N. E. Himalayas and on Formosa and belongs to an Indian group which includes *flavofasciata Moore* and others. *macularia.*

H. hyperythra *Hmps.* This Indo-Malayan species, which occurs also on Formosa and the Riu-kiu Islands, has been taken very rarely on Kiushiu, but can scarcely be considered Palaearctic and will be figured in Vol. 12. Smaller and much less variegated than *macularia*, of a warmer brown colour, the underside generally flushed with flesh-pink and with a very strong, band-like postmedian, which is acutely angled outward before the 1st radial. *hyperythra.*

H. aquata Hbn. (Vol. 4, pl. 13 l) **brisciacensis** *Dannehl*, said to be unquestionably a good local race, is extraordinarity large (a forewing 2 or 3 mm longer than the normal expanse), the markings intensified, especially the blackened postmedian of the forewing from the hindmargin to the radials and a broadened white band outside it; tone greyish rather than brownish. Kaiserstuhl district, Breisgau. *brisciacensis.*

H. vitalbata Schiff. (Vol. 4, pl. 13 l) f. **repedata** *nov.* Much more uniformly brown than typical *vitalbata*, the anterior stripe being much less pale, the oblique band not sharply darkened. Barcelona, 1 ♂, 2 ♀♀ in the British Museum. I have seen no other *vitalbata* from the district, so do not venture to pronounce upon its constancy. — **detersata** *P?ng.* (17 e). We figure a ♂ from Issyk-kul; the entire race is well separable from the name-type, even if specimens from the Ili district are somewhat more extreme. — **ponderata** *subsp. nov.* Larger than *detersata* (length of a forewing ca. 14 mm) and looking relatively a little longer-winged; antemedian line rather strongly bent. Ta-tsien-lu, 3 ♂♂, Yarégong. 1 ♀, types in the British Museum. Genitalia as in *detersata*, the bilobed process on the sacculus (contrast Pierce's plate XXXV) probably indicating an incipient species. — **staudingeri** *nom. nov.* (= variegata *Stgr.*, nec *Moore*) (17 d). It was rightly pointed out by Püngeler in 1900 that the name *variegata*, erected in *Cidaria*, was a homonym; but he was wrong in holding that the East Asiatic race (the type from Amur) did not differ appreciably from the European. The sacculus process is bilobed as in *detersata* and *ponderata*, but the genitalia are somewhat larger than in them and in typical *vitalbata* and the scobinate patch distally on the manica (see Pierce) is more extended and less coarse than in those three. — If the Dalmatian form which Staudinger associated with his "*variegata*" (and which has since been recorded by Schawerda from Mostar and is almost matched in Central Italy and perhaps on Capri) is really sufficiently distinct from **conspicuata** *Hirschke* (17 d), it too will require a new name; I leave the decision to those entomologists who possess more extensive material from S. and S. E. Europe. *repedata. detersata. ponderata. staudingeri. conspicuata.*

H. falcata *B.-Haas* (17 c). We figure a topotypical ♂ (Munko Sardyk, eastern Sajan). Although it was originally likened to *vitalbata*, it should probably be placed next to *scotosiata* (17 e), with which it has much in common, though I cannot agree with Djakonov in sinking it. Still longer winged, the hindwing less strongly and less irregularly dentate; colouring paler, the forewing more brownish, a slightly clearer patch in and beyond the cell giving the slight suggestion of *vitalbata* which Bang-Haas over-emphasized; fringes traversed by a dark line, not chequered as in *scotosiata*. A much worn ♂ from Urga is evidently referable here. *falcata.*

scorteata. **H. scorteata** *Stgr.* (17 e). Locally common, Tangier, the Algiers district and at least as far eastward as Hammam Meskoutine. Variable, but as the forms are not at all sharply differentiated I refrain from giving them names; nearly unicolorous brown, nearly unicolorous fuscous, or a good deal variegated, sometimes (chiefly in the ♀) definitely pale in the proximal area and the anterior part of the median and distal areas (tapering to the apex), the posterior part more or less strongly darkened. Flies chiefly in March, April and May. Rebel reports a ♂, not quite fresh, from Cala Ratjada, Mallorca.

pfeifferi. *H. corticata Tr.* (Vol. 4, pl. 13 l) **pfeifferi** *Wehrli* (18 g). Less brown, more mixed with grey, the lines on both wings more developed, the black ones which bound the median area less outstanding, the pale area outside the postmedian, on the contrary, well developed and conspicuous. Underside darkened, likewise distinctly marked. Marasch, plentiful, May-June and again in August-September.

riedingeri. *H. tersata Schiff.* (Vol. 4, pl. 13 l) ab. **riedingeri** *G. Led.* (18 h). We give a figure of the type. It is a bone-coloured aberration (about as shown in our figure of *Scopula rivularia*, Vol. 4, pl. 5 e), more or less weakly marked. A dozen were bred by Fr. Riedinger in inbreeding from a Bad Reichenhall ♀. Not rare at Digne, according

laurinata. to Heinrich. — **laurinata** *Schawerda* (17 e) somewhat recalls *corticata* in colour and markings, differing from typical *tersata* in its pure brown colour, less of the white lines and notably the obsolescence of the pale subterminal. Waidbruck, S. Tyrol, 4 examples; later recorded from S. France, the Pyrenees and Sicily. I figure a specimen of the Sicilian race, but am not sure whither it is exactly the same as the form originally intended

insularis. by Schawerda. More likely it will have to be associated with the following, recently-described race. — **insularis** *Byt.-Salz.* Much larger than typical *tersata* and giving the impression of a separate species; as, however, the genitalia have shown no constant distinction in either sex, it is provisionally placed here. Colour bright brown, about as in *laurinata*, all the markings standing out clearly; the heavy apical streak broken, ending sometimes in the apex, sometimes behind it; subterminal clear and distinct. Particularly striking is a large dark mark which commences at the proximal end of the apical dash and occupies all the space between the subterminal

carinthiaria. and the discocellulars, ending posteriorly at the 2nd median vein. Sardinia, both sexes from Aritzo. — **carinthiaria** *Dannehl.* Whitish grey, without (or almost without) the brownish tinge, the lines very fine and sharp (recalling *calligraphata*), the white subterminal strong, without the dark proximal shading. Carinthia. Probably

nigrofasciata. near *tetricata*. — *tetricata* ab. **nigrofasciata** *Djakonov.* Differs in having the ante- and postmedian lines of the forewing deep velvety black, the former thickened on the veins, the latter sharply dentate; postmedian of hindwing likewise strengthened. Djoia Lake, near Minussinsk, 1 ♂, with typical *tetricata Guen.* (Vol. 4, p. 301). —

chinensis. **chinensis** *Leech* (17 d). We figure a ♀ from Omeishan. Sterneck records 7 ♂♂ and 2 ♀♀ from Pekin and notes that they are in general somewhat smaller than those of W. China and have the costal margin of the hindwing either wholly dark or only weakly lightened, while his Ta-tsien-lu and Sunpanting examples have it snow-white. Perhaps a separate race, yet European *tersata*, as well as Chinese, vary in this respect.

exoletata. **H. exoletata** *H.-Sch.* (Vol. 4, pl. 63 m, as *exoletaria*). This rare species has been further recorded by Turati from Sardinia; but this year Bytinski-Salz has made known the following species and suggests — no doubt correctly — that the citation will be found to refer to this latter.

predotai. **H. predotai** *Byt.-Salz.* Very near *exoletata*, representing it on Sardinia, but with different genitalia: valve broader, bent towards the costal margin; costa chitinized, the tooth at the base bent outward; sacculus longer, curved in S-shape; transtilla conical, oriented inward, not bent outward in the form of a hook. Larger in both sexes, ground-colour much darker, namely of a dark brown-grey on which the light anal spot stands out conspicuously; transverse markings variable, the lines may be very distinct or obsolete; outer boundary of median area formed of a series of distinct arcs, succeeded by a conspicuous slender line (in *exoletata* the course of this line is "approximately rectilinear"). Flies in October and November.

scotosiata. **H. scotosiata** *Guen.* (17 e). We figure a ♂ from the Sajan Mountains, which agrees well with Altai specimens from the Elwes collection, as well as with the original description. I have pointed out, under *falcata*, the impossibility of merging these two species if I have then correctly determined. The "*scotosiata*" in the Leningrad Zoological Museum, on which Djakonov based his note, came from Urga and the River Irkut and were probably not identical with mine.

plurilineata. **H. plurilineata** *Moore* (Vol. 4, pl. 7 f). Sterneck reports, somewhat doubtfully, a pair from Sunpanting and a ♀ from Wassekou, but I believe these refer to *impigra*, see below. The true *plurilineata* is probably not Palaearctic; I know it only from the N. E. Himalayas.

nigrovittata. **H. nigrovittata** *Warr.* (= nigripunctata *Warr.*) (17 d). These names have hitherto been sunk to the preceding, but represent a distinct though closely allied species, with several differences in the ♂ genitalia. The ♂♂ are variable in size, tone and distinctness of markings; the ♀ is less extremely long-winged than that of

exors. *plurilineata*. Punjab Kashmir, etc., the types from Thundiani. — f. **exors** *nov.* Slightly less narrow-winged

and much less brown, the ground-colour whitish, standing out clearly on each side of the median area, on which area, as well as on the basal patch, the waved dark lines are much better developed than in the name-type; no conspicuous dark spot on the postmedian at the 3rd radial and 1st median, nor any ample blackish cloudings about the central area, as in most of the ♀♀ of the group. Altogether more suggestive of *tersata* or *aemulata* (Vol. 4, pl. 25 a) but rather narrower-winged, with appreciable yellowish posterior and midsubterminal suffusions, subterminal not noticeably thickened behind fold, etc. Kashmir: Koksar, type ♀ and 2 others; a nearly similar ♂ from Kujiar. Somewhat intermediate forms have been sent from Narkundah and Nubra Valley, but I have seen none approaching it from Punjab and eastward.

H. impigra *sp. n.* (? = plurilineata *Sterneck*, nec *Moore*) (18 g) is structurally nearer to *nigrovittata* than to *plurilineata* and might possibly be treated as a subspecies, but the chitinized arm of the sacculus is longer and there are other slight differences. Wings more strongly marked, particularly the costal spots of the forewing and the postmedian line of the hindwing above and of both wings beneath; postmedian of forewing with the central spot large and with a more oblique course between the 2nd median and 2nd submedian. Tseku, 7 ♂♂, including the type; Ta-tsien-lu, 1 ♀; all in the British Museum (ex Oberthür). *impigra.*

H. stratata *Wileman* (18 g) has larger genitalia, with a strongly spined, horseshoe-shaped ridge on the inner surface of the valve and is still known from Japan only. *stratata.*

H. (?) **angustealata** *Sterneck* is quite unknown to me but perhaps, in spite of the large tuft of raised black scales on the discocellulars, either a true *Horisme* or one of the "*Pseudocollix*". Expanse 33 mm. (Continental measurement.) Palpus moderately long. Wings strongly elongate, hindwing with strongly arched costa, termen truncate and moderately straight (so that in the set specimen the termina of the hindwings and the tip of the abdomen lie in alignment — I suppose somewhat as in the New Zealand *arenosus Howes*), very weakly waved. Forewing unicolorous yellowish-brown, costal margin darkened, of the postmedian only a dark spot between 3rd radial and 1st median conserved, beyond it 5 or 6 black dashes on each vein. Hindwing to much beyond the middle unicolorous grey, only at the inner margin with vestiges of a postmedian and double subterminal; cell-dot small. Ta-tsien-lu, 2 ♂♂. Said to differ from "*plurilineata*" (*impigra*) in the raised cell-spot and the strongly bent postmedian of the hindwing beneath. *angustealata.*

H. incurvaria *Ersch.* (17 d). Djakonov records examples from the Minussinsk district, collected at the end of June and the beginning of July. The specimen here figured, a ♂ from Munko Sardyk, Sajan Mountains, was received under the name of *intricata Stgr.*, but agrees fully with all the information which I have concerning *incurvaria.* *incurvaria.*

H. calligraphata *H.-Sch.* (Vol. 4, pl. 12 i). Although no French localities were given in Vol. 4, we have a few records for the Hautes-Pyrenees, besides Colmars (Basses-Alpes), Vallouise and Pelvoux (Hautes-Alpes). *calligraphata.*

H. milvaria *Christ.* I now suspect that the Sajan specimens described here in Vol. 4 (p. 302) belonged to *incurvaria*; in any case the latter seems to occur in the district, see above. Of "*Cidaria*" *milvaria*, Christoph writes: "near *C. uniformata Bell.* Wings whitish-grey, forewing mixed with yellowish, densely irrorated with fuscous, a curved striga near the base, a second, somewhat curved, before the middle, a postmedian sinuate, denticulate, scarcely indicated except by fuscous vein-dots, a waved whitish line parallel with the outer margin; hindwing whitish-grey, more or less irrorated with fuscous, with 3 incomplete brownish strigae, the fringes greyish. Length of a forewing in the ♂ 12, in the ♀ 16 mm. Ordubad." *milvaria.*

Additions and Corrections.

(Oenochrominae to Larentiinae).

By Louis B. Prout.

On account of the laboriously slow progress of my manuscript of the present volume through the press (due to circumstances altogether beyond my control), some synonyms have been created and it has been impossible to incorporate in their right places many new forms which have been described, besides important facts which have been made public. The conclusion of my section of the volume affords therefore the best opportunity to rectify these matters, together with the actual misprints or other inaccuracies.

p. 1, to *B. parthenias*, instead of ab. *unicolor*. — ab. **dealbata** *Klem.* (= unicolor *Heinrich*). Klemensiewicz's name dates from 1913, type from Galicia. — **lapponica** *Rangnow.* Colouring magnificent, strongly variegated, fringe of both wings brown, not chequered; the central band of the hindwing sharply angled. Lapland. — **hilara** *Sawamoto.* Distinguished from typical *parthenias* by having the blackish mark near apex of forewing beneath sharp and S-shaped instead of indistinct and wedge-shaped; "apical" (distal) margin of black area of *dealbata.* *lapponica.* *hilara.*

hindwing straight, not or scarcely incurved; cell-spot of hindwing small, punctiform, in ♀ often indistinct, that of the forewing beneath small or evanescent; hindwing on outer margin in arterior half narrowly black bordered, with or without a black line accompanying it. Saghalien: Konuma. Also from Honsyû: Simasina, 17—22 May. This does not at all agree with the Ussuri form, so far as I know it; the latter is more like *sajana*.

p. 2, to *Phyllometra*:

proutiana. **Ph. proutiana** *Trti.*, founded on a pair from Cyrenaica in beautiful condition, is regarded by its author as quite distinct from *argentaria B.-Haas*, which, however, he only knows from the original description and from our figure and description of the form *planaria Chrét.*: in any case "entirely distinct from *gracilaria Bsd.*", of which he has carefully compared examples from Cuenca and Albarracin. Slightly larger, a little broader- and rounder-winged; ground-colour less bright, more brownish in the unmarked parts, the hindwing without markings, except the slender, interrupted terminal line, which it shares with the forewing. Forewing with "predistal" line a little convex towards the middle of the wing, neither concave nor rectilinear; postmedian composed of slender concise dots and small dashes; "predistal" area not white, but somewhat powdered with brownish atoms. The ♀ only differs from the ♂ in its smaller size and simple antenna.

p. 3, to *Drepanopterula*:

limaria. **D. limaria** *Christ.* (18 f ♂♀). The acquisition of good ♂♂ (as here figured) by my valued friend Dr. Wehrli has led to the interesting discovery that it belongs not to the Geometrinae (see Vol. 4, p. 342) but to the Oenochrominae. He noticed the presence of the 2nd radial of the hindwing and that it did not agree with any genus with which he was familiar and very kindly lent it to me for study. In structure it agrees closely with *D. zanoni*, including the prominent face; antennal ciliation slightly longer, costal vein of forewing, at least in the specimen before me, touching the first two subcostals at the point where they begin their anastomosis. Termen of forewing longer than in *zanoni*, but with the same sinuosities; coloration and scheme of markings the same, the brown shade proximal to the postmedian narrower, dark shading between postmedian and subterminal somewhat intersected at the veins. Underside rather coarsely irrorated. The figured specimen is from Ordubad at 5000 feet, 8 June 1934 (Rjabov). Perhaps the genus should sink to the Australian *Taxeotis* (Vol. 12, p. 15); *limaria* is remarkably similar thereto, even in colour and markings.

p. 3, after *Drepanopterula*:

5. Genus: **Uliolepis** *Warr.*

(See Vol. 4, p. 5.)

pilosa. **U. pilosa** *Warr.* A re-examination of the wretched type of this supposedly Oenochromine genus raised grave doubts as to whether it belonged at all to the Geometridae. It is now proved to be a form of the Lymantriid *Ocneria* (?) *signatoria Christ.* and must be rejected from the present volume.

meridionalis. p. 4 to *O. atrata.* — **meridionalis** *Reisser.* White of the apex reduced. Reisser differentiates from it *pyrenaica Gmpbg.* by the brown tone of the latter and it is probably less extreme than the ab. *nigerrima Th.-Mieg* and less undersized than *dalmatina Stauder*. S. Spain: Sierra de Gredos, etc.

virescens. p. 4, to **D. virescens** *Marumo.* This species must be removed from *Doratoptera* and that genus, in consequence, from the Palaearctic fauna. Through the kindness of Dr. Bytinski-Salz the British Museum has acquired a ♂ of it or an extremely closely related species from Hori, Formosa, 26 April 1934 (L. Gressett). It is evidently a *Prosopolopha*, perhaps slightly less robust than *P. simplex Btlr.* ♂, certainly narrower-winged; the only subcostal anastomosis on the forewing is a short fusion of 1st subcostal with costal; the 2nd radial of the hindwing is obsolete (as is shown in Marumo's figure but not implied in his description); the prominent face and strong frontal tuft are characteristically developed. Prof. W. T. M. Forbes (in litt.) informs me that the ♀ from the same source has the 2nd radial of the hindwing developed, though a little weakened. Probably the species is scarcely Palaearctic.

p. 5, to *Archaeobalbis*:

sinapiaria. **A. sinapiaria** *Pouj.* (Vol. 4, pl. 3 c) is apparently common at Siao-lu and is, as I already suggested, quite close to *ochreipicta Swinh.*

lahayei. p. 6, to **P. lahayei** *Oberth.* We are gradually discovering that this has an extremely wide distribution. Besides N. and W. Africa, its has been received from Bulawayo, from Arabia (Mecca and Taif) and S. Persia and I am now satisfied that *multispurcata* (p. 6) is nothing more than a dark form of it.

pallida. p. 7, to *Ps. pruinata* ab. **pallida** *Rocci* (= canditata *Stauder*). A synonym, presumably, is *albida Kolossow.* recorded as very rare in Viatka among typical *pruinata*, merely diagnosed as outstandingly white. — ab.

albescens *Schwingenschuss*. The type locality (Hohe Wand, Lower Austria) was accidentally omitted. It is quite possible that *albida* refers to this and not to *pallida*. — ab. **grisescens** *Reutti* (et *Hannemann*). Described from Baden and later from Berlin, in both cases as a casual aberration, this name cannot be transferred to the following race, as seems to have been suggested (though not adopted) by Dr. Heydemann in a recent contribution. It can occur in many places — I have even seen an example from the Taurus — but it becomes more prevalent in the "N. W. climatic region", though I know very few English or Irish. — **atropunctaria** *Walk.* (= nigrolineata *Schwingenschuss*) (18 h). Heydemann was in any case right in deciding that the name *nigrolineata* (2 a, as nigrilineata) was applicable to the north-western race; I was misled by its being cited as "ab." in Bang-Haas and rather indefinitely erected. However. I find that indisputably the oldest name is Walker's, founded on a dwarfed and faded ♂ from E. Doubleday which was by mistake supposed to have come from "E. Florida" (!). It is obviousy English and, notwithstanding its poor condition, has the lines still strong, especially at the costa, cell-mark well developed, postmedian conspicuous beneath. We add a figure of the type in its present condition. The name *holsatica F. Wagn.* is probably superfluous, as Heydemann has indicated, unless it be retained for the grey specimens of the present race. Very large *atropunctaria* (sens. lat.) occur at Santa Fé, Catalonia, but they are variable on the upperside and I have not seen enough to justify a separate name. — ab. **unilinearia** *Lempke*. Subterminal line and, on the forewing, the antemedian wanting leaving only a dentate postmedian. Deurne, Holland. — ab. loc. **viridimelaina** *Heydem.* is a rare medification of the silky green *viridisquama Heydem.* (= *viridisquamosa Heydem.*), melanistic in that white scales are wanting and a dense brown-grey suffusion invades the costa, the veins and the median area of the forewing and the entire hindwing. Rendsburg, Innien, Dätjen and Schmilau, bred singly nearly every year, but almost exclusively ♀.

albescens. *grisescens.* *atropunctaria.* *unilinearia.* *viridimelaina.*

Ps. coronillaria Hbn. (= cinarescens *Koch*) **lesuraria** *D. Luc.* (18 k). I now think, judging from a long series from Anosseur, Middle Atlas (R. E. Ellison), one of which is here figured, that this is probably a good species. From the Great Altas Zerny records *c. algirica*.

lesuraria.

Ps. simplex *Alph.* (Vol. 4, pl. 3 a). A ♂ from Merv, in the Wehrli collection, evidently referable here, has pectinations materially longer than in the rest of the genus. Previously I had only seen ♀♀.

simplex.

p. 7, to **Gnophosema.** It appears that I was guilty of an error of observation in diagnosing this genus (Vol. 4, p. 14) as having the 2nd subcostal stalked beyond the 5th. Misled by the absence of a vein (an excessively rare occurrence in the subfamily) and the thick scaling and somewhat folded wing-membrane towards the apex in the type, I imagined that I saw the 2nd subcostal distally to the 5th, whereas it is really lost.

gnophosema.

G. isometra *Warr.* (2 h, not 2 a, as cited in the English edition). Our figure is somewhat too bright and sharply marked and does not show the pale-pupilled (though small) ocellus of the hindwing. The type remains unique, as the Kashmir ♂ mentioned in Vol. 4 (p. 14) is evidently a much damaged example of the species about to be described.

isometra.

G. drypepes *sp. n.* (17 a). Expanse 32—35 mm, the Kashmir ♂ (see above) only about 29 mm. General characters of the genotype; abdomen with rather strong anterior crests (perhaps abraded in the genotype and doubtless so in the Kashmir ♂); forewing with all veins present, the 2nd subcostal arising from the stalk of the 3rd—5th; 2nd radial of both wings nearer to the 1st than in *isometra*, though rather variable. Wings less narrow, colour darker and greyer, with denser irroration, the forewing with some dark costal suffusion; cell-spots more elongate, not noticeably pale-centred; lines thicker, less macular, the postmedian more proximally placed. Punjab: Khyra Gully, 2 ♂♂ (H. Roberts), the type dated 1—10 June 1881; also a ♂ from the Oberthür collection, labelled "Australic" (!), besides the specimen previously assumed to be *isometra* (Kashmir, May 1896); all are in the British Museum.

drypepes.

p. 9, to **H. papilionaria** *L.* E. Schack reports a somewhat unexpected enemy to the larva, namely the cockchafer, which he has seen killing it when devouring the birch leaves.

papilionaria.

p. 11, to **C. infracta** *Wileman* (3 f). A further locality is Hong Kong. The Tring Museum has a good ♂ which was collected there by Major B. Tulloch; it will be interesting to learn whether it is indigenous there or an accidental importation.

infracta.

p. 11, after *Ochrognesia*:

16a. Genus: **Uliocnemis** *Warr.*

(See Vol. 12, p. 88.)

This exclusively Indo-Australian genus, which differs from *Comibaena* in its crested thorax and abdomen, better developed ♀ frenulum and, usually, 2-spurred hindtibia, contains the following species.

caslalaria. **U. castalaria** *Oberth.* (= cassidaria *auct.*, nec *Guen.*) (1 c). Best known from the Khasis, but straggling into Malaya, Tonkin and with one record for W. China: Huang-mu-Chang, 7000 feet (Leech).

p. 11, before *Rh. incomptaria*:

monosticta. **Rh. monosticta** *Wehrli* (1 d). This species, though not really Palaearctic, got figured in the present volume and should be mentioned here. "♀ unknown, ♂ closely similar to the ♀ forms of *megaspilaria Guen.* but without apical spot in the hindwing" (etc.; see Vol. 12, p. 90). Hindtibial spurs short, the proximal pair in one specimen wanting. Lienping, S. E. China.

p. 11, under *Comibaena*:

pustulata. **C. pustulata** *Hufn.* (Vol. 4, pl. 2 b). Although so very generally an oak-feeder only, the larva of this species is definitely recorded as found feeding on beech (Waters, Ent. Mo. Mag., Vol. 60, p. 64). The occasional flesh-pink or reddish specimens of the imago which are taken, and which I had supposed to be influenced by moisture, are now believed to be a natural aberration, perhaps inheritable; attempts should be made to breed *stigmalisata.* from it. — ab. **stigmatisata** *Stauder*, a small ♀ from Triest, is very bright green, with the transverse lines of the forewing obsolescent, the spot at the tornus reaching to the middle of the wing, both the cell-dots distinctly expressed, as in *neriaria.*

p. 15, before *Microloxia*:

25. Genus: **Neromia** *Stgr.*

(See Vol. 16, p. 29.)

pulvereisparsa. **N. pulvereisparsa** *Hmps.* (= iodisata *Stgr.*) (Vol. 4, pl. 3 a). I have been inclined to think (as was indicated both in Vol. 4, p. 26, and in Vol. 16) that there were two species, or at least two races, mixed here, but as Amsel, who has seen much more Palestinian material, pronounces it "very variable in size and expression of markings" I accept the current synonymy for the present.

viridceiliata. p. 15, to *M. herbaria* **virideciliata** *Bubaček.* Bytinski-Salz says that he has seen this form also not only from Sardinia but from such remote localities as Latvia, etc. and does not think it can be anything more than an aberration. For myself, I have only seen one or two from Corsica, but I am inclined to accept his judgment.

crassilineala. p. 16, to *M. saturata.* — **crassilineata** *Zerny* differs from the name-type, which Zerny cannot distinguish from the Albarracin form, in its more distinct white line, especially on the forewing, in the deeper green of the ♂ and the more distinctly white distal half of the fringes; on an average larger. According to his figure, the ♀ has the termen and line of the forewing more curved, the line extended to the costal margin. Great Atlas. The larva probably feeds on Bupleurum spinosum.

alinea. p. 17, to *E. smaragdaria.* — ab. **alinea** *Burr.* (Vol. 4, p. 28). The queried citation of *immaculata Thnbg.* as an equivalent of this name must be deleted (see *Hemistola* below). If an aberration exists which lacks both cell-spot and lines it will require a new name.

chlorophyllaria. p. 18, to **E. chlorophyllaria** *Hed.* A ♂ from S. Kansu (N. declivity of Min-shan, ca. 2750 m) is referred here by Djakonov, discoloured or aberrant, so that the hindwing looks almost white; lines of forewing perhaps somewhat nearer together. Possibly it may prove to belong to *atyche* (3 c).

p. 18, after *E. atyche*:

kansuensis. **E. kansuensis** *Djakonov.* Length of a forewing ca. 16 mm. Superficially recalls *chlorophyllaria;* palpus appreciably shorter and more slender, 2nd joint rather long-haired, terminal joint slender, elongate; ♂ antenna with longer apical part non-pectinate. Forewing light grass-green, with a tinge of blue; antemedian very oblique; no cell-spot; postmedian much broader than in *chlorophyllaria*, very oblique, quite straight (not dentate). Hindwing white, with faint tinge of green and with a light olive-green line near the termen, parallel therewith at first, from 1st radial curving strongly so as to end rather far from anal angle. S. Kansu, ca. 3500 m. 1 August 1930, 2 ♂♂.

autumnalis. p. 18, to *E. plusiaria.* — f. **autumnalis** *Schwingenschuss.* This name has been given comprehensively to the small 2nd-brood form from Spain, whereas *powellaria Oberth.* was founded particularly on the modifications of the markings and could presumably occur in both broods.

fimbrialis. p. 18, to **Th. fimbrialis.** A record from Finland has been published (in Finnish) in Notul. Ent., Vol. 14
ochracea. p. 117. — ab. (?) **ochracea** *Kolossow.* "Uniform ochre-yellow, only with traces of green at the base of the wings." A few from Ekaterinenburg. I suspect discoloration through the action of moisture.

p. 19, instead of *H. chrysoprasaria* read:

H. immaculata *Thnbg.* (= chrysoprasaria *Esp.*, sens. lat.). Dr. Nordström has kindly lent me a photo- *immaculata.*
graph of Thunberg's type, in which I immediately recognized — what ought, indeed, to have been recognized from the careful description given by Lampa half a century ago — that it belonged to the present species and not, as had been conjectured, to *smaragdaria*. The wing-shape is decisive and further confirmation is offered by the small palpus, snow-white fillet between the antennae and stalking of veins 3 and 4 of the hindwing. Unfortunately *immaculata* is the oldest name for the species and not preoccupied. The absence of the white lines can scarcely be due to its imperfect condition, as the green colour is retained. Thus it would seem to represent an extremely rare aberration, parallel to *smaragdaria* ab. *alinea*. Type from Upsala. — ab. **chrysoprasaria** *Esp.* *chrysoprasaria.*
(Vol. 4, pl. 2 g). In detailed work on the variation, this name can be utilized for the commonest form, with the lines present but not dentate. — **occidentalis** *Wehrli*. Morocco is to be added to the distribution of this form — *occidentalis.*
a few localities in the Great Atlas.

p. 20, after *H. malachitaria*:

H. stathima *sp. n.* (17 b). Expanse 26 mm. Face light-brown above, lower half white. Palpus slender, *stathima.*
moderate (somewhat damaged), 3rd joint well developed. Tongue well developed. Forewing with 1st subcostal from near the end of the cell, 2nd to 5th long-stalked, 1st median connate with 3rd radial; a little faded, probably coloured about as in *malachitaria:* a white mark on 3rd discocellular, containing a few red-brown scales; lines white, antemedian very slightly curved, postmedian feeble at first, posteriorly broad and straight; traces of a fine, interrupted red-brown terminal line. Hindwing bluntly angled at the 3rd radial; markings as on forewing, the postmedian somewhat curved. Underside similar or little paler; no trace of terminal line. Szechuan: Tu-pa-kö, 7400 feet, 8 September 1929 (H. Stevens), 1 ♀ in Mus. Tring.

p. 20, after *Hemistola:*

33a. Genus: **Ecchloropsis** *gen. nov.*

Palpus shortish-moderate, 2nd joint heavily scaled, 3nd joint small (♂). Tongue well developed. Antenna in ♂ pectinate, apical $^1/_5$ or less non-pectinate. Hindtibia not dilated, all spurs present. Abdomen not crested. Frenulum wanting. Forewing with cell about $^2/_3$, 1st subcostal from near end of cell, anastomosing slightly with costal and well with 2nd subcostal, 1st median just separate. Hindwing with termen bluntly bent at 1st radial and rather less bluntly at 3rd; costal vein very shortly approximated to cell near base, 2nd subcostal stalked, 1st median about connate. Genotype: *xenophyes sp. n.* Agrees in most characters with *Hemistola;* in shape nearer to *Dyschloropsis*, from which it differs in the well developed tongue and the presence of proximal spurs on the hindtibia.

E. xenophyes *sp. n.* (17 c). Face dull reddish brown. Vertex and antennal shaft cream-whitish. Fore- *xenophyes.*
wing olive-green, costal edge narrowly cream-buff; cell-dot black; postmedian line indicated by small white vein-dots; terminal line blackish, interrupted by small whitish dots at the veins; fringe with rather strong dark dots opposite the veins. Hindwing whitish proximally; a thick white postmedian line, well defined distally, the wing beyond being concolorous with forewing. Forewing beneath olive-green anteriorly, greyer posteriorly, hindwing continuing whitish to termen. Szechuan: Wushi, 12-000 feet or upward, 21 May 1929 (H. Stevens), 2 ♂♂; type in the Tring Museum. This is evidently the "gen. et sp. indet." of Sterneck (Iris, Vol. 41, p. 31) or a close relative; the palpus may be less long and there are some deviations in the account of the colouring.

p. 22, to **E. simonyi** *Rbl.* Another African record, from further north than Rio de Oro, has come to *simonyi.*
hand; a single specimen from Agadir (T. Wikely), shown to me by Mr. Ellison and registered by Zerny in his recent work on the Lepidoptera of the Great Atlas.

p. 22, to *Xenochlorodes:*

X. graminaria *Koll.* (18 h). This species (described on p. 17 as *Hierochthonia* ?) certainly belongs rather *graminaria.*
to *Xenochlorodes*, although the 1st subcostal of the forewing arises from the cell and both wings are narrowed. Palpus minute. Frenulum wanting. ♂♂ agreeing in every detail with my notes on the type, except that the face is largely red-brown, have been taken by Mr. F. H. Brandt in S. Persia. Larger and narrower than *petitaria Christ.*, which may possibly be its ♀, although I now doubt it. In any case the latter is probably also a *Xenochlorodes.*

p. 23, to *Rhodostrophia:*

Rh. vastaria *Christ.* (18 i). We figure one of Christoph's specimens, a ♀ from Krasnovodsk. *vastaria.*

p. 23, to *Rh. calabra* **separata** *Th.-Mieg.* A new synonym is *iberica Petersen* (1937), published in a post- *separata.*
humous paper on the morphology of the *calabra* group, with special reference to *tabidaria Z.*, and founded on a couple of large specimens, coming respectively from Oporto and Cuenca.

cretacaria. p. 24, to **Rh. cretacaria** *Rbl.* Petersen, in the memoir just referred to, does not consider this separable (as a species) from *calabra*.

discopunctata. p. 24, to *Rh. tabidaria*. — **discopunctata** *Amsel.* This, the Palestinian race, is distinguished by its larger size and the strikingly large cell-spots above and beneath. The very broad rosy marginal band reaches nearly to the postmedian, generally leaving free only a narrow line of the ground-colour. Very common in many places, rarer in the desert districts. It also reaches Syria.

excellens. p. 24, after *Rh. bicolor*. — *Rh. poliaria* (Vol. 4, pl. 7 a) **excellens** *subsp. nov.* (18 h). ♂, 43 mm. Larger than *poliaria* from Kashmir and of a more yellowish grey tone (between the tilleul-buff and pale olive-buff of Ridgway), the costal margin of the forewing beneath of a more pronounced yellow. Forewing with cell-dot smaller, the band outside the postmedian weak (sometimes almost obsolete), even the dark line which bounds it distally quite weak; terminal line fairly well developed. Hindwing also with the cell-dot weak. Underside somewhat less warmly coloured and more weakly marked than in typical *poliaria*. N. E. Hindu Kush: Nuksan Pass, alpine meadow zone, 3500 to 4000 m, July (H. E. Kotzsch), type and others in coll. Wehrli.

dissoluta. **Rh. dissoluta** *sp. n.* ♂, 39 mm. Closely related to the preceding, but I can scarcely think it a remarkable aberration of the same. The pectinations appear a trifle shorter. Forewing with termen slightly straighter and more oblique; greyer, without either the yellowish tinge of *p. excellens* or the more vinaceous or rosy of *p. poliaria:* cell-dot still smaller than in the former; lines shadowy, the postmedian sarcely traceable except in its posterior half, the praesubterminal chiefly visible anteriorly; subterminal not lightened; terminal very faint. Hindwing with only the praesubterminal developed (very weak), slightly more incurved centrally than in *poliaria*. Nuksan Pass, with the preceding; type in coll. Wehrli.

cuprinaria. p. 25, to **Rh. cuprinaria** *Christ.* (Vol. 4, pl. 7 a). Moderately variable. The name-typical forms have a rather light fawn or avellaneous tone, with the border not, or scarcely at all, darker than the rest of the wing, though commonly differentiated from it by the pale yellowish line outside the postmedian. Type locality:
peripheres. Sharud; distribution considerable. — **peripheres** *subsp. nov.* (17 c). On an average larger, ground-colour sometimes more pinkish-buff, occasionally more grey; constantly with a darker grey terminal shade, especially well defined on the underside. Elburs Mountains, 1700 m to above 2500 m, the type series in the Tring Museum, from Hashtar, Demavend.

p. 26, to *Somatina:*

indicataria. **S. indicataria** *Walk.* (Vol. 4, pl. 5 a). The type came from "N. China", which (as has been pointed out elsewhere) is to be interpreted, in the case of Walker's descriptions, Shanghai or its vicinity. In any case such forms (slightly tinged on the forewing with yellowish and with the median shade rather heavy, more suffused with brownish) prevail in E. and S. E. China and are apparently scarcely modified as far as Szechuan (see Vol. 12,
morata. in the press). — **morata** *subsp. nov.* (17 b). I find the Japanese race, notwithstanding its (seasonal?) dimorphism, is different; paler, the small forms more weakly marked, the larger, especially in the ♀♀, with a heavy median shade which brings about a resemblance to *i. indicataria*, though it is generally fuscous rather than brown; in both forms, the band of grey spots outside the postmedian of the hindwing becomes more abruptly narrowed or weakened in front of the 1st radial; in the large, strongly-marked forms the thickening of the median shade on the forewing is usually accompanied by an increase of the outer dark shades of that wing, which is not notic-
sufflava. eable in the other races. Type in the British Museum, from Tsu-shima. — **sufflava** *subsp. nov.* (17 b), from the Ussuri district and probably Corea, is large and striking in its very decided yellowish tone (cream-buff with a tinge of pinkish) from the base to the postmedian of the forewing. Possibly only an "ab. loc.", with transitions to *i. indicataria*, but all the Ussuri specimens to which I have access are quite definite. Type in the British Museum, from Narva.

wiltshirei. **S. wiltshirei** *sp. n.* (17 c). An extremely interesting little species, quite unlike any hitherto known, in a measure linking *Somatina* with *Scopula*. Some slight suggestion of the Indian *Somatina cana F.* is lessened by the narrower wings with the termen of the forewing much more oblique, the terminal line r u n n i n g r o u n d t h e a p e x exactly as in *Glossotrophia* and a few *Scopula*. Antennal fascicles of cilia very long. Hindtibia long, with hair-pencils, tarsus very short. Forewing with areole simple, 5th subcostal arising at or close to its apex, not (as in *Problepsis*) well stalked with 2nd—4th, 2nd radial from a little before middle of discocellulars, 3rd discocellular somewhat incurved; the buff-tinted, somewhat reniform cell-spots, with circumscription of coarse (on the hindwing slighter) black punctuation (slightly mixed with silvery scales) recalls *S. cana*, but the course of the lines is much more as in *Glossotrophia*. Underside whitish, especially of the hindwing; postmedian line present, though not strong, forewing also with traces of a subterminal shade. Rowanduz Gorge, E. Kurdistan, 1800 feet, 16 July and 28 August 1935 (S. P. Wiltshire), 2 ♂♂; also a specimen from Berserini Gorge, 9 October. More recently (1937) Mr. F. H. Brandt has discovered *wiltshirei* in Farsistan, between Ardekan and Talochosroe, ca. 2600 m.

p. 26, to *Craspediopsis:*

C. (?) **sinuosaria** *Leech* (Vol. 4, pl. 5 d). I have found some valuable notes in the British Museum, left there by Mr. A. H. Stringer, who was able to examine very fine material from the Oberthür collection. He states that according to the genitalia this species and the one about to be described will need separation from the true *Craspediopsis*, on account of the absence of mappa and cerata; as, however, most characters agree so well therewith, I do not yet feel prepared to erect a new genus for them. The localities from which *sinuosaria* is represented are Pu-tsu-fong, Ta-tsien-lu, Yaregong and Yargong Zambala. *sinuosaria.*

C. (?) **necopina** *sp. n.* (18 k). Generally somewhat smaller than *sinuosaria*, angulation of hindwing slightly less pronounced. Tone rather darker and more red-greyish (but our figure shows a very close approach to that of *necopina*). Forewing with cell-mark less triangular; antemedian line at hinder end less thickened and scarcely so oblique; postmedian more sinuous, showing in general a much sharper bend or angle just behind the 2nd median. Hindwing with the postmedian more proximally placed than in *sinuosaria:* dots at base of fringe smaller. Tseku, a very long series. "Valve less rounded, more pointed at anal angle; uncus more curved and apically upturned" (Stringer, M. S.). *necopina.*

p. 28, to *C. amata.* — ab. **atropurpurea** *Michel* (= witzi *C. Schneid.*) is uniformly deep-black, irrorated, except the costa of the forewing, with purple-red scales. A ♂ taken by Mr. Hugo Krombholz, Ober-Politz (?), Czechoslovakia. Schneider's type is a ♂ from Markgröningen, Württemberg. — **comae** *A. Schmidt.* From a brief note made at the time, confirmed by recent correspondence with Dr. Horn, I gather that a ♀ in the collection of the Deutsches Entomologisches Institut, which I determined many years ago as *amata* ab., belongs essentially to this form. It is labelled "Murcia". *atropurpurea.* *comae.*

p. 30, to **C. orbicularia** *Hbn.* (Vol. 4, pl. 4 n). Hörhammer has recently added S. Bavaria to the recorded range. — *hybr.* **orbialbiocellaria** *Hain.* S. Hain has obtained pairings of *orbicularia* ♂ with *albiocellaria* ♀ and vice versa, but only some of the eggs from the former proved fertile. The larvae chose the foodplant of the ♂ parent and 6 moths were successfully reared, all ♂. Pale yellowish, the very fine black irroration giving it a tinge of moss-green; postmedian resolved into strong vein-dots; an indefinite median shade (not band, as in *orbicularia*) is pale reddish ochre-brown and widens triangularly on the forewing towards its hindmargin; cloudy subterminal spots of the same colour are strongest towards the hind angle and a similar shade, in half the specimens, surrounds the cell-rings; the latter are blackish with white centres and are somewhat larger than in *orbicularia.* *orbicularia.* *orbialbiocellaria.*

p. 31, to *C. puppillaria.* — ab. **agrapharia** *Homberg.* Fore- and hindwing uniformly coloured, sandy ochreous, less washed with reddish than in *puppillaria.* Lines and ocelli entirely wanting, excepting a hardly perceptible median shade. La Trayas, Var, 1 ♀. Several other specimens approach it, though less extreme. — **asiae-minoris** *Amsel.* This name is provisionally proposed as racial on the strength of 1 ♂ from Waldheim near Haifa and 1 from Angora, both of which differ from *badiaria* chiefly in their peculiar pale, rosy to flesh-coloured ground-colour; nearly without markings, but characterized by an oblique red costal spot at $^4/_5$, above and beneath. Presumably a mere aberration. *agrapharia.* *asiae-minoris.*

C. porata ab. **visperaria** *A. Fuchs* (Vol. 4, pl. 4 o). Although this is chiefly a summer form it can occur also in the spring brood, as is the case with some other normally second-brood forms in this genus. *visperaria.*

p. 31, to **C. quercimontaria** *Bastelb.* To the given distribution are to be added Mecklenburg, Denmark, Poland, S. Bavaria and Macedonia. — ab. **nigrosparsaria** *Heydem.* (nom. coll.). Extraordinarily coarsely and densely irrorated with black, somewhat recalling *porata* and *ruficiliaria.* North Holland. — ab. **privataria** *Heydem.* (nom. coll.), a ♀, quite corresponds to *ruficiliaria* ab. *privataria* (Vol. 4, pl. 5 c. as privata). *quercimontaria.* *nigrosparsaria.* *privataria.*

p. 32, to *C. punctaria.* — ab. **nigra** *Michel* is entirely blackened above and beneath, without any markings. A ♀ from Algersdorf, near Bensen, Czechoslovakia. The photograph of the type shows the hindwing unusually sharply angled; is the determination absolutely assured? *nigra.*

p. 33, before *P. vulgaris:*

P. ocellata *Friv.* (Vol. 4, pl. 5 a). The specimens from Palestine, according to the Püngeler collection, are more strongly marked than those from Asia Minor, but probably Amsel is right in considering it unnecessary to give them a separate name. *ocellata.*

P. maxima *Th.-Mieg* (Vol. 4, p. 50). In response to my inquiries, Mr. W. Schaus has very obligingly examined the unique type, now in the United States National Museum. He confirms the accuracy of the original description in the important matters of the sex (♀), pectinate antenna and black vertex. It is closely allied to *plenorbis Prout*, from Sumatra, which will shortly be described and figured in Vol. 12, the silvery discal spot *maxima.*

of the hindwing similar; but he considers it a valid species, the ocellus of the forewing only reaching the subcostal, etc. I suspect, therefore, that it is really Malaysian, but its rediscovery will be awaited with great interest.

discophora. p. 33, to **P. discophora** *Fixsen.* My valued collaborator Mr. A. H. Stringer, of the British Museum, has called my attention to the fact that the removal of this from *superans,* though satisfactorily clarifying the latter, did not go far enough, since there were at least 3 separable forms (subspecies or in part species). His careful revision of the Museum material, and the notes which he placed at my disposal, inspired me to follow up the investigation and to offer the present analysis. We have no Corean material in "*discophora*", but my friend Dr. Djakonov carefully examined, 8 years ago, the type and the other specimens which then stood with it in the Museum of the Academy of Sciences in Leningrad. The type, a ♂ from Pung-Tung (Herz), was erroneously described as a 2-spurred ♀; Fixsen, evidently, has taken the middle leg for the hind one; this specimen has one hindleg broken off and the other bent under — which led to this confusion. Fixsen's type . . . figure is somewhat sketchy and some details are omitted", but on the whole it agrees well with the original. I take it to be a lightly marked specimen of the continental species for which the name is here retained. Djakonov placed with it 5 other ♂♂: a second Corean, also from Herz; 1 S. Ussuri (Mangugai River); 1 from Hakodate and 2 others from "Japan". The 3 Japanese, however, will doubtless belong to one of the following, presumably *riminota.* The Chinese forms vary only quite moderately and are on the whole not difficult to separate by their markings from their 2 Japanese relatives; moreover the ♂ antennal teeth in *discophora* are shorter than in them and there are differences in the ♂ genitalia (see below). Forewing with costal margin only quite narrowly or weakly grey, in the ♀ not grey; ocellus distally rounded, some black scaling mixed with the contained metallic ring in its distal part, though not so copious as in *riminota:* spot behind it well defined, generally isolated, generally smaller (especially in the ♀) than in the allies; postmedian line inclining to buff, only grey at costa, variable in strength, its curvature fairly regular; distal subterminal spots weak or almost wanting. Underside weakly marked, the ocelli showing through, though not intense. Ichang, W. China and Chinese Tibet, particularly

kardakoffi. common at Tse-ku. — **kardakoffi** *subsp. nov.* Although I have only seen 4 (3 ♂♂ and 1 ♀) from the Kardakoff collection, I suspect these are a good geographical race; indeed they differ from the type so much in their intensified dark markings that I should not have been surprise to find them a separate species. Ground-colour suffused with very light buff; costal margin and termen more extendedly grey, subterminal spots strengthened; central markings enlarged, though preserving their essential form; underside with these markings better shown, but still very different from the underside of *diazoma.* S. Ussuri: Vladivostok district; the type ♂ is labelled "Ok.", which I believe stands for Okeanskaja, 3 July 1921, the other 3 (slightly less extreme), Narva, 19—26 July 1921.

diazoma. **P. diazoma** *sp. n.* (17 b). This handsome species is easily recognized by the greyer (much less, or not at all, buff-tinged) markings and especially by the strongly marked underside, with the postmedian line and proximal subterminal spots quite conspicuously reproduced. Costal edge broadly grey, distal subterminal spots on upperside well devcloped, as also the postmedian line; spot behind ocellus of forewing generally large, its edges diffused; ocellus of hindwing accompanied anteriorly by grey shading (in *discophora* and *riminota* sharply bounded anteriorly at base of 2nd subcostal, the costal region remaining white). From *d. kardakoffi,* which sometimes shows traces of suffusion in this position, *diazoma* differs strongly in its clean white ground-colour, more olive-grey tone of the outer girdle of the ocellus of the forewing, absence of noticeable black in the distal part thereof and various other details. Japan: Takao-San, the type series of 6 ♂♂ collected from 9 June to 14 July (M. Aigner; recorded in Novit. Zool., Vol. 35, p. 298 as *discophora* form) and a ♂ in the British Museum dated 5 August 1916; Yoshino, August, 1 ♂; Kioto, October, 1 ♀. Valve with upper claw-like process very broad from base to its angulation, where there is a small process on its innerside; after the process the tapering is gradual to the tip, resembling a beak.

riminota. **P. riminota** *sp. n.* (17 b). More similar to *discophora,* but with the distal edge of the ocellus of the forewing less smooth and a little less convex, typically indented in cellules 4,5 and sometimes 7, the intermediate parts sometimes quite noticeably projecting; spot behind it generally large, brown, sharply defined. Ocellus of hindwing also generally somewhat broadened, at least posteriorly. Antenna of ♂ more dentate, the teeth perhaps even stronger than in *diazoma.* 8th tergite more tapered at apex than in *discophora,* subscaphium more developed; upper arm of valve less broad basally, its margin more regularly curved, but not right-angled as in *discophora.* Japan: the type ♂ from Yesso, 1882 (Pryer); specimens with more exact data, but unfortunately in inferior condition, from Tokyo, prov. Musashi, Honshu plains, 16 June and 8 July 1893, 2 ♂♂ (Wileman), Asamayama, August 1898, 1 ♂ (Mus. Tring), Shinano, 12 July 1932, 1 ♂ (K. Fuzimatsu, coll. mea); the only known ♀ is in the Tring Museum, merely labelled "Japan"; its costal edge narrowly grey.

superans. p. 33, to **P. superans** *Bth.* The species with which the comparisons are made is *discophora Fixsen,* not *fixseni* as printed.

p. 35, to *S. immorata*. — **riloensis** *Züllich*. On an average decidedly larger and more robust than the largest of Central Europe, the markings sharper (deep olive-green with a brown tinge, on a clean white ground-colour) the underside likewise much more sharply and contrastingly marked. Said to be a well-defined local race in the Rilo Mountains, Bulgaria, at about 1600 m. *riloensis.*

p. 35, to **S. rubiginata** *Hufn.* At Swanage, August 1935, on two successive nights, Mr. A. G. B. Russell took single specimens at light, large, strongly rosy and sharply marked, which it is suggested may be British-bred offspring of an accidentally imported French ♀; in any case very dissimilar to our ordinary small Breck-sand form. None exactly like it are in the long series in the British Museum. nor in my collection. *rubiginata.*

p. 36, after *S. rubiginata:*

S. (?) **dresnayi** *D. Luc.*, described as "*Acidalia*", is said to be near *A. rubiginata* ,but no further indication of structure is given, nor is the sex indicated. "12 mm." Rosy grey. Forewing with 4 distinct black-grey lines; extrabasal and median oblique, subterminal composed of 3 lines parallel to the border, the first slightly dentate. Hindwing with the extrabasal [evidently the median] (proximal to the distinct cell-dot) and the 3 subterminals, the first and second of then dentate. The lines beneath grey, on the hindwing weakened. One very fine specimen from Rabat, 30 November. *dresnayi.*

p. 36, after *S. halimodendrata:*

S. manes *Djakonov*. A very pale and weakly marked species, in size and most characters agreeing with *manifesta Prout* (Vol. 4, pl. 5 g). Hindtarsus about ⅔ as long as tibia. Cell-dots small; the characteristic median shade of *manifesta* wanting; of the (very weak) lines the wavy postmedian and the proximal subterminal are the most distinct; the terminal line (interrupted at the veins) shows better in the ♀ than in the ♂. The right-hand ceras of the 8th sternite is much longer than the mappa, the left-hand one shorter than the mappa; in *manifesta* both are considerably shortened, though likewise asymmetrical. *manes.*

p. 39, after *S. marginepunctata:*

S. permutata **gnophosaria** *Leech* (Vol. 4, pl. 5 d). This, or a very similar subspecies, is recorded by Djakonov from S. Kansu, 1 ♂ on 1 July 1930, on the northern slopes of Min-shan, ca. 2750 m. Forewing more ochre-brown than in *p. permutata*, thus nearer to *gnophosaria*, but the hindwing not darkened, etc. *gnophosaria*

p. 40, to *vigilata* **turatii** *F. Wagn.* By a very unfortunate misprint, "lava-form" in the English edition was spelled "larva-form" and caused a misunderstanding in the German edition: "So vermute ich, daß sie die gleiche Raupenform hat." My suspicion, confirmed by further material, was that *turatii* was an adaptation of *vigilata* to the dark l a v a - s o i l. *turatii.*

p. 40, to *S. incanata*. — **ibericata** *Reisser* (17 c). On an average larger, much cleaner white, sharply marked. Sierra de Gredos. *ibericata.*

p. 42, after *S. nemoraria Hbn.:*

S. leuraria *Prout* (Vol. 4, pl. 3 m, as *sedataria*). Djakonov records a ♂ also of this *Scopula* from S. Kansu — crest of the Min-shan range, 3100 to 3600 m. *leuraria.*

p. 43, to *S. immutata* ab. **coarctata** *V. Schultz* a synonym is ab. *anastomosaria Preissecker* (*nom. coll.*), recently published in the Verh. zool.-bot. Ges. Wien, Vol. 86—87, p. 419. *coarctata.*

S. sjöstedti *Djakonov*. By the combination of characters this does not appear to be referable to any previously known species. Length of a forewing in the figured type 14 mm, sometimes decidedly smaller or a trifle larger. ♂ with antenna stout, the cilia longer than the corresponding joints, hindtibia dilated but not abbreviated, tarsus rather long, somewhat over ⅔ tibia. Face black, vertex white, collar orange-yellow. Wings white, the black irroration very sparse, sometimes stronger along the costa (most of the examples unfortunately worn); lines weak and blurred, 4 on each wing, the median rather thick, not very sinuous, on the forewing distal to the cell-dot (when such is present), on the hindwing proximal; antemedian present on forewing only; post-median and proximal subterminal dentate, incurved between the radials; distal subterminal traceable on the hindwing, rarely on the forewing; terminal dots black, on the hindwing less distinct. Underside of forewing in the ♂ nearly as far as the postmedian strongly suffused with smoke-brown, in the ♀ much more weakly so, postmedian very distinct, the 2 subterminals visible; underside of hindwing white, almost markingless; both wings here with a yellowish brown terminal line, cell-dot better developed. Kansu: Min-shan, ca. 2750 to 3100 m, several specimens. *sjöstedti.*

p. 44, to **S. nigropunctata** *Hufn.* According to Djakonov the name-typical form appears to meet f. *subcandidata* in S. Kansu (Pi-kow) and he also records the former from N. E. Szechuan (Yuen-kou) at ca. 200 m. *nigropunctata.*

emutaria. p. 45, to **S. emutaria** *Hbn.* Warnecke has worked out the distribution in N. W. Europe in considerable detail: England (coastal counties from Dorset to Essex), W. France (Vendée, Morbihan), Holland (Dornburg to Bergen-op-Zoom), Texel I, Borkum and Sylt. — ab. **infrarosea** *Agenjo.* Underside with a rosy irroration which becomes more intense on the forewing towards the inner margin and the median and terminal areas and on the hindwing over the anal, extrabasal and median. One example at Arceniega (Alava) among a number of typical *emutaria.*

infrarosea.

albidaria. p. 45, to **S. albidaria** *Stgr.* (18 i). The examination of the genitalia by Bytinski-Salz has shown this be a good species. Bulb at blind end of aedoeagus much larger than in *flaccidaria*, sacculus much stouter, cerata more asymmetrical, the shorter one sigmoid, only ⅔ the longer. — **sankana** *form. nov.* (18 i). A trifle less broad-winged, termen of forewing perhaps slightly more sinuous (though in typical *albidaria* it is perhaps slightly more so than in *flaccidaria*), hindwing with the tail somewhat less developed; tone much more brownish; median shade rather less diffuse, on forewing well beyond cell-dot; postmedian, at least on the hindwing, rather more markedly incurved between the radials; hindwing with cell-spot scarcely so large. Sanka, Tian-Shan, 2500 to 3500 m. Notwithstanding its superficially different aspect, which is more reminiscent of some of the *nigropunctata* group. I suspect that the anatomy will prove it a high altitude form of *albidaria.*

sankana.

iranaria. **S. iranaria** *Bytinski-Salz.* Intermediate between *flaccidaria* and *albidaria:* yellowish white, the dark scales sparse; markings as in *flaccidaria* but less conspicuous, cell-dots and postmedian dots very small, the former often absent in forewing. Superficially nearer to *albidaria*, except in the smaller cell-dot of the hindwing; in the genitalia nearer *flaccidaria* but quite distinct. Keredj, Iran, 1400 m, flying in the second half of May.

depuncta. — ab. **depuncta** *Bytinski-Salz.* Cell-dot wanting in both wings. 1 ♂.

leukiberica. p. 46, to *S. decorata* **leukiberica** *Wehrli.* Zerny applies this name also to the form from the Great Atlas and Middle Atlas.

pratana. p. 49, to **O. pratana** *F.* A small dark form (in 3 examples) has been taken at Agadir, quite different from the subspecies (?) *occidens Prout.* Probably the extent of the g e o g r a p h i c a l, as distinguishable from the individual, variability of this very inconstant species has been overrated; Amsel, from plentiful and extraordinarily variable Palestinian material, is decidedly of that opinion.

plumularia. p. 50, to **A. plumularia** *Bsd.* The earliest stages have just been made known by Reisser. The eggs are easily obtained from captured ♀♀ and are relatively large — perhaps 1½ times those of normal *Sterrha.* The larvae readily accept the leaves of various flowers; but especially rose-leaves. Half-grown they show the normal *Sterrha* habitus: head small, round, body flattened, compressed, the segments broadened posteriorly, laterally prominent, the skin shagreened, hairs whitish; very variable in colouring.

ramosaria. p. 50, to **C. ramosaria** *Vill.* Chrétien obtained eggs at Biskra, 18 March, which hatched on the 27th; there were 3 moults (4th, 10th and 16th April), the first larva spun up on 25 April and moths emerged in May and June. The young larva is slender, brown blackish, the last segments dark grey; tubercles prominent, surmounted — the trapezoidals at least — with single short setae. Adult: 14 mm; attenuated anteriorly; segment incisions pronounced; rugose, the most salient of the roughnesses forming dorsal and subdorsal lines and lateral flange, the latter whitish, marked with frown; head flattened in front, bilobed; spiracles inconspicuous. Pupa grey brown, spiracles (especially the last ones) prominent, more reddish.

mediofasciata. p. 52, to *S. sericeata.* — ab. **mediofasciata** *Homberg.* Base of the forewing very clean as far as the antemedian, the pearly white ground-colour being very little irrorated except at the costa; median area, on the contrary, almost completely filled with light brownish, only a very small pale patch persisting about the discocellulars. Ardèche: La Voulte, 1 ♂. — **subrecta** *Prout.* Zerny (Bull. Soc. Sci. Nat. Maroc, No. 42, p. 74) has an interesting note on the form (or forms) of *sericeata*, sens. lat., in the Atlas, presumably all referable to *subrecta*, though some closely approach the Sierra Nevada *calvaria Wehrli.* He reports that Dr. Sterneck finds the genitalia, as well as the wing-markings, intermediate between those of *sericeata* and *allardiata*, so that we shall probably not err as if we treat all as races of one species.

subrecta.

dyraria. p. 53, to **S. dyraria** *Zerny* (6 h). Sterneck has found sufficient distinctions in the armature of the aedoeagus to justify the view that this is a separate species and not, as was originally assumed, a subspecies of *typicata.* Zerny (loc. cit.) gives figures which bring out the differences.

p. 53, after *S. ludovicaria:*

bimaculata. **S. bimaculata** *Trti. & Krüger.* A small species ("18 mm", i. e. with a wing-length of nearly 10 mm), carefully described except that the venation and the sex are not given and that it is called an "*Acidalia*". If, as the elongate abdomen of the figure suggests, the unique type is a ♂, it may well be a form of *ludovicaria*, for the hindtibia has terminal "spurs" and the facies agrees very well. Slightly rosy white, with brownish irror-

ation; lines brown, arising from costal spots and formed much as in *ludovicaria* and *unicalcarata*, the antemedian macular, with thread-like connections, the median on the forewing bending round the outside of the cell-dot; subterminal line forming 2 large spots, radial and subtornal, only the latter well developed on the hind-wing. Barce, Cyrenaica, 10 September 1934.

S. barcearia *Trti. & Krüger.* Also a unicum, evidently a ♀, collected at the same locality, 1 October 1934. Slightly larger ("20 mm"), the ground-colour more powdered with black, the black cell-dot of the hind-wing obsolescent, the pale spots of the subterminal less salient, the postmedian black dots less sharply defined, the median shade perhaps more oblique (so that a comparison with *obliquaria Trti.* is possible). In spite of these divergences, it does not seem to me impossible that this and *bimaculata* are sexes of one variable species. *barcearia.*

p. 53, to **S. completa** *Stgr.* Sterneck adds to Wehrli's differentiation of this from *intermedia* that the armature of the aedoeagus shows significant distinctions. It is somewhat doubtful whether the biological account given in Vol. 4 (p. 131) really refers to the present species; perhaps Chrétien himself was doubtful, as he gives a new description in 1917 (as *completa*) and makes comparisens with *rusticata* and *filicata*, without mentioning *intermedia*. Egg a short ellipsoid, compressed laterally; depressions irregular, very narrow, arranged in longitudinal lines; cream white, not spotted with red. Adult larva shaped as in *rusticata* and *filicata;* skin rugose, folded, granulated; dorsally earth-grey, laterally yellowish, with a fleshy tint on the last segments; segmental incisions black-brown, accompanied on each side, near the spiracles, by a large black spot; a pale lozenge dorsally on the "8th segment"; lines indistinct. Head small, slightly bifid, the lobes conical, reddish brown. Like its relatives, it thrives on detritus of dead leaves. *completa.*

p. 54, to **S. vulpinaria** *H.-Sch.* There is a most astonishing record, under the name of *rusticata* by which it is usually known in Britain, that this is extremely common on the island of St. Kilda; see C. Gordon Hewitt, Ann. Scot. Nat. Hist. 1907, p. 220. I can offer no suggestion as to the probable means of its introduction there. *vulpinaria.*

p. 54, to *S. rusticata.* — ab. **subvulpinaria** *Obraztsov*, 1 ♂, collected with 5 normal *rusticata*, has the reddish band of *vulpinaria* and conserves 1 spur on the hindtibia. Vessjolaja Bokovenjka Park, Ukraine. — **mustelata** *Rmb.* is recorded from the Great Atlas, not rare at light. New for Morocco. *subvulpinaria. mustelata.*

p. 54, to *S. muricata* ab. **maidorni** *Hannemann.* The unique type, which I have not seen, was bred from the larva; but the published figure so much recalls a *dimidiata* with rather strong postmedian line and perhaps a faint rosy tinge that it is hard to reconcile with any possible form of *muricata.* *maidorni.*

p. 54, to **S. nexata** *Hbn.* It was overlooked (Vol. 4, p. 97) that Millière's record for Ariège was incorrect; he afterwards stated that his material came from Spain. *nexata.*

p. 55, to **S. subsaturata** *Guen.* (Vol. 4, pl. 4 c). This occurs also in Palestine, apparently in a racially distinct form *(orientis Sterneck)*, of which I have not yet seen any description. Probably more representative material is awaited, as Amsel obtained one only, taken on the Tel Aviv dunes on 15 May. *subsaturata.*

p. 55, after *S. sanctaria:*

S. exilaria *Guen.* (Vol. 4, pl. 4 a, as filacearia; 4 c) **esterelata** *Mill.* Homberg (in Lhomme, Cat. Lép. France, p. 582) considers this to be a separable race, not a synonym as cited in Vol. 4 (p. 104): wings more elongate than in *exilaria*, the markings accentuated, the dark subterminal area more sharply defined and dark-brown, more uniform on both wings. Esterel. *exilaria. esterelata.*

p. 56, to **S. eburnata** *Wocke.* A highly important article on this species has just been published by the late Dr. L. Müller (Mitt. Münchn. Ent. Ges., Vol. 26), in which he deals exhaustively with the known distribution and variation, besides some interesting facts and speculations regarding the ecology, heredity and other problems. Particularly arresting is the fact that the Mendelian inheritance in the British race seems to be the reverse of that in the Wachau race: the dark form dominant in the former (Mr. W. Buckley's experiments), recessive in the latter. The name-typical race, as at present understood, belongs chiefly to the Alps, S. France and the Pyrenees. The type came from the Riesengebirge. — ab. **aurata** *L. Müll.* This name is proposed for the bright straw-yellow forms, irrespective of locality, although (as mentioned on p. 56) they are chiefly characteristic of subsp. *austriae* and the types are from Dürnstein; strict adherents of "page-priority" will blame Dr. Müller for erecting this name before that of *austriae*, but as it is preoccupied in *Sterrha* it cannot be substituted for *austriae.* — ab. **bellieri** *nom. nov.* (= grisescens *L. Müll.*, nec *Culot*) is founded on the ♀ from Lozère (Bellier) mentioned by Guenée as almost entirely covered with black atoms and as its ground-colour is yellow and it belongs to a different race from that of the Rheingau, it requires separation from *obscura Fuchs* (= *grisescens Culot*). — ab. **melaina** *L. Müll.* is uniform dark-brown, without a trace of the transverse markings; the "homozygote dark form" of the Alps, few specimens yet known, Oetztal (Tyrol) and Cogne *eburnata. aurata. bellieri. melaina.*

austriae. (Piedmont). — **austriae** *L. Müll.* Clay-yllowish or (perhaps predominantly) straw-yellow (compare ab. *aurata*, above), weakly irrorated; markings complete and distinct. It is the homozygote yellow form of the Austrian
conspersa. race: the Wachau of Lower Austria, near Dürnstein and Stein. — ab. **conspersa** *L. Müll.* is a modification of *austriae*, a heterozygote yellow form, more strongly irrorated, almost as frequent in breeding as the name-
domestica. type, obtained chiefly in crossing the latter with ab. *domestica.* — ab. **domestica** *Klimesch* (5 i) is the "homo-
hercyniae. zygote dark form" of *austriae*, recessive thereto and not yet observed in the wild state. — **hercyniae** *L. Müll.* Usually very yellow, weakly irrorated, the markings even sharper than in *austriae:* single specimens somewhat paler. Approximately half the examples have the head and patagia orange-yellow, a peculiarity not yet observed in any other race. Harz Mountains. From the Erzgebirge and Sudeten the little material yet known is inadequate for any generalizations. Should the latter courtry produce a separate race, the nomen-
pallidaria. clature will be upset (see above, on Wocke's type). — **pallidaria** *A. Fuchs* (17 c). This has now been taken and bred in sufficient numbers to confirm its racial character (compare p. 56), though *aurata* occurs as an occasional aberration amongst it. Further localities have been added, particularly Sierra de Gredos (Castile)
griseospersa. and San Sebastian. — ab. **griseospersa** *L. Müll.* "Heterozygote light form" of *pallidaria*, "more strongly dark-
britanniae. sprinkled". — **britanniae** *L. Müll.* The homozygote yellow form of England" [Wales]. Markings complete and distinct, well expressed but not thickened, dark grey or blackish; dark irroration fine, mostly sparse (in one example rather stronger); light subterminal markings more extended, clouding on terminal area mostly like-
tenuis. wise weak, grey, in their general effect, therefore, not darkened. Penmaenmawr. — ab. **tenuis** *L. Müll.* A very delicate sub-form, general impression still lighter, markings (except the cell-dots) much weakened and-especially on the hindwing — reduced. Recalls the ab. *dirutaria* of the Rhine race. Penmaenmawr. figured by Buckley.
anastomosaria. — ab. **anastomosaria** (*Prout*) *L. Müll.* Median shade of forewing displaced proximad, in part confluent with
nigrescens. the antemedian. A ♀ in my collection, taken at Penmaenmawr. — ab. **nigrescens** *L. Müll.* The heterozygote dark British form. Dr. Müller says that this bears no near resemblance to *obscura A. Fuchs*, to which it has hitherto been referred. Dark grey, with a slight brownish tone, scaling coarse, but sometimes sparse (teratological?), so that the wing-membrance appears to show through. The normal transverse markings always present, but inconspicuous, the costal spots and median shade generally the most distinct; cell-dots concolorous with the other dark markings, never deep black; spots of distal area light grey-brownish (never yellow), often somewhat enlarged, but never standing out very sharply. Penmaenmawr, well known to breeders of the species.
nigra. — ab. **nigra** *L. Müll.* "The homozygote dark form of England" [Wales]. formerly united with the preceding. Müller had no absolutely assured material available and admitted that an exact delimitation and description were therefore not yet possible, but named it (citing a figure of Buckley's) on account of its different germinal constitution. Probably somewhat smaller than *nigrescens*, much darker, the dark markings just perceptible; the light spots of the terminal area of the forewing "seem wanting" in Buckley's figure [not absolutely. — L. B. P.].
obscura. — **obscura** *A. Fuchs* (Vol. 4, p. 105). By Müller's analysis, this Middle-Rhine race is split up into *obscura* (the heterozygote dark form), "mut." *dirutaria Fuchs* (the homozygote light form) and *fuscalata A. Fuchs* (the homozygote dark form) . The race is nearest to *britanniae* and the two are assumed to have had a common origin; they agree in having retained dominant nigrism, while in all the other Central European subspecies there is substituted recessive melanism. It is, however, remarkable that in the
dirutaria. present race the heterozygote is quite the prevalent form. — ab. **dirutaria** *A. Fuchs* is the palest known form of *eburnata*, the ground-colour more whitish yellow, the irroration sparse, the markings weak. Apparently extremely rare in a state of nature, occasionally obtained in breeding the subspecies *obscura.*

joannisiata. p. 56, to **S. joannisiata** *Homberg* (18 h). By an oversight in the editing, a Sierra Nevada ♂ (*ibericata*) was substituted on Pl. 6 i for the "paratype" ♂ (from Le Vernet, Pyrenees-Orientales) mentioned in the text. This deficiency is now rectified.

obscura. p. 56, to *S. libycata.* — ab. **obscura** (*Andreas* MS.) *Brettschneider.* Almost totally melanic, with light macular band in distal area and light fringes, quite as in *eburnata* ab. *domestica:* scarcely recognizable as *libycata* except by its shape. Philippeville, one specimen. Perhaps this was suppressed by Andreas in favour of ab. *dimeglionaria*, although the description suggests a more extreme development.

striolata. p. 56, to **S. striolata** *Stgr.* (18 f). Wiltshire has taken 2 ♂♂ of this little-known and apparently variable species on the Dog River, Lebanon, and we are able to figure one which he has presented to the British Museum. Besides its dark colour and stronger, more oblique median shade, it differs apparently from *pectinata* in the still more slender pectinations of the ♂ antenna.

metohiensis. p. 56, to **S. metohiensis** *Rbl.* It should have been added that this species is recorded also from Bosnia and from Macedonia; from the Suchodol Valley. Pirin Mountains, in the latter country, Buresch reported it
antiopa. in 1919. — Much more recently has been added: ab. **antiopa** *Reisser.* Upperside of both wings as far as the subterminal unicolorous black, with no markings except the cell-dot, marginal area bone-yellow. Pirin Mountains, Bulgarian Macedonia.

p. 57, to *S. cervantaria*. — **carneotincta** *Zerny* is essentially larger ("expanse up to 20 mm"), very dist- *carneotincta.*
inctly marked and with a prevalent fleshy-reddish tinge. Higher altitudes in the Great Atlas, especially Tachdirt, while lower altitudes in the same range produce *c. depressaria*. All the races agree in the genitalia; the new form has perhaps passed as *mauritanica* (nec *B.-Bak.*).

p. 57, to **S. mareotica** *Draudt*. Occurs also in Palestine, in an apparently differentiable subspecies which *mareotica.*
has been registered (but I think not yet described) as *S. m. judaica Sterneck.*

p. 58, to **S. seriata** *Schrank*. Thurau apparently hybridized the ♂ of the *canteneraria* form with *in-* *seriata.*
quinata (= *herbariata*) ♀ and the ♀ of *canteneraria* with ♂ *eburnata:* specimens said to have this parentage were exhibited before the Berlin Entom. Verein by Klemann, as reported in Intern. Ent. Zeitschr., Vol. 29, p. 9 (1 April 1935). These seem astonishing results to be so casually dealt with.

p. 58, after *S. l. faroulti:*

S. margaritacea *Trti. & Krüger*, founded on 2 specimens (presumably ♀) from Lamluda, Cyrenaica, *margarita-*
5 June 1935, is said to be very similar to *faroulti*, of about the same size; forewing with apex a little less rounded, *cea.*
termen a little straighter. colour pearl-grey, with the brownish irroration sparser, antemedian faint, postmedian (according to the figure) without the anterior angulations; hindwing perhaps less irregular in shape; both wings with small black cell-dots, median line continuous, on the forewing well outside the cell-dot, on the hindwing oblique (its posterior part not, as in *faroulti*, parallel with termen), distal area, especially of the forewing, with a darker greyish suffusion.

p. 58, to **S. sublongaria** *Stgr.* Dr. Rebel suggests that a very small worn ♂ from Chalepa, Crete, which *sublongaria.*
in 1916 he doubtfully referred to *allongata*, belongs more probably to *sublongaria*. If the specimen has lost the hindlegs, or these were not examined (compare the original inaccurate treatment of *Rh. cretacaria Rbl.*), I would suggest *troglodytaria H.-Sch.*

p. 59, to **S. sylvestraria** *Hbn.* Dr. V. G. M. Schultz has recently published an account of the egg and *sylvestraria.*
oviposition. It appears that both in captivity and in a state of nature the ♀ has a liking for laying her eggs on the stems and twigs of Calluna. The egg-shell has its own brown pigmentation, so that the colour is retained (or rather, resumed) after the emergence of the larva, as has also been recorded for *S. muricata*.

p. 59, to **S. infirmaria** *Rmb.* At about the same time when Chrétien's life-history of *aquitanaria* was *infirmaria.*
published, Reisser quite independently gave us that of Corsican *infirmaria*. No collation of the accounts has been made, nor even a comparison with *obsoletaria*, to which Reisser considered it very similar in the larval state. The larva of *infirmaria* is extremely sluggish, grows very slowly from July to September, when — not yet half-grown — it hibernates till towards the end of May: only one was successfully reared, pupating on 26 July and emerging on 5 August, an *aquitanaria*-like ♂. At first the larvae were almost unicolorous light-grey with dark head; later very variable in colour: head small, almost black, on the crown somewhat incised; body short, very compact, somewhat tapered anteriorly, flattened, lateral flange very strong; surface granulated; the lozenge-shaped or rhomboid dorsal markings are open anteriorly; ventral area whitish.

S. rhodogrammaria *Püng.* In reply to an inquiry, Dr. Sterneck informed me that he had not seen *rhodogram-*
any example of this from the locus classicus (Sierra Espuña), but that he had examined the genitalia of a ♂ *maria.*
of a very similar *Sterrha* from Noguera (Aragon) which Zerny, Eos Vol. 3, S. 403, recorded provisionally as *rhodogrammaria* and that he found it c e r t a i n l y a different species from *infirmaria*, though manifestly very close to it; apart from small distinctions which might require verification on more material, the uncus is quite distinctive. As I posses no authentic *rhodogrammaria*. I merely record this observation, in order to call attention anew to the group.

p. 61, after *S. oberthuri:*

S. zernyi *D. Luc.* Forewing bone-colour, with the cell-dots rather distinct; four slender yellowish-grey *zernyi.*
lines well visible; antemedian and median slightly oblique, enclosing the cell-dot; postmedian a little less sinuous and less oblique; fourth line very near the termen. Hindwing with three lines placed as those of the forewing, less conspicuous, the cell-dot sharp, placed between the first two. Fringes unicolorous. Underside lighter. Khenifra, Morocco, taken in May. "Group of *oberthüri*". Unknown to me.

p. 61, to **S. eugeniata** *Mill.* Dürck took 4 ♂♂ in the Iminene Valley (Areg-Amsekou), 2 of them with *eugeniata.*
the reddish-yellow tinge of typical *eugeniata*, the other 2 light straw-yellow, about as in typical *aversata*. New for Morocco.

p. 61, after *S. eugeniata:*

S. oranaria *B.-Haas* (Vol. 4, p. 121). Zerny records from Iminene-Tal (Great Atlas) a ♀ which per- *oranaria.*
haps belongs to this rarity. It differs from the type in the decidedly more dentate, continuous (not puncti-

form) postmedian and the presence of a broad, ill-defined dark median shade (on the forewing just outside the cell-dot, on the hindwing baseward thereof), with the addition, on the underside, of a large cell-dot on the forewing. It is, however, not impossible that it may be an aberration of *Brachyglossina pseudoranaria*, although the tongue looks to be better developed.

p. 61, after *S. ostrinaria:*

purpureomarginata. **S. purpureomarginata** *Bhtsch.* (1811). We figure a ♀ from the Lebanon. Amsel records from Palestine 1 ♂ (Waldheim, near Haifa), with "markings much more distinct than in the type" and states that an examination of the genitalia by Dr. Sterneck has confirmed its relationship to *ostrinaria*.

teutobergensis. p. 62, to *S. inquinata*. — ab. **teutobergensis** *V. Schultz* is a fine melanic form, suffused with black, the black markings more or less perceptible, the whitish-ochreous subterminal line (as in other melanic *Sterrha* forms) retained. Described from 6 specimens. Lippe.

affinitata. p. 62, to **S. affinitata** *B.-Haas*. Mr. E. P. Wiltshire has bred this from the egg at Beirut. Ova laid in clusters, 7 May, hatched in 8 days. The larva is fairly stout, roughened, olive-grey or greenish, suffused with black except on the last 3 or 4 somites; a paler, ridged lateral line; spear-head marks dorsally, each having a white tip; dorsal line fine, whitish, dark-edged, narrowing to form a black shaft for the last spear-head. The moths (2nd brood) emerged 31 July and early August. Zerny's observation is confirmed, that the darkening of the base (particularly of the forewing) is somewhat exceptional.

holliata. **S. holliata** *Homberg*. Although the distinctions, as given on p. 62, are not very salient, they seem adequate for separation from *affinitata* and bred specimens make the impression of a separate species. Moreover, the larvae from which Wiltshire bred them were of a light wood-colour, very different from those of *affinitata*.

fathmaria. p. 62, to **S. fathmaria** *Oberth.* Rothschild and Reisser have added Morocco to the known distribution. The moths, according to the latter, fly freely to light in June in the Riff Mountains, for a short period only, immediately after dark, the ♀♀ greatly preponderating. They oviposit very readily in confinement and were successfully bred. Egg round, yellow, showing very little change in colour before hatching. The young larva is short and stumpy, carinated laterally, reddish (especially on the sides) and with dark-brown head, dorsally more greenish-yellow, with 4 fine red lines, the skin shagreened and finely canaliculate transversely; later it becomes more yellow-grey or red-grey and the sinuous subdorsal line tends to form dorsally a light rhombiform pattern. In the hibernating stage it is somewhat variable, some larvae almost markingless, others showing the pattern of longitudinal lines, the subdorsal ones blackish, running obliquely backwards and producing a latticed appearance on the dorsal area; lateral carination strong, spotted with black; ventral surface dark grey with light rhombiform markings. Like most of its relatives it is very sluggish.

improbata. **S. improbata** *Stgr.* (Vol. 4, pl. 3 i). Chrétien in 1917 recorded 2 ♂♂ from Gafsa, taken in May. I have seen a few Algerian *Brachyglossina* which may perhaps be referable to it.

calunetaria. p. 62, to **S. calunetaria** *Stgr.* Zerny writes (Bull. Soc. Sci. Nat. Maroc, No. 42, p. 78) that this species — or indeed the entire *dorycniata* group — is still in dire confusion, but his careful discussion of the forms known to him does not alter essentially the account given in this volume. He corrects Reisser's treatment of *baeticaria* as a s y n o n y m of the N. African *episticta* and accepts its belonging to the type race; he also rightly rejects a tentative suggestion which I put forward in the Lepidopterorum Catalogus to the effect that *fuscularia.* *fuscularia* might be the same form as *episticta*. — **fuscularia** *Trt.* It was perhaps not quite accurate to say (p. 62) that this is "about as dark" as *episticta:* it may well be that, when allowance has been made for individual variability, it ought to be described as "darker"; Zerny is apparently not very familiar with *episticta* in natura.

dorycniata. p. 63, to **S. dorycniata** *Bell.* Zerny records a form of this from the Great Atlas as "larger than Spanish *dorycniata* (forewing length 11 mm) and the postmedian line of the hindwing decidedly more strongly dentate".

griseata. p. 64, to *S. biselata* ab. **griseata** *Preisscker*. A ♀ from Montferland (North Holland), treated as neallotype, has just been recorded by Heydemann.

filicata. p. 64, to **S. filicata** *Hbn.* Amsel records the form from Palestine as f. *albonitens Sternecк*, but this is evidently — like *mareotica judaica* and *subsaturata orientis* — a manuscript name either suppressed or awaiting further elucidation.

fuscovenosa. p. 65, to **S. fuscovenosa** *Goeze*. It appears that this has escaped detection in Belgium until the present year (1938), when Legiest has recorded a good series captured at light at St.-Idesbald by Major Vandergucht. Lhomme gives many French localities, chiefly, however, southern and western. Zerny adds some

records for the Great Atlas and notes that the specimens from Tachdirt and the Iminene Valley are of a more intensive straw-yellow than those from Ijjoukak.

p. 65, to **S. nitidata** *H.-Sch.* A single ♀ from N. E. Szechuan (Ma-tou-shan, 600—1000 m) is too much worn to be determined with certainty, but Djakonov does not think it can belong to any other species; probably when he examined it his attention had not been called to the venational peculiarity. *nitidata.*

p. 66, to *S. deversaria* (Vol. 4, pl. 4 g). — ab. **ferenigra** *Homberg.* Fore- and hindwing entirely suffused with uniform dark brownish grey (soot-colour), obliterating all the markings except the subterminal, which stands out in light grey-yellowish on both wings. A ♂ from Hérault (St. Guilhem-le-Désert). *ferenigra.*

p. 66, to **S. aversata** *L.* (Vol. 4. pl. 4 g). Mr. C. N. Hawkins has recently shown, as the result of some experiments in breeding from a ♀ of the name-typical (banded) form, that this form is heterozygous and the ab. *remutata* homozygous. He did not, however, obtain any pairing of the banded forms. *aversata.*

p. 67, to *Sterrha:*

S. (?) **punctabilineatella** *D. Luc.* "24 mm.", which, if this denotes a wing-length of 13 or 14 mm, will be one of the larger *Sterrha*, or perhaps *Scopula*. Whitish grey. Forewing with antemedian weak, median shade outside the elongate cell-dot, postmedian punctiform, termen (? base of fringe) with black dots, subterminals brown, indistinct, parallel with the postmedian. Hindwing with median shade sharply expressed, close to the cell-dot; outer markings corresponding to those of forewing. Underside similarly but less sharply marked. Antenna long, "slightly pectinate" (? fasciculate). Founded on 2 ♂♂ from Agadir, 11 April 1936. Unknown to me. *punctabilineatella.*

p. 67, to *Brachyglossina.* With the kind assistance of Mr. A. H. Stringer, supplemented by valuable notes from Dr. Sterneck and Dr. Wehrli, I have made a study of nearly all the accessible material in this genus, especially of the hitherto very perplexing group which has been wrongly confused with (*Sterrha*?) *oranaria B.-Haas.* The examination of the genitalia shows that we have to do with several quite distinct but superficially very similar species, exclusively North African. Fortunately some of the most useful distinctions are in the valve, the anellus (when developed) and the distal parts of the penis and are easily seen by the removal, or even the temporary displacement of the dense fringe of hair-scales which arises from the 8th sternite. On the other hand the exact length of the ♂ hindtarsus, so valuable in affording specific characters in *Scopula* and most *Sterrha*, is here evidently somewhat inconstant and therefore in some cases illusory. The tongue, too, though always very short, varies in length; see especially *paroranaria.* Uncus simple, its tip slightly hooked; Dr. Sterneck notes that in some species it is enclosed in a hyaline skin which gives it a stouter appearance. Valve nearly always long and slender, tapering to a sharp, more or less bent or twisted point. Aedoeagus nearly always with 1 large cornutus, usually also (more distally) a few small ones; but see the *mauritanica* group. The essential wing-pattern is always similar, except in a very few almost unicolorous forms, but the median and subterminal shades may be strong, weak or wanting; Sterneck remarks on the occasional presence of the antemedian line on the u n d e r s i d e , a development which he has not observed in any *Sterrha.*

B. tantalidis *Trti.* This and the two following are nearly related, sharing the sandy colouring, the weak expression of the lines, the simple, unarmed valves, the absence of anellus and the strong development of the cornuti. These number 6, of about equal length and placed nearly side-by-side, though the last 2 or 3 arise somewhat more distally. Valve shorter than in *mauritanica,* rather more curved, more hairy, other parts of the genitalia also reduced. Otherwise the structure is remarkably similar. Only known from Cyrenaica. *tantalidis.*

B. mauritanica *B.-Bak.* still remains unmatched. The face is perhaps a little more black-mixed than in any known *tantalidis:* and the very fully rounded termen of the hindwing helps to give it a distinctive appearance. In the genitalia, the most striking difference is in the cornuti, which are considerably more numerous (about 12) and much more irregularly disposed. On the valve see *tantalidis.* *mauritanica.*

B. mzabensis *sp. n.* (18 b). In structure still closer to *mauritanica,* of which it might almost be regarded as a narrow-winged southern race. The valve is appreciably longer, tapering more gradually, and has the slight costal projection at the proximal end of the tapered part even slighter; the cornuti are similarly arranged. The hindtarsus, in all the 4 known examples, is a little less shortened than in *tantalidis* and, probably, than in *mauritanica.* Superficially, all are distinguishable by their more definite grey subterminal maculation and consequently more pronounced pale subterminal "line", but it is doubtful whether a long series will support this distinction. Hindwing, in all but one, with the stalking of the 2nd subcostal extremely long. Oued Nça, M'zab country 16—20 April 1914, (E. Hartert) type ♂ and paratype; Tilghemt (Tilrempt), S. Algeria, 8 and 15 April 1912 (V. Faroult), 2 ♂♂; all unfortunately somewhat worn. I have long had an undetermined specimen from El Kantara, 14 April 1913 (P. A. Buxton) which may well be a larger and less narrow-winged ♀ to *mzabensis.* *mzabensis.*

as it has the same extremely long stalking of the subcostal of the hindwing and the same tone; it is almost devoid of markings, excepting the cell-dot, and the face is very pale (in 1 ♂ reddish brown, in the other 3 more as in *mauritanica*).

ochrolutearia. **B. ochrolutearia** *Trti.* was described provisionally as a *Tephrina* and the type was kindly lent to Dr. Wehrli in connection with his section of the present volume. It proves to be a *Brachyglossina* and indeed, almost certainly, a strongly marked member of the *mauritanica* group. Tongue reduced to diminutive convergent filaments. Antenna with the ends of the joints produced, fascicles about 1¼. Hindtarsus about ⅓ tibia. Head and body concolorous with the wings, which have the sandy ochreous colour which is so characteristic of the desert forms. Lines very slender, the postmedian rather better expressed than the antemedian, brownish; proximal subterminal shade developed; blackish terminal line very slender, scarcely noticeable, interrupted by the veins, accompanied proximally by a slender light line. Underside uniformly lutescent, with only the subterminal shade (marked by interneural spots) and minute cell-dots. The very straight costal margin of the forewing recalls the type of *mauritanica*, but the wing is somewhat less broad and the termen of the hindwing not quite so strongly rounded. 1 ♂ from Rus Hamra, Cyrenaica, in early April.

acidalaria. **B. acidalaria** *F. Wagn.* It has been variously proposed to unite this with *mauritanica* or with *tantalidis* or to leave it separate, and until the genitalia have been examined its exact position must remain uncertain. The dense "d a r k" irroration even raises a doubt whether it belongs to the *mauritanica* group at all. Dr. Zerny, who has re-examined Wagner's type, writes that it differs much in markings, coloration and wing-form from *culoti* and that the ends of the antennal joints seem to project less and to bear somewhat shorter ciliation. Considering how local several of these *Brachyglossina* are, it appears on the whole probable that the present species still awaits rediscovery. There is however, a Sebdou *Brachyglossina* which, it has been suggested, might possibly represent *acidularia* notwithstanding the wide geographical separation; and as the 3 specimens (2 ♂♂, 1 ♀) before me are very worn, whereas I understand from Dr. Wehrli that he has a s e r i e s of a rather large species from that locality (presumably the same species as ours), I have allowed this determination for the present. Tegumen broader than in *mauritanica*, its shoulders rather prominent, u n c u s v e r y e v e n l y c u r v e d , so that its end is at a right angle with its base. Valves also very distinctive, the proximal half much broader than distal half, at about (or scarcely) ⅔ with a fine pointed process. The large cornuti are wanting, though there are 1 or 2 small ones on the vesica. Bethune-Baker quite plausibly determined the ♀ as a second *mauritanica*, but, as will be seen from the above, the uncus, valve and cornuti deviate widely. I have recently examined a ♂ (also badly worn) from Les Pins, ca. 7 km S. of Magenta (Rotrou) which agrees absolutely with the Sebdou in the genitalia, though the remnant of the postmedian looks punctiform, somewhat as in *S. oranaria* (see p. 69).

macracantha. **B. macracantha** *sp. n.* (13 k). ♂. Face and palpus very dark. Tongue minute. Hindtibia rather elongate; tarsus extremely short (about 1/5). Collar somewhat more ochreous-tinged than vertex and thorax. Wings more whitish than in the rest of the group, the irroration moderately copious, but not very dark. Forewing with the distal curve of the costa rather slighter than in most of the group; cell long (almost ⅔); median line extremely faint, ante- and postmedian widely separated; subterminal shading somewhat as in *mzabensis* or perhaps rather more tripartite (somewhat as in *trigeminata* and some other *Sterrha*, but relatively weak); fringe with the proximal dots small and faint. Hindwing slightly elongate, termen rounded; median shade less obsolescent than on forewing. Underside more glossy, with costal borders more buff-tinged; cell-dots slight; postmedian line fairly distinct. Valve less elongate than in *mauritanica* and with a long conspicuous thorn from "costa" near its tip, as in no other *Brachyglossina*. Djebel Gueddelane, near Lambèse, ca. 1600–2000 m, July 1913 (H. Powell); type from the Oberthür collection. A Lambèse ♀ from the same source, September 1913, which may well belong to it, is slightly broader-winged and more stramineous, its cell-dots a little stronger, lines rather weaker.

maroccana. **B. maroccana** *Wehrli* (7 b). Dr. Wehrli informs me that he has not yet obtained any further light upon this *Brachyglossina*. If it is really, as originally regarded, a geographical form of the following, it will of course provide the oldest name for the collective species. But as I, like its auther, have never seen any other of the genus with the median area different in ground-colour from the proximal and distal, it is certainly more expedient for the present to treat it as a separate species, which awaits rediscovery, than to complicate the synonymy with a probably inaccurate union. Zerny's suggestion that it may be a form of *oranaria* seems to me still less acceptable.

paroranaria. **B. paroranaria** *Wehrli, sp. n.* (= oranaria *Wehrli* olim, nec *B.-Haas*) (6 b). "This species, generally regarded as *St. oranaria*, has been shown by the examination which I made of the ♂ genitalia to be totally different from the ♂ type of *oranaria*, which is before me today for a comparative description. But the anatomical conditions show further that the new species has nothing at all to do with *B. pseudoranaria* Zerny from

Morocco, which Zerny categorically stated to be identical with it and which anatomically comes much nearer to *oranaria* vera than our Algerian species does. This latter, *paroranaria*, is easily separated from *oranaria* by the pronounced sex-dimorphism already mentioned (the mostly larger ♀♀ very distinctly reddish in colour and more weakly marked than the light yellow-brown ♂♂), while in *oranaria* such is only suggested by a somewhat stronger irroration in the ♀; further by the lack of the tongue, the stouter, longer-ciliated antenna, with the ends of the joints more strongly projecting, and conspicuously by the much finer and weaker brownish, not blackish irroration of the upperside, especially in the ♀♀. The black postmedian of the forewing strengthened by vein-dots but sometimes wholly or in part obsolete (in *oranaria* consisting only of vein-dots) is more strongly and sharply bent outwards below the costa and somewhat more excurved behind the middle (in *oranaria* here almost straight). The black fringe-dots are in general small, often wanting, the postmedian of the hindwing less distinct; sometimes there are on both wings indications of a dark macular subterminal band. Underside in the ♂ somewhat more yellow, in the ♀ much more strongly reddish brown (not dirty yellow), the lines as above, often with a median shade, the cell-dots mostly sharper and larger. Face dark brown. The series does not prove to be so homogeneous as it looked. The form just described (5 ♂♂, 1 ♀) has no definitely perceptible tongue; the majority (4 ♂♂, 12 ♀♀) has, however, a rudimentary tongue of varying size from perhaps $^2/_3$ to twice the palpal length. — A smaller ♂, 18 mm in expanse, is darker, more sharply marked, with larger cell-dots, the distal area darkened and on the hindwing broader. Anatomically, the slender lanceolate valves are narrower, their triangular process shorter, the gnathos broader, the penis distally truncate, the single long cornutus somewhat shorter and more striated. This form, which still needs further elucidation, I designate f. **suboranaria** *nov.* I do not think it constitutes a separate species." — All are from Hammam Righa (Hammam Rirha), Algeria (Stättermayer), coll. Wehrli. — I have seen *paroranaria* (sens. lat.) from the Blida district, El Biar and Mustapha, Oued Hamidou and Bou Saada. Taken in May and June, occasionally well on in July; a few small September specimens are no doubt a 2nd generation. Anellus not developed; cornutus very large; the triangular process of the valve, mentioned by Wehrli, is placed at about $^2/_3$, the surface beyond it is much roughened, almost serrate. *suboranaria.*

B. seitzi *sp. n.* (18 l). Extremely similar to some forms of *paroranaria* and evidently variable; I would have preferred to treat it as an E. Algerian subspecies, but the genitalia are fundamentally different. The apparatus is relatively small, the valve short and broad instead of long and (for the greater part of its length) narrow, as in *paroranaria*, the thorn-like process wanting; aedoeagus short and thick, with one large cornutus. Face and palpus blackish. Tongue vestigial. Antenna about as in *paroranaria*. Tarsus $^1/_4$ to scarcely $^1/_5$. The forewing in the type looks a little squarer than in the other forms (costa relatively a trifle shortened, tornus fairly well developed), but I cannot detect this in the (smaller) paratype; in the type the ground-colour is warm cinnamon-buff, the irroration fine and inconspicuous, while the paratype is paler and less sharply marked; cell-dot strong, oval; postmedian in both rather characteristic at its anterior end, the bends or angulations pronounced, the costal extremity somewhat thickened, black; antemedian weak (strongest in its oblique course from costa to cell; median shade wanting; proximal subterminal partial (macular), distal subterminal faint and quite fragmentary; terminal dashes slender; fringe-dots strong. Hindwing with traces of median line proximal to the cell-dot; this and the markings beyond approximately as on forewing or (at least the subterminal maculation) weakened. Philippeville, in June, 2 ♂♂, kindly sent to me many years ago by my old friend and fellow-worker Dr. Seitz but never satisfactorily determined. Probably many others are awaiting detection in different collections. *seitzi.*

B. vindicata *sp. n.* (= maroccana *Sterneck* in litt., nec *Wehrli*, paroranaria part. *Zerny*, nec typ.) (18 c). This species and the following are so similar that I have not yet been able to discover any infallible distinctions, apart from the genitalia. The present species is the more variable and indeed produces forms which might easily be mistaken for *paroranaria* (supra). Ground-colour often as yellowish as in the latter, from which it may generally be separated by its stronger irroration (though not as coarse as in *culoti*), perhaps on the whole somewhat narrower median area and different form of the antemedian, which in *paroranaria* runs more obliquely outward from the costa to a dot on the subcostal, while in *vindicata* it is commonly almost perpendicular from the costa, or is made to appear so by a thickening (or an accompaniment of dark irroration) at its point of origin; there is also usually a stronger inward bend of this line at the fold, yet scarcely so strong as in *fulta;* median shade nearly always indicated, but variable in intensity. Underside more glossy; markings, excepting the cell-dots, generally weak or evanescent. Hindtarsus of ♂ variable, usually very short, but rarely so extreme as in *culoti*. Tegumen broad, its shoulder not prominent, uncus broader at its base than in most of the preceding . Valve distinctively shaped, with a small rounded prominence near its end, a very small point at its extreme end. Aedoeagus very long, proximally much thickened and with one large thick cornutus, to which follow three of diminishing size arranged in a spiral, then (near the extremity) one so small as to be only noticeable with a high magnification. Guelt-es-Stel; the ♂♂ fairly common and varying in size from 20 to 26 mm, partly according *vindicata.*

to the time of year; the ♀♀ scarce, larger, sometimes with less irroration and more recalling those of *paroranaria*, though not so reddish. Also (rather larger) at Bou Saäda, 20 April to middle of May (4 ♂♂ from V. Faroult. who took 2 *paroranaria* ♂♂ there a little later, 20—30 May). A ♂ from Lambèse, May 1912. probably likewise belongs here.

fulta. **B. fulta** *sp. n.* (= oranaria? *Püng.* in coll., nec *B.-Haas*) (6 ♂♀) is a trifle larger than the first-brood ♂♂ of *vindicata* (24—27 mm), the ground-colour on the whole less yellowish or more obscured by the rather dense dark irroration. Face perhaps deeper blackish. Antennal teeth not projecting very strongly anteriorly. Hindtarsus generally extremely short (¼ or 1/5), but sometimes reaching nearly ⅓. Markings almost as in *vindicata*, though the antemedian of the forewing shows an acute angulation near the costa and always makes a sharp bend or angle inward at the fold; costal edge sometimes darkened to beyond middle; median area not or slightly broader than in *vindicata*, the postmedian generally a little farther from termen than in *paroranaria;* topotypical series with the cell-dots large, the median line (except in one small and aberrant specimen) obsolete or extremely faint, but the outliers, which are generally rather paler (especially the El Kantara ♂), fail to support these two characters; postmedian usually complete, strongly dentate, beneath sometimes stronger than I have observed in any *vindicata;* subterminal and its shades about as in *vindicata*, except that the distal shade is generally almost as strong (or as weak) as the proximal; fringe-dots fairly strong and large. The strong irroration and darkish terminal region bring about an approach to the coloration of *culoti*, though the ground-colour lacks the reddish tinge of most *culoti;* the irroration is not so coarse and the strong median shade of *culoti* and other details render any confusion improbable, quite apart from the genitalia and the geographical distribution. The genitalia have much in common with those of *vindicata* in the shape of the valve, the formation of the uncus and the strongly chitinized anellus; but the latter, instead of ending in simple narrowing "anellus-lobe", has the lobes irregularly spatulate, the curiously twisted plate to which they broaden being an arresting feature directly the genitalia are exposed to view. On the aedoeagus, only two small cornuti, in addition to the large proximal one, have yet been observed, but it may be that the number is not absolutely constant. Hammam Meskoutine, 28 April to 15 May (Rothschild and Jordan), about a dozen ♂♂; Batna (3 ♂♂) and El Kantara (1 ♂), perhaps — or at least the latter — distinguishable racially; Lambèse, singly in June, August and September, smaller specimens, presumably representing a summer generation.

culoti. **B. culoti** *Wehrli* (= pseudoranaria *Zerny*, oranaria *Sterneck* in litt., nec *B.-Haas*) (7 b). Generally rather large and broad-winged, more copiously irrorated than any other *Brachyglossina*, unless an occasional aberration of *vindicata* or of *fulta*. A few of its characteristics have been noticed in differentiating those species. All the lines present, but rarely very outstanding on the darkened ground; median shade broad or moderately so, present also on the underside; the distal subterminal shade as complete as the proximal, so that the entire outer area may be described as darkened, traversed by the broad and irregular subterminal line. Decidedly variable; a probable aberration (♀) from Iminene Valley (Great Atlas), with somewhat better developed tongue, was referred by Zerny, though only "provisionally", to *S. oranaria*, and a few ♂♂ with the hindtarsus almost ⅓ instead of 1/5 are also somewhat surprising. Apart from these structural irregularities, the variation consists chiefly in the exact width of the wings, amount of reddish in the ground-colour, size of cell-dots, absolute and relative strength of the transverse markings. Dr. Sterneck has called my attention to an interesting distinction in the ♂ antenna, as compared with *vindicata*, the only near neighbour known to him. The cilia are set on hyaline appendages, in *vindicata* merely on small tubercles. Valve very characteristic: curved, the basal third (or slightly more) quite broad, then tapering suddenly and remaining evenly narrow almost to the apex; this part (the "cucullus") two-pointed, the (literal) tip forming a not very long but sharp point, the other point lateral, narrowly triangular, well chitinized. Anellus highly chitinized, forming 2 columnar processes much as in *vindicata*, but produced dorsally into a small, but strongly chitinized vertical projection. Aedoeagus with the principal cornutus less long than in *vindicata* (about ⅓ as against ½) and more distally placed, 2 (or occasionally 3) short ones on the vesica. Somewhat distributed in Marocco, chiefly in the Atlas Mountains; also known from Sebdou and perhaps other Algerian localities.

staudingeri. **B. staudingeri** *Prout.* According to Amsel, this is common at light (Jerusalem to Jericho), the ♀♀ greatly preponderating; it varies very little in markings, but more in size. It probably forms a section apart; to p. 68 I might have added more expressly that it lacks the large cornutus; the small ones are at the extremity of the vesica.

Postscript. — The following key to the genitalia which I have studied may serve to focus attention on some of the easily observable distinctions.

1. Aedoeagus with many (about 12) cornuti . . . . . *mauritanica; mzabensis*
   Aedoeagus with 6 large cornuti . . . . . *tantalidis*
   Aedoeagus with no large cornutus . . . . . *staudingeri*

Aedoeagus with only 1 large cornutus (smaller ones, if present, never exceeding 4 in number) 2
2. Anellus strongly chitinized 3
Anellus not chitinized 5
3. Anellus strongly spatulate at extremity . . . . . *fulta*
Anellus not spatulate 4
4. Valve with a thorn-like process close to tip . . . . . *culoti*
Valve not so . . . . . *vindicata*
5. Valve slender, with a long spine . . . . . *macracantha*
Valve very long, at base broad, tapering, with a bluntly pointed process at about $^2/_3$ *paroranaria*
Valve broad, without spine or pointed process . . . . . *seitzi*

p. 70, to **Rh. antophilaria** *Hbn.* Amsel transfers here the "ab. *excaecaria A. Fuchs*" which, following its author, I cited under *sacraria* (Vol. 4, p. 154). I assume that this is done intentionally, although no explanation is given of the new synonymy. In any case, the present species occurs about Jerusalem; but, like myself, Amsel has never seen a *Rhodometra* completely devoid of markings and he observes that even Fuchs's type shows the postmedian line, though unusually weakly developed. — *consecraria Rmb.* A ♂ has recently been taken at Uras, Aristano; new for Sardinia. *antophilaria.*

p. 71, to **L. plumularia** *Frr.* The life history has been worked out by Dr. Draudt (Intern. Ent. Zeitschr., Vol. 29, p. 391, 1 December 1935). The egg is a good deal flattened, on the upperside copiously pitted, the hollows hexagonal, their edges sharp. The newly hatched larva is slender, transparent greenish, with broad dark subdorsal stripe and pale brownish head; full-grown, it is dorsally rust-yellow to cinnamon-brown, with paler, finely blackish-edged mediodorsal line, on the sides broadly greenish white-yellow, ventrally pale brownish. It was fed on Rumex. Gradl has just published a notice of the occurrence of *plumularia* in Vorarlberg, its most northerly limit, together with some account of its distribution. *plumularia.*

p. 71, to **L. purpuraria** *L.* To this species and the following, still more than to any others, my prefatory remarks to these "Addenda and Corrigenda" are applicable. My manuscript was prepared early in 1935 and the proofs were passed for publication in the August of that year, but the publication did not follow until April 1937. In the interim, there has been a truly remarkable outburst of activity among our lepidopterists regarding the aberrations and their nomenclature, and really important contributions have appeared from such prominent workers as Urbahn (October—November 1935), Kitt (November—December 1935), Obraztsov (February 1936; preprints October 1935; supplement April 1936), Lempke (February 1936) and Heydemann (July 1936). *purpuraria* proves to be very rare in northern Europe, and most of the supposed records for that territory (e. g., Zetterstedt's) certainly belong to *purpurata*. No confirmation of its occurrence in Scandinavia has been obtained and it is not impossible that the work of the "first reviser" (Laspeyres) was erroneous and that Linné had before him merely a ♂ of our *purpurata* to represent *purpuraria*. There is, however no ♂ in his collection, the label *purpuraria* standing on a ♀ *purpurata;* the actual type was perhaps in Uddman's collection, as Linné cites that author ("69" is a misprint for 63), who describes both sexes from an unknown locality, and it is best to assume that they were the species which Laspeyres and subsequent revisers have called *purpuraria*. What is certain is that only one *Lythria* is present in Linné's collection to represent his two species and that the labelling in his collection, besides having been subjected to many later vicissitudes, was not understaken in 1758 (for instance, *Phalaena amata L.* is labelled *amataria*) and therefore cannot be adduced against the other considerations. Uddman and Linné concur in regarding our *purpuraria* as yellow ("flava" or "lutea"), while *purpurata L.* is diagnosed as greenish ("virescens"). *purpuraria* is apparently rare even in North Germany, though Heydemann has succeeded in finding a colony near Mölln, Schleswig-Holstein (Intern. Ent. Zeitschr., Vol. 29, p. 251); perhaps, as he suggests, a partial clue to its assumed rarity lies in its frequenting waste ground — "for what collector would deliberately visit a stubble-field at the beginning of August to collect Lepidoptera"? One record from Esthonia (Kauri) is confirmed. Reisser has recorded a gynandromorphous specimen from Sierra de Gredos, the right side ♂, the left side ♀. — ab. **porphyraria** *H.-Sch.* Heydemann, on account of the greater variability and stronger prevalence of purple aberrations in *purpurata*, wants to re-transfer this unique form, overlooking, besides the arguments adduced on p. 71, the slender postmedian line, the rosy apex beneath and the locality "S. Russia". If S. Russia possesses really a subspecies of *purpuraria* (and one only), *porphyraria* will be the oldest name for it: see *staudingeri* below. — ab. **mevesi** *auct.* (nec *Lampa*). If a yellow, grey-banded aberration actually exists in *purpuraria*, which at present seems somewhat doubtful, it will be necessary to give it a new name. Lampa's original, like all the now known Scandinavian examples, certainly belongs to *purpurata*. — ab. **trilineata** *Urbahn* (= trilinearia *Obraztsov*) (7 c). Long before my "unique type" thus named was published (p. 71), it had ceased to be "ab. nov." and ceased *porphyraria. mevesi.*

to be unique; but it remains a very rare form. Easy to distinguish from *purpurata* ab. *trilineata* by the central
rubrilinearia. position of the second band. — ab. **rubrilinearia** *Obraztsov* (= sordidaria *Zerny, Prout.* nec *Zett.*). Examples of gen. vern. *deceptoria Vill.* with the red bands present on the forewing. On p. 71 I adopted Zerny's proposal to call this ab. *sordidaria*. quite inexcusably overlooking information which I received from Wahlgren (in litt.,
posticilinearia. 22 May 1924) that Zetterstedt's type was a *purpurata* aberration. — ab. **posticilinearia** *Obraztsov*. Hindwing above with a distinct reddish line. A ♀ from Jena figured by Urbahn, 2 examples (? locality) noticed by Kitt.
grisearia. 1 ♂ from Berikej in Daghestan seen by Obraztsov in Sheljuzhko's collection. — ab. **grisearia** *Obraztsov*. Forewing unicolorous greyish ("not so dark as in *deceptoria*"), sometimes with some traces of the rosy bands. Probably an approach to ab. *nigricans*. This (*grisearia*) and most of Obraztsov's aberrations enumerated below were recorded from South Russia and should presumably be referred to his subspecies *staudingeri*. erected
extremaria. subsequently (see below). — ab. **extremaria** *Obraztsov* resembles *grisearia* but the bands are light; it corresponds
signaria. to the spring form *rubrilinearia*, but is larger and of an appreciably darker colour. — ab. **signaria** *Obraztsov* has a small red costal spot between the two bands (a frequent development in *purpuraria* everywhere).
furcaria. — ab. **furcaria** *Obraztsov* has the two proximal bands (of a 3-banded form) confluent in their posterior part (not reaching the hindmargin). Kitt, Lempke and Heydemann coll it *trifurca Czekelius*, but no such concept exists; Czekelius merely misquoted *trifurca Hannemann* (which belongs to *purpurata*) to which this *furcaria* is a parallel
pulveraria. form. — ab. **pulveraria** *Obraztsov*. Forewing powdered with red scales which form small striae. — ab. **pseudo-**
pseudo-typica. **typica** *Heydem.* is proposed to designate very light ochre-yellow specimens which occur occasionally among the
staudingeri. spring brood. The two purple bands in the figured specimens are well developed. — **staudingeri** *Obraztsov*. from S. Russia. is said to form a special race. characterized by a strong reduction of the bands. extreme examples corresponding to ab. *lutearia*. which here also occars only as an aberration. As the spring brood seems to agree with the "*deceptoria*" of other districts. and it is admitted that well banded examples (inconsistently called ab. *rubrilinearia*, although that name was erected for a spring form) do occur in the summer generation, I cannot find any published evidence for the validity of the subspecies, unless it be in the greater variability (see the aberrations noted above as South Russian) and the higher percentage of weakly red-marked individuals; but I have seen too little material to be justified in dogmatizing. The head-quarters are given as the Ukraine (Nikołajev and Kieff), the Crimea and the Caucasus. The forms from Central Asia (see p. 71) may constitute another race, with the reduction of the markings both above and beneath carried still further. A specimen from
translinearia. Omsk was described as long ago as 1870 by Erschoff. — ab. **translinearia** *Obraztsov* seems to belong also to the eastern forms, as the given localities are Pinsk, Podolia. Petropavlovsk (prov. Akmolinsk) and Askhabad. The underside of the forewing. which normally bears only some rudimentary costal markings, is here traversed
gawerdowskaja. by a red band. — ab. **gawerdowskaja** *Kolossow*. an antithesis of the *lutearia* series. has the purple stripes diffused. occupying the greater part of the wings. E. Russia (Viatka or Perm). Evidently an approach to ab. *porphyraria*.

purpurata. p. 71. to **L. purpurata** *L.* Heydemann has called attention to further structural differences from *purpuraria*. partly in the ♂ antenna (a slight difference) and more obviously in the palpus. which is longer. with its terminal joint about twice as long. An additional Asiatic record has come to hand, namely Armenia (Kotsch). and I have recently seen a fairly large ♂, apparently rather dull and dark-marked (but worn). from Ilkaz Dagh (Anatolia). In the westward direction. Castile and the Pyrenees are cited by Heydemann, but probably he
communiarea. refers to *sanguinaria*. — ab. **communiarea** *Romaniszyn*. Kitt proposed to sink this to *ruberrima* (see below) but this has been challenged. as in the present it is the entire distal area of the forewing which is yellowish.
tangens. not merely a few subterminal spots. — ab. **tangens** *Hannemann*. Kitt considers the aberration described by Lempke as *conjunctiva* to be identical with this. It this be so. Hannemann's figure is inaccurate; but Lempke thinks that a different specimen may have been shown to Kitt as the "type". Heydemann figures as *conjunctiva* a spring-brood ♀ and as a transition to *tangens* a summer-brood ♂ with no actual contact between the 1st and
ruberrima. the 2nd + 3rd bands. — ab. **ruberrima** *Hannemann*. Kitt indicates that the entire forewing is red with the exception of small maculae before the termen and n o t "with the exception of the base". Here again it seems
ochrofasciata. that Hannemann's figure may be faulty. — ab. **ochrofasciata** *Koschabek* is a further developed of ab. *rubrior Hannemann*. with the proximal red of the forewing much more extended costally and basewards. so that the ground-colour is only conserved in a narrow median stripe wich expands towards the base of the inner margin.
semipurpurata. 1 ♀. Rechnitz. Burgenland. taken in August. — ab. **semipurpurata** *Pfau*. According to Pfau himself. this should
mevesi. sink to ab. *rubrior Hannem.* — ab. **mevesi** *Lampa* (= griseolineata *Czekelius* = griseovittata *Lempke*). The correction of the determination of Lampa's aberration. described in 1885 from a Vestergötland specimen, results
pseudosuffusa. in this change of synonymy. — ab. **pseudosuffusa** *(Lempke) Heydem.* A darkly suffused ♂ of the spring brood from Holstein, agreeing essentially with the summer ab. *suffusa* (p. 72). has been figured by Heydemann. —
pulverata. ab. **pulverata** *Obraztsov*. Outer area of forewing above powdered with red scales which form small striae. Cor-
bifasciata. responds to the *purpuraria* aberration of the same name. Type ♀ from Berlin. — ab. **bifasciata** *Obraztsov*. Underside of the hindwing, instead of the usual posteriorly convergent or confluent lines or bands. with the two lines
monofasciata. well separate. Berlin. in both generations. — ab. **monofasciata** *Obraztsov*. Hindwing beneath with only the

outer band present. This and the two following came also from Berlin. — ab. **latifasciata** *Obraztsov* differs from *bifasciata* in that the outer band is much broadened, so as to reach the fringe. — ab. **confluefasciata** *Obraztsov*. The two bands of the underside coalesce, so as to form a single broad band in the middle of the wing. — **sordidaria** *Zett.* I have pointed out under *purpuraria* ab. *rubrilinearia* that the name *sordidaria* has been misapplied. Evidently, as Heydemann indicates, it represents a spring-brood form, but it is quite likely that this may be the only form in its northerly habitat — Lycksele, S. Lapland, 25—27 June — and not impossible that it may be a separable subspecies. *latifasciata. confluefasciata. sordidaria.*

p. 74, to *O. coarctaria*. — **infuscata** *Stgr.* (see Vol. 4, p. 158). To judge from a good series, mostly in the Tring Museum, this seems also to be the principal, or perhaps the only, form in parts of Asia Minor. It was, indeed, erected as "var." (i. e. subspecies), not "ab.", in the "Catalog" of 1871, and the material from Isparta, Anatolia, entirely bears this out; S. Turkey and Bithynia were originally given as localities. The darkening of the hindwing and underside, without the yellowish admixture of the more typical forms, is perhaps more distinctive than the changes in the forewing. Warnecke adds Sylt to the range of this dark form. *infuscata.*

p. 75, to *O. mucronata plumbaria*. — ab. loc. **nigrita** *Heydem.* Definitely nigristic, thus having having "nothing to do with the rare f. *luridaria*" which is uniformly washed with blackish; in *nigrita* the dove-grey ground-colour is densely sprinkled with black-grey scales. Amrum, both sexes. *nigrita.*

O. sterilis *sp. n.* (17 f). Forewing less ochreous than in *langi* (Vol. 4, pl. 11 a), sometimes almost grey, median band on an average broader, cell-dot conspicuous, often followed posteriorly by a second, smaller dot, postmedian line appreciably more sinuous, termen not darker than the rest of the distal area, some darkish shading proximally to the subterminal line, on the contrary, at times well developed, terminal dark line very slight, often virtually obsolete, fringe on the whole less brown than in *langi*, its dividing line scarcely ever continuous. Hindwing with the lines better developed than in most *langi*. N. Persia: Hashtar, Demavend, ca. 2500 m, August and September 1935 (F. Fusek). 2 ♂♂. 12 ♀♀ in the Tring Museum. Median band variable in intensity, at times little darkened except at its edges. As the wings (or at least the hindwing) look very slightly broader than in *langi*, it is probable that *sterilis* is a separate species; in any case an extremely distinct form. *sterilis.*

p. 75, after *O. moeniata:*

O. obvallaria *Mab.* (Vol. 4, pl. 6 h). The young larva, according to Reisser, is dirty greenish grey with 6 fine dark lines and black head. After the 1st moult: head dark grey-olive with 2 lighter stripes; skin slightly wrinkled transversely, body with dark longitudinal stripes, a light subdorsal band, the slight lateral flange somewhat macularly darkened. It feeds on various Genista species but perished during hibernation. *obvallaria.*

p. 75, to **O. proximaria** *Rmb.* (7 g). On an extensive series from Sardinia, Bytinski-Salz has made an analysis of the variation. The type form has 3 distinct dark bands: the nearly linear subbasal and the proximal and distal boundaries of the median area. The basal area, the space between first band and median area, the middle of this area and the space between 3rd band and subterminal are clear grey. — ab. **basiconfluens** *Byt.-Salz* has the basal dark band and the antemedian confluent in the middle. — ab. **omniconfluens** *Byt.-Salz*. All 3 bands joined together by bridges. Only a single ♀ yet known. — ab. **mediofasciata** *Byt.-Salz*. Median area formed into a solid dark band, as in *peribolata* ab. *joannisi*. Various transitions occur in all the localities. *proximaria. basiconfluens. omniconfluens. mediofasciata.*

O. caucasica *Niesiolowski*. Fore and hindwing light ash-grey, all the lines of the forewing black-brown; 2 small black dots in the light area of the median band. Subterminal lunulate, proximally dark-bordered. Fringes spotted with black-brown (on the hindwing only on their proximal half). Hindwing weakly, yet quite distinctly marked. Antemedian line of forewing formed of 2 large lunules and 1 small. Postmedian very characteristic, making in the middle a sharp, almost quadrate projection, behind which it is deeply incurved; this line is formed as in *proximaria Rmb.*, from which *caucasica* is quite different in the distal area, the chequered fringes, etc. Central Caucasus, 2400—2500 m, the type ♂ from the Karaugom. *caucasica.*

p. 76, after *O. kashghara:*

O. similaria *Leech* (Vol. 4, pl. 11 a). Either this or (perhaps more probably) *s. erschoffi Alph.* (t. c., pl. 8 c), if the latter be really separable, occurs in S. Kansu, at 2600—2750 m; according to Djakonov the 2 known ♀♀ from Sven Hedin's expedition have the white subterminal band rather broad and clear, cell-dot in 1 ♀ single, in the other double. *similaria.*

p. 76, before *O. subvicinaria:*

O. elbursica *Byt.-Salz & Brandt* (17 f) is considered to be nearest to *subvicinaria* but distinguishable by the straighter lines (excepting the sharp angulation of the proximal ones near the costa), differently shaped *elbursica.*

median band, etc. A glossy, rather sharply-marked species, with the subterminal and its accompanying shade not lunulate. Nissa, Elburs Mountains, 3000 m, only the ♀ known, discovered by Mr. F. H. Brandt. We figure a moderately sound specimen kindly presented to me by Mr. W. Brandt.

cinnamomea. p. 78, to *O. octodurensis gallica.* — ab. **cinnamomea** *W. P. Curt.* Basal and terminal areas suffused
aëlptes. with orange-cinnamon, strongly contrasting with the blue-grey median area. Maurin, Basses-Alpes. — **aëlptes** *Prout.* Specimens recently obtained in the Elburs Mountains evidently belong here.

adornata. p. 78, to **O. adornata** *Stgr.* This was met with in S. Kansu at high altitudes by Dr. David Hummel on the Sven Hedin expedition.

p. 80, after *K. loxobathra*:

lakearia. **K. lakearia** *Oberth.* (Vol. 4, pl. 6 i). Djakonov records 4 ♀♀ from different localities in S. Kansu, ca. 2850—3000 m, 2 being as large as *oberthuri*, 2 much smaller, but all agreeing completely in the markings. I suspect, however, that these may be forms of *loxobathra*; in any case, he has independently pointed out the error of confusing *lakearia* with *oberthuri Alph.* of which he has carefully compared the type.

infuscata. p. 80, to *M. virgata.* — ab. **infuscata** *Heydem.* (nom. coll.) is a strongly nigristic development of form. *contrariata*, corresponding to *O. coarctata infuscata* but not racial. Densely irrorated with black-grey, a dirty whitish band just outside the postmedian, which is charply blackish, as is also the apical dash of forewing. Schleimünde, Schleswig-Holstein. 1 ♀.

depeculata. p. 81, to **S. depeculata** *Led.* In Vol. 4 (p. 168) I described Lederer's figure as showing on the hindwing a narrow white "median" band; strictly speaking, this should read "postmedian", but the ground-colour
symmora. of the whole wing, notwithstanding the density of the irroration, is called white. — **symmora** *subsp. nov.* (13 c), from the Elburs Mountains, seems to differ sufficiently from the name-type to demand a separate name. The hindwing on the upperside has no white element, or only very faint indications of a slender line, and is in fact almost concolorous with the forewing. The originals are in the Tring Museum, the type specimen a ♀ from
thibetaria. Hashtar, Demavend; pretty constant at altitudes of 2600 to 3600 m. — **thibetaria** *Oberth.* The note on p. 81 regarding "the costal patch of the forewing" was brief at the expense of clearness. There are 2 main forms (or possibly species, though no difference has yet been discovered in the ♂ genitalia), but in neither of them is the dark postmedian band of the forewing continued so far hindward without touching the terminal band as is the case in *narzanica* (see Vol. 4, pl. 6 b). In Oberthür's type form it almost or completely runs into the terminal band at the radials and 1st median. Djakonov adds to my differentiation that the ground-colour in *thibetaria*, especially of the hindwing, is much cleaner silver-white than in *narzanica:* he says
lusoria. that the form from Kansu agrees with *thibetaria.* — ab. (loc.?) **lusoria** *nov.* is an extreme development, broad-winged (the costal margins somewhat more strongly arched beyond the middle than usual); the border and the oblique band rather broad anteriorly, coalescing strongly, the underside with the posterior part of the hindwing whitened in the median and the subterminal areas, both wings with some very characteristic vinaceous suffusions, that of the forewing on the proximal part of the dark apical region and overflowing on to the oblique white band and the whitish subapical patch, that of the hindwing (in part even brighter) between the radials (not reaching termen) and running inward in posterior part of cell. E. Tibet: Dü Chu Valley, 12 000 feet, 11 July 1936 (R. J. H. Kaulback), a fine ♂ in the British Museum. I at first supposed this a separate species, but it is apparently only a high-altitude form; among some 200 *narzanica* I have detected about a dozen (Ta-tsien-lu, Tseku and Yarégong) which furnish transitions, at least in
brachynesis. the progressive manifestation of some vinaceous suffusion on the underside. — f. **brachynesis** *nov.* This is the second principal form mentioned above and, strictly speaking, includes the specimen figured as *thibetaria* (8 d), although some examples are more extreme. Costal band reduced, often subtriangular, terminating about the 3rd radial (type) or even the 2nd, sometimes extended to the 1st median, but in all cases separated here from the border by a clean white band of 1—2 mm width. Border of hindwing extremely narrow or wanting. W. China: Ta-tsien-lu (loc. typ.), Mupin, Tay-ton-ho, Yarégong, Tchang-kou, etc., apparently together with f. *thi-*
discreta. *betaria* in a proportion of perhaps 20 per cent. — **discreta** *subsp.* (?) *nov.* (18 k) is the only form which I have seen from Koko-nor. Costal band of forewing always small and well isolated, nearly as in *brachynesis*, from which it differs in that the hindwing, more particularly in the ♀♀, has a dark border as in the "first principal form" of *thibetaria:* moreover the dark border of the forewing is less angled about the 2nd radial, its white proximal border and the preceding "costal band" a little less obliquely placed; hindwing beneath with more white, at least in the apical region. Type ♂ in the Tring Museum.

djakonovi. p. 81, to *S. danilovi* **djakonovi** *Alph.* According to Djakonov, who records a slight modification from S. Kansu, the most important characteristic of this Nan-shan race lies in the completeness of the terminal black band of the forewing, which reaches the hindmargin, while in the Altai and N. Mongolian examples it

terminates at or before the 2nd radial (= cubitus). — ab. **pallida** *Djakonov*. Ground-colour conspicuously pale, yellowish brown; central spot of forewing isolated from costal spot. N. E. Szechuan: Kia-ling-ho, ca. 250 bis 400 m, 2 May (evidently a spring brood). 1 ♂. *pallida.*

p. 82, to **S. coloraria** *H.-Sch.* Wnukowsky has recently recorded this from the Tomsk district and indicates it as the most westerly locality yet known for the species. But as it has been reported from Russian Karelia further extensions of its area of distribution may be expected. *coloraria.*

p. 82, to **B. tibiale** *Esp.* My suspicion that the rough three-fold division into the races *tibiale*, *moeroraria* and *eversmannaria*, adopted by Staudinger, Culot and myself, was inadequate has already received some valuable support. An important article by Lankiala published in October 1937, gives a full survey of "The *Baptria tibiale*-races of Finland" and I hope that those lepidoptirists who have sufficient material from other countries will follow it up on similar lines. Esper's type, with moderate white band and small tornal spot on the forewing, came from Winiky, near Lemberg (Lvov), where it was taken in August. — **moeroraria** *Frr.* (Vol. 4, pl. 6 c) is the only known form in which the band is not approximately leg-and-boot-shaped but (as its author says) "splinter-shaped". — **eversmannaria** *H.-Sch.* Lankiala correctly points out that this did not originally depict one of the b r o a d l y white-banded forms such as were figured by Culot from the Alpes Vaudoises and by me (8 d) from Hakodate, but more approaching what I had called ab. *decisata Walk.* The type (for which no locality was given, though the dedication to Eversmann suggests a clue) has the band of the forewing about 2 mm wide, its proximal edge directed towards the tornus, but changing its course behind the 3rd radial so as to run hindward and form the "toe", of the boot near the hindmargin; that of the hindwing very narrow, reaching neither margin, anteriorly and posteriorly strigiform, in the middle broadening very little (maximum width 1 mm). Specimens from Irkutsk agree exactly with it. — **fennica** *Lankiala* has the band of the forewing as broad as in *t. tibiale* or even broader, the "toe" touching the hindmargin; that of the hindwing complete, quite strikingly broad, in the middle often reaching 3 mm but at both ends narrowing, especially behind. Hindwing beneath with 3 blue-whitish rays from the base, in part approaching or almost reaching the white band. S. and Central Finland, feeding on Actaea spicata. Some of the N. Asiatic forms are very similar. — **kauckii** *Schille* (see p. 82) is also very like *fennica*, except in its much larger size (forewing 17 mm), but the band of the forewing does not reach the hindmargin (underside not described). The dates were early, 11 and 13 June. — **borealis** *Lankiala*, from N. Finland, near the Arctic Circle, is on an average smaller than *fennica*; narrower-winged, its shape distinguishable also from that of *eversmannaria*, its bands intermediate in width between those two races; underside of both wings with less of the blue-whitish sheen. Apparently attached exclusively to Actaea erythrocarpa, which the Finnish botanists treat as a separate species. It is suggested that *fennica* reached Finland from the south, *borealis* from the east. — ab. **reducta** *Lankiala* is an occasional modification of *borealis* with the band of the hindwing above reduced to a short central streak, often in addition considerably narrowed. — **decisata** *Walk.* (18 k) resembles ab. *reducta*, but the band of the forewing is a trifle less oblique, its costal end more distally placed, its outer angle blunted; band of hindwing even slenderer than in *reducta*. A very closely similar pair (coll. Bellier), likewise without locality, suggests that it is European. Notwithstanding Walker's somewhat misleading description, *albofalcata Schawerda* is almost the same form, though the band of the forewing is in this latter a little more shapely, the short white mark of the hindwing perhaps more bent. — **aterrima** *Btlr.* (not atterima!) is not a mere aberration but, I suspect, a mountain form in Japan. Large (36—41 mm), the band fluctuating between 1 and 2 mm, for the most part nearer the former measurement, its "foot" narrow, its slender toe ending at the 2nd median or, if extended behind, extremely narrow and weak; hindwing beneath with a slightly interrupted white l i n e (rather than b a n d) running from the 2nd or 3rd radial to the abdominal margin. The type ♂, sent from Yokohama, long remained unmatched, but all Wileman's *tibiale* from Yamato (Ōdai San. 1 ♂, 8 July; Ōmine San, 4 ♂♂, 2 ♀♀, 19—20 July) agree perfectly with it. Elsewhere, the forms from Yezo, approaching *eversmannaria* (8 d, as *eversmannaria*), and those from Hondo, approaching *tibiale* and *mychioleuca*, require further study. — **mychioleuca** *subsp. nov.*, mentioned but not named on p. 82, has the band of the forewing broader than in our figure of *tibiale* (Vol. 4, pl. 6 c), generally 3 mm or almost, the "toe of the boot" short or moderate, the "heel" almost or quite as pronounced as in *fennica*. Best characterized by the white of the hindwing beneath, which is concentrated in a conspicuous spot at the abdominal margin, its continuation forward weak, evanescent or wanting. "Amur", for the most part badly localized; Ussuri, the type ♂ in the British Museum from Egerscheid (Vladivostok); also Okeanskaja, Chabarovsk, etc. The E. Asiatic "*tibiale*" of Graeser and Staudinger will certainly belong here. — ab. **nigrescens** *nov.*, described by the latter from Sutschan, has even the band of the forewing obsolescent, only distinguishable by its weaker (grey-) black tone. *tibiale.* *moeroraria.* *eversmannaria.* *fennica.* *kauckii.* *borealis.* *reducta.* *decisata.* *aterrima.* *mychioleuca.* *nigrescens.*

p. 83, to *Lithostege*. The careful work of Amsel on the western group of this genus, already referred to on p. 84, has stimulated further investigations into them, which have yielded unexpected and important results. Further, the chance discovery of an original of *porcataria Bsd.* and the consequent correction of an

inadvertent misuse of the name *stepparia* by Guenée (see below, under *bosporaria*) led me to inquire whether the rest of Boisduval's *Lithostege* were still in existence; and extremely valuable communications from my good friend Wehrli have necessitated some other additions and modifications. The material from *farinata* to *coassata* has therefore been virtually recast (*fissurata* and *bifissana* should not, I think, have been interposed among them).

L. infuscata. Staudinger, by some unaccountable mistake, has sunk this name to *griseata*, merely with the comment "non separanda"; and in this he has since been uncritically followed. In re-examining the group, with the literature, I was struck by the complete inapplicability of Eversmann's descriptions to that species, and the darkening of the borders, besides the "pale lutescent-fuscescent forewing", at once called to mind *flavicornata*. Seeking for material from Sarepta (the type locality), I found 3 ♀♀ in the British Museum, one of them (ex coll. Zeller) actually labelled *infuscata:* This is rather light, the other 2 and, as Dr. Wehrli informs me, 2 ♂♂ and 1 ♀ in his collection (all 5 labelled *subfuscata Stgr.*) smaller and somewhat darker. None are so large as the forms from Amasia, Tokat, Angora, Akshehir, etc., which have of recent years been distributed as *flavicornata;* but Zeller's originals of the latter, a pair from Makri, S. W. coast of Asia Minor, are also small (length of a forewing 14 mm), of a decidedly ochreous brownish, and might well be classed as "*subfuscata*" by present-day lepidopterists! Certainly not the following species, however, by genitalia, face, antenna and underside. Much more material will have to be analysed before the interrelations of the forms can be entirely straightened out; there can, however, be no reasonable doubt that we have now the essential basis of a correct classification. — **infuscata** *Ev.* (? Vol. 4, pl. 6 e, as flavicornuta). Unfortunately this is the oldest name for the collective species and is not preoccupied. To judge from the description it represents the lighter forms, though it is not unlikely that those from N. and Central Asia Minor may prove racially separable. — ab. (? subsp.) **flavicornata** *Z.* is smaller and darker (see above). Having been erected as a species, its name will be applicable to the entire "*infuscata*" population of Asia Minor if this is found to constitute a single subspecies. — Dr. Wehrli writes me that he has a short series from Erivan of what he supposes to be the true *subfuscata Stgr.* (male condita!), small and usually with somewhat darker terminal area than the preceding but with the hindwing conspicuously whiter, the ground-colour of the forewing, for the more part, scarcely darker than the Amasia-Tokat "*flavicornata*" (therefore not darker in any case than *flavicornata* type). I think, however, that the true *subfuscata* must be a form of the following species.

infuscata. *flavicornata.*

L. odessaria *Bsd.* (18 l). The originals of this wrongly sunk species are extant in the Wehrli collection. "In both examples the hindwing is exactly as dark as the forewing, on both wings the terminal part darker yellow-grey, the fringes light; both specimens have c h a r a c t e r i s t i c b l a c k - g r e y a n t e n n a e. The Stgr.-Rbl. Catalog lacks the reference to H.-Sch., Vol. 6, p. 80, where H.-S. mentions the peculiar yellow-grey colour, and the i n t e r i o r l y b l a c k a n t e n n a. Underside characteristic, the forewing strongly blackened, at the costa and termen narrowly whitish, the hindwing whiter than above. The two are nearly alike and give the impression of a separate species. No trace of lines, nor of the apical streak which is always present in *griseata*." (Wehrli, in lit., 1 December 1937). ? Odessa, 1 ♂, 1 ♀ (Boisduval, ex Kindermann). Much of this collection was made in the Caucasus, which I suspect was the true locality. — ab. (?) **subfuscata** *Stgr.* differs in having the hindwing whitish but is otherwise very similar. My single example from Erivan (M. Korb) is a rather light ♂, but has the dark-mixed face and dark antenna which always puzzled me in the Armenian forms and also the characteristic underside, which I had not noticed until my attention was called to it by Wehrli. A "Caucasus" ♀ (Dresser) and a ♂ without locality are as dark as typical *odessaria*, but the more exactly localized specimens which I have examined (Ordubad, Grusia, Kulp, Kasikoporan; also Keredj, N. Persia) furnish transitions. The genitalia are certainly distinct from those of *infuscata* (= *flavicornata*).

odessaria. *subfuscata.*

L. farinata *Hufn.* (= illibata *Schiff.*, nivearia *Hbn.*, err. det., niveata *Tr.*, err. det.) (Vol. 4, pl. 6 d). As Amsel's figure and description of the ♂ genitalia show, this is well removed from the others which have been associated with it, the increased armature of the valve being particularly noteworthy; the distinctions, however, are certainly not sufficient to justify Gumppenberg, who erected for it a new genus (under the preoccupied name *Agrapha*) solely on the less rounded tornus of the forewing, more undulate distal margins and absence of markings. It was implied on p. 83 of the present volume, although not explicitly stated, that the geographical distribution given in Vol. 4 (p. 72) is quite incorrect. Actually, so far as I know, it belongs chiefly to eastern and eastern-central Europe: rather well distributed in the Balkans, Hungary, Austria, Poland and the eastern half of Germany (as far south as Saxony) and reaching the south of Denmark and of Sweden. Latvia has a few records, western Germany a few, Switzerland, according to Vorbrodt, only a doubtfully authenticated one. From Bucovina and southward we have some reports of a second brood, in late July and August, probably a very incomplete one. — ab. **apatela** *nov.* has the forewing considerably darkened, so as to give it a close superficial resemblance to *infuscata*. Mentioned for the Dobrudscha by Mann and others.

farinata. *apatela.*

but apparently never named. — **bachmutensis** *subsp. nov.* (18 g). Scarcely distinguishable by the wings, as the slight variations which it shows are strictly analogous to those of *f. farinata;* perhaps on the whole it has a inner margin, faintly curved in between in the shape of an "S". The white submarginal line is normal. Hindwing somewhat g r e y e r tinge, at least in the ♂♂, the forewing beneath with little or no dark suffusion; a terminal line better darkened than in most *farinata*. Genitalia on the whole larger; valve with costal process longer and more robust, saccus deeper and broader. Ukraine: Bakhmut. May to early June, common; typical series in the Joicey collection. The *Lithostege* which Obraztsov records as common on the steppes about the Vessjolaja Bokovenjka Park, 18 June—11 July, will probably be found to agree with it. *bachmutensis.*

L. narynensis *sp. n.* (18 h). I have also failed to distinguish this superficially from some forms of *farinata*, but it is, by the genitalia, an easily recognized species; valve nearest in shape so that of *farinata*, costal process well removed from base of costa, costal arm much thickened, more toothed distally than in any other of the group, saccus shallow and rounded. Expanse 37—44 mm. Very similar in shape, etc., to *palaestinensis*, but on the whole whiter (a trifle less bluish or greyish), the hindwing rather purer white, the forewing beneath in general not quite so deeply suffused, but usually (like *palaestinensis*) lacking the dark cell-dot or streak which is commonly so conspicuous on that of *farinata*, in the ♀ here appreciably more suffused than that of *farinata*. Fort Naryn, Semirietschensk (G. S. Akulin). 16 ♂♂, 15 ♀♀, from the Oberthür collection; the British Museum has in addition 5 ♂♂ from Almatinka, Valley Malaya River (East Turkestan), 16—21 June 1927 (B. Vorobiev) and it is quite safe to refer here the so-called "*farinata*" of Ferghana, Issyk-kul and Ili. *narynensis.*

L. ancyrana *sp. n.* (6 i). At present I have access to regrettably few specimens of this species, but cannot pass it unnoticed in this revision; probably more material will be detected in our European collections. Prof. Seitz kindly sent me his Ankara (Angora) *Lithostege* for examination, but they included nothing nearer than *griseata obscurata*. It cannot be a form of *farinata*, as the ♂ valve lacks the costal process of that species and *narynensis;* nor of *palaestinensis*, for the "costal arm" is more slender and less sinuous, the "clasper" of Amsel differently formed, set almost vertically, the juxta decidedly narrower, the "saccus" deeper. A rather small species, the length of a forewing averaging 15 mm. its breadth perhaps a trifle less in proportion than in *farinata;* coloration above and beneath about as in *farinata*, but the cell-mark is not discoverable in either example. Angora (Sureya Bey), 1929 and 1930, type and a paratype ♂ in the British Museum, 2 further ♂♂ in the Vienna Museum, one kindly lent by Dr. H. Zerny for corroboration of the genitalia. *ancyrana.*

L. palaestinensis *Amsel* (8 f), as tested by the genitalia, has a considerably wider range than was given on p. 84: it has been traced, without any structural modification, to Arabia southward, the Taurus northward (and I see that Amsel mentions Konia = Konieh) and even to Greece westward, as the British Museum has a well authenticated ♂ from Delphi, 18 April 1911 (P. A. Buxton); my only Persian ♂ (Kazeroun-Buchir, F. H. Brandt) also agrees essentially, though the slightly more slender juxta and a very slight modification in the shape of the valve may point to a separate race. It should be added that the Iraq specimens have a greyer tone, particularly on the hindwing, and may represent yet another race, as Wiltshire (who has good material) firmly believes. The Algerian and South European representatives have diverged further and I regard them as separate species. *palaestinensis.*

L. duponcheli *sp. n.* (18 k. ♂. U.). Amsel, in erecting his *palaestinensis*, expressed grave doubts whether *farinata* really occurred in the Mediterranean countries at all, but did not indicate that he had examined any S. European. His suspicion, however, has been amply justified and the so-called *farinata* of the Bouches-du-Rhone, Digne, Sicily, etc. demonstrated by the genitalia, as well as by the coloration, to be a representative of *palaestinensis*. Generally rather large, the forewing beneath, e v e n i n t h e ♀♀, with very sharply defined dark proximal area, leaving free a white border of about 5 mm width anteriorly, which narrows to about half that width at midtermen and to about 1 mm at tornus. The valve differs in shape from that of *palaestinensis:* its dorsal margin is straight for more than half its length, its hindmargin markedly oblique; the costal arm is strikingly bent about the middle instead of regularly curved; the "clasper" is liable to asymmetry, that of the l e f t valve, in the observed cases, developing an additional hook; labides larger and more hairy than in the allies. Duponchel recorded and figured this species from Sicily as *farinata*, long before Krüger rediscovered it there in 1905; probably Duponchel knew also southern French specimens. As type I have chosen a ♂ in the Tring Museum form Nicolosi, Sicily (coll. Ragusa). It occurs there in March and early April, in the Monte Gargano district and S. France in May. *duponcheli.*

L. cinerata *Trti.* (= cyrenaïca *Amsel*, err. transcr.) (8 f). If this is the species which was formerly circulated under the trade name of "*farinata* var. *algirica*" *(B.-Haas)* it has evidently a very wide range in N. Africa, where it apparently replaces *palaestinensis* and *duponcheli;* should the very material differences in the genitalia be considered subspecific only, *cinerata* would be the oldest name for the collective species. Most of the specimens known to me come from Tunis or eastern Algeria (especially the Biskra-El Kantara district), *cinerata.*

but ♂♂ collected in Oran in May (Sebdou and Mecheria) have been tested on the genitalia; and it is highly probable that Chrétien's record of *farinata* for Biskra and Gafsa (March and April) and Oberthür's of "*nivearia S. V.*" for Nemours in April also refer to the present species. It is somewhat remarkable that this has the dark suffusion of the forewing beneath less pronounced and less sharply defined than *apicata* — in fact this is its most obvious superficial distinction from *palaestinensis*, or at least from the less b l u i s h grey forms of the latter; whereas the typical form (Cyrenaica) has the "disc beneath broadly blackish". Faint indications of an apical dash on the upperside appear occasionally, but are not so manifest as in *apicata;* and until material from Cyrenaica is available for dissection I cannot feel absolutely certain whether Amsel and I have correctly determined the original *cinerata* or even whether (as at Mecheria) two allies occur together in the Bengasi district. If it can be demonstrated that either a *palaestinensis* form or the following is the true *cinerata*, the present species should be called *algirica*.

apicata. **L. apicata** *sp. n.* (? *sequ. subsp.*) (18 l). Dr. Wehrli informs me that Oberthür (in coll.) has attached the name *apicata* to the specimen from Sidi-bel-Abbès which he had recorded (Et. Ent., Vol. 6, p. 85) as differing "from the type from Hungary in that the blackish line from apex is a little more accentuated and appears a little more oblique". I understand that the specimen in question has a very light ground-colour and there can be no possible doubt that it is the species to which — unless it should prove to be the true *cinerata* — I propose to apply Oberthür's name. — I have seen it from Morocco (Imintanut and El Hadjeb, the latter recorded by Rothschild as *cinerata*) and Oran (Lalla Marnia, Les Trembles, Sidi-bel-Abbès, Mecheria, Littré and Lavarande), but not, I think, eastward. The genitalia so closely resemble those of *griseata* that a decisive differentiation is not easy, but Mr. A. H. Stringer, who has examined a number of preparations, is convinced that the juxta is consistently larger, and somewhat longer in proportion to its breadth, the valves also broader and longer; definitely smaller, however, than the genitalia of the preceding, which (as already indicated) approach *palaestinensis* rather than *griseata*. The wings are on the whole paler and in general weakly marked, but the forewing of the ♂ beneath (as already noted in comparing *cinerata*) has a well defined dark proximal area, though the pale border beyond is much less unequal in width than in *duponcheli;* it lacks the cell-dot, but on the contrary shows a tendency to produce a w h i t i s h streak along the discocellulars. The wing-shape as a rule favours that of *griseata* rather than of *palaestinensis* and probably with sufficient experience the eye can be trained to separate readily the two N. African allies. A third species, however, has been discovered, only in a single specimen from "Algeria" (Mrs. Nicholl), not exactly localized but hardly possibly a morphological aberration of either of the others. Pending further investigation, I do not venture to deal with it here, beyond calling attention to its existence: build of genitalia more as in *palaestinensis*, but with the valve (viewed laterally) more pointed, the central process different and a s y m m e t r i c a l, that of the right valve with two hooks, that of the left with one (contrast *duponcheli*, supra); juxta about twice as long as broad.

griseata. **L. griseata** *Schiff.* (= incanata *Hufn.*, nom. praeocc., asinata *F.*, nivearia *Staint.*, err. det.). The correction of some former determinations in connection with this species will be found under those to which they rightly refer. As regards the genitalia, a good differentiation from *farinata* was given by Dr. Gotthardt, of Friedland, in the Int. Ent. Zeitschr., Vol. 29, p. 430, but it must surely be by a laps. cal. that he says "1/5 *brunnescens.* l a r g e r than in *farinata*"; actually *griseata* has the s m a l l e s t genitalia in the group. — ab. **brunnescens** *Skala.* As *infuscata Ev.* has nothing to do with *griseata*, Skala's name will stand for the brownest aberration *obscurata.* of the latter; see p. 84 above. — **obscurata** *Stgr.* is said to form a constant local race at Angora. — **gigantea** *gigantea.* *Byt.-Salz & Brandt.* Decidedly larger than most of the forms from Europe and Asia Minor (the ♀ as large as the largest typical ♂♂, the ♂ about 3 mm larger). Ground-colour about as in *g. griseata*, perhaps even a little lighter; the forewing shows a tendency to develop transverse bands, the distal one always indicated in the ♂♂, *transversa-* well developed in the ♀♀. Keredj, Elburs Mountains. — ab. **transversaria** *Byt.-Salz & Brandt.* All 3 bands well *ria.* developed, antemedian single, median broad, double, with uninterrupted light interspace, distal very broad. *cycnaria.* Keredj, 1 ♀. — **cycnaria** *Guen.* (= zernyi *Prout*, duplicaria *Zerny*, nec *Hbn.*) (8 f. as zernyi). It is no small satisfaction to have been able at last to fix the identity of this hitherto unrecognized "species". Dr. Wehrli recently wrote me that not only the Boisduval types about which I inquired were extant in his collection but also "*L. cycnaria Guen.*, 1 pair without abdomen, both labelled as types and ex coll. *Bsd.*, without locality. In good preservation though discoloured, through age, to dirty brownish. The slender lines weak, but recognizable, as Guenée pictures them. Almost certainly from Spain, whence I received 7 very fresh examples from the Vasquez collection and 4 good ones from Albarracin." The British Museum has also a series from Vasquez and I have found an old ♀ from the Bellier collection labelled "Espagne". Variable, but always recognizable. In the genitalia it agrees with *griseata*.

coassata. **L. coassata** *Hbn.* (= duplicata *Hbn.* err. det., coassaria *Bsd.*) (Vol. 4, pl. 6 e, as duplicata). Hübner renamed this in his "Verzeichnis", having evidently found that he had misidentified his own species; his fig. 491 remains, therefore, the type figure. Unfortunately the type locality has not yet been ascertained, but it

may probably have been one of his own S. Russian captures: it represents one of the most sharply banded of the darker forms, such as I am inclined to associate with Transcaucasia. The more dusky and indistinctly marked forms from Central Asia may be separable racially, but the variation seems considerable everywhere. — ab. **asinata** *Frr.* (= assinata *Frr.*). As Freyer published both spellings simultaneously, I take it that the revisers have been justified in adopting the more correct orthography, although normally the text would take priority over the figure. It represents a paler and more weakly marked form than *coassata*. The type was from Odessa. — **stepparia** *Bsd.* "A pair in good condition; represents the light, sharply banded S. Russian form, the ground-colour lighter than in Hbn. 491; I have the same form also from Uralsk" (Wehrli, in litt.). The type came from Odessa or the foot of the Caucasus. **multiplicata** *Stgr.* should probably be treated as a synonym or very slight modification of *stepparia*. "Somewhat larger than *asinata Tr. (coassata)*, the lines of the forewing standing out much more strongly, especially in the ♀; in the light area between the two dark bands (mentioned by Treitschke) a further fine black line; but especially there is, at 1/3, a sharply marked line (in one specimen double in the middle), which is sharply angled outward in the cell." Sarepta, 1 ♀; Caucasus (almost certainly), 2 ♂♂, 1 ♀. Staudinger thinks Hübner's unsuccessful figure 491 may represent it, so it is perhaps rather less light than average *stepparia*. *asinata.* *stepparia.* *multiplicata.*

p. 84, to **L. fissurata** *Mab.* A possible subspecies, or in any case a closely allied form, occurs in Arabia and will be dealt with in Vol. 12. *fissurata.*

L. pallescens *Stgr.* (18 g). I am now able to provide a figure of this little-known species, from a ♂ received from Munko Sardyk, Sajan Mountains. In structure it is a quite normal *Lithostege*. *pallescens.*

L. castiliaria *Stgr.* (Vol. 4, pl. 6 e). The Oberthür collection contained a specimen from Géryville, Algeria, captured by Mr. H. Powell. It is not in perfectly fresh condition but, except that it is rather large, I do not see any reason for suspecting that it may represent a separate race. *castiliaria.*

p. 84, to **L. bosporaria** *H.-Sch.* A synonym of *bosporaria*, actually published in the same year (1848) is *porcataria Bsd.* This name has been almost entirely overlooked; although Guenée apparently received some of the originals (collected by Kindermann) and mentions them under *bosporaria* he has, by some confusion, cited them as *stepparia* (see under *coassata* above) and made the further incorrect statement that Boisduval mentioned it "sans la décrire", which applies neither to *stepparia* nor to *porcataria*. An original of the last-named, from the Oberthür collection, is labelled "Odessa" but may probably, like others from the same source, have come from the foot of the Caucasus. As Herrich-Schaeffer figured his *bosporaria*, though not binomially, in 1847, I assume that his name should take precedence over Boisduval's, which at the earliest cannot have appeared before August 1848. *bosporaria.*

p. 84, to **L. usgentaria** *Christ.* (18 k). I have now seen 2 specimens of the small, name-typical form from Transcaspia, one without exact locality the other from Aidere, and learn, too late, that both our figures appertain to the larger and more heavily marked Usgent race *ignorata (usgentaria Stgr.* MS., nec *Christ.)*. The confusion arose from the fact that the archetype of our first figure (Vol. 4, pl. 11b) was received at the British Museum as *usgentaria* and with the (presumably erroneous) locality-label "Tura". The lack of the dark, bandlike antemedian gives to the true *usgentaria* a very different aspect. *usgentaria.*

p. 84, after *L. usgentaria*. — **L. dissocyma** *sp. n.* (17 b). Duller and much less variegated than *amoenata Christ.* (Vol. 4, pl. 12 b), between which and *excelsata Ersch.* it may be placed. Forewing with the pale parts less clean white, the lines (except the subterminal) double; subbasal and antemedian only distinct anteriorly, chiefly in the cell, the former curved, not angled, the latter angled in the cell, yet not quite so acutely as in *amoenata;* postmedian complete, sinuous, but far less strongly than in *amoenata;* subterminal line waved; apical dash slight; fringe not quite so sharply spotted as in *amoenata*. Hindwing very weakly marked. Both wings beneath with small blackish cell-dot and sinuous whitish postmedian line. Table Mount, Dyala Gorge, N. E. of Bagdad (E. P. Wiltshire), 1 ♀. *dissocyma.*

p. 84, to **L. notata** *B.-Haas.* Has been taken also in Iraq and in Arabia, in forms scarcely distinguishable from those of N. Africa. *notata.*

p. 85, to **Ch. isabella** *Schawerda.* A few specimens have been taken in the Great Atlas, chiefly at Tachdirt. New for Africa. *isabella.*

p. 85, to *Ch. rufata* **ornata** *Heydem.* Warnecke disputes that this form is a race in the North Frisian Islands and adds that in any case the oldest name for the form is *bombycata Hbn.* *ornata.*

p. 86, to *Ch. korbi.* — **taurica** *Wehrli, subsp. nov.* (8 i). "Larger, much paler, on the forewing a median line indicated by 3 vein-dots. Marash, Taurus, in numbers (Pfeiffer)." *taurica.*

p. 86, to *Chesias*:

lecerfi. **Ch. lecerfi** *D. Luc.* Expanse 32 mm." Forewing above reddish brown, paler between the extrabasal and median; costa near the apex luteous. Extrabasal blackish, at first perpendicular to the costa, then to the inner margin, where it meets the median, which is of the same colour and for the most part parallel with the termen, but incurved near the costa. Subterminal straight, blackish, touching the termen at each end. Beneath yellowish brown, median line visible in its anterior part. Hindwing above and beneath unicolorous reddish brown, the fringe paler reddish. A very good specimen, taken near Rabat, 6 October 1931. Unknown to me, unless it is a form of my "*L.*" *biermis*.

mundata. p. 86, to **A. mundata** *Stgr.* The larva, according to Wiltshire, feeds on Hypericum serpyllifolium and is full-grown in April; it is green, with a crimson-lake spiracular line, white-edged above, the other lines faint or pale.

rosacea. p. 86, to *A. praeformata.* — ab. **rosacea** *Kiefer.* F. Hoffmann substitutes *aphrodite* because Schawerda's article was p r e s e n t e d to his Gesellschaft on 3 March! It was p u b l i s h e d 20 June, Kiefer's *rosacea* on 22 March.

poneformata. p. 86, to **A. poneformata** *Stgr.* (6 b). S. Kansu is to be added to the range. 2 ♂♂ from Kung-ta, in Ka-tien-kou, differ considerably in size; 1 ♂ collected on 5 October at Tan-chang, suggests the possibility of a 2nd brood, the others being dated July.

interrupta. p. 86, to *A. plagiata.* — ab. **interrupta** *Klem.* is diagnosed as having the median area of the forewing broadly interrupted. Described from Lvov.

pseudoplagiata. p. 86, to *A. corsalta.* — **pseudoplagiata** *Byt.-Salz.* A second Sardinian specimen, a ♂ from Aritzo, 1st September 1935, shows a still more pronounced brown coloration in the region of the rust-red apical streak than the one from Gennargentu already recorded and thus confirms, in the author's opinion, the differentiation of the Sardinian race of *corsalta*. Except in the genitalia, scarcely distinguishable from *plagiata*.

sardalta. p. 86, to **A. sardalta** *Byt.-Salz.* A second ♂ of this rarity was captured at Aritzo on 2nd September 1935, the day after the *corsalta*; it would seem that both may represent a second brood. The occurrence of all four of the *plagiata* group at Aritzo is very remarkable and it seems legitimate to wonder whether the genitalia of *corsalta* and *sardalta* are not yet entirely stabilized.

efformata. p. 87, to **A. efformata** *Guen.* Lempke has collected a number of records for Holland, including ab. *fuscofasciatangens*, which "occurs everywhere among the species", and ab. *fasciata.* — ab. **fuscofasciata** *Lempke.* "The area between the two dark lines" (rightly groups of lines) "entirely filled in with dark brown, forming a band". This is only a slightly more extreme development of ab. *fasciata;* the one name might have sufficed for both.

p. 87, after *efformata*:

fraudulentata. **A. fraudulentata** *H.-Sch.* (18 k). We are now able to give a figure of this large and easily recognizable species, a ♀ from Zounguldak, N. coast of Turkey.

balcanica. p. 87, instead of *A. simpliciata bulgarica.* — **balcanica** *Züllich* (= bulgarica *Prout*). Both these names were founded on material from the same localities. My manuscript, passed for the press on 15 October 1935, was not published until long after the name *balcanica Züllich*, which appeared on 1 November 1936. In addition to the large size and sharp markings, attention is called to the connection, in nearly half the specimens, of the two bands of the postmedian by some dark central shading, a concomitant of a tendency towards the narrowing of the median area.

obsitaria. p. 88, to **A. obsitaria** *Led.* (16 e). We figure here a very sharply marked ♀ of the name-typical race.
pseudopallidata. from the Wehrli collection, to show the extreme of the difference from *o. evanescens* (9 b). — **pseudopallidata** *Byt.-Salz & Brandt* has about the ground-colour of *o. evanescens*, the markings of the forewing reduced to a narrow basal band, strong dark ante- and postmedian, the former double, the latter triple at costa, single at hindmargin, and large cell-spot. Nissa, Elburs Mountains, 1 ♂, at about 3000 m. Possibly a high-altitude race: but the Elburs material which I have seen is more like *evanescens*.

sertata. p. 90, to **N. sertata** *Hbn.* The reported occurrence in Pomerania has been confirmed, though it is there comparatively rare.

externata. **Oulobophora externata** *H.-Sch.* (Vol. 4, pl. 6 f). Wiltshire has bred this species in the Lebanon and gives a brief description of the larva: "dark green, darker between the somites, ⅔ inch long, with a yellow-green spiracular stripe; dorsal and subdorsal lines almost invisible; on the anal somite 2 small points." On terebinth in April and May, the imago emerging in March.

p. 90, to **N. polycommata** *Schiff.* A synonym not quoted is *solata Schrk.*, somewhat fancifully but unmistakably described from a Burghausen specimen. *polycommata.*

p. 90, after *Nothopteryx*:

26. Genus: **Lobophora** *Curt.*

(See Vol. 4, p. 185.)

L. halterata ab. **nigra** *Warnecke.* Almost unicolorous black, with a macular whitish subterminal. Founded on a ♂ from Chemnitz-Tal. *nigra.*

p. 95, to **M. regelaria** *Tystr.* I omitted to notice the extension of the known range to the Baltic States (see Petersen, Lep.-Faun. Estland. ed. 2, Vol. 1, p. 235). A specimen was taken in Hellenorm (Likkesoo) in 1912, and in 1913 Dr. Ernest Petersen discovered other Esthonian localities for it and observed its habits. It appears, like *Brephos parthenias*, in March and April, contemporaneously with the disappearance of the snows and its period is short. It rests on the branches of Picea excelsa, its only known food-plant — "sylvestris" on p. 95 of the present volume was an unfortunate laps. cal. *regelaria.*

p. 95, to **O. fagata** *Scharfenb.* A gynandromorph has recently been taken by Prof. J. Michel of Böhmisch-Leipa, unfortunately somewhat crippled; left antenna ♀, right antenna ♂, left forewing essentially ♂, the other wings mere rudiments. *fagata.*

p. 95, to **O. brumata** *L.* It is now well established that there are at least two biological races, that of the higher altitudes having a shorter pupal period (see Rev. Appl. Ent., Vol. 21 A, p. 174 and 23 A, p. 62 and 717); thus control methods may fail through ignorance of the bionomics of the race concerned. A further contribution, by W. Speyer, to the study of the races has just appeared (Arb. Phys. Angew. Ent., Vol. 5, p. 50 to 76). A very full life-history was published by Thiem in Arb. Biol. Anstalt Berl., Vol. 11, p. 54—88 (1922). *brumata.*

p. 97, to *O. autumnata.* — ab. **sandbergi** *Lampa* (= virgata *Clark*). Median area defined by two fuscous bands; ab. *bifasciata Kolossow* is a further synonym. *sandbergi.*

p. 99, to **T. taochata** *Led.* Mr. A. H. Stringer, in comparing the genitalia of the new species about to be described, noted the principal differences between *taochata* and *sabaudiata:* "Tegumen narrower; uncus thinner, longer and almost semicircular when viewed in profile; valve narrower, costal process shorter; labides quite differently shaped from those of either *sabaudiata* or *mnestira*, quite narrow throughout most of the length, at apex broadening out, spoon-shaped, juxta not so long." *taochata.*

T. mnestira *sp. n.* (17 a). Very like *sabaudiata* and *taochata*, so that without access to more of the latter and of *mnestira* it is difficult to say what superficial distinctions will be the most serviceable. Hindwing perhaps slightly less broad, in both the known examples a trifle whiter than forewing, more distinctly marked than in any *sabaudiata* except *engramma*. Forewing with antemedian band less angled near the costa than in the allies, cell-dot slighter than in *taochata*, postmedian perhaps somewhat more dentate outward behind the 3rd radial. The latter character also observable on the hindwing above and beneath. Kashmir: Garhi, 2700 feet, 17 May 1912 (A. Avinoff), a beautiful ♂ in the British Museum; a somewhat less large and less sharply marked ♂ from Simla district, 8000 feet, May 1865 (Moore coll.). Clearly in the *sabaudiata-taochata* group. Mr. Stringer finds the following genitalic distinctions from *sabaudiata* to be applicable to both specimens: The lateral parts of the tegumen taper towards the base of the uncus, giving a much narrower effect; uncus shorter, more rounded, the base which fits into a hollow in the tegumen much smaller and shallower; valve with a shorter chitinized part of the costal arm, the process curved away from, not continuing straight and parallel with, the dorsal margin of the valve; sacculus process considerably reduced and not conspicuous; the labides (?), which are fused into a single lobe, uniform in thickness throughout and without the conspicuous bunch of hair at the extreme apex (see Le Cerf's figures in Bull. Mus. Hist. Nat. 1918, No. 6, pl. 9). *mnestira.*

to p. 99, after *T. sericata:*

T. albirama *sp. n.* (17 a). In general tone and in particular the pale markings (here even whiter, less dark-irrorated) very suggestive of *oenozona Prout* (1923), which will be figured in Vol. 12; indentation of postmedian of forewing at 5th subcostal similarly acute. Wings slightly broader; forewing without the heavy dark markings at the commencement of the bands, the incomplete whitish subbasal stripe more angular, the darkish antemedian band (double line) more regular, the cell-dot reduced, the postmedian line better defined, the white outside it broad, notably the longitudinal streak which connects it with the subterminal; hindwing with the subterminal less crenulate than in *oenozona*. Underside less weakly marked than in *oenozona*. Tatsien-lu, type ♀, Tien-tsuen, Yuin-kin, paratype ♀, both in the British Museum, ex Oberthür. *albirama.*

albiplaga. p. 100, to **T. albiplaga** *Oberth.* I find that Oberthür's series consisted of a mixture of two species, with very distinct genitalia (see the following). His type, a worn ♂ from Ta-tsien-lu, belongs anatomically, Dr. Wehrli informs me, to the species with the more elongate genitalia. Postmedian white line of forewing almost always single, only occasionally with weak suggestion of duplicating line beyond; white costal patch usually large and clean-looking, though variable. Abundant in W. China and Chinese Tibet.

hydatoplex. **T. hydatoplex** *sp. n.* (18 l). Generally easy to distinguish by the double white postmedian, which is particularly conspicuous in its anterior half; white costal patch and longitudinal outer streak before 3rd radial commonly reduced or more cut by dark lines than in *albiplaga*. ♀, as also in *albiplaga*, generally larger and with more white than the ♂. Valve of the latter with ventral process (sacculus) very short; uncus laterally much less deeply concave than in *albiplaga*, its tip less blunt; labides shorter, cornuti shorter and less slender. Ta-tsien-lu, a long series, type in the British Museum; occasional also at Che-tu, Omei-shan, Tay-tou-ho, Siao-lu, etc. and Wehrli has it from Koko-nor.

excultata. p. 101, to **C. excultata** *Christ.* This is misprinted *exsultata*, both in the text and the margin; as it was correctly spelt in the proofs, I am at a loss to account for the subsequent error.

p. 101, after *C. ithys:*

fasciata. *C. alternata* (Vol. 4, pl. 5 i) ab. **fasciata** *Stgr.* Add as synonym *ochrofasciata Stgr.*, proposed to avoid collision with *Triphosa incertata* ab. *fasciata Stgr.* (*!*).

transversata. p. 102, to **Ph. transversata** *Hufn.* Extends southward into Palestine (see Amsel, Veröff. Deutsch. Kol.-Mus. Bremen, Vol. 1, part 2).

reducta. p. 103, to *Ph. propugnataria* ab. **reducta** *Sterneck* (13 b). Our figure is the nearest approach which I have seen to this form, but the greenish and yellowish shades of the forewing and the hindwing respectively are not absolutely lost. It is taken from a Ta-ho ♂ (coll. Oberthür).

undulosa. p. 103, to **Ph. undulosa** *Alph.* The specimens thus far known from S. Kansu (2850—3900 m) are very similar to those from Koko-nor, but have the hindwing somewhat lighter at the termen.

achrolopha. **Ph. achrolopha** *Püng.* (Vol. 4, pl. 5 h). Djakonov records a worn from S. Kansu (Kung-ta, Ka-tien-kou, ca. 2850 m, 18 July) which apparently does not differ at all from the typical form.

rectilinearia. **Ph. rectilinearia** *Leech* (Vol. 4, pl. 11 g). An aberration (?), 1 ♀ from S. Kansu (Wutsena, lower Vabago, ca. 2750 m), is recorded and briefly differentiated from the type figure (Djakonov).

p. 104, to *Amnesicoma:*

vicina. **A. vicina** *Djakonov.* "Very near *nuncupata Püng.* but larger (expanse 35 and 36.5 mm instead of 32) with apparently somewhat narrower and more elongate forewing." Antenna slender, very slightly ciliated. Forewing very light reddish brown; basal area well defined; median area darker; antemedian very characteristic, strikingly blackened distally, sharply angulated outward at both folds, curved inward anteriorly and posteriorly; postmedian lunulate and forming 3 outward projections, the one near the costa very weak, the central one (between 3rd radial and 1st median) the strongest, the last one (on the submedian vein) very small; distal area light, but with dark shadings about the subterminal, which is weak and lunulate. Hindwing whitish, narrowly darkened at termen; weak indications of a postmedian line. S. Kansu: Shi-men, a valley at the northern foot of Min-shan, ca. 3500 m. 2 ♂♂.

multifaria. p. 104, to **H. multifaria** *Swinh.* A ♀ from S. Kansu (Wutsena, Lower Vabago, ca. 2750 m) is recorded by Djakonov under this name and may very likely belong to the same form (? race) as Sterneck's ♂ from Ta-tsien-lu; hindwing (as noted regarding the Gulmarg ♂) without the projection.

chrysoprasis. p. 106, to *E. fissisignis* **chrysoprasis** *Oberth.* In line 3 "forewing" is a misprint for h i n d w i n g.

constricta. p. 107, to *C. compositata* ab. loc. (? subsp.) **constricta** *Prout.* This form was already made known in Vol. 4, p. 210 and the reference should be amended accordingly.

evanescens. p. 107, to **E. evanescens** *Btlr.* Sterneck has a record for W. China: Omihsien, 1 ♂.

p. 107, to **Lygris** *Hbn.* Lumma (Ent. Zeitschr., Vol. 49, p. 462—465) has published biological notes on *associata*, *pyropata* and *prunata*, with differentiations of the larvae.

decolorata. p. 108, to *L. prunata.* — ab. **decolorata** *Kolosssov.* "Wings light reddish." E. Russia, with the type form. In the absence of more exact information, I would merge it in ab. *digna*.

contraria. p. 108, to *L. testata insulicola.* — ab. loc. **contraria** *Heydem.* A handsome form with basal and median bands of a splendid brown-violet, limited by sharply white lines; intermediate area and that beyond the postmedian mixed with ivory-white. Amrum (both sexes). Approximations to it are occasional in the British Isles.

p. 108. to *L. achatinellaria*. — ab. **ochroleuca** *Djakonov*. Very light, almost uniformly yellow in colour, only with the patch at termen near apex light-brown. The type ♂, from S. Kansu (Ngai-men-hou-tou, a mountain valley at about 2000 m) is unusually large ("41 mm"), but Djakonov has a much smaller, very similarly coloured ♀ from the Altai. *ochroleuca.*

p. 109, to *L. pyropata* ab. **melanoxantha** *F. Wagn.* As a synonym is to be added ab. *excelsa Sterlz* (1927). *melanoxantha.*

p. 110, to *Lygris:*

L. tricedista *sp. n.* (17 a). A very interesting addition to Sect. C (Vol. 4, p. 213). Head and thorax darkened. Forewing above as in a dark *G. fixseni* (Vol. 4, pl. 8 f) excepting the shape of the median band, beneath more clouded; ♂ sexual patch as in *G. flavata*. Hindwing more as in *L. flavomacularia* (Vol. 4, pl. 11 h) and with the same discocellulars. A further link between the so-called genera. W. China, ex coll. Oberthür: type from Ta-tsien-lu, in the British Museum. *tricedista.*

L. tristis *(Sterneck) Prout* (17 a). This fine insect, referred to under the following genus, is not a form of *G. fixseni* but a good species, nearer to *L. flavomacularia* (Vol. 4, pl. 11 h), among which 4 ♂♂ (Ta-tsien-lu, 3: Siao-lu, 1) have been found in the Oberthür collection. Structure essentially the same; distinguishable by the costal spots (the outer continued, though suffusedly, to the apex), loss of most of the transverse white maculation, predominantly fuscous hindwing beneath and acuter angulation (particularly obvious beneath) of the postmedian band of the forewing. *tristis.*

p. 110, to *C. fulvata*. — **kashmirica** *Moore* is a mere aberration of *f. nugata*, with the postmedian line of the hindwing present on the upperside. *kashmirica.*

p. 110, after *C. fulvata:*

C. antauges *sp. n.* (17 b). Very similar to *kashmirica Moore*, possibly a further form of the same species. Hindwing yellow, almost as bright as forewing, its line like that of *kashmirica*. Forewing with the median band fawn-colour, in the type altogether, in the paratype more or less (except costally) overlaid with greyish suffusion, its constriction about the fold not extreme, its angulation outward at 3rd radial acute, reaching well beyond the blunt tooth of 1st median (evidently variable within limits): a distinct oblique dark terminal dash, sometimes also an incomplete subterminal shade, distinct only at costa. Kashmir, Koksar (Mc Arthur). 2 ♀♀ in the British Museum. *antauges.*

C. ochraceata *Leech* (= propinqua *Warr.*) (Vol. 4, pl. 13 o). ♂ plentiful in W. China; of the ♀, hitherto undescribed, I have now seen 4 and find that (as I conjectured) they are much lighter than the ♂♂, as well as larger. *ochraceata.*

p. 110, to **C. ochripennis** *Prout* (17 d). We now figure a topotypical ♂ (Koko-nor, Tibet — not "and Tibet", as misprinted in Vol. 4, p. 215, German edition). The broader median band, acutely angled antemedian and weakened subterminal shades (especially the proximal shade anteriorly) will distinguish it from *ochraceata* rather than the colour. *ochripennis.*

p. 111, to **C. ocellata** L. Heydemann supports Pierce in recognizing this as a true *Lampropteryx*, differing only from the rest in slight details (face, ♂ antenna, etc.) and in a measure connected by *tunkinskata Heydem.* (infra). I readily accept this transference; see below. *ocellata.*

p. 112, to **C. variata** *Schiff.* A much worn ♂ from the Sven Hedin expedition (Kansu, ca. 3500 m; 1 August) entirely agrees with this in the genitalia; it seems to have been weakly marked, especially in the distal area, where the subterminal line is only quite weakly indicated. — **cembrae** *Kitt.* M. Seitner has an article (Zbl. ges. Forstw., Vol. 61, p. 293, 1935) on this race, from which I gather that it might become a serious enemy to Pinus cembra but that it is kept pretty well in check by various parasites. It is single-brooded. June-August, larvae in the summer, hibernating among pine-litter and pupating in a very loose web. — **britannica** *H. J. Turn.* Hitherto I have had records only from the S. and southern central counties of England and supposed this to be the extent of the range of *variata* in Britain. But recent investigations into the fauna of the Hebrides have resulted in the discovery of a few larvae on Canna, feeding on spruce (J. W. H. Harrison). *variata. cembrae. britannica.*

p. 114, to *C. (Thera)*, sect. B, before *C. sounkeana:*

C. cyphoschema *Prout* (18 i), founded on a long series from the Kachin Hills, seems to be still more abundant at Tse-ku, on the confines of the Palaearctic Region and is therefore figured here. Pectinations very short, scarcely more than long teeth. Variation very slight, though the Yunnan form is perhaps on the whole larger than the Burmese. *cyphoschema.*

p. 115, to **C. miata** *L.* It appears that this species was only added to the fauna of the Netherlands as recently as 1935, when Lempke announced one as taken in Amsterdam 1913 by J. de Boer. *miata.*

truncata. p. 116. to **C. truncata** *Hufn.* Groth has continued his valuable researches into the workings of heredity and published a supplementary memoir (Flora og Fauna 1937. part 4). A peculiarity on which attention had not previously been focussed is that the markings of the median area entirely or almost entirely disappear as soon as at least two colour-factors (genetically) are represented in one individual and that this holds whether the two factors are alike or unlike. Thus in *rufescens*. for instance. the homozygote and the heterozygotes *(rufescens + perfuscata*, etc.*)* have the median band respectively of a brighter. clearer yellow, or *(fuscorufescens)* a browner colour (in either case without the dark lines and cell-mark) than the uncombined heterozygote. It is also established that the homozygotes are more delicate and oftener sterile. a natural barrier to the origination of new subspecies within a mixed population. — ab. **angustifasciata** *Groth* is an interesting form or "mutation" with the characteristic colouring of the median band confined between the innermost lines of that area. the distal and proximal contour of the area being lost. It was obtained in a brood in which the mortality was extremely high. only 6 being reared from 94 eggs. The father was a normal *rufescens*. the mother a modification of *perfuscata* with narrowed band; of the offspring (all *rufescens*. sens. lat.). 4 (3 ♂♂. 1 ♀) were strikingly narrow-banded. the other 2 (both ♀) following the father. Groth proposes to call the two variants thus far known "*perfuscata-angustifasciata*" and "*rufescens-angustifasciata*".

angustifasciata.

rufescens. p. 117. to *C. truncata sinensis*. — ab. **rufescens** *(Heydem.*. nom. coll.*) Djakonov*. Very similar to *imitaria* ab. *rufescens* (p. 118 above). but the hindwing not pure white. as in that species, but darkened. particularly in the basal and distal areas; forewing also darkened as compared with typical *sinensis*. and mixed with rust-reddish in the median area. S. Kansu: Kung-ta. ca. 2850 m.

imitaria. p. 118. to **C. imitaria** *Heydem.* A much damaged ♀ from the Tsaluk Valley. Min-shan (S. Kansu. ca. 3000 m). representing a small. dark *Dysstroma* with apparently light, unmarked hindwing. uniform dark median band (only a little lighter near the costa). with distinct distal projection. and likewise strongly darkened basal and distal areas. has a similar bursa to that of *imitaria* and almost identical lamina dentata: thus. in spite of some small deviations in detail from the structure figured by Heydemann. it may probably be a dark mountain race of this species.

citrata. p. 119. to **C. citrata** *L.* Like many other normally single-brooded species. this can. in quite exceptional circumstances. yield a second generation. Groth records a family which. bred under artificial conditions of temperature. produced ova in June and July whereof several hatched in at most 19 days; the larvae fed up rapidly and the imagines appeared in August to early September. One or two cases of later autumn emergence have recently been recorded.

corussaria. p. 122. to **C. corussaria** *Oberth.* Studying the W. Chinese representatives of this species in preparation for Vol. 12. I learn that their somewhere strange facies. when compared in long series with the true *corussaria*. is supported by structural modifications and it has become necessary to erect the following two new species. So far as I now know. the range of *corussaria* can only be given as Palaearctic East Asia. with S. Saghalien and Japan.

hemiagna. **C. (Dysstroma) hemiagna** *sp. n.* (= ab. punctummotata [maxim. part.] *Heydem., Prout*) (13 g). On an average larger. the ♀♀ sometimes reaching 44 mm. Almost invariably white-banded. the grey irroration less distributed. postmedian dark costal shade relatively narrow: particularly striking is the e n t i r e absence of irroration on a more or less extended area between the (almost always minute) cell-dot and the posterior part of this costal shade: the bright brown colour beyond this shade often extended across the subterminal. at times almost to the termen. The antemedian shows a strong tendency to make an additional, pronounced curve or angulation outward at and just behind the subcostal vein; the dark hindmarginal spot or suffusion of the median area is often weakened or almost obsolete. Uncus not so pronouncedly "spoon-shaped" as in *corussaria*. valve with the "costal" (dorsal) margin almost straight to before the process (in *corussaria*. as noted by Heydemann. here markedly ventricose); saccus with much deeper curvature but possibly (as in the following) in constant. Ta-tsien-lu and district. a very long series from the Oberthür collection; others from Tchang-kou (Tibet) and a ♀ from Tay-tou-ho.

carescotes. **C. (Dysstroma) carescotes** *sp. n.* (vix pr. f.?) (18 i). Tegumen more square-shouldered at base of uncus than in the two preceding. uncus with the "spoon-shaped" extremity. valve with the dorsal margin essentially as in *hemiagna* but the chitin-tooth shorter; saccus in one of the 3 examined (Ta-tsien-lu) very shallowly incurved. in the others intermediate or nearly as in *hemiagna*. Forewing with no b r i g h t brown. the brown part of the apical patch. in particular. a l m o s t e n t i r e l y o v e r l a i d w i t h b l a c k i s h: basal patch (or at least its subbasal part) dark; dark posterior shading of median area always more or less developed; dark postmedian half-band on the whole not narrowed. its teeth at and behind the 1st radial generally lengthened. Otherwise extremely similar to *hemiagna*. Ta-tsien-lu and district. a few ♂♂. including the type; Siao-lu. 2 ♂♂ and 1 ♀. All from the Oberthür collection.

p. 123, to **C. munitata** *Hbn.* Dr. V. G. M. Schulz (Festschr. 60. Geburtst. Embrik Strand, Vol. 3, p. 560) says that the larva is much more variable than previous accounts have indicated; he figures larvae in situ on a stem of Galium mollugo, on which he reared them and was able indoors to obtain a complete second generation, which commenced to emerge within 6 weeks from the date of oviposition. — ab. **nigroalbata** *Heydem.* (= fuscifascia *Prout*). Although Dr. Heydemann courteously disclaimed any intention of forestalling my name, his article, containing the name *nigroalbata*, appeared first and must be accepted. *munitata.* *nigroalbata.*

C. tristis *Djakonov.* Certainly related to *munitata*, with which the genitalia most nearly agree, although distinctly different; rather difficult to describe, the unique type being very badly worn. Palpus pointed, reaching beyond the head, appressed scaled. Pectinations moderately long. "Expanse 22 mm" (length of a forewing presumably almost 12). Somewhat like a small, pale *munitata* but somewhat narrower winged; of the markings only the following can be made out: ground-colour light yellowish (or brownish) grey, in the basal area somewhat darker; no distinct basal patch recognizable; median band darker, nearly straight, little narrower behind than at costa, bounded on each side by a white line; antemedian weakly curved; postmedian almost straight, only at 1st and 3rd radials with slight roundish projections; cell-dot weak; 2 faint dark lines beyond the postmedian, parallel with it; distal area again somewhat darker, subterminal very indistinct, but apparently forming 3 larger whitish spots in its posterior half. Hindwing white, at the base and near the inner margin somewhat grey-scaled. Founded chiefly on the distinctive build of the ♂ genitalia, of which good figures are given: uncus longer than in *munitata*, valve distinctly bipartite ventral part weak, dorsal part forming a strongly chitinized, bent process with dentate ventral edge and a small proximal prong, anellus dorsally with several spines, ventrally forming an irregular calcar. S. Kansu: Kuan-ki-hsiao-shan, Min-shan Range, at 3600 m, 1 ♂. *tristis.*

p. 123, to *C. fluctuata.* — ab. **rosata** *Guiart* has the ground-colour rosy. Founded on a ♀ from Wyneghem (Anvers), another specimen recorded from Maredsous. *rosata.*

p. 124, to **C. oxybiata** *Mill.* (12 b). The discovery of this form on Sardinia (Tempio and Teulada, in the latter locality in company with *disjunctaria scoriaria*) suggests that it may, after all, prove a separate species rather than a form of *disjunctaria.* *oxybiata.*

p. 124, to **C. incursata** *Hbn.* Dr. Heydemann's researches on this group, which extended over a long period, have now been made public; and although, when he learned last year that my manuscript was already in the press, he kindly sent me some notes which permitted a few hurried corrections in my proofs, it is now possible to supplement and in part supersede them. He has demonstrated that there are 4 good species in the *incursata* complex and that these form, with *tianschanica*, *interpositaria* and *infernaria*, a well defined subgroup, with which *montanata*, *fluctuata* and the *ferrugata* group have tolerably close association. He describes and figures the genitalia and emphasizes the relationship — already known — between *Xanthorhoë* and *Ortholitha*. *incursata* is the second largest of the four; markings, especially the boundaries of the median area, sharp, the two larger postmedian projections as a rule distinctly trilobed, the anterior ones more dentate; subterminal generally indistinct; both the cell-dots strong, above and beneath. Distributed in the Alps and in the mountains of Central Germany; according to Djakonov also in E. Siberia. Wanting in the North. *incursata.*

to p. 125. **C. annotinata** *Zett.* (= monticolaria *H.-Sch.*, annotinaria *Prout*, err. transcr.) (12 b). Heydemann is entirely convinced that *monticolaria* was figured from N. European specimens with false locality and that the name has no independent standing; he has worked out his case very fully. He gives the distribution as boreal and in the E. Baltic countries and Siberia. Less sharply marked than *incursata*, the edges of the median area less blackish, the outward projections of the postmedian weakened, the cell-dots weaker often very small, the dividing-line of the whitish bands very indistinct, the proximal boundary-line of the distal area ill-developed, the subterminal line generally broader and looking less strongly dentate. *annotinata.*

C. sajanaria *Prout.* Heydemann treats *derzhavini Djakonov* as a synonym. Very closely resembles *annotinata;* colour and markings about the same or with the median area standing out rather more conspicuously, its projections perhaps weaker still, sometimes rounded, sometimes almost regularly dentate; distal area of forewing with the subterminal somewhat more strongly toothed than in *annotinata*, that of the hindwing somewhat more blurred. N. Siberia, the Sajan Mountains and Kamtshatka; also, unless a mistake in labelling has occurred, "N. Lapland". *sajanaria.*

C. majorata *Heydem.* Recognizable in the ♂ by its large size (length of a forewing ca. 17 mm), silky wings, with light dove-grey irroration on a dirty whitish ground, in which a very delicate yellowish tone produces a very slight effect of green-grey; median area rather narrow, proximally as well as distally slightly lunulate, the distal projections weak, the anterior one bilobed; duplicating lines accompany the ante- and postmedian in the median area, the rest of which remains somewhat paler (as in some of the *caesiata*-group, etc.); subterminal composed of strong, dirty whitish lunules on a broad grey area; cell-dot small. Hindwing with the line which *majorata.*

bounds the distal area rather prominent, with strong teeth on the veins. ♀ smaller, lighter, with median area more sharply marked and cell-dots more distinct. Transbaikal: Malchan Mountains, 800 m. The ♂ genitalia show a transition towards the *tianschanica* subgroup.

p. 126, after *C. deflorata:*

hummeli. **C. hummeli** *Djakonov.* Nearly related to *deflorata*, genitalia extremely similar, differing only in small details. Length of forewing about 13 mm, thus smaller than *deflorata*. Pectinations similar. Palpus moderately long, pointed. Wings rather broad, with termina somewhat more rounded than in *deflorata;* white, the hindwing almost unmarked, the forewing with the markings grey-brown, not yellowish as in *deflorata;* basal area apparently with 2 broad grey-brown stripes, curved as in *deflorata;* median area dark, in the middle mixed with white, postmedian more strongly dentate and with stronger projection between 3rd radial and 1st median, the white stripe outside it much narrower than in *deflorata;* subterminal distinct, also more slender than in that, but forming some definite lunules between the veins: no distinct terminal line. S. Kansu: La-pa-sze on the Tao-ho, northern declivity of Min-shan, ca. 2750 m, 1 ♂; Tsaluk Valley, Min-shan, 1 ♀: the ♂ badly worn, the ♀ slightly.

confixaria. p. 127, to *C. spadicearia.* – ab. (?) **confixaria** *H.-Sch.* Praviel (Bull. Soc. Ent. Fr., Vol. 41, p. 31) thinks that previous authors have been wrong in referring *confixaria H.-Sch.* to *spadicearia* and treats it as a separate species in the *corcllaria* group. He states that he has seen identical specimens from Syria in the Joannis collection. I have re-examined the original figure and description (of a ♀ without locality) and admit that it is rather puzzling in some details; if it was an imperfact specimen, so that the describer and the artist overlooked the break in the middle of the subterminal line, it might almost be a form of the variable *taeniata Stph.*

fuscata. p. 128, to *C. ferrugata.* – **fuscata** *Nordström* is an unusually dark and unicolorous grey-toned form from Pite Lappmark, with little or no brown in the median band. It is anticipated that ampler material will *alaskae.* show it is entitled to rank as a subspecies in Lapland. — **alaskae** *Cass. & Swett*, from Alaska, published 10 years earlier than *fuscata*, deserves notice, as it is just possible that there is a "Holarctic" circumpolar race for which this would be the oldest name. The authors find the genitalia more as in the European than in the other American forms *(inclinataria Walk.).* Like *fuscata*, it is described as much darker and more uniform in colour than the typical, but I suppose it to be browner; both wings are "crossed by many fine lines" which are all said to be brown, the ground-colour of the hindwing also brown rather than light grey.

aemyla. **C. aemyla** *sp. n.* (18 f). An interesting addition to section A of *Xanthorhoë*, quite unlike anything previously known to me. Palpus about 2; pectinations moderate (tips of antenna lost). Abdomen relatively slender, uncus curved, much as in *ferrugata*, costal chitinization of valve very strong, sacculus also chitinized proximally, calcar apparently short (examined in situ). Forewing rather broad, its pattern and colour-scheme much as in *O. chenopodiata*, but with a lighter, less brown ground-colour. Hindwing somewhat produced near apex, 2nd radial from the middle of the discocellulars, thus appreciably behind the cell-fold (slightly transitional towards *Larentia* and *Colostygia*); white, almost unmarked excepting the thick, slightly interrupted terminal line. Forewing beneath greyish, weakly marked, a pale line separating the somewhat darkened median area from the distal. E Tibet: Poshö, 16 000 feet, 20 July 1936 (R. J. H. Kaulback), a good ♂ in the British Museum.

coarctata. p. 128, to *C. designata.* — ab. **coarctata** *Prout* (13 b). We figure a very beautiful modification from a drawing kindly furnished by Mr. Chr. Lumma. The specimen, a ♀, was taken by him at sugar on 28 August 1935 at Cranz. In addition to unusual colouring, the weakening of the costal end of the band is noteworthy.

kuthyi. p. 129, to *C. obstipata.* — ♂ ab. **kuthyi** *Szent-Iràny.* Ground-colour rather brighter than usual, median band of forewing strongly interrupted (more so than in ab. *interrupta*) but much darkened, almost black; dark anterior subterminal shade also intensified. Kiskanhalas, Pest County.

jurabia. p. 132, to *C. agueata.* — **jurabia** *Wehrli nom. nov.* (12 f and the English text as *jurassica*). Dr. Wehrli (in litt., 1 December 1937) has acceded to my proposal (p. 140) that the name *jurassica* which he originally gave to this race should be regarded as preoccupied and has substituted *jurabia.*

salicata. p. 133, to **C. salicata** *Hbn.* Amsel regards the forms from Palestine as decidedly nearer to the name-form than to either of the other races. I have but very little material from the country (Haifa, Nazareth and Mount Carmel, February and March), but this agrees essentially with *ablutaria* as I known it from S. France (loc. typ.), Malta, Greece, Syria, etc. He, however, reports it common (predominantly ♀) at Kiriath Anavim, ca. 500 m, 27 March and Tabgha, Lake of Genezareth, 30 March.

koehni. p. 134, to *C. didymata.* — ab. **koehni** *Warnecke.* Extremely variable and interesting material from the Faroe Islands has recently been analysed by this author and some forms named. Ab. *koehni*, with strongly