

VI. *On the classification of the Geometrina of the European fauna.* By EDWARD MEYRICK, B.A., F.Z.S.

[Read February 10th, 1892.]

PLATE III.

THE general principles on which this paper is based are the same which I have employed in my paper on the classification of the *Pyrallidina* (Trans. Ent. Soc. Lond., 1890, 429), and the introductory remarks which I have made there must be taken to apply here also.

Those species marked with an asterisk (\*) I have not been able to examine critically in respect of structure, though in some instances I have seen specimens of them. I have not thought it necessary to attempt to give a complete catalogue of European described species, but those which I have omitted are either probably of doubtful specific value, so far as can be judged from the descriptions, or are so unsatisfactorily characterised that there is no clue to their affinity; hence only confusion would have resulted if I had attempted to place them, and in no instance is the value of any generic name affected.

GEOMETRINA.

Ocelli usually obsolete, but sometimes present. Tongue usually well-developed. Maxillary palpi obsolete. Fore wings with vein 1*b* usually furcate, but lower fork more or less slender or tending to be obsolete, 5 rising not nearer to 4 than to 6, 7 and 8 out of 9 (7 apparently but not really separate in *Cataclysme*), 10 and 11 usually variously anastomosing, 11 from beyond middle of cell. Hind wings with frenulum developed, 1*c* obsolete, 5 widely remote from 4, sometimes obsolete (*Selidosemidæ*), 6 and 7 stalked or approximated at base, 8 connected with or closely approximated to cell near base, thence diverging or anastomosing with or closely approximated to cell to near or beyond middle, or rarely to beyond origin of 7, occasionally connected with cell beyond middle.

The group is closely related to the *Notodontidæ*; so  
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closely that it may be assumed to have been derived from an early form of that family. It does not appear that there is any direct affinity with the *Noctuina*, as is commonly supposed. The reduction in the number of abdominal pro-legs in the larva of some *Noctuina* is the only ostensible ground for such a supposition, and is of little value, as there is no reason why such reduction should not have occurred quite independently. In other essential characters there is no approximation between the two groups; particular stress is to be laid on the difference in origin of vein 5 of the fore wings.

The definition of the group has been framed above so as to exclude the *Strophidiadæ* (*Microniadæ*), which I formerly included in it; I have recognised that the genera placed in that family (*Strophidia*, *Stesichora*, &c.) are in essential characters identical with the group of genera called by Guenée *Uranides*, as well as with *Erosia*, *Syngria*, *Molybdophora*, &c., and also with *Asthenia* and its allies; the whole forming a single natural family (scarcely represented in the European region, but sufficiently numerous within the tropics), which has marked affinity with the *Geometrina*, but cannot be advantageously included with them. For this family I think the term *Uraniadæ* should probably be retained. The larvæ have usually the full number of ten pro-legs, though one or two pairs are said to be rudimentary in some instances.

In the *Geometrina* the larvæ almost always have the pro-legs reduced to four only. In a few cases there are six well-developed pro-legs, and rudiments of the other two pairs are occasionally present. Too much stress should not be laid on this character; for, although the deficiency of pro-legs very early became a fixed attribute of the group, and it is practically impossible for them to reappear in any of the more highly developed genera, yet in the more ancestral forms it is by no means unlikely that, when the larvæ are fully known, some may be found which retain the full primitive number.

The presence of the ocelli in a few species does not appear to have any generic value in this group. The prominence of the forehead also seems to be of little practical importance. The maxillary palpi are invariably obsolete. The labial palpi present hardly any structural variation, except in relative size, and in the greater or



less development of the projecting scales or hairs clothing the second joint; the terminal joint is more or less cylindrical and obtuse, usually very short. The differences in the structure of the antennæ are simple, but always of some importance, though not as a leading character. As a general rule, where there are nearly allied forms with pectinated and simple antennæ, those with the pectinated antennæ are the earlier. In the fore wings vein 1*a* is usually very short, and in some instances tends to be obsolete. Vein 1*b* has normally a well-marked basal furcation of moderate length, but the lower branch of this fork is commonly much more slender, and tends to be obsolete; when there appears to be no furcation, it is because this branch has become quite obsolete, and the result is never (as in the *Pyrallidina*) effected by the gradual shortening of the fork. Vein 1*c* is obsolete. In the hind wings 1*c* is also obsolete; 1*a* and 1*b* are normally present, but in a few instances, where absorption of the inner marginal area has taken place, 1*a* seems to be absent. Vein 8 has a short but strong basal furcation.

Although in external structure there are but few characters available for generic definition (in comparison with the *Pyrallidina*, for instance), the neuration affords abundant material. The structure of veins 5 and 8 of the hind wings affords an easy means of separating the group into families which are at once highly natural and easy to recognise. In the fore wings the remarkable differences in the structure of veins 10 and 11 are of considerable though inferior value; here, however, care has to be taken to eliminate the element of variability. The tendency to anastomosis of these veins with one another and with 9 or 12 is far more pronounced in this group than in any other, though by no means confined to it. The term *anastomosis* is used when two veins meet, coincide for a short or long distance, and separate again; *connection* when two veins are united by a transverse bar; and I use the latter term also to include those very frequent cases when the bar is so short as to be reduced to a point, so that the veins appear to touch at a point only; this is of course, in fact, the intermediate stage between connection and anastomosis. Although in the following diagnoses I have kept these two terms distinct, yet there is little essential difference



between them ; in some species connection and anastomosis occur indiscriminately in different individuals.

It is curious that authors have generally failed to recognise that *Brephos* is a true member of this group. On the other hand, a few species of other groups are sometimes referred here. The following have been erroneously classed with the *Geometrina*, and will not be found amongst my genera :—

*oranaria*, Luc. Classed by Staudinger under *Sterrha* ; it belongs to the *Arctiadæ*, near *Emydia*.

*apicipunctata*, Christ. Referred by its author to *Acidalia*. If I have correctly identified this species, it belongs to the *Uraniadæ*, and approaches *Erosia* and *Eversmannia*.

*exornata*, Ev. The genus *Eversmannia*, founded on this species, is closely allied to *Erosia*, and belongs to the *Uraniadæ*. The larvæ of *Erosia*, I may mention, are like those of ordinary *Noctuæ*, and have the 10 prolegs fully developed ; I have bred them myself.

*erasaria*, Christ. This species, which I have not seen, is referred by its author to *Eversmannia*, and may be presumed to be rightly placed there.

*guttata*, Christ. The genus *Sericophara* is founded on this species ; I have not seen it, but from the neural characters given by its author there cannot be the least doubt that it belongs to the *Noctuina*.

*dentistrigatæ*, Alph. The genus *Imitator* (a bad name) is founded on this species ; figures of the neurulation are given, which make it perfectly clear that this also belongs to the *Noctuina*.

*oreophila*, Stgr. (undescribed ?). This species, received as a Geometer under the generic name of *Fergana*, is, in fact, a species of *Stilbia*, usually referred to the *Noctuina*, though an anomalous form ; at any rate, it has no relationship to the *Geometrina*.

#### TABULATION OF FAMILIES.

1. Hind wings with 5 imperfect or obsolete ..	6. SELIDOSEMIDÆ.
Hind wings with 5 fully developed .. ..	2.
2. Hind wings with 5 rising much nearer 6 than 4 ..	5. GEOMETRIDÆ.
Hind wings with 5 rising from about or below middle of transverse vein .. ..	3.
3. Hind wings with 8 connected with cell by an oblique bar towards base .. ..	3. ORTHOSTIXIDÆ.



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| Hind wings with 8 not connected with cell by bar near base .. .. .   | 4.               |
| 4. Hind wings with 8 very shortly anastomosing with cell near base, thence rapidly diverging                 | 4. STERRHIDÆ.    |
| Hind wings with 8 approximated to or anastomosing with cell to middle or beyond .. .. .                      | 5.               |
| 5. Hind wings with 8 free or shortly anastomosing with cell near base only .. .. .                           | 2. MÖNOCTENIADÆ. |
| Hind wings with 8 anastomosing with cell to beyond middle, or connected with it by bar beyond middle .. .. . | 1. HYDRIOMENIDÆ. |

It seems to me that at present clearness and intelligibility is best attained by treating all these six groups as equivalent families; they are in practice all easily separated by structure, and are also without doubt natural groups which are conveniently discussed as wholes. But the distinctions between families 2—5 are of a less marked character, less absolute, and tend more to be destroyed by intermediate gradations; and there would be much to be said for treating these four as sub-families of one family (*Geometridæ*), to be accorded equal rank with the other two, the *Hydriomenidæ* and *Selidosmidæ*. I conceive it to be a question of convenience, and a matter of judgment rather than of fact, and probably the most careful students may be found to hold various opinions on the point.

#### 1. HYDRIOMENIDÆ.

Fore wings with vein 10 rising separate, anastomosing with 11 and 9, or rising out of 11 and anastomosing with 9. Hind wings with vein 5 fully developed, 6 and 7 almost always stalked or from a point, 8 anastomosing with upper margin of cell from near base to beyond middle, or sometimes approximated only and connected by bar or shortly anastomosing beyond middle.

The peculiar anastomosis of vein 8 in the hind wings is highly characteristic of this family; it does not exist in the same form in any other family of the Lepidoptera, save in the case of one or two exceptional genera. It is occasionally so far modified as to be represented only by a connecting bar beyond middle of cell; this structure, occurring especially in the males of the *Lobophora* group, is clearly caused by a tendency to lateral expansion of the wing, which takes place usually in compensation for the absorption of a considerable portion of



the inner marginal area in forming the characteristic lobes or pockets of that group. Even in this modified form it is almost equally peculiar, though of course a connecting bar nearer base is common. The constant and uniform anastomosis of veins 9, 10, 11 of fore wings also affords a very distinctive feature, equally absolute though less exclusive; it has the effect of producing a constant auxiliary cell, which in the generic descriptions of this family is termed the areole; when 10 and 11 rise separately, the resulting areole is double; when they are coincident towards base, it is simple. The combination of these well-marked characters with the ordinary structure of the *Geometrina* renders the family particularly easy of recognition. Also, as in all cases forms possessing the simple areole must necessarily have originated in the first instance from forms with the double areole (the reverse process is obviously impossible), and forms with the connecting bar in the hind wings from forms with complete anastomosis (in this case the retrograde change is certainly quite possible, but not very probable, and I have not detected any instance of it), considerable assistance is given towards determining the order of development of the genera.

The tongue is well-developed in all European genera, and is therefore not specially mentioned.

In one European genus (also in one or two exotics not closely related to it, and I have recorded an instance occurring abnormally in the case of one individual of an exotic species)\* the posterior wall of the areole is wholly absent through obsolescence; this causes the neuration to appear very different, as it would seem that vein 7 is quite separate from 8 and 9, whilst 10 seems to rise out of 9, and 11 to anastomose with 9, or if the areole was simple, to rise also out of 9. If this structure had only occurred in a single instance, it would have been very puzzling; there is, however, no doubt that it has originated in the way described, and it is particularly necessary to have a right conception of the process, as it would otherwise be an unaccountable exception to an absolute character of the whole of the *Geometrina*. The sudden disappearance of a portion of a vein is still very curious and unusual, and probably depends on some physiological fact at present unappreciated.

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\* Proc. Linn. Soc. N. S. Wales, 1890, 825.



Structural variation within specific limits is in this family slight; the principal diversity is in the origin of vein 6 of the fore wings, which frequently rises either out of 9, or separate, in different individuals of the same species; this occurs more or less in nearly all the genera, and is therefore not specially mentioned in the diagnoses.

The family is a dominant one, and contains a very great number of species, spread all over the world. The uniformity of structure throughout these is remarkable, and their systematic classification is proportionately difficult. Probably *Lythria* is the oldest European form of the family, though the New Zealand genus *Notoreas* is still more ancestral, and in fact fulfils all the requirements of the primitive type. This must be derived from a genus closely approaching, or even perhaps identical with, the Australian *Oenone* in the *Monocteniadæ*, to which in Europe *Brephos* is the nearest approximation. From *Notoreas* springs immediately the *Xanthorhoe* group, and also through *Dasyuris* the *Hydriomena* group. From the latter the four groups typified respectively by *Tephroclystis*, *Lobophora*, *Eucestia*, and *Asthena*, are given off as so many diverging branches, which are themselves again variously branched. A linear arrangement of the genera of course cannot display this relationship effectually, but the main features are set forth above, and the natural affinities of the other genera constituting the various groups are explained under their respective heads.

#### TABULATION OF GENERA.

1. Posterior wall of areole absent .. ..	23. CATACLYSME.
Posterior wall of areole present .. ..	2.
2. Posterior tibiæ without median spurs .. ..	3.
Posterior tibiæ with all spurs present .. ..	4.
3. Hind wings in ♂ with inner marginal lobe ..	2. TRICHOPTERYX.
Hind wings in ♂ without lobe .. ..	11. GYMNOCELIS.
4. Areole simple .. ..	5.
Areole double .. ..	17.
5. Fore wings with vein 11 running into 12 ..	6.
Fore wings with vein 11 free from 12 .. ..	7.
6. Fore wings in ♂ with rough projecting hairs on costa .. ..	9. PHRISSOGONUS.
Fore wings in ♂ without rough hairs on costa	10. CHLOROCLYSTIS.



7. Hind wings in ♂ with inner marginal lobe ..	3. MYSTICOPTERA.
Hind wings in ♂ without lobe .. ..	8.
8. Antennæ in ♂ pectinated .. ..	9.
Antennæ in ♂ simple .. ..	14.
9. Thorax hairy beneath; palpi with long rough hairs .. ..	35. LYTHRIA.
Thorax glabrous; palpi rough-scaled .. ..	10.
10. Hind wings in ♂ with inner marginal fold ..	8. TYLOPTERA.
Hind wings in ♂ without inner marginal fold ..	11.
11. Face forming an obtuse prominence .. ..	31. RHODOMETRA.
Face not forming a prominence .. ..	12.
12. Hind wings without frenulum (?).. ..	6. LEPTOSTEGNA.
Hind wings with frenulum present .. ..	13.
13. Face with projecting scales .. ..	32. ASAPHODES.
Face without projecting scales .. ..	29. VENUSIA.
14. Antennæ in ♂ ciliated with long fascicles; ♀ semiapterous .. ..	28. OPEROPHTERA.
Antennæ in ♂ shortly and evenly ciliated; ♀ winged .. ..	15.
15. Face flat, smooth .. ..	27. EUCHÆCA.
Face rounded, with more or less projecting scales	16.
16. Abdomen with small segmental crests .. ..	12. TEPHROCXYSTIS.
Abdomen not crested .. ..	22. PLEMYRIA.
17. Antennæ in ♂ pectinated .. ..	18.
Antennæ in ♂ not pectinated .. ..	21.
18. Antennæ in ♂ bipectinated .. ..	19.
Antennæ in ♂ unipectinated .. ..	14. PALEOCTENIS.
19. Hind wings in ♂ with inner marginal lobe ..	1. SPARTA.
Hind wings in ♂ without lobe .. ..	20.
20. Face flat, smooth .. ..	30. OCHODONTIA.
Face rounded, with more or less projecting scales	33. XANTHORHOE.
21. Hind wings in ♂ with inner marginal lobe ..	4. LOBOPHORA.
Hind wings in ♂ without lobe .. ..	22.
22. Thorax with horny anterior prominence ..	25. PELURGA.
Thorax without horny prominence .. ..	23.
23. Hind wings in ♂ with basal inner marginal ridge and pocket .. ..	24.
Hind wings in ♂ without basal ridge and pocket	26.
24. Anterior tibiæ hooked .. ..	16. EUCESTIA.
Anterior tibiæ not hooked .. ..	25.
25. Hind wings with vein 8 separate, connected by bar .. ..	15. SCHISTOSTEGE.
Hind wings with vein 8 anastomosing with cell	17. CARSIA.
26. Hind wings in ♂ with deep inner marginal furrow above .. ..	27.
Hind wings in ♂ without inner marginal furrow	28.
27. Inner marginal furrow with large lateral hair tuft .. ..	18. CALLOCALPE.



- Inner marginal furrow without hair tuft .. 5. BESSOPHORA.
28. Thorax hairy beneath; palpi with long rough hairs .. .. 34. DASYURIS.
- Thorax glabrous; palpi with projecting scales 29.
29. Fore wings in ♂ with hair-pencil beneath along vein 1 *b* .. .. 21. EUSTROMA.
- Fore wings in ♂ without hair-pencil on vein 1 *b* 30.
30. Fore wings in ♂ with streak of spreading hairs clothing submedian fold beneath .. .. 20. LASIOGMA.
- Fore wings in ♂ without submedian streak of hairs .. .. 31.
31. Abdomen in ♂ with anal claspers extremely large, exerted .. .. 19. PHILEREME.
- Abdomen in ♂ with anal claspers normal .. 32.
32. Face flat, smooth .. .. 33.
- Face rounded, with more or less projecting scales 34.
33. Hind wings in ♂ with vein 3 absent .. .. 7. LYGRANOA.
- Hind wings in ♂ with all veins present .. 26. ASTHENA.
34. Abdomen with segmental crests throughout .. 13. EUCYMATOGE.
- Abdomen not crested, or at most on one or two basal segments .. .. 24. HYDRIOMENA.

### 1. SPARTA, Stgr.

Face smooth. Palpi porrected. Antennæ in ♂ bipectinated to apex. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings with areole double. Hind wings in ♂ much reduced, with inner marginal lobe forming a pocket; 2 in ♂ absent, 8 connected to cell by bar, cell short.

A development of *Lobophora*; it appears to have distinct affinity with the South American *Dyspteris*. It contains only one South European species.

*paradoxaria*, Stgr.

### 2. TRICHOPTERYX, Hb.

Face smooth. Palpi short or long, porrected, rough-scaled. Antennæ in ♂ filiform, shortly ciliated. Thorax glabrous beneath. Abdomen sometimes crested. Posterior tibiæ in both sexes with median spurs absent, in ♂ sometimes with long hair-pencil. Fore wings with areole double. Hind wings in ♂ with folded lobe on inner margin, neuration more or less distorted; 6 and 7 sometimes separate, 8 in ♂ connected by bar with cell near apex, or rarely with 7, or as in ♀, in ♀ anastomosing with cell from near base to beyond middle, or rarely as in ♂.

A limited genus, immediately developed from *Lobophora*; it occurs throughout the temperate regions of



the northern hemisphere. The modification of the structure of vein 8 of the hind wings in the ♀ of some species, so that it resembles that of the ♂, may be regarded as an instance of the transference through inheritance of secondary sexual characters. The converse in the ♂ may be simply retention of an original character, or reversion. The occasional separation of veins 6 and 7 (very rare in this family) is obviously due to the same tendency to lateral expansion which, as noted above, has modified the structure of vein 8, to compensate for the area absorbed by the folded lobe.

*viretata*, Hb.

*appensata*, Ev.

\**ustata*, Christ.

*carpinata*, Bkh.

\**expressata*, Christ.

*sertata*, Hb.

*sabinata*, H.-G.

*polycommata*, Hb.

### 3. MYSTICOPTERA, n. g.

Face with short cone of scales. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ filiform, minutely ciliated. Thorax glabrous beneath. Abdomen crested. Posterior tibiæ with all spurs present. Fore wings with areole simple. Hind wings in ♂ with doubly folded lobe on inner margin; 2 absent in ♂, 8 in ♂ connected with cell by bar beyond middle, in ♀ anastomosing with cell from near base to beyond middle.

Contains only the following species at present, inhabiting Central and Northern Europe; it is a development of *Lobophora*.

*sexalisata*, Hb.

### 4. LOBOPHORA, Curt.

Face smooth or with short cone of scales. Palpi moderate or short, porrected, rough-scaled. Antennæ in ♂ ciliated. Thorax glabrous beneath. Abdomen crested. Posterior tibiæ with all spurs present. Fore wings with areole double. Hind wings in ♂ with more or less developed folded lobe on inner margin, neuration sometimes distorted; 6 and 7 sometimes separate, 8 anastomosing with cell from near base to beyond middle.

A small genus, occurring in Europe and North America; its identification in other regions is not yet certainly made out.

*halterata*, Hufn.

*externata*, H.-S.

\**internata*, Püng.



## 5. BESSOPHORA, n. g.

Face smooth. Palpi short, porrected, rough-scaled. Antennæ in ♂ filiform, minutely ciliated. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings with areole double. Hind wings in ♂ with deep hairy furrowed fold along inner margin on upper surface, absorbing dorsal half of wing; 8 connected with cell by bar about middle.

Includes only the following East Asiatic species. It is nearly related to *Lobophora*, and may probably be a modification of it. Christoph has described the genus under the name of *Ptychoptera*, which is, however, preoccupied in the Diptera.

*Staudingeri*, Christ.

## 6. LEPTOSTEGNA, Christ.

Palpi very short. Antennæ in ♂ shortly bipectinated. Posterior tibiæ with all spurs present. Fore wings with areole simple. Hind wings without frenulum (?).

The above incomplete characters are taken from Christoph, as I have not been able to obtain a specimen. I judge that the genus is probably a good one, and referable to this neighbourhood, but I should expect that the ♂ would show some additional structure which has been overlooked in the hind wings, and think that the alleged absence of the frenulum requires confirmation. The single species is East Asiatic.

*\*tenerata*, Christ.

## 7. LYGRANO, Butl.

Face smooth. Palpi moderate, porrected, shortly rough-scaled. Antennæ in ♂ with two minute processes on each side of each joint, emitting long fascicles of cilia. Thorax glabrous beneath. Fore wings with areole double. Hind wings in ♂ with vein 3 absent, 6 and 7 separate, 8 connected with cell by bar beyond middle (in ♀ probably normal).

Certainly a development of the *Lobophora* group, but its exact affinity is at present doubtful. I have not seen the posterior legs, which are broken in my type, or the ♀. The ♂ shows neither lobe nor fold on the inner margin of the hind wings, but the differences in neuration from the normal type of the family probably indicate



that it is descended from a form possessing some such structure, and that whilst having lost the structure itself, it has retained the abnormal neuration, which was in the first instance induced by the presence of the structure. The single species is from Eastern Asia and Japan.

*fusca*, Butl.

#### 8. TYLOPTERA, Christ.

Face with hardly projecting scales. Palpi rather short, porrected, rough-scaled. Antennæ in both sexes bipectinated, apex simple. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings with areole simple. Hind wings in ♂ with inner margin folded over above, veins 2 and 7 (?) absent (Christ.); 8 anastomosing with cell from near base to beyond middle in ♀.

I have only seen the ♀; the characters of the other sex are taken from Christoph. He alleges that the frenulum is absent, and possibly in the ♂ it may be so, but in the ♀ is certainly present. Probably the genus has some near affinity with *Bessophora*. If the Japanese *bella*, Butl., is identical, there is but one East Asiatic species.

*eburneata*, Christ.

#### 9. PHRISSOGONUS, Butl.

Face with short cone of scales or smooth. Palpi moderate or short, porrected, more or less rough-scaled. Antennæ in ♂ ciliated or naked. Thorax glabrous beneath. Abdomen slightly crested. Posterior tibiæ with all spurs present. Fore wings in ♂ with swelling or tuft or rough scales on costa, vein 5 sometimes distorted or absent; areole simple, 11 running into 12. Hind wings with vein 8 anastomosing with cell from near base to beyond middle.

A genus of half-a-dozen Australasian species, from which the above characters are drawn; the following little-known South European species, which I have not seen, must be nearly allied to these, and is probably congeneric. Rambur described it under the generic name *Thysanodes*, which is, however, preoccupied in the Coleoptera. It is an offshoot of *Chloroclystis*.

\**phryganea*, Rbr.



## 10. CHLOROCLYSTIS, Hb.

Face with short cone of scales. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ ciliated shortly (in exotics sometimes fasciculate-ciliated or naked). Thorax glabrous beneath. Abdomen crested. Posterior tibiæ with all spurs present. Fore wings with areole simple, 11 running into or anastomosing with 12. Hind wings with 8 anastomosing with cell from near base to beyond middle.

A development of *Tephroclystis*. It is a very natural genus, and is even recognisable superficially by the peculiar form of the posterior edge of the median band, and the strong tendency to a green coloration, which is not found in its near allies. It is especially characteristic of New Zealand, where there are at least 8 species, and there is another in Australia; it has not yet been certainly identified elsewhere. I described it under the name of *Pasiphila*, being then unacquainted with Hübner's genus.

*coronata*, Hb.

*rectangulata*, L.

*chloerata*, Mab.

*debiliata*, Hb.

\**agilata*, Christ.

## 11. GYMNOSCELIS, Mab.

Face with short cone of scales. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ ciliated. Thorax glabrous beneath. Abdomen crested. Posterior tibiæ in both sexes without median spurs. Fore wings with areole simple, 11 sometimes anastomosing with or running into 12. Hind wings with 8 anastomosing with cell from near base to beyond middle.

A small genus, probably overlooked, but containing several Malayan and Polynesian species. It is an offshoot of *Tephroclystis*, with near collateral relationship to *Chloroclystis*. The structure of vein 11 is variable within the limits of the same species; in the European species it is sometimes free, sometimes anastomoses with 12.

*pumilata*, Hb.

## 12. TEPHROCLYSTIS, Hb.

Face with short cone of scales. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ ciliated. Thorax glabrous beneath. Abdo-



men more or less distinctly crested throughout. Posterior tibiæ with all spurs present. Fore wings with areole simple. Hind wings with 8 anastomosing with cell from near base to beyond middle.

This large genus is especially characteristic of the European region; a few species occur in North America, but elsewhere it is hardly known to exist. It is certainly a development of *Eucymatoge*, which indicates the transition from the *Hydriomena* group. The structural variation in the genus is very small; the abdominal crests and frontal scale-cone are sometimes very slight. Only in one abnormal specimen of *T. isogrammaria* have I observed a very short anastomosis of vein 11 with 12; this was probably a mere sport, but in any case remains quite distinct from the structure of *Chloroclystis*.

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| <i>venosata</i> , F.           | * <i>luteostrigata</i> , Stgr. |
| * <i>silenicolata</i> , Mab.   | * <i>limbata</i> , Stgr.       |
| <i>expallidata</i> , Gn.       | <i>laquearia</i> , H.-S.       |
| <i>distinctaria</i> , H.-S.    | <i>abietaria</i> , Göze.       |
| <i>extraversaria</i> , H.-S.   | <i>breviculata</i> , Donz.     |
| <i>campanulata</i> , H.-S.     | * <i>gueneata</i> , Mill.      |
| <i>minutata</i> , Gn.          | <i>succenturiata</i> , L.      |
| <i>absinthiata</i> , Cl.       | * <i>biornata</i> , Christ.    |
| <i>assimilata</i> , Gn.        | <i>castigata</i> , Hb.         |
| <i>pimpinellata</i> , Hb.      | <i>lariciata</i> , Frr.        |
| <i>actæata</i> , Wald.         | <i>virgaureata</i> , Dbld.     |
| <i>alliardia</i> , Stgr.       | * <i>undosata</i> , Dietz.     |
| * <i>zibellinata</i> , Christ. | <i>denticulata</i> , Tr.       |
| <i>valerianata</i> , Hb.       | * <i>subsequaria</i> , H.-S.   |
| <i>albipunctata</i> , Hw.      | * <i>tribunaria</i> , H.-S.    |
| <i>vulgata</i> , Hw.           | <i>graphata</i> , Tr.          |
| * <i>gratiosata</i> , H.-S.    | <i>scriptaria</i> , H.-S.      |
| <i>oblongata</i> , Thnb.       | * <i>Mayeri</i> , Mn.          |
| <i>subfulvata</i> , Hw.        | * <i>riparia</i> , H.-S.       |
| * <i>subtiliata</i> , Christ.  | * <i>italicata</i> , Gn.       |
| <i>satyrata</i> , Hb.          | <i>ultimaria</i> , B.          |
| * <i>eynensata</i> , Grasl.    | * <i>minusculata</i> , Alph.   |
| <i>rivulosata</i> , Dietz.     | <i>cerussaria</i> , Ld.        |
| <i>veratraria</i> , H.-S.      | <i>fenestrata</i> , Mill.      |
| * <i>subpulchrata</i> , Alph.  | * <i>pernotata</i> , Gn.       |
| <i>pulchellata</i> , Stph.     | <i>cauchyata</i> , Dup.        |
| <i>linariata</i> , F.          | <i>immundata</i> , Z.          |
| <i>digitaliaria</i> , Dietz.   | <i>plumbeolata</i> , Hw.       |



- |                              |                               |
|------------------------------|-------------------------------|
| <i>isogrammaria</i> , H.-S.  | * <i>nobilitata</i> , Stgr.   |
| <i>pygmæata</i> , Hb.        | <i>fraxinata</i> , Crewe.     |
| <i>tenuiata</i> , Hb.        | <i>innotata</i> , Hufn.       |
| <i>silenata</i> , Stdfs.     | <i>tamarisciata</i> , Frr.    |
| <i>trisignaria</i> , H.-S.   | <i>euphrasiata</i> , H.-S.    |
| <i>selinata</i> , H.-S.      | * <i>gemellata</i> , H.-S.    |
| <i>conterminata</i> , Z.     | <i>lanceata</i> , Hb.         |
| <i>indigata</i> , Hb.        | <i>insignata</i> , Stgr.      |
| * <i>nigritaria</i> , Stgr.  | <i>mnemosynata</i> , Mill.    |
| <i>massiliata</i> , Mill.    | <i>phœniceata</i> , Rbr.      |
| * <i>sextiata</i> , Mill.    | <i>oxycedrata</i> , Rbr.      |
| <i>constrictata</i> , Gn.    | * <i>rosmarinata</i> , Mill.  |
| <i>altenaria</i> , Stgr.     | * <i>unedonata</i> , Mill.    |
| <i>subciliata</i> , Gn.      | <i>sobrinata</i> , Hb.        |
| <i>pusillata</i> , F.        | * <i>pauzellata</i> , Rbr.    |
| * <i>cocciferata</i> , Mill. | * <i>ericeata</i> , Rbr.      |
| <i>abbreviata</i> , Stph.    | * <i>Schmidii</i> , Dietz.    |
| <i>dodoneata</i> , Gn.       | <i>helveticaria</i> , B.      |
| <i>exiguata</i> , Hb.        | <i>scopariata</i> , Rbr.      |
| * <i>exactata</i> , Stgr.    | * <i>littorata</i> , Const.   |
| * <i>lentiscata</i> , Mab.   | * <i>santolinata</i> , Mab.   |
| <i>irriguata</i> , Hb.       | <i>artemisiata</i> , Const.   |
| <i>glaucomictata</i> , Mn.   | <i>nanata</i> , Hb.           |
| * <i>extremata</i> , F.      | * <i>albofasciata</i> , Stgr. |
| * <i>despectaria</i> , Ld.   | * <i>Sydyi</i> , Stgr.        |
| <i>insigniata</i> , Hb.      | <i>extensaria</i> , Frr.      |
| <i>designata</i> , Stgr.     | * <i>furcata</i> , Stgr.      |
| <i>hyperboreata</i> , Stgr.  |                               |

### 13. EUCYMATOGE, Hb.

Face with short cone of scales. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ ciliated. Thorax glabrous beneath. Abdomen more or less distinctly crested throughout. Posterior tibiæ with all spurs present. Fore wings with areole double. Hind wings with 8 anastomosing with cell from near base to beyond middle.

With the exception of two Australian species, I have not absolutely identified this genus outside the European region, but it probably occurs more widely. It is in its nature transitional, and passes into *Hydriomena* by slight gradations.



*sinuosaria*, Ev.  
*suboxydata*, Stgr.  
*\*lepsaria*, Stgr.  
*\*saisanaria*, Stgr.  
*\*unitaria*, H.-S.  
*impurata*, Hb.  
*millefoliata*, Rössl.  
*\*spissilineata*, Metz.  
*subnotata*, Hb.  
*\*amplexata*, Christ.  
*scabiosata*, Bkh.  
*nepetata*, Mab.

*togata*, Hb.  
*sparsata*, Tr.  
*aquata*, Hb.  
*vitalbata*, Hb.  
*tersata*, Hb.  
*corticata*, Tr.  
*\*scotosiata*, Gn.  
*æmulata*, Hb.  
*\*lucillata*, Gn.  
*\*calligrapharia*, H.-S.  
*\*incurvaria*, Ersch.

#### 14. PALÆOCTENIS, n. g.

Face subprominent, with somewhat projecting scales. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ unipectinated to apex. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings with areole double. Hind wings in ♂ with a transparent basal spot near inner margin, bordered beneath by a membranous bladdery ridge, forming small pocket on lower surface; 8 connected with cell by bar near angle.

A development of *Eucestia*. The uniserial pectinations of the antennæ are unique in this family; in the *Monocteniadæ* they are very common, and possibly a tendency to reversion may be indicated here; there is certainly no direct relationship. The single species is North African. The genus was named *Heteropsis* by Guenée, but that name is preoccupied in the Lepidoptera by Westwood.

*testaria*, F.

#### 15. SCHISTOSTEGE, Hb.

Face rather prominent, with somewhat projecting scales. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ ciliated. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings with areole double. Hind wings in ♂ with a transparent basal spot near inner margin, bordered beneath by a membranous bladdery ridge, forming small pocket on lower surface; 8 connected with cell by bar near angle.

Also a development of *Eucestia*. It contains only the two following species, characteristic of South-east Europe.

*decussata*, Bkh.  
*nubilaria*, Hb.



## 16. EUCESTIA, Hb.

Face forming a more or less strongly developed obtuse prominence. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ ciliated. Thorax glabrous beneath. Anterior tibiæ very short, with strong apical horny hook; posterior tibiæ with all spurs present. Fore wings with areole double. Hind wings in ♂ with a transparent basal spot near inner margin, bordered beneath by a membranous bladdery ridge, forming small pocket on lower surface; 3 and 4 sometimes stalked in ♂, 8 anastomosing with cell from near base to beyond middle, or in ♂ sometimes connected with cell by bar beyond middle only.

The principal member of a well-defined group originating from *Hydriomena*. It is characteristic of the European region, but extends into India.

<i>spartiata</i> , Fuesl.	<i>erubescens</i> , Stgr.
* <i>linogrisearia</i> , Const.	<i>columbata</i> , Metz.
<i>rufata</i> , F.	<i>lithoxylata</i> , Hb.
<i>flavicornata</i> , Z.	<i>mundulata</i> , Gn.
<i>griseata</i> , Schiff.	<i>boisduvaliata</i> , Dup.
<i>farinata</i> , Hufn.	<i>plagiata</i> , L.
* <i>luminosata</i> , Christ.	<i>numidaria</i> , H.-S.
* <i>distinctata</i> , Christ.	<i>præformata</i> , Hb.
* <i>amænata</i> , Christ.	* <i>fraudentata</i> , H.-S.
<i>bosporaria</i> , H.-S.	<i>obsitaria</i> , Ld.
<i>duplicata</i> , Hb.	* <i>opificata</i> , Ld.
* <i>castiliaria</i> , Stgr.	<i>simpliciata</i> , Tr.
<i>excelsata</i> , Ersch.	* <i>fraternata</i> , H.-S.
<i>Staudingeri</i> , Ersch.	* <i>perpetuata</i> , Ld.
* <i>senata</i> , Christ.	

## 17. CARSIA, Hb.

Face prominent. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ ciliated. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings with areole double. Hind wings in ♂ with a transparent basal spot near inner margin, bordered beneath by a membranous bladdery ridge, forming small pocket on lower surface; 8 anastomosing with cell shortly beyond middle.

The single species, ranging throughout the colder regions of Northern Europe, Asia, and America, only differs from *Eucestia* in the absence of the tibial hook.

*paludata*, Thnb.



18. CALLOCALPE, *Hb.*

Face with cone of scales. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ ciliated. Thorax glabrous beneath. Posterior tibiæ in ♂ sometimes densely rough-scaled above, with all spurs present, but in ♂ very short. Fore wings with areole double. Hind wings in ♂ with deep fold along inner margin beneath, containing large lateral hair-tuft posteriorly; 8 anastomosing with cell from near base to beyond middle.

A development of *Hydriomena*. Although a small group, it ranges throughout Europe, Northern Asia, and North America.

*flavipes*, Mén.

\**varia*, Hed.

\**Christophi*, Hed.

\**veternata*, Christ.

*certata*, Hb.

\**excultata*, Christ.

*montivagata*, Dup.

*undulata*, L.

19. PHILEREME, *Hb.*

Face with cone of scales. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ ciliated. Thorax glabrous beneath. Abdomen in ♂ with anal claspers extremely large, exserted. Posterior tibiæ with all spurs present. Fore wings with areole double. Hind wings with 8 anastomosing with cell from near base to beyond middle.

A development of *Hydriomena*; at present restricted to the two following species, which extend through Central Europe to Eastern Asia.

*vetulata*, Schiff.

*rhamnata*, Schiff.

## 20. LASIOGMA, n. g.

Face rather rounded-prominent. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ ciliated. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings in ♂ beneath with a streak of long dense spreading hairs clothing submedian fold from base to near hind margin; areole double. Hind wings with 8 anastomosing with cell from near base to beyond middle.

A development of *Hydriomena*, with some collateral relationship to both the preceding and following genera. Besides the two following Asiatic species, the Japanese *lucicolans*, Butl., belongs to it. Staudinger has described



the genus under the name of *Trichopleura*, which is, however, preoccupied in Pisces.

*palæarctica*, Stgr. (?=*undulosa*, Alph.).

\**atrostrigata*, Brem.

## 21. EUSTROMA, Hb.

Face with cone of scales or almost smooth. Palpi moderate or rather long, porrected, rough-scaled. Antennæ in ♂ ciliated, sometimes serrate-dentate. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings in ♂ with strong hair-pencil lying near inner margin from base beneath, sometimes partially clothing 1*b*; areole double. Hind wings with 8 anastomosing with cell from near base to beyond middle.

Also an offshoot from *Hydriomena*, characteristic of the European region and North America.

*tibialis*, Esp.

*reticulata*, F.

*prunata*, L.

*pyropata*, Hb.

*associata*, Bkh.

*populata*, L.

*testata*, L.

*Ledereri*, Brem.

*roessleraria*, Stgr.

*convergenata*, Brem.

*ludovicaria*, Oberth. (= *ti-grinata*, Christ.).

## 22. PLEMYRIA, Hb.

Face with slight cone of scales. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ ciliated. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings with areole simple. Hind wings with 8 anastomosing with cell from near base to beyond middle.

A genus of some extent and very wide range, most numerous in South America, elsewhere subordinate to *Hydriomena*, of which it is a development. The connection is very close, and the terminal European species must be extremely near the ancestral form; hence the genus probably originated in Europe.

*coloraria*, H.-S.

*Haberhaueri*, Ld.

*bicolorata*, Hufn.

*hastata*, L. (= *thulearia*, H.-S.).

*luctuata*, Hb.

\**funerata*, Hb.

\**fulminata*, Alph.

*tristata*, L.

*rivata*, Hb.

*sociata*, Bkh.

*galiata*, Hb.



## 23. CATACLYSME, Hb.

Face with more or less slightly projecting scales. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ ciliated, sometimes dentate. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings with areole double, but posterior wall absent between 7 and 8. Hind wings with 8 anastomosing with cell from near base to beyond middle.

A close development of *Hydriomena*, not at present known to occur outside the European region.

*virgata*, Rott.

\**intersecta*, Stgr.

*uniformata*, Bell.

*riguata*, Hb.

*comparata*, Stgr.

## 24. HYDRIOMENA, Hb.

Face with more or less slightly projecting or loose scales, or with conical tuft. Palpi moderate, porrected or subascending, rough-scaled. Antennæ in ♂ ciliated, rarely dentate or naked. Thorax often crested, glabrous beneath. Abdomen not crested, or with crests on two basal segments only. Posterior tibiæ with all spurs present. Fore wings with areole double. Hind wings with 8 anastomosing with cell from near base to beyond middle.

A very large genus, principally characteristic of temperate regions in both hemispheres. In so large a number of species there is naturally some slight structural variation in most details, but the gradations are so slight that I have not been able to subdivide the genus further; and, as here restricted, it is not, in fact, so large as to be unmanageable.

*ocellata*, L.

*simulata*, Hb.

*variata*, Schiff.

*juniperata*, L.

*cupressata*, H.-G.

*sagittata*, F.

*fulvata*, Forst.

*dotata*, L.

*Fixseni*, Brem.

*agnes*, Butl. (= *festinaria*, Christ.).

*Danilovi*, Ersch.

*pauperaria*, Ev.

*depeculata*, Ld.

*picata*, Hb.

\**ludificata*, Stgr.

*miata*, L.

*siterata*, Hufn.

*sordidata*, F.

*trifasciata*, Bkh.

*literata*, Don.

*truncata*, Hufn.

*immanata*, Hw. (prob.

= *præc.*).



- destinata*, Möschl.  
*capitata*, H.-S.  
*silacea*, Hb.  
*\*chlorovenosata*, Christ.  
*corylata*, Thnb.  
*guriata*, Emich.  
*suffumata*, Hb.  
*fluidata*, Ld.  
*\*cuprearia*, H.-S.  
*frustata*, Tr. ;  
*\*obvallata*, Ld.  
*tophacea*, Hb.  
*achromaria*, Lah.  
*alpicolaria*, H.-S.  
*cæsiata*, Lang.  
*infidaria*, Lah.  
*flavicinctata*, Hb.  
*cyanata*, Hb.  
*nobiliaria*, H.-S.  
*\*intermediaria*, Alph.  
*\*vallesiaria*, Lah.  
*\*sandosaria*, H.-S.  
*\*senectaria*, H.-S.  
*verberata*, Sc.  
*\*ibericata*, Stgr.  
*incultaria*, H.-S.  
*\*impunctata*, Stgr.  
*nebulata*, Tr.  
*\*approximata*, Stgr.  
*casearia*, Const.  
*corollaria*, H.-S.  
*incertata*, Stgr.  
*pulchrata*, Alph.  
*sabaudiata*, Dup. (= *ta-*  
*ochata*, Ld.).  
*\*Oberthueri*, Hed.  
*dubitata*, L.  
*pervagata*, Christ.  
*rogata*, Stgr.  
*badiata*, Hb.  
*nigrofasciaria*, Göze.  
*\*alhambrata*, Stgr.  
*rubidata*, F.  
*berberata*, Schiff.  
*cuculata*, Hufn.  
*permixtaria*, H.-S.  
*hortulanaria*, Stgr.  
*albicillata*, L.  
*alaudaria*, Frr.  
*mandschuricata*, Brem.  
*adæquata*, Bkh.  
*transversata*, Thnb. (*lugu-*  
*brata*, Stgr.).  
*molluginata*, Hb.  
*unangulata*, Hw.  
*minorata*, Tr.  
*tæniata*, Stph.  
*unifasciata*, Hw.  
*alchemillata*, L.  
*affinitata*, Stph.  
*hydrata*, Tr.  
*\*lugdunaria*, H.-S.  
*decolorata*, Hb.  
*albulata*, Schiff.  
*niphonica*, Butl. (= *sua-*  
*vata*, Christ.).  
*procellata*, F.  
*\*basochesiata*, Dup.  
*malvata*, Rbr.  
*\*putridaria*, H.-S.  
*\*adumbraria*, H.-S.  
*\*filaria*, Ev.  
*scripturata*, Hb.  
*\*kalischata*, Stgr.  
*bistrigata*, Tr.  
*bilineata*, L.  
*\*confusaria*, Stgr.  
*albostrigaria*, Brem.  
*plurilinearia*, Moore.  
 (= *unistirpis*, Butl.).  
*defectata*, Christ.  
*fluviata*, Hb.  
*cæspitaria*, Christ.  
*polygrammata*, Bkh.  
*lapidata*, Hb.



## 25. PELURGA, Hb.

Face with hardly projecting scales. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ shortly ciliated. Thorax with horny rounded prominence anteriorly, crested posteriorly, beneath glabrous. Posterior tibiæ with all spurs present. Fore wings with areole double. Hind wings with 8 anastomosing with cell from near base to beyond middle.

A special modification of *Hydriomena*; the single species ranges through Central Europe to Eastern Asia.  
*comitata*, L.

## 26. ASTHENA, Hb.

Face smooth. Palpi short, porrected, slender, loosely scaled. Antennæ in ♂ shortly ciliated. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings with areole double. Hind wings with 8 anastomosing with cell from near base to beyond middle.

A genus of a few scattered species, most numerous in the Australian region; it rises directly from *Hydriomena*.

*dilutata*, Bkh. (= *filigrammaria*, H.-S.).

*murinata*, Sc.

*candidata*, Schiff.

\**nymphulata*, Gn.

## 27. EUCHÆCA, Hb.

Face smooth. Palpi short, porrected, slender, loosely scaled. Antennæ in ♂ shortly ciliated. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings with areole simple. Hind wings with 8 anastomosing with cell from near base to beyond middle.

A development of *Asthenæ*, containing, besides the following, a few American species and one Australian.

*chionata*, Ld.

*luteata*, Schiff.

*obliterata*, Hufn.

\**semistrigata*, Christ.

*sylvata*, Hb.

*Blomeri*, Curt.

## 28. OPEROPHTERA, Hb.

Face smooth. Palpi short, porrected, loosely scaled. Antennæ in ♂ serrate, strongly ciliated with fascicles. Thorax glabrous



beneath. Posterior tibiæ with all spurs present. Fore wings with areole simple. Hind wings with 8 anastomosing with cell from near base to beyond middle. ♀ with aborted wings.

A development of *Euchæca*; the fasciculate antennal ciliations of the ♂, and aborted wings of the ♀, seem correlated with the appearance of the imago in winter, as is so often the case with winter species of all families. Besides the two following species, which occur throughout Northern and Central Europe, one at least ranging into North America, there is a third in Japan.

*brumata*, L.

*boreata*, Hb.

### 29. VENUSIA, Curt.

Face smooth. Palpi rather short, subascending, loosely scaled. Antennæ in ♂ bipectinated, apex simple. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings with areole simple. Hind wings with 8 anastomosing with cell from near base to beyond middle.

The single European species ranges into Japan and North America. Besides this I am only acquainted with three New Zealand species. The genus is nearly allied to *Euchæca*, and is probably a collateral branch from the same stock.

*cambrica*, Curt.

### 30. OCHODONTIA, Ld.

Face smooth. Palpi rather short, porrected, loosely scaled. Antennæ in ♂ bipectinated, apex simple. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings with areole double. Hind wings with 8 anastomosing with cell from near base to beyond middle.

The genus is an offshoot of *Asthenia*. The single species is a native of South-east Europe.

*adustaria*, F. d. W.

### 31. RHODOMETRA, n. g.

Face more or less strongly obtusely-prominent. Palpi rather short, porrected, loosely scaled. Antennæ in ♂ bipectinated, apex simple. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings with areole simple. Hind wings with 8 anastomosing with cell from near base to beyond middle.



A small genus, apparently African in origin, which has extended itself into Europe. Its exact affinity is not clear; it is either related to the preceding group, or it may possibly be a modified offshoot from *Lythria*; other African forms may probably be found which will determine the point. This genus has long gone under the name of *Sterrha*, Hb.; as far as I can find out, this identification seems to have been founded in the first instance on a misreading, and never subsequently verified or corrected by others; the genus *Sterrha*, Hb., was formed to include the one species *sericeata*, Hb., only, and there can be no doubt therefore as to the right application of the name, which I have employed in its proper sense hereafter.

Staudinger in his Catalogue includes under this genus *oranaria*, Luc., an Algerian species; I find, however, according to specimens received from him, that it is not a Geometer at all, but a Bombycid of the family *Arctiadæ*, near *Emydia*.

*anthophilaria*, Hb.

*sacraria*, L.

### 32. ASAPHODES, *Meyr.*

Face with tuft or hardly projecting scales. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ bipectinated, apex simple. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings with areole simple. Hind wings with 8 anastomosing with cell from near base to beyond middle.

A development of *Xanthorhoe*. Besides the following I am only acquainted with four species from New Zealand, but the genus is probably overlooked.

*serraria*, Z.

*frigidaria*, Gn.

### 33. XANTHORHOE, *Hb.*

Face with more or less slightly projecting scales or conical tuft. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ bipectinated, apex usually simple. Thorax glabrous beneath. Posterior tibiæ with all spurs present. Fore wings with areole double. Hind wings with 8 anastomosing with cell from near base to beyond middle.

A large genus, but less numerous than *Hydriomena* in



all regions except New Zealand, where it is dominant. The character of the antennal pectinations varies considerably; in some species they are very short, and then always terminate in long fascicles of cilia, but there can never be any doubt as to their presence.

- |                               |  |
|-------------------------------|--|
| <i>vittata</i> , Bkh.         | * <i>muscipata</i> , Christ.             |
| <i>Langi</i> , Christ.        | <i>ferrugata</i> , Cl. (= <i>uni-</i>    |
| <i>Alpherakii</i> , Ersch.    | <i>dentaria</i> , Hw.).                  |
| <i>cervinata</i> , Schiff.    | <i>pomœriaria</i> , Ev.                  |
| <i>limitata</i> , Sc.         | <i>designata</i> , Rott.                 |
| <i>coarctata</i> , F.         | * <i>modestaria</i> , Ersch.             |
| <i>plumbaria</i> , F.         | <i>munitata</i> , Hb.                    |
| <i>mœniata</i> , Sc.          | <i>conspectaria</i> , Mn.                |
| * <i>coëlinaria</i> , Grasl.  | <i>quadrifasciaria</i> , Cl.             |
| * <i>sartata</i> , Alph.      | <i>abrasaria</i> , H.-S.                 |
| <i>peribolata</i> , Hw.       | <i>firmata</i> , Hb.                     |
| * <i>proximaria</i> , Rbr.    | <i>montanata</i> , Bkh.                  |
| <i>undulata</i> , Alph.       | * <i>timozzaria</i> , Const.             |
| <i>obvallaria</i> , Mab.      | <i>deflorata</i> , Ersch.                |
| <i>integrata</i> , Alph.      | * <i>lepidaria</i> , Christ.             |
| <i>subproximaria</i> , Stgr.  | <i>abraxaria</i> , Butl. (= <i>pudi-</i> |
| <i>vicinaria</i> , Dup.       | <i>cata</i> , Christ.).                  |
| <i>junctata</i> , Stgr.       | <i>incursata</i> , Hb.                   |
| * <i>pinnaria</i> , Christ.   | <i>fluctuata</i> , L.                    |
| <i>burgaria</i> , Ev.         | * <i>alfacaria</i> , Stgr.               |
| <i>bipunctaria</i> , Schiff.  | <i>disjunctaria</i> , Lah.               |
| * <i>Staudingeri</i> , Alph.  | <i>salicata</i> , Hb.                    |
| (Kuldscha).                   | <i>schneideraria</i> , Ld.               |
| <i>flavolineata</i> , Stgr.   | <i>aqueata</i> , Hb.                     |
| * <i>rectifasciaria</i> , Ld. | * <i>tempestaria</i> , H.-S.             |
| <i>parallelaria</i> , Vill.   | <i>austriacaria</i> , H.-S.              |
| <i>multistrigaria</i> , Hw.   | <i>serpentinata</i> , Ld.                |
| <i>didymata</i> , L.          | <i>aptata</i> , Hb.                      |
| <i>alexaria</i> , Stgr.       | <i>olivata</i> , Bkh.                    |
| <i>tauaria</i> , Christ.      | <i>kollariaria</i> , H.-S.               |
| <i>fidoniata</i> , Stgr.      | <i>viridaria</i> , F.                    |
| <i>turbata</i> , Hb.          |  |

#### 34. DASYURIS, Gn.

Face rough-haired or with projecting scales. Palpi moderate, porrected, with long dense rough hairs. Antennæ in ♂ shortly ciliated. Thorax and coxæ densely hairy beneath. Posterior tibiæ with all spurs present. Fore wings with areole double. Hind wings with 8 anastomosing with cell from near base to beyond middle.



A development of the New Zealand genus *Notoreas*. I am acquainted with five New Zealand species of *Dasyuris*, and two Australian; to these the one European species which I have seen is extremely closely allied not only in structure but in appearance, and doubtless the genus was once more generally distributed than it is now.

*polata*, Hb.  
\**ravaria*, Ld.

### 35. LYTHRIA, Hb.

Face rough-haired or with loosely appressed scales. Palpi moderate, porrected, with long rough hairs. Antennæ in ♂ bipectinated, apex sometimes simple. Thorax roughly hairy beneath. Femora sometimes hairy; posterior tibiæ with all spurs present. Fore wings with areole simple. Hind wings with 8 anastomosing with cell from near base to beyond middle.

A development of *Notoreas*. Besides the following, there are two New Zealand species. It is probable that the generic name *Botys*, Latr., is applicable to this genus; but, besides that the point is not quite certain (though it is certainly not to be used for any other), that name has been so largely used in a different sense in the *Pyralidina* that I conceive it to be unnecessary to make confusion by adopting it here, where there is already an old Hübnerian name in universal use. The course is exceptional, but it seems to me that there are exceptionally strong reasons for it.

*plumularia*, Frr.  
*purpuraria*, L. (= *porphyria*, H.-S.).  
*sanguinaria*, Dup.  
\**venustata*, Stgr.

### 2. MONOCTENIADÆ.

Hind wings with vein 5 fully developed (only in *Phthorarcha* coincident), rising from near or below middle of transverse vein, 8 free or anastomosing shortly near base, or rarely anastomosing from near base to beyond middle, approximated to upper margin of cell to middle or beyond.

The few European genera unworthily represent this family, which is numerously developed in Australia, and to some extent in the Indo-Malayan region. Elsewhere,



though probably once extensively prevalent, it has been driven out by higher forms, and only scattered fragments remain. Some of its more ancestral genera are amongst the most primitive forms of the *Geometrina*, and make a near approximation to the *Notodontidæ*, but the European genera are all amongst the later developed. The larvæ are little known, but some at least have a third pair of claspers, and sometimes show rudiments of the other two pairs.

In the normal and characteristic type of structure vein 5 of the hind wings is present, and 8 free and closely approximated to cell from near base to beyond middle; this type occurs in no other family of the group. In two European genera (and also in one Australian, otherwise remote from them) 8 anastomoses with upper margin of cell quite as in the *Hydriomenidæ*, but the absence of the characteristic neurulation of the fore wings of that family immediately distinguishes them, and there is not, in fact, any near relationship. In one of these same genera (*Phthorarcha*), a degenerate type, vein 5 of the hind wings is absent; from a comparison of the closely allied *Erannis*, it appears that this vein is coincident with 4, and not obsolescent, as in the *Selidosemidæ*, where the vein is really present but reduced to a fold; there is therefore no real confusion with that family, from the normal type of which *Phthorarcha* is further distinguished by the anastomosis of vein 8. In three or four genera there is a very short fusion or anastomosis of vein 8 with upper margin of cell near base; these may be immediately distinguished from the *Sterrhidæ* by vein 8 remaining for some distance nearly approximated to upper margin of cell, instead of rapidly diverging, and by the absence of the characteristic neurulation of the fore wings.

In this family the antennæ are very frequently unipectinated in the ♂; nearly three-fourths of the species, including the most dissimilar forms, show this structure, which is very rare in other *Geometrina*, and, indeed, amongst the Lepidoptera generally, but as it happens, none of the European genera are so characterised; this is an indication of their less primitive nature.



## TABULATION OF GENERA.

1. Posterior tibiæ without median spurs .. ..	2.
Posterior tibiæ with all spurs present .. ..	3.
. Antennæ in ♂ bipectinated; ♀ winged .. ..	41. HELIOTHEA.
Antennæ in ♂ ciliated; ♀ apterous .. ..	37. PHTHORARCHA.
. Fore wings with vein 10 absent .. ..	4.
Fore wings with vein 10 present .. ..	5.
4. Face with appressed scales .. ..	39. EREMIA.
Face with long rough hairs .. ..	40. BREPHOS.
5. Tongue obsolete .. ..	38. ERANNIS.
Tongue well-developed .. ..	6.
6. Fore wings with vein 12 anastomosing with 10 ..	42. MYINODES.
Fore wings with vein 12 free .. ..	36. BAPTRIA.

36. BAPTRIA, *Hb.*

Face with projecting scales. Tongue developed. Palpi moderate, porrected, with rough projecting hairs. Antennæ in ♂ evenly ciliated. Thorax hairy beneath. Femora glabrous; posterior tibiæ with all spurs present. Fore wings with 10 out of 11, anastomosing with 9. Hind wings with 6 and 7 stalked, 8 closely approximated to cell from near base to near angle of cell, rarely in ♀ shortly anastomosing near base.

The exact relationship of the genus is not clear, but it certainly belongs to the neighbourhood of those forms which mark the transition from this family to the preceding, though not exactly transitional itself. The single species occurs almost throughout Europe.

*atrata*, L.

## 37. PHTHORARCHA, n. g.

Face with appressed scales. Tongue obsolete. Palpi very short, porrected, rough-scaled. Antennæ in ♂ serrate, ciliated with very long fascicles of cilia. Thorax slightly hairy beneath. Femora glabrous; posterior tibiæ without median spurs. Fore wings with 10 anastomosing with 9, 11 anastomosing with 12 and 10. Hind wings with 5 wholly absent (probably coincident with 4), 6 and 7 stalked, 8 anastomosing with upper margin of cell from near base to beyond middle. ♀ apterous.

A development of *Erannis*. The single species is Central Asiatic.

*primigena*, Stgr.



### 38. ERANNIS, Hb.

Face with appressed scales. Tongue obsolete. Palpi very short, porrected, rough-scaled. Antennæ in ♂ serrate, ciliated with very long fascicles of cilia, or evenly. Thorax somewhat hairy beneath. Femora glabrous; posterior tibiæ with all spurs present. Fore wings with 11 sometimes anastomosing with 12 or 10. Hind wings with 6 and 7 stalked or from a point, 8 anastomosing with upper margin of cell from near base to beyond middle. ♀ apterous.

Nearly allied to *Eremia*, and probably derived with it from a common ancestor at no very remote distance. A small genus, confined to the European region and North America.

*æscularia*, Schiff.

*aceraria*, Schiff.

\**bistriata*, Hed.

\**membranaria*, Christ.

### 39. EREMIA, H.-S.

Face with appressed scales. Tongue weak. Palpi short, porrected, rough-scaled. Antennæ in ♂ bipectinated to apex. Thorax slightly hairy beneath. Femora glabrous; posterior tibiæ with all spurs present. Fore wings with 10 absent. Hind wings with 6 and 7 stalked, 8 approximated to upper margin of cell to middle.

This genus is certainly nearly related to *Brepheos*, with which, indeed, it practically agrees in all essential characters except the rough hairy clothing. Although the ♀ is winged, the wings are smaller than those of the ♂, and indicate an approach in character to *Erannis*. The two species are South European.

*culminaria*, Ev.

*cacuminaria*, Rbr.

### BREPHEOS, O.

Face with long rough hairs. Tongue developed. Palpi short, porrected, clothed with long rough hairs. Antennæ in ♂ serrate, evenly ciliated, or shortly bipectinated. Thorax hairy beneath. Femora hairy; posterior tibiæ with all spurs present. Fore wings with 10 absent. Hind wings with 6 and 7 stalked, 8 connected or shortly anastomosing with upper margin of cell towards base, closely approximated to it to middle.

Confined to the European region and Labrador. It



would appear to be nearly related to the Australian *Oenone*, and may well have been developed from it.

*parthenias*, L.

*notha*, Hb.

*puella*, Esp.

\**Middendorffi*, Mén.

#### 41. HELIOTHEA, B.

Face smooth, sometimes subprominent, forehead rough-haired. Tongue short. Palpi moderate, porrected, with long rough hairs. Antennæ in ♂ bipectinated to apex. Thorax hairy beneath. Femora somewhat hairy; posterior tibiæ without median spurs. Fore wings with 10 connected or anastomosing with 12 and sometimes with 9 also, 11 out of 10 between connections. Hind wings with 6 and 7 from a point or stalked, 8 closely approximated to upper margin of cell from near base to middle.

Only known from South Europe and Central Asia. It is evidently allied to *Brephos*, but not very closely, and their common ancestor must be somewhat remote.

*discoidaria*, B.

*iliensis*, Alph.

*Alpheraki*, Stgr.

\**Christophi*, Alph.

#### 42. MYINODES, n. g.

Face smooth, prominent. Tongue developed. Palpi moderate, porrected, triangularly scaled. Antennæ in ♂ ciliated with fascicles. Thorax glabrous beneath. Femora glabrous; posterior tibiæ with all spurs present. Fore wings with 10 anastomosing with 12 and 9, 11 out of 10 between connections. Hind wings with 6 and 7 stalked, 8 approximated to upper margin of cell from near base to middle.

It has affinity with *Heliothea* more than with any other known genus. The single species is found in South-western Asia and Sicily.

*interpunctaria*, H.-S.

#### 3. ORTHOSTIXIDÆ.

Hind wings with vein 5 fully developed, rising from about middle of transverse vein, 8 connected with upper margin of cell by an oblique bar towards base.



This small family is immediately derived from the *Monocteniadæ*, with which it is closely connected. It is convenient, however, to keep it separate, and the peculiar oblique bar connecting 8 with the cell towards base, combined with the development of 5, distinguish it from all other families. If there is any possibility of confusion with those forms of *Hydriomenidæ* in which 8 is also connected by a bar (though in them the bar is placed beyond and not before the middle of cell), the absence of the characteristic areole of the *Hydriomenidæ* will be a further test.

Only a few genera, and these of small size, are known to me, but they seem to be distributed impartially over the globe; perhaps rather more numerous in the Indo-Malayan region than elsewhere. The two European genera are not closely connected together, and have little resemblance to each other. The origin of the group must be sought in the neighbourhood of *Heliothea*, between which genus and *Orthostixis* there is, in fact, a close structural affinity, though little superficial similarity.

#### TABULATION OF GENERA.

Posterior tibiæ without median spurs	..	.. 43. ORTHOSTIXIS.
Posterior tibiæ with all spurs present	..	.. 44. EPIRRANTHIS.

#### 43. ORTHOSTIXIS, Hb.

Face rounded, or in ♂ sometimes strongly prominent, with appressed scales. Tongue developed. Palpi moderate, porrected, loosely scaled. Antennæ in ♂ evenly ciliated. Thorax hairy beneath. Femora glabrous; posterior tibiæ without median spurs. Fore wings with 10 anastomosing or connected with 12 and 9, 11 out of 10 between connections. Hind wings with 6 and 7 stalked or separate.

A small genus, confined to Southern Europe and Central Asia; it is nearly allied on the one hand to the Indian *Naxa*, and on the other to *Zanclopteryx*, which is principally Indo-Malayan and African.

*bremeraria*, Stgr.  
*calcularia*, Ld.  
*cribraria*, Hb.  
*renitidata*, Hb.



## 44. EPIRRANTHIS, Hb.

Face with appressed scales. Tongue developed. Palpi very short or moderate, porrected or subascending, rough-scaled. Antennæ in ♂ evenly ciliated. Thorax rather hairy beneath. Femora glabrous; posterior tibiæ with all spurs present. Fore wings with 10 anastomosing with 9, 11 anastomosing with 12 and 10 before 9. Hind wings with 6 and 7 separate.

Besides the following species, which ranges from Northern Europe to Eastern Asia, I am only acquainted with two from New Zealand. It is a rather isolated genus at present.

*pulverata*, Thnb.

## 4. STERRHIDÆ.

Fore wings with 10 rising out of 9, 11 anastomosing or connected with 9 or rarely (only in *Cleta*) free; or less usually 10 anastomosing with 11 and 9. Hind wings with vein 5 fully developed, rising from middle of transverse vein, 8 very shortly anastomosing with upper margin of cell near base, thence rapidly diverging.

In all European genera the tongue is well-developed, and is therefore not specially mentioned. The face is nearly always smooth. The posterior tibiæ in the ♂ are usually partially or entirely deprived of spurs, often much swollen and furnished with large tufts of hair, and the tarsi are then generally much abbreviated. The neuration of the fore wings results in the formation of an areole very similar to that of the *Hydriomenidæ*, but much more commonly simple; but although apparently similar, there is really an essential difference in formation, for in the *Hydriomenidæ*, whenever the areole is simple, 10 has coincided with 11 towards base, whereas in the *Sterrhidæ* it has coincided with 9. The characteristic structure of vein 8 in the hind wings will distinguish the family at once from all others, except a part of the *Geometridæ*, and from these the central position of vein 5 easily separates it. The family may be regarded as a development from the *Geometridæ*, and is of considerable extent.

The actual ancestral form of the family appears to be lost, but it must have been tolerably intermediate in character between *Calothyranis* and *Rhodostrophia*. The



genera in which the areole is double are older than corresponding forms with the areole simple, and those with all spurs present are older than those in which they are partly absent. In particular the presence or absence of the median spurs in the ♀ affords a very reliable test.

TABULATION OF GENERA.

1. Posterior tibiæ in ♀ with median spurs absent	2.
Posterior tibiæ in ♀ with all spurs present ..	6.
2. Fore wings with 11 connected with 9..	.. 45. CLETA.
Fore wings with 11 free .. ..	3.
3. Posterior tibiæ in ♂ with terminal spurs ..	4.
Posterior tibiæ in ♂ wholly without spurs ..	5.
4. Antennæ in ♂ bipectinated .. ..	46. EMMILTIS.
Antennæ in ♂ not bipectinated .. ..	49. STERRHA.
5. Antennæ in ♂ bipectinated .. ..	47. CHRYSOCTENIS.
Antennæ in ♂ not bipectinated .. ..	48. EOIS.
6. Posterior tibiæ in ♂ wholly without spurs ..	7.
Posterior tibiæ in ♂ with at least terminal spurs .. ..	9.
7. Fore wings with areole double .. ..	53. DITHALAMA.
Fore wings with areole simple .. ..	8.
8. Antennæ in ♂ bipectinated or dentate-fasciculate; thorax hairy beneath .. ..	52. PROBLEPSIS.
Antennæ in ♂ filiform or dentate; thorax glabrous .. ..	50. LEPTOMERIS.
9. Posterior tibiæ in ♂ without median spurs ..	10.
Posterior tibiæ in ♂ with at least one median spur .. ..	11.
10. Antennal pectinations short, emitting long fascicles of cilia .. ..	51. CINGLIS.
Antennal pectinations moderately long, normal	54. LEUCOPHTHALMIA.
11. Fore wings with areole double .. ..	56. RHODOSTROPHIA.
Fore wings with areole simple .. ..	55. CALOTHYSANIS.

45. CLETA, *Dup.*

Face rough or with appressed scales. Palpi moderate, porrected, rough-scaled or with long rough projecting hairs. Antennæ in ♂ bipectinated to apex. Thorax hairy beneath or almost glabrous. Femora glabrous or somewhat hairy beneath; posterior tibiæ in ♂ very short, more or less rough-haired, without spurs, in ♀ without median spurs; posterior tarsi in ♂ short. Fore wings with 10 out of 9, 11 separate. Hind wings with 6 and 7 stalked.

A development probably of *Eois*, characterised by the



peculiar neurulation; not yet recognised outside the European region.

*vittaria*, Hb.

*perpusillaria*, Ev.

\**reaumuraria*, Mill.

#### 46. EMMILTIS, Hb.

Face with projecting tuft or smooth. Palpi moderate, porrected or ascending, rough-scaled or with long rough projecting hairs. Antennæ in ♂ bipectinated, extreme apex simple. Thorax sometimes hairy beneath. Femora glabrous; posterior tibiæ in ♂ moderate or rather short, not dilated, without median spurs, in ♀ without median spurs; posterior tarsi in ♂ normal or rather short. Fore wings with 10 out of 9, 11 connected with 9. Hind wings with 6 and 7 stalked.

Nearly related to *Sterrha*, of which it is perhaps a development. Characteristic of the Mediterranean countries, but extending into Central Asia.

*plumularia*, B.

\**cirtanaria*, Luc.

*pygmæaria*, Hb.

*megearia*, Oberth.

*kuldschaensis*, Alph. (*Stigma*).

#### 47. CHRYSOCTENIS, n. g.

Face smooth. Palpi moderate, ascending, with long rough projecting hairs beneath. Antennæ in ♂ bipectinated, apex simple. Thorax rather hairy beneath. Femora somewhat hairy; posterior tibiæ in ♂ short, slender, loosely haired, without spurs, in ♀ without median spurs; posterior tarsi in ♂ short. Fore wings with 10 out of 9, 11 connected with 9. Hind wings with 6 and 7 stalked.

The single species is South European; it is probably an offshoot of *Eois*.

*filacearia*, H.-S.

#### 48. EOIS, Hb.

Face smooth. Palpi rather short or moderate, porrected or sub-ascending, loosely scaled. Antennæ in ♂ dentate or serrate, ciliated with fascicles or evenly, fascicles rarely (*perochraria*) rising from very short paired processes. Thorax glabrous beneath. Femora glabrous; posterior tibiæ in ♂ short or moderate, slender



or moderately dilated, often furnished with tuft of hairs, without spurs, in ♀ with median spurs absent; posterior tarsi in ♂ moderate or abbreviated. Fore wings with 10 out of 9, 11 connected or anastomosing with 9. Hind wings with 6 and 7 stalked or rarely separate.

A large genus, principally characteristic of the European region, but extending also more or less into the adjoining regions, though much less generally present than *Leptomeris*. It is doubtless to be regarded as a development of *Leptomeris*.

- |   |                              |
|---|------------------------------|
| <i>muricata</i> , Hufn.                     | * <i>graciliata</i> , Mn.    |
| <i>plumboscriptata</i> , Christ.            | * <i>longaria</i> , H.-S.    |
| <i>herbariata</i> , F.                      | * <i>mancipiata</i> , Stgr.  |
| * <i>subherbariata</i> , Rössl.             | <i>straminata</i> , Tr.      |
| <i>consolidata</i> , Ld.                    | <i>asellaria</i> , H.-S.     |
| * <i>subsaturata</i> , Gn. (? = <i>cer-</i> | <i>salutaria</i> , Christ.   |
| <i>vantaria</i> , Mill.; = <i>colo-</i>     | <i>robiginata</i> , Stgr.    |
| <i>naria</i> , H.-S.).                      | <i>flaveolaria</i> , Hb.     |
| * <i>inustata</i> , H.-S.                   | * <i>exilaria</i> , Gn.      |
| <i>contiguaria</i> , Hb.                    | <i>perochraria</i> , F. R.   |
| <i>flicata</i> , Hb.                        | <i>numidaria</i> , Luc.      |
| <i>rusticata</i> , F.                       | <i>diffuata</i> , H.-S.      |
| <i>textaria</i> , Ld.                       | <i>holosericata</i> , Dup.   |
| <i>nexata</i> , Hb.                         | <i>humiliata</i> , Hufn.     |
| <i>virgularia</i> , Hb.                     | <i>dilutaria</i> , Hb.       |
| <i>camparia</i> , H.-S.                     | <i>nitidata</i> , H.-S.      |
| <i>sodaliaria</i> , H.-S.                   | * <i>præustaria</i> , Mn.    |
| <i>calunetaria</i> , Stgr.                  | <i>circellata</i> , Gn.      |
| <i>fathmaria</i> , Oberth.                  | * <i>squalidaria</i> , Stgr. |
| <i>pecharia</i> , Stgr.                     | <i>pallidata</i> , Bkh.      |
| * <i>monadaria</i> , Gn.                    | <i>subsericeata</i> , Hw.    |
| <i>subpurpurata</i> , Stgr.                 | <i>elongaria</i> , Rbr.      |
| <i>transmutata</i> , Rbr.                   | <i>inornata</i> , Hw.        |
| * <i>infirmaria</i> , Rbr. (? = <i>car-</i> | <i>aversata</i> , L.         |
| <i>nearia</i> , Mn.; = <i>aqui-</i>         | <i>degeneraria</i> , Hb.     |
| <i>tanaria</i> , Const.).                   | * <i>agrostemmata</i> , Gn.  |
| <i>seeboldiata</i> , Rössl.                 | * <i>Erschoffi</i> , Christ. |
| <i>incarnaria</i> , H.-S.                   | <i>arenosaria</i> , Stgr.    |
| <i>obsoletaria</i> , Rbr.                   | <i>attenuaria</i> , Rbr.     |
| <i>helianthemata</i> , Mill.                | <i>emarginata</i> , L.       |
| <i>fractilineata</i> , Z.                   | <i>circuitaria</i> , Hb.     |
| <i>ostrinaria</i> , Hb.                     | * <i>manicaria</i> , H.-S.   |
| * <i>purpureomarginata</i> , Boh.           | <i>inclinata</i> , Ld.       |



<i>miserata</i> , Stgr.	<i>trigeminata</i> , Hw.
<i>dimidiata</i> , Hufn.	<i>bisetata</i> , Hufn.
<i>extarsaria</i> , H.-S. (?= <i>eripodata</i> , Grasl. ; = <i>inesata</i> , Mill.).	* <i>roseofasciata</i> , Christ.
* <i>atromarginata</i> , Mab.	* <i>belemiata</i> , Mill.
* <i>disjunctaria</i> , Stgr.	<i>politata</i> , Hb.
<i>lævigaria</i> , Hb.	<i>effusaria</i> , Christ.
* <i>æquifasciata</i> , Christ.	<i>rufomixtata</i> , Rbr.
	<i>cœnosaria</i> , Ld.

## 49. STERRHA, Hb.

Face smooth or loosely haired. Palpi rather short, ascending or porrected, shortly rough-scaled beneath or with rough projecting hairs. Antennæ in ♂ filiform or dentate, evenly ciliated or with fascicles, rarely emitted from very short processes. Thorax glabrous or rarely hairy beneath. Femora glabrous or rarely hairy; posterior tibiæ in ♂ moderate, slender, without median spurs, rarely (*luridata*) with only one terminal spur, in ♀ without median spurs; posterior tarsi in ♂ moderate. Fore wings with 10 out of 9, 11 anastomosing or connected with 9. Hind wings with 6 and 7 stalked.

Not yet known to occur outside the European region. The genus is certainly closely related to *Eois*, but the nature of the relationship appears at present doubtful; it may be a collaterally developed branch, and there would be no difficulty in supposing this, but it seems to me also possible that the tibial characters of the ♂ might be derived by transference from the ♀, in which case these species, though possessing terminal spurs in the ♂, might be descended from others without terminal spurs, a result not otherwise attainable. If this could be proved, it would be a curious reversal of the undoubted fact that the absence of the median spurs in the ♀ is due to transference from the ♂. The point is certainly worthy of investigation, but difficult to decide.

The customary misuse of the generic name *Sterrha* (used by Hübner to include *sericeata* only, and therefore of unmistakable application) is noticed under *Rhodometra*.

<i>subtilata</i> , Christ.	<i>sericeata</i> , Hb.
<i>luridata</i> , Z.	<i>allardiata</i> , Mab. (? =
<i>intermedia</i> , Stgr.	præc.).
<i>moniliata</i> , F.	<i>merklaria</i> , Oberth.



\**determinata*, Stgr.  
*consanguinaria*, Ld.  
*litigiosaria*, B.  
*ossiculata*, Ld.  
 \**mutilata*, Stgr.  
*mediaria*, Hb.  
 \**nudaria*, Christ.  
*macilentaria*, H.-S.  
*rufaria*, Hb.

\**rufociliaria*, Brem.  
*ochrata*, Sc.  
*vitellinaria*, Ev. (= *rufinaria*, Stgr.).  
*sentinaria*, Hb.  
*luteolaria*, Const.  
*trilineata*, Sc.  
 \**Falckii*, Hed.

## 50. LEPTOMERIS, Hb.

Face smooth. Palpi moderate or rather short, subascending, loosely scaled beneath. Antennæ in ♂ serrate or dentate, ciliated with fascicles. Thorax glabrous beneath or rarely somewhat hairy. Femora glabrous; posterior tibiæ in ♂ large, dilated, containing tuft, without spurs, rarely with one very small terminal spur only (*umbellaria*), in ♀ with all spurs present; posterior tarsi in ♂ more or less strongly abbreviated. Fore wings with 10 out of 9, 11 connected or anastomosing with 9. Hind wings with 6 and 7 separate or stalked.

A large genus of nearly universal distribution; it may be regarded as a development of *Rhodostrophia*, or of a form nearly resembling it. The separation or stalking of veins 6 and 7 of the hind wings, though used as a sectional character by Lederer, is not constant; frequently both occur within the limits of the same species.

\**ansulata*, Ld.  
 \**characteristica*, Alph.  
*halimodendrata*, Ersch.  
*annubiata*, Stgr.  
*adulteraria*, Ersch.  
*umbellaria*, Hb.  
*remutaria*, Hb.  
*punctata*, Tr.  
*nemoraria*, Hb.  
*immutata*, L.  
*marginepunctata*, Göze.  
 \**cumulata*, Alph.  
*submutata*, Tr.  
*concinnaria*, Dup.  
*decorata*, Bkh.  
*congruata*, Z.  
*ornata*, Sc.

*imitaria*, Hb.  
*emutaria*, Hb.  
*flaccidaria*, Z.  
*strigilaria*, Hb.  
*incanata*, L.  
*lambessata*, Oberth.  
*strigaria*, Hb.  
*fumata*, Stph.  
*ochroleucata*, H.-S.  
*corrivalaria*, Kretsch.  
*caricaria*, Reut.  
*beckeraria*, Ld.  
*immistaria*, H.-S.  
 \**disclusaria*, Christ.  
*immorata*, L.  
*tessellaria*, B.  
 \**sulphuraria*, Fr.



*turbidaria*, H.-S.  
*rubiginata*, Hufn.

\**accurataria*, Christ.  
 \**subfalcaria*, Christ.

### 51. CINGLIS, Gn.

Face smooth. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ bipectinated, pectinations short, ending in fascicles of long cilia. Thorax glabrous beneath. Femora glabrous; posterior tibiæ in ♂ without median spurs, slender, in ♀ with all spurs present. Fore wings with 10 out of 9, 11 anastomosing with 9. Hind wings with 6 and 7 stalked.

The single species is of somewhat uncertain affinity, but is probably an offshoot of a small unnamed Australian group, which is itself nearly related collaterally to *Leptomeris*.

*humifusaria*, Ev.

### 52. PROBLEPSIS, Ld.

Face smooth. Palpi short or moderate, porrected or subascending, with appressed scales or somewhat rough. Antennæ in ♂ bipectinated or rarely dentate, pectinations or teeth ending in fascicles of cilia, towards apex simple. Thorax hairy or almost glabrous beneath. Femora rather hairy or glabrous; posterior tibiæ in ♂ flatly dilated, enclosing large tuft, without spurs, in ♀ with all spurs present; posterior tarsi in ♂ much abbreviated. Fore wings with 10 out of 9, 11 connected or anastomosing with 9. Hind wings with 6 and 7 separate.

A small genus, properly Indo-Malayan, but ranging into the neighbouring regions. It is a development of *Dithalama*. The species show considerable variation in structure, but are always separable from *Leptomeris* by either the antennal or thoracic structure, though both are variable.

*ocellata*, Friv.  
*phœbearia*, Ersch.

### 53. DITHALAMA, Meyr.

Face smooth. Palpi moderate, subascending, loosely scaled. Antennæ in ♂ dentate, ciliated with fascicles. Thorax almost glabrous beneath. Femora glabrous; posterior tibiæ in ♂ dilated, containing tuft, without spurs, in ♀ with all spurs present; posterior tarsi in ♂ much abbreviated. Fore wings with 10 rising



separate or out of 9, anastomosing with 11 and 9. Hind wings with 6 and 7 stalked or separate.

An Indo-Malayan genus of few species, straggling into Australia and Eastern Asia. Though doubtless more or less related to *Rhodostrophia*, its exact origin is not yet precisely determinable.

*indicataria*, Walk.

#### 54. LEUCOPHTHALMIA, Hb.

Face smooth. Palpi rather short, subascending, shortly rough-scaled. Antennæ in ♂ moderately bipectinated, apical  $\frac{2}{3}$ — $\frac{1}{3}$  simple. Thorax glabrous beneath. Femora glabrous; posterior tibiæ in ♂ not dilated, without median spurs, in ♀ with all spurs present. Fore wings with 10 out of 9, 11 anastomosing with 9. Hind wings with 6 and 7 stalked.

A small characteristically European genus, only extending into North America. Probably it may be an offshoot of *Calothysanis*, to which it is certainly nearly allied.

*orbicularia*, Hb.

*pendularia*, Cl.

*porata*, F.

*punctaria*, L.

*trilineararia*, Bkh. (*lineararia*, Hb.).

*pupillaria*, Hb.

*albiocellaria*, Hb.

*annulata*, Schlz.

#### 55. CALOTHYSANIS, Hb.

Face smooth. Palpi moderate or rather short, porrected, shortly rough-scaled beneath. Antennæ in ♂ strongly bipectinated, towards apex simple. Thorax glabrous beneath. Femora glabrous; posterior tibiæ in ♂ not dilated, with all spurs present in both sexes; sometimes with posterior femora tufted in ♂, or posterior tibiæ clothed with hairs. Fore wings with 10 out of 9, 11 anastomosing or connected with 9. Hind wings with 6 and 7 stalked.

A rather small genus, of Indo-Malayan origin, with stragglers in all adjacent regions. It is an early form of the family, collaterally related to *Rhodostrophia*, and also showing evident affinity with the *Geometridæ*.

*amata*, L.

\**rectistrigaria*, Ev.

\**sympathica*, Alph.

*duplicaria*, Walk. (*nigronotaria*, Brem.).



## 56. RHODOSTROPHIA, Hb.

Face oblique, with appressed scales. Palpi moderate, sub-ascending, shortly rough-scaled. Antennæ in ♂ bipectinated, apex simple. Thorax glabrous beneath. Femora glabrous; posterior tibiæ in ♂ slender, sometimes with long basal tuft, with all spurs present or with outer median spur obsolete, in ♀ with all spurs present. Fore wings with 6 sometimes out of 9, 10 anastomosing with 11 and 9. Hind wings with 6 and 7 stalked.

Not at present known outside the European region, where it is confined to the warmer districts. This genus must certainly closely approach the primitive type of the family. The species which are known to me as having one tibial spur obsolete are the first four and the last one, but they do not appear to form a single group separable from the rest.

<i>vibicaria</i> , Cl.	* <i>cuprinaria</i> , Christ.
<i>calabraria</i> , Z.	<i>Ledereri</i> , Alph.
<i>auctata</i> , Stgr.	<i>jacularia</i> , Hb.
<i>adauctata</i> , Stgr.	* <i>Staudingeri</i> , Alph.
* <i>perezaria</i> , Oberth.	<i>badiaria</i> , Frr.
<i>sicanaria</i> , Z.	* <i>vastaria</i> , Christ.
<i>dispar</i> , Stgr.	<i>acidaria</i> , Stgr.
<i>terrestraria</i> , Ld.	<i>præcisaria</i> , Stgr.

## 5. GEOMETRIDÆ.

Fore wings with 10 rising out of 9 or rarely absent (*Aplasta*). Hind wings with 5 fully developed, rising much above middle of transverse vein, 8 shortly anastomosing or connected with or appressed to upper margin of cell near base, thence rapidly diverging or sometimes approximated to upper margin of cell to near middle.

A moderately extensive family, most largely developed in the Indo-Malayan, African, and Australian regions. In all European genera the face is smooth, and the tongue well-developed. The neuration of the fore wings tends to vary markedly within the limits of the same species, and is therefore not always available for generic distinction; it nearly approaches that of the *Sterrhidæ*, but is less fixed. The peculiar position of vein 5 in the hind wings sufficiently characterises the family, which is otherwise closely allied to and intermediate between the *Sterrhidæ* and *Monocteniadæ*, with the former of which I



at one time included it. The family is no doubt a development of some early form of the *Monocteniadæ*.

The genera in which vein 8 of the hind wings is approximated to the upper margin of cell to near middle are more ancestral than those in which it rapidly diverges.

In many of the species the terminal joint of the palpi is much longer in the ♀ than in the ♂.

#### TABULATION OF GENERA.

1. Posterior tibiæ in ♂ without median spurs ..	2.
Posterior tibiæ in ♂ with median spurs ..	4.
2. Antennæ in ♂ bipectinated; posterior tibiæ in ♀ without median spurs .. ..	3.
Antennæ in ♂ simple; tibiæ in ♀ with all spurs .. ..	57. NEMORIA.
3. Antennæ in ♂ bipectinated to apex .. ..	58. THALERA.
Antennæ in ♂ with apex simple .. ..	59. EUCROSTES.
4. Antennæ in ♂ bipectinated .. ..	5.
Antennæ in ♂ simple .. ..	8.
5. Antennæ in ♂ bipectinated to apex .. ..	62. GEOMETRA.
Antennæ in ♂ with apex simple .. ..	6.
6. Hind wings with 6 and 7 stalked .. ..	60. EUCHLORIS.
Hind wings with 6 and 7 separate .. ..	7.
7. Abdomen with dorsal crests .. ..	64. PSEUDOTERPNA.
Abdomen not crested .. ..	61. MEGALOCHLORA.
8. Fore wings with 10 absent .. ..	65. APLASTA.
Fore wings with 10 present .. ..	63. AGATHIA.

#### 57. NEMORIA, Hb.

Face smooth. Palpi moderate or rather long, porrected, shortly rough-scaled. Antennæ in ♂ serrate or filiform, ciliated with fascicles or evenly. Thorax glabrous beneath. Femora glabrous; posterior tibiæ in ♂ sometimes dilated, without median spurs, in ♀ with all spurs present; posterior tarsi in ♂ sometimes abbreviated. Fore wings with 10 out of 9, 11 sometimes anastomosing with 12. Hind wings with 3 and 4 sometimes stalked, 6 and 7 stalked, 8 very shortly anastomosing with cell near base, thence rapidly diverging.

A genus of rather limited extent but wide distribution; probably a development of *Euchloris*, with perhaps collateral affinity to *Thalera*.



*strigata*, Müll.  
*ussuriaria*, Brem.  
*\*alboundulata*, Hed.  
*pulmentaria*, Gn.  
*faustinata*, Mill.

*\*melinaria*, H.-S.  
*\*amphitritaria*, Oberth.  
*porrinata*, Z.  
*viridata*, L.  
*\*pretiosaria*, Stgr.

#### 58. THALERA, *Hb.*

Face smooth. Palpi rather short, ascending, loosely scaled. Antennæ in ♂ bipectinated to apex. Thorax hairy beneath. Femora slightly hairy beneath; posterior tibiæ in ♂ not dilated, in both sexes without median spurs. Fore wings with 6 sometimes out of 9, 10 out of 9, 11 anastomosing with 12 and sometimes with 10. Hind wings with 6 and 7 stalked, 8 shortly anastomosing with cell near base, thence rapidly diverging.

A very small European and Asiatic genus, nearly related to *Eucrostes*, of which it may be a development.

*fimbrialis*, Sc.  
*lacerataria*, Graes.  
*\*rufolimbaria*, Hed.

#### 59. EUCROSTES, *Hb.*

Face smooth. Palpi rather short, porrected, loosely scaled. Antennæ in ♂ bipectinated, towards apex simple. Thorax glabrous or rather hairy beneath. Femora glabrous or loosely hairy; posterior tibiæ in ♂ not dilated, in both sexes without median spurs. Fore wings with 10 out of 9, 11 sometimes anastomosing with or running into 12, sometimes anastomosing with 10 also. Hind wings with 3 and 4 sometimes stalked, 6 and 7 from a point or stalked, 8 anastomosing very shortly with cell near base, thence rapidly diverging.

A genus of no great extent, but very general distribution. It is probably a development of *Euchloris*.

*\*impararia*, Gn.  
*herbaria*, Hb.  
*olympiaria*, H.-S.  
*\*petitaria*, Christ.  
*indigenata*, Vill.

#### 60. EUCHLORIS, *Hb.*

Face smooth. Palpi short or moderate, porrected, loosely or shortly rough-scaled. Antennæ in ♂ bipectinated, towards apex



simple. Thorax glabrous or hairy beneath. Femora glabrous or loosely hairy; posterior tibiæ in ♂ often dilated, sometimes with pencil of hairs in groove, with all spurs present; posterior tarsi in ♂ sometimes abbreviated. Fore wings with 10 out of 9, 11 sometimes anastomosing with 12, sometimes with 10 also, rarely running into 12. Hind wings with 3 and 4 sometimes stalked, 6 and 7 stalked, 8 very shortly anastomosing with cell near base, thence rapidly diverging.

Apparently a development of *Megalochlora*. The species are very numerous, and occur principally in the Indo-Malayan, Australian, and African regions; but a certain number are found in Europe and North America. I have elsewhere called this genus *Iodis*, Hb.

*albocostaria*, Brem.

\**subtiliaria*, Brem.

\**amænaria*, Oberth.

\**jankowskiaria*, Mill.

*pustulata*, Hufn.

*neriaria*, H.-S.

\**tenuiaria*, Graes.

\**crucigerata*, Christ.

*fulminaria*, Ld.

*plusiaria*, B.

*smaragdaria*, F.

*chlorophyllaria*, Hed.

*vernaria*, Hb.

*Zimmermanni*, Hed.

\**alliata*, Höfn.

*lactearia*, L.

*putata*, L. (= *marina*,  
Butl.).

*grandificaria*, Graes.

*gratiosaria*, Brem.

## 61. MEGALOCHLORA, n. g.

Face smooth. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ bipectinated, towards apex simple. Thorax densely hairy beneath. Femora hairy; posterior tibiæ in ♂ somewhat dilated, sometimes with large tuft in groove, with all spurs present. Fore wings with 10 out of 9. Hind wings with 6 and 7 separate, 8 nearly approximated to cell towards base, diverging from before middle.

An East Asiatic genus, which will probably be increased by future discoveries. It is a transitional form between *Euchloris* and *Pseudoterpna*.

*sponsaria*, Brem.

\**glaucaria*, Mén. (? = *præc.*).

\**herbacearia*, Mén.

\**Dieckmanni*, Graes.

*valida*, Feld. (= *dioptasaria*, Christ.).

*albovenaria*, Brem.

*iridicolor*, Butl. (= *admirabilis*, Oberth.).



## 62. GEOMETRA, L.

Face smooth. Palpi moderate or short, subascending, shortly rough-scaled. Antennæ in ♂ bipectinated to apex. Thorax hairy beneath. Femora hairy or glabrous; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings with 10 out of 9, 11 sometimes anastomosing with 12 and 10. Hind wings with 6 and 7 separate, 8 approximated to cell towards base, diverging from before middle.

A development of *Pseudoterpna*, with near collateral relationship to the preceding. It is not ascertained to contain other species than those subjoined.

*muscosa*, Butl. (= *vestita*, Hed.).

*papilionaria*, L.

## 63. AGATHIA, Gn.

Face smooth. Palpi moderately long, porrected, shortly rough-scaled. Antennæ in ♂ filiform, minutely ciliated. Thorax densely hairy beneath. Femora glabrous; posterior tibiæ in ♂ sometimes dilated, with all spurs present. Fore wings with 10 out of 9. Hind wings with 6 and 7 separate, 8 anastomosing with or closely approximated to cell towards base, thence rapidly diverging.

A small Indo-Malayan genus, of which one or two species extend into the adjoining regions. It originates from *Pseudoterpna*, with some affinity to the preceding genus, but stands rather isolated.

*carissima*, Butl. (= *lacunaria*, Hed.).

## 64. PSEUDOTERPNA, Hb.

Face smooth. Palpi moderate, porrected or subascending, rough-scaled. Antennæ in ♂ bipectinated, towards apex simple. Thorax densely hairy beneath. Abdomen with dorsal crests. Femora glabrous or hairy beneath; posterior tibiæ in ♂ somewhat dilated, often containing hair-pencil, with all spurs present. Fore wings with 10 out of 9, 11 sometimes anastomosing with 12 and 10. Hind wings with 6 and 7 separate, 8 closely approximated to cell towards base, diverging from about middle.

A genus of some extent, which is principally Indo-Malayan and Australian; it includes Guenée's *Hypochroma*. It may be regarded as practically the ancestral type of the family, and certainly originates from some



form of the *Monocteniadæ*, but the actual point of connection I cannot at present determine.

*pruinata*, Hufn.

*coronillaria*, Hb.

*corsicaria*, Rbr.

\**Lahayei*, Oberth.

## 65. APLASTA, Hb.

Face smooth. Palpi moderate, porrected, with tolerably appressed scales. Antennæ in ♂ evenly ciliated. Thorax glabrous beneath. Femora slightly hairy; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings with 10 absent, 11 anastomosing with 12. Hind wings with 6 and 7 stalked, 8 approximated to cell towards base, diverging from about middle.

This genus includes only the one species. Its position is doubtful; it is in some sense intermediate between this family and the *Monocteniadæ*, not fully agreeing with either, but capable of being classed with either according as the definition is framed. I have regarded it as to be placed here, though the characteristic structure of the hind wings is not very pronounced, and the absence of vein 10 in the fore wings is an exceptional though certainly not an inconsistent feature. This absence proves that it is not strictly a connecting link between the two families; but it is not improbable that it represents a small lateral offshoot from the real connecting link.

*ononaria*, Fuesl.

## 6. SELIDOSEMIDÆ.

Hind wings with 5 imperfect (not tubular), very weak or obsolete, 8 usually obsoletely connected with upper margin of cell near base, approximated to it to near middle, very rarely (only in *Axia*) to beyond origin of 7, or (only in *Narraga*) anastomosing.

The neurulation of the fore wings in this family is frequently subject to very considerable variation even within the limits of the same species; and much caution is therefore required in using it as a generic character. It is, however, not equally variable in all species, and even where it appears most inconstant, it seems to remain fixed in certain details. In order to ascertain the limits of variation as far as possible, a considerable



number of individual specimens have been examined in those cases where variability seemed to exist, and where the specimens were obtainable for the purpose ; and the detailed results of this examination are added hereafter in the form of an appendix. Typically 10 and 11 are free and separate, but there exists in this group a strong tendency to connection or anastomosis of these veins with one another or with 9 and 12. Vein 6 is almost always separate from 9. In the hind wings, in proportion as 5 becomes obsolete, 4 and 6 tend to approach more nearly together, so that no unduly broad interspace is left. Hence 6 and 7 are drawn apart, and are almost always separate. The posterior tibiæ are very frequently dilated in the ♂, and then usually contain a large hair-pencil concealed in a longitudinal groove, but the character is of little generic value. Occasionally the median spurs are absent ; in these cases the allied forms commonly have the spurs very small, and are in general so closely related in all other characters that it is evidently unadvisable to separate them generically. The tongue is sometimes rudimentary, and in some instances (as *Gonodontis*) it has been clear that the character does not involve generic separation ; in others it has proved possible to make use of it.

Owing to the variability and uncertainty of these characters, the family is one of the most difficult of all the Lepidoptera to classify. It is only after repeated examination and reclassification (most of my material has been recast six times) that I have been able to determine the most essential and reliable points of structure, and the mutual affinities of the genera ; and it is quite probable that in some respects my views may yet be materially altered by the discovery of new forms. There is a great variety of superficial appearance amongst the species, and often considerable difference even between rather nearly allied forms. The *Prosopolopha* group appears to be the most ancestral ; in its typical form (stout-bodied species, with triangular anterior thoracic crest) this is little represented now in Europe, and is principally characteristic of Australia. From this group originate three others : (1), the group of *Hybernia* and *Crocotæ*, giving rise to *Pseudopanthera*, *Abraxas*, &c. ; (2), the *Ennomos* group, developing into *Metrocampa*, *Deilinia*, &c. ; and (3), the *Selidosema* group, of which



*Nychiodes* is apparently the lowest European representative, culminating in *Opisthograptis*; all genera in which the ♂ possesses the basal fovea of the fore wings are immediately and certainly referable to this group, but the character does not persist in all the genera of the group, having been lost in one or two of the higher genera, and probably not acquired in two or three of the most primitive, though highly characteristic of it as a whole, and not exactly reproduced in any other group of Lepidoptera known to me.

The structure mentioned above and hereafter as the fovea is a circular impression on the lower surface of the fore wings above the inner margin near the base, usually placed about the origin of the basal fork of vein 1b: it is specially characteristic of the ♂, but is occasionally transferred to the ♀ also. It varies in distinctness in different species; it is often more or less thinly scaled and transparent, and is sometimes surmounted by a small thickened gland. The purpose of the structure is unknown; it may possibly be a scent-producing organ. Somewhat similar structures are occasionally found in other Lepidoptera, but never to my knowledge in quite the same position. In *Anticypella* a quite analogous structure occurs in the hind wing beneath the costa. In *Deilinia* there is also a concavity in the hind wing, but it is rather differently constructed.

The family is very extensive, and universally distributed.

#### TABULATION OF GENERA.

1. Fore wings in ♂ with fovea.. ..	2.
Fore wings in ♂ without fovea .. ..	13.
2. Antennæ in ♂ bipectinated .. ..	3.
Antennæ in ♂ not pectinated .. ..	10.
3. Hind wings with 8 anastomosing with cell to middle .. ..	77. NARRAGA.
Hind wings with 8 not anastomosing with cell .. ..	4.
4. Anterior tibiæ with apical hook .. ..	69. ENCONISTA.
Anterior tibiæ without apical hook .. ..	5.
5. Hind wings with 6 and 7 stalked .. ..	78. TEPHRONIA.
Hind wings with 6 and 7 separate .. ..	6.
6. Tongue absent .. ..	75. EURRANTHIS.
Tongue developed .. ..	7.
7. Palpi and often face roughly hairy .. ..	76. BUPALUS.
Palpi and face at most rough-scaled .. ..	8.



- |  |                      |
|--|----------------------|
| 8. Fore wings with 11 rising separate, or if out of 10, from near base only, and then not anastomosing with 12 .. .. . | 9.                   |
| Fore wings with 11 absent or out of 10 high up, or if lower, anastomosing with 12 ..                                   | 68. DIASTICTIS.      |
| 9. Antennæ in ♂ bipectinated to apex ..  | 72. CLEORA.          |
| Antennæ in ♂ with apex simple .. ..  | 73. SELIDOSEMA.      |
| 10. Antennæ in ♂ with two short acute projections on each side of each joint ..  | 70. ECTROPIS.        |
| Antennæ in ♂ without paired projections..  | 11.                  |
| 11. Fore wings with 11 out of 10 or absent ..  | 12.                  |
| Fore wings with 11 separate .. ..  | 74. ASCOTIS.         |
| 12. Thorax and femora densely hairy beneath  | 66. ZETTIENIA.       |
| Thorax somewhat hairy, femora glabrous or nearly so .. .. .  | 67. OPISTHOGRAPTIS.  |
| 13. Antennæ in ♂ simple .. .. .  | 14.                  |
| Antennæ in ♂ bipectinated or rarely with short paired processes only .. ..   | 19.                  |
| 14. Antennæ in ♂ ciliated with moderate fascicles .. .. .  | 99. ABRAXAS.         |
| Antennæ in ♂ shortly and evenly ciliated..   | 15.                  |
| 15. Abdomen in ♂ much exceeding hind wings   | 98. CISTIDIA.        |
| Abdomen in ♂ not unusually long.. ..   | 16.                  |
| 16. Face with long rough hairs .. .. .   | 107. PSODOS.         |
| Face not rough-haired .. .. .  | 17.                  |
| 17. Fore wings with 11 absent .. .. .  | 18.                  |
| Fore wings with 11 present .. .. .   | 100. PSEUDOPANTHERA. |
| 18. Face smooth .. .. .  | 86. EILICRINIA.      |
| Face subprominent, with short projecting scales .. .. .  | 87. OURAPTERYX.      |
| 19. Hind wings with 8 approximated to whole of cell and basal $\frac{1}{4}$ of 7 .. .. .                               | 117. AXIA.           |
| Hind wings with 8 diverging from cell about middle .. .. .   | 20.                  |
| 20. ♀ apterous or semiapterous.. .. .  | 21.                  |
| ♀ with fully developed wings .. .. .   | 26.                  |
| 21. ♀ with anterior wings linear .. .. .   | 112. SPARTOPTERYX.   |
| ♀ with anterior wings not linear .. ..   | 22.                  |
| 22. Face roughly hairy .. .. .   | 23.                  |
| Face not hairy .. .. .   | 24.                  |
| 23. Thorax broad, very densely haired above ..   | 109. APOCHEIMA.      |
| Thorax slender, loosely hairy on patagia ..  | 106. LIGNYOPTERA.    |
| 24. Thorax with small anterior crest; apex of antennæ in ♂ simple .. .. .  | 108. HYBERNIA.       |
| Thorax not crested; antennæ of ♂ pectinated to apex .. .. .  | 25.                  |
| 25. Fore wings with 11 out of 9 .. .. .  | 105. THERIA.         |
| Fore wings with 11 not out of 9 .. .. .  | 104. CROCOTA (part). |



26. Hind wings in ♂ with subcostal fovea near base .. .. .	27.
Hind wings in ♂ without fovea .. .. .	28.
27. Fore wings with 11 out of 10 .. .. .	79. ANTICYPELLA.
Fore wings with 11 not out of 10 .. .. .	83. DEILINIA.
28. Abdomen with dorsal crest near base .. .. .	85. SCARDAMIA.
Abdomen not crested .. .. .	29.
29. Anterior tibiæ with strong apical hook .. .. .	115. ONYCHORA.
Anterior tibiæ without hook .. .. .	30.
30. Face with horny triangular projection .. .. .	110. ZAMACRA.
Face without horny projection .. .. .	31.
31. Antennæ in ♂ bipectinated to apex .. .. .	32.
Antennæ in ♂ with apical portion (sometimes only two or three joints) simple .. .. .	45.
32. Face with projecting scales (if very prominent, rarely with scales projecting shortly on sides only) .. .. .	33.
Face with tolerably appressed scales .. .. .	41.
33. Face with tuft of hairs from beneath antennæ across eye to middle .. .. .	95. COLOTOIS.
Face without lateral tuft .. .. .	34.
34. Fore wings with transparent scar along transverse vein .. .. .	35.
Fore wings without transparent scar .. .. .	36.
35. Fore wings with 6 out of 9 .. .. .	91. SELENIA.
Fore wings with 6 separate .. .. .	90. ARTEMIDORA.
36. Femora glabrous .. .. .	94. ARTIORA.
Femora densely hairy .. .. .	37.
37. Fore wings with 11 connected with 12 .. .. .	38.
Fore wings with 11 free from 12 .. .. .	39.
38. Posterior tibiæ with median spurs very short or absent .. .. .	96. ENNOMOS.
Posterior tibiæ with median spurs moderately long .. .. .	116. PROSOPLOPHA.
39. Posterior tibiæ hairy, median spurs very short or absent .. .. .	111. BISTON.
Posterior tibiæ glabrous, median spurs moderately long .. .. .	40.
40. Face with scales forming a defined conical tuft .. .. .	92. HYGROCHROA.
Face without defined tuft .. .. .	97. GONODONTIS.
41. Tongue rudimentary .. .. .	42.
Tongue developed .. .. .	43.
42. Fore wings with 10 and 11 separate ; median spurs absent .. .. .	113. PHASELIA.
Fore wings with 10 and 11 stalked ; median spurs moderately long .. .. .	81. NYCHIODES.
43. Fore wings with 11 absent .. .. .	103. HYPOPLECTIS.
Fore wings with 11 present .. .. .	44.



44. Fore wings with 7 out of 9 above middle, 10 out of 9 .. .. . 93. CEPPHIS.  
 Fore wings with 7 out of 9 below middle ; 10 very rarely out of 9 close to base .. 104. CROCOTA (part).  
 45. Fore wings with 10 absent .. .. . 84. LOMOGRAPHIA.  
 Fore wings with 10 present .. .. . 46.  
 46. Face strongly prominent .. .. . 101. HYPOSCOTIS.  
 Face not strongly prominent .. .. . 47.  
 47. Crown of head with strong defined posterior tuft .. .. . 114. CHEMERINA.  
 Crown of head without defined tuft .. .. . 48.  
 48. Thorax with low double posterior crest .. 71. DEILEPTENIA.  
 Thorax not crested .. .. . 49.  
 49. Fore wings with 11 (or 10) not connected with 12 .. .. . 50.  
 Fore wings with 11 (or 10) connected with 12 .. .. . 51.  
 50. Fore wings with 10 out of 9 .. .. . 82. EPHORIA.  
 Fore wings with 10 not out of 9 .. .. . 102. THERAPIS.  
 51. Fore wings with 10 nearly always out of 9, and anastomosing with 11 .. .. . 88. METROCAMPA.  
 Fore wings with 10 not out of 9, rarely anastomosing with 11 .. .. . 52.  
 52. Femora more or less hairy .. .. . 80. SYNOPSISIA.  
 Femora glabrous .. .. . 89. EUCHLENA.

#### 66. ZETTIENIA, Motsch.

Face with cone of scales. Tongue developed. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ ciliated with moderately long fascicles. Thorax densely hairy beneath. Femora hairy beneath ; posterior tibiæ in ♂ dilated, with all spurs present. Fore wings in ♂ with fovea ; 11 out of 10, either 10 or 11 anastomosing or connected with 12, 10 sometimes connected with 9. Hind wings with 8 approximated to cell to middle.

A development of *Diastictis*, but standing rather isolated. The two species are both East Asiatic.

*albonotaria*, Brem.

*rufescentaria*, Motsch. (= *consociaria*, Christ.).

#### 67. OPISTHOGRAPTIS, Hb.

Face with appressed scales or short cone of scales. Tongue developed. Palpi moderate or rather short, porrected, rough-scaled. Antennæ in ♂ filiform or serrate-dentate, ciliated evenly or with short fascicles. Thorax somewhat hairy beneath. Femora glabrous or rarely slightly hairy ; posterior tibiæ in ♂ more or less dilated, often bent, with all spurs present. Fore wings in ♂ with



fovea; 10 often connected or anastomosing with 12 and 9, 11 out of 10 between connections or more usually absent. Hind wings with 8 approximated to cell to middle.

A genus of considerable extent and very general distribution. It is a development of *Diastictis*.

*æstimaria*, Hb.  
*proditaria*, Brem.  
*luridulata*, Stgr.  
*graphata*, Hed.  
*notata*, L.  
*alternaria*, Hb.  
*liturata*, Cl.

*signaria*, Hb.  
*clathrata*, L.  
*\*biparata*, Ld.  
*semilutata*, Ld.  
*hopperaria*, Stgr.  
*luteolata*, L.

#### 68. DIASTICTIS, Hb.

Face with appressed scales, or short ridge or tuft of projecting scales. Tongue developed. Palpi moderate, porrected or subascending, rough-scaled. Antennæ in ♂ bipectinated, apex simple (sometimes only 2 or 3 joints). Thorax sometimes crested posteriorly, more or less hairy beneath. Femora glabrous or rarely slightly hairy; posterior tibiæ in ♂ often dilated, with all spurs present. Fore wings in ♂ with fovea, sometimes surmounted by a small gland; 10 sometimes anastomosing with 12, often connected with 9, 11 out of 10 towards or above middle, or if lower anastomosing with 12, or often absent. Hind wings with 8 approximated to cell to middle.

A large genus, occurring more or less plentifully in all the principal regions. It is an intermediate development of *Selidosema*.

*glarearia*, Brahm.  
*brunneata*, Thnb. (?=  
*fuscaria*, Hb.).  
*\*saburraria*, Ev.  
*murinaria*, F.  
*pumicaria*, Ld.  
*dalmataria*, Gn.  
*artesiaria*, F.  
*loricaria*, Ev.  
*\*costimaculata*, Graes.  
*wauaria*, L.  
*\*halituararia*, Gn.  
*stevenaria*, B.  
*assimilaria*, Rbr.  
*vincularia*, Hb.

*semicanaria*, Frr.  
*\*legataria*, H.-S.  
*\*perviaria*, Ld.  
*arenacearia*, Hb.  
*catalaunaria*, Gn.  
*\*sparsaria*, Hb.  
*\*griseolaria*, Ev.  
*\*unicoloraria*, Rbr.  
*Viertlii*, Boh.  
*roboraria*, Schiff. (= *Menetriesi*, Stgr.).  
*consortaria*, F. (= *conferenda*, Butl.).  
*senex*, Butl. (= *Hedemanni*, Christ.).



*saturniaria*, Graes.  
(=*ocellata*, Leach).

*flavomarginaria*, Brem.  
*melanaria*, L.

#### 69. ENCONISTA, Ld.

Face with tolerably appressed scales. Tongue developed. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ bipectinated to apex. Thorax rather hairy beneath. Femora glabrous; anterior tibiæ with strong apical hook; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ with fovea, surmounted by a small gland; 10 connected with 9, 11 out of 10, anastomosing with or running into 12. Hind wings with 8 approximated to cell to middle.

An offshoot of *Diastictis*; the single species is South European.

*miniosaria*, Dup.

#### 70. ECTROPIS, Hb.

Face tolerably smooth or with hardly projecting scales. Tongue developed. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ with two short acute projections on each side of each joint, emitting strong fascicles of cilia. Thorax rather hairy beneath. Femora glabrous; posterior tibiæ in ♂ sometimes dilated, with all spurs present. Fore wings in ♂ with fovea; 10 sometimes out of 9 or absent, sometimes connected with 9, 11 sometimes out of 9 or 10, sometimes anastomosing with 12. Hind wings with 8 approximated to cell to middle.

A small genus, but widely and perhaps universally distributed; probably a development of *Selidosema*. In some exotic species the antennal projections are more developed and form short tufted pectinations, but are always paired. The neurulation of the fore wings is generally highly variable, and tends to assume a different type in each species, in exotics exceeding even the wide limits assigned above.

*luridata*, Bkh.

*punctularia*, Hb.

*biundularia*, Bkh. (= *crepuscularia*, Hb.; ? = *\*lutamentaria*, Graes.).

*consonaria*, Hb.

*doerriesiaria*, Christ. (?; ♂ not seen; probably new genus).



### 71. DEILEPTENIA, Hb.

Face loosely haired or with appressed scales. Tongue developed. Palpi moderate, subascending, shortly rough-scaled. Antennæ in ♂ bipectinated, apex simple. Thorax with low double posterior crest, hairy beneath. Femora glabrous; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 11 out of 10 near base, sometimes anastomosing with 12. Hind wings with 8 approximated to cell to middle.

This small genus, to which I can only refer the following species, originates from *Selidosema*, from which it only differs essentially by the absence of the fovea, which has apparently become obsolete.

*abietaria*, Hb.

\**nooraria*, Brem.

*mandschuriaria*, Brem.

### 72. CLEORA, Curt.

Face with tolerably appressed scales. Tongue developed. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ bipectinated to apex. Thorax hairy beneath. Femora nearly glabrous; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ with fovea; 10 connected or anastomosing with 9. Hind wings with 8 approximated to cell to middle.

The single species constituting this genus is an offshoot of *Selidosema*, and is confined to Europe.

*lichenaria*, Hufn.

### 73. SELIDOSEMA, Hb.

Face with appressed or shortly projecting scales or small tuft. Tongue developed. Palpi moderate, porrected or subascending, rough-scaled. Antennæ in ♂ bipectinated, towards apex simple. Thorax sometimes shortly crested posteriorly, hairy beneath. Femora glabrous or rarely somewhat hairy beneath; posterior tibiæ in ♂ dilated, with all spurs present. Fore wings in ♂ with fovea; 10 sometimes connected with 9, 11 sometimes out of 10 near base only, or if separate, sometimes anastomosing with 12. Hind wings with 8 approximated to cell to middle.

A genus of considerable extent, and universally distributed. It is probably derived from *Synopsia*.

*castigataria*, Brem.

(=*suifunaria*, Christ.).

*gesticularia*, Hb.

*contaminaria*, Hb.

*ericetaria*, Vill.

\**granataria*, Rbr.



*tæniolaria*, Hb.  
*ambustaria*, H.-G.  
*variolaria*, Stgr.  
*repandata*, L.  
*extinctaria*, Ev.  
*\*cocandaria*, Ersch.  
*glabraria*, Hb.  
*angularia*, Thnb.  
*umbraria*, Hb.  
*gemmaria*, Brahm.

*secundaria*, Esp.  
*ilicaria*, H.-G.  
*cinctaria*, Schiff.  
*perversaria*, B.  
*\*bituminaria*, Ld.  
*\*bastelicaria*, Bell.  
*occitanaria*, Dup.  
*\*atlanticaria*, Stgr.  
*\*solieraria*, Rbr.

#### 74. ASCOTIS, Hb.

Face with short projecting scales. Tongue developed. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ prominently ridged at apex of joints on inner half, emitting half-whorls of rather long cilia. Thorax densely hairy beneath. Femora somewhat hairy; posterior tibiæ in ♂ dilated, with all spurs present. Fore wings in ♂ with fovea; 10 connected with 9. Hind wings with 8 approximated to cell to middle.

The single species occurs through a large part of Europe and Central Asia to Japan. It is an offshoot of a well-marked group of *Selidosema* (perhaps separable as a distinct genus) which is freely represented in the Indo-Malayan, African, and Australian regions, but does not occur in Europe.

*selenaria*, Hb. (= *cretacea*, Butl.).

#### 75. EURRANTHIS, Hb.

Face with long rough hairs. Tongue obsolete. Palpi moderate or rather long, porrected or ascending, with very long rough hairs. Antennæ in ♂ strongly bipectinated to apex, or with apex dentate only. Thorax hairy beneath. Femora glabrous or hairy; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ with fovea; 10 sometimes connected with 9, 11 out of 10 or absent. Hind wings with 8 approximated to cell to near middle.

Contains only the following species, characteristic of Southern Europe. The genus is a development of *Bupalus*.

*plumistaria*, Vill.  
*chrysitaria*, H.-G.  
*pennigeraria*, Hb.



76. BUPALUS, *Leach*.

Face with rough hairs or sometimes only loosely haired. Tongue developed. Palpi moderate or rather short, porrected, with rough projecting hairs. Antennæ in ♂ bipectinated, apex simple. Thorax hairy beneath. Femora hairy or glabrous; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ with fovea; 10 often connected or anastomosing with 9 (sometimes twice), 11 usually out of 10, always running into 12 or concealed by anastomosis of 10 with 12 and so apparently absent. Hind wings with 8 approximated to cell to middle.

A small genus, characteristic of Europe, originating from *Selidosema*.

*pinarius*, L.

*atomarius*, L.

*carbonarius*, Cl.

*famulus*, Esp.

*limbarius*, F.

*rorarius*, F.

*fuscus*, Thnb.

77. NARRAGA, *Walk*.

Face with appressed scales. Tongue weak. Palpi moderate, porrected, with long rough projecting hairs. Antennæ in ♂ bipectinated to apex. Thorax rather hairy beneath. Femora glabrous; posterior tibiæ in ♂ hardly dilated, with all spurs present. Fore wings in ♂ with fovea; 10 anastomosing or connected with 12 and 9, 11 absent. Hind wings with 6 and 7 stalked, 8 anastomosing with cell from near base to middle.

The single species, inhabiting South-east Europe, is a development of *Bupalus*. The structure of vein 8 of the hind wings is unique in this family, and is probably a direct effect of the narrowing of the hind wings, which has also caused the stalking of 6 and 7.

*fasciolaria*, Rott.

78. TEPHRONIA, *Hb*.

Face with appressed scales. Tongue weak. Palpi very short, slender, porrected, second joint rough-scaled. Antennæ in ♂ bipectinated, towards apex simple. Thorax somewhat hairy beneath. Femora glabrous; posterior tibiæ in ♂ somewhat dilated, median spurs in both sexes absent or present (*codetaria*). Fore wings in



♂ (and ♀ also) with fovea; 9 absent, 10 absent. Hind wings with 6 and 7 stalked, 8 approximated to cell to beyond middle.

The genus contains only the following species, attached to Central and Southern Europe. It is certainly a somewhat degenerate form of the *Selidosema* group, but it is so far modified that the actual point of connection is doubtful.

*sepiaria*, Hufn. (= *oppositaria*, Mn.).

*cremiaria*, Frr.

*codetaria*, Oberth.

#### 79. ANTICYPELLA, n. g.

Face loosely scaled. Tongue developed. Palpi rather short, subascending, shortly rough-scaled. Antennæ in ♂ bipectinated, apex simple. Thorax densely hairy beneath. Femora slightly hairy; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 connected with 12 and 9, 11 out of 10 between connections. Hind wings in ♂ with fovea beneath costa at base; 8 approximated to cell to middle.

The single species known to me is East Asiatic. It is doubtless an offshoot of *Synopsia*.

*gigantaria*, Stgr.

#### 80. SYNOPSIA, Hb.

Face loosely scaled. Tongue developed, sometimes short. Palpi moderate or rather short, subascending, shortly rough-scaled. Antennæ in ♂ bipectinated, towards apex simple. Thorax densely hairy beneath. Femora more or less hairy beneath; posterior tibiæ in ♂ more or less dilated, with all spurs present. Fore wings in ♂ without fovea; 10 sometimes connected or anastomosing with 12, sometimes with 9 also, 11 out of 10 or sometimes separate, anastomosing with 12 and rarely with 10 also, or 11 out of 10 between connections. Hind wings with 8 approximated to cell to middle.

This genus, not at present identified outside the European region, seems to originate from a form approaching but not identical with *Nychiodes*.

\**barcinonaria*, Bell.

*nycthemeraria*, H.-G. (?; ♂ not examined; perhaps a *Selidosema*).

*fractaria*, Stgr.

*emaria*, Brem.



\**Lederi*, Christ.  
*crassestrigata*, Christ.  
*abruptaria*, Thnb.  
*sociaria*, Hb.

### 81. NYCHIODES, *Ld.*

Face with loosely appressed hairs. Tongue rudimentary. Palpi very short, porrected, rough-scaled. Antennæ in ♂ bipectinated to apex. Thorax hairy beneath. Femora thinly hairy; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 connected or anastomosing with 9, 11 out of 10. Hind wings with 8 approximated to cell to middle.

Restricted to the following species. It is closely related to *Synopsia*, and is probably a collateral branch rising from an ancestor approaching the group of *Proso-polopha*.

*lividaria*, Hb.  
*amygdalaria*, H.-S.  
\**phasidaria*, Rog.

### 82. EPHORIA, n. g.

Tongue developed. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ shortly bipectinated, apex simple. Thorax hairy beneath. Femora glabrous; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 out of 9. Hind wings with 8 approximated to cell to middle.

This genus, to which I assign also the Japanese *formosa*, Butl., is apparently nearly related to *Deilinia*, and is probably a collateral offshoot from the same ancestral form. The following species is East Asiatic.

*arenosa*, Butl.

### 83. DEILINIA, *Hb.*

Face smooth or with small tuft. Tongue developed. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ bipectinated, towards apex simple. Thorax rather hairy beneath. Femora glabrous; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 out of 9, rarely also 11 out of 9. Hind wings in ♂ with circular fovea at base of vein 8 beneath, fringed with hairs; 8 approximated to cell to near middle.

I now restrict this genus as above; hence, of the Australian species which I formerly placed in it, only



*rectaria*, Walk., remains; the rest (differing in the absence of the fovea of hind wings, and in having 11 of the fore wings almost always anastomosing with 12), form a closely allied but distinct genus, for which I propose the name *Trochistis*. *Deilinia* proper occurs throughout the northern hemisphere, though only possessing a few species; it must originate from a form approaching *Euchlæna* and *Metrocampa*.

*pusaria*, L.

*exanthemata*, Sc.

*straminea*, Butl. (= *griseolimbata*, Oberth. = *ustulataria*, Christ.).

\**cumulata*, Christ.

#### 84. LOMOGRAPHA, Hb.

Face nearly smooth or with slight tuft. Tongue developed. Palpi moderate or rather short, porrected or subascending, rough-scaled. Antennæ in ♂ bipectinated, towards apex simple. Thorax somewhat hairy beneath. Femora glabrous; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 absent, 11 sometimes out of 9, sometimes connected or anastomosing with 9 or 12. Hind wings with 8 approximated to cell to near middle.

Closely allied to *Deilinia*, and probably rising from *Euchlæna*. Besides the following there are a few Indo-Malayan and Australian species.

*cararia*, Hb. (♂ not seen).

*dilectaria*, Hb.

*trimaculata*, Vill.

*laminaria*, H.-S.

#### 85. SCARDAMIA, Gn.

Face more or less prominent, with appressed scales. Tongue developed. Palpi moderate, subascending, very shortly scaled. Antennæ in ♂ bipectinated, apex simple. Thorax slightly hairy beneath. Abdomen with dorsal well-defined crest near base. Femora glabrous; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 11 out of 10, anastomosing with 12. Hind wings with 8 approximated to cell to middle.

A development of *Euchlæna*. It is apparently an Indo-Malayan genus of few species, straggling into Africa, Eastern Asia, and Australia.

*aurantiacaria*, Brem.



86. *ELICRINIA*, Hb.

Face smooth. Tongue developed. Palpi short, porrected, shortly rough-scaled. Antennæ in ♂ shortly and evenly ciliated. Thorax hairy beneath. Femora glabrous; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 absent, 11 occasionally connected with 12 and 9. Hind wings with 8 approximated to cell to middle.

A development of *Metrocampa*, with affinity to *Ourapteryx*. It is apparently restricted to the European region.

*trinotata*, Metz.

*subcordaria*, H.-S.

*cordiaria*, Hb. (= *nuptaria*, Brem.).

*cauteriata*, Stgr.

87. *OURAPTERYX*, Leach.

Face somewhat prominent, with short projecting hairs. Tongue developed. Palpi moderate or rather short, porrected or ascending, shortly rough-scaled. Antennæ in ♂ shortly and evenly ciliated. Thorax densely hairy beneath. Femora hairy beneath; posterior tibiæ in ♂ more or less dilated, with all spurs present. Fore wings in ♂ without fovea; 10 absent, 11 anastomosing or connected with 12 and sometimes with 9 also. Hind wings with 8 approximated to cell to near middle.

A small Indo-Malayan genus, containing one European species. It is a development of *Metrocampa*.

*sambucaria*, L.

88. *METROCAMPA*, Latr.

Face smooth or with loosely appressed or projecting scales. Tongue developed. Palpi short or moderate, porrected or sub-ascending, shortly rough-scaled. Antennæ in ♂ bipectinated, apex (often 2 to 4 joints only) simple. Thorax hairy beneath. Femora glabrous or rarely thinly hairy (*honoraria*); posterior tibiæ in ♂ sometimes dilated, with all spurs present. Fore wings in ♂ without fovea; 10 out of 9 or seldom separate, occasionally obsolete at base and then apparently out of 11, 11 anastomosing or connected with 12 and nearly always with 10 also. Hind wings with 8 approximated to cell to middle.

A genus of some extent, ranging throughout the northern hemisphere. It originates from a form near



*Ennomos*, and has affinity to *Euchlæna*. I have satisfied myself that in those few individuals where 10 appears to rise out of 11, it really rises out of 9 as usual and anastomoses with 11, but the basal portion is obsolete and not traceable; were it otherwise, intermediates would certainly occur.

*prosapiaria*, L. (?=*pinicolaria*, Bell.).

*margaritaria*, L.

*honoraria*, Schiff.

*serrata*, Brem.

\**Stschurovskyi*, Ersch.

\**pruinosa*, Brem.

*capreolaria*, F.

*pulveraria*, L.

*indictinaria*, Brem. (= *Snelleni*, Hed.; ?= *emundata*, Christ.).

*dolobraria*, L.

#### 89. EUCHLÆNA, Hb.

Face with appressed scales. Tongue developed. Palpi moderate or short, porrected or ascending, shortly rough-scaled. Antennæ in ♂ bipectinated, apex simple. Thorax hairy beneath. Femora glabrous; posterior tibiæ in ♂ sometimes dilated, with all spurs present. Fore wings in ♂ without fovea; 10 sometimes connected with 9, 11 out of 10, anastomosing or connected with or sometimes running into 12. Hind wings with 8 approximated to cell shortly or to near middle.

A small genus, inhabiting Europe and North America. It must be derived from a form approaching *Ennomos*.

*prunaria*, L.

*parallelaria*, Schiff.

*apiciaria*, Schiff.

#### 90. ARTEMIDORA, n. g.

Face with projecting tuft of scales. Tongue developed. Palpi moderate, porrected or subascending, rough-scaled. Antennæ in ♂ bipectinated to apex. Thorax rather hairy beneath. Femora rather hairy beneath; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; a transparent scar on transverse vein; 6 widely separate from 9, 10 sometimes connected with 9, 11 anastomosing with 12 and 10. Hind wings with 6 and 7 remote, 8 approximated to cell to middle.



Constituted for the following Central Asiatic species. It is probably an offshoot from *Hygrochroa* or an allied form, with collateral affinity to *Selenia*.

*maracandaria*, Ersch.

### 91. SELENIA. *Hb.*

Face with projecting tuft of scales. Tongue developed. Palpi moderate, porrected or subascending, rough-scaled. Antennæ in ♂ bipectinated to apex. Thorax densely hairy beneath. Femora densely hairy beneath; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; a transparent scar on transverse vein; 6 out of 9, 11 rarely connected with 12 or 10. Hind wings with a transparent scar on transverse vein; 6 and 7 stalked, 8 approximated to cell to middle.

Contains the following and two or three North American species. It is an offshoot from *Hygrochroa*.

*bilunaria*, Esp.

*lunaria*, Schiff.

*tetralunaria*, Hufn.

\**versicoloraria*, Christ.

### 92. HYGROCHROA, *Hb.*

Face with projecting tuft of scales. Tongue developed. Palpi moderate, subascending, shortly rough-scaled. Antennæ in ♂ bipectinated to apex. Thorax densely hairy beneath. Femora densely hairy beneath; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 sometimes out of 9, sometimes connected with 11. Hind wings with 8 approximated to cell to middle.

A development from the neighbourhood of *Ennomos*. The single species extends throughout the northern and central parts of the European region.

*syringaria*, L.

### 93. CEPPHIS, *Hb.*

Face with loosely appressed scales. Tongue developed. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ bipectinated to apex. Thorax hairy beneath. Femora glabrous; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 7 and 8 unusually short, 7 rising above middle of 9, 10 out of 9. Hind wings with 8 approximated to cell to middle.



Allied to *Selenia* and *Hygrochroa*, from one or other of which it is probably an offshoot. The single species ranges throughout Central Europe and Asia to Japan.

*advenaria*, Hb.

#### 94. ARTIORA, n. g.

Face with short projecting scales. Tongue short. Palpi short, porrected, shortly rough-scaled. Antennæ in ♂ bipectinated to apex. Thorax rather hairy beneath. Femora glabrous; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 absent. Hind wings with 8 approximated to cell to middle.

Apparently a development of *Ennomos*. The single species is Central European. The name *Therapis*, used by Hübner to include this species and *flavicaria*, was wrongly applied here by Lederer, as Herrich-Schæffer had already limited it so as to make *flavicaria* the type.

*evonymaria*, Schiff.

#### 95. COLOTOIS, Hb.

Face with rough projecting hairs, with a tuft projecting from beneath antennæ across eye to middle. Tongue short. Palpi very short, porrected, rough-haired. Antennæ in ♂ very strongly bipectinated to apex. Thorax densely hairy above and beneath. Femora densely hairy beneath; posterior tibiæ in ♂ not dilated, with all spurs present, short. Fore wings in ♂ without fovea; 10 sometimes anastomosing or connected with 9, 11 anastomosing or connected with 12 and 10. Hind wings with 8 approximated to cell to middle.

The genus is a development of *Ennomos*, and contains only the one species, which occurs throughout most of the European region.

*pennaria*, L.

#### 96. ENNOMOS, Tr.

Face with dense projecting scales, or rounded-prominent and with appressed scales, except at sides (*regina*). Tongue more or less developed or rudimentary. Palpi moderate, porrected or sub-ascending, with rough projecting scales. Antennæ in ♂ bipectinated to apex. Thorax densely hairy above and beneath. Femora densely hairy beneath; posterior tibiæ in ♂ not dilated, median spurs very short or absent. Fore wings in ♂ without fovea; 6 sometimes out



of 9, 10 rarely out of 9, sometimes anastomosing or connected with 9, 11 often out of 10, anastomosing or connected with or rarely running into 12, sometimes anastomosing or connected with 10 also, rarely absent. Hind wings with 6 and 7 rarely stalked, 8 approximated to cell to middle.

Probably a development of *Gonodontis*. It is a characteristically European genus, though straggling into North America. The position of 6 in both wings is not constant specifically. The median spurs are absent in the first five species, which are therefore more recent forms. The name *Eugonia*, Hb., is preoccupied by Hübner himself earlier in the same work, and cannot be employed here.

*quercaria*, Hb.  
*erosaria*, Bkh.  
*\*effractaria*, Frr.  
*fuscantaria*, Hw.

*alniaria*, L.  
*quercinaria*, Hufn.  
*autumnaria*, Wernb.  
*regina*, Stgr.

#### 97. GONODONTIS, Hb.

Face with dense projecting scales, or rounded-prominent and with tolerably appressed scales (*boisduvaliaria*). Tongue more or less developed or obsolete. Palpi moderate, porrected or subascending, with rough projecting scales. Antennæ in ♂ bipectinated to apex. Thorax densely hairy above and beneath, sometimes tending to form slight triangular anterior crest. Femora densely hairy beneath; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 often connected or anastomosing with 9, 11 occasionally connected or anastomosing with 10. Hind wings with 8 approximated to cell to middle.

The genus markedly approaches *Prosoplopha*, and probably originates with it from some earlier form. It is doubtful whether it occurs outside the European region.

*bidentata*, Cl.  
*dardoinaria*, Donz.  
*tusciaria*, Bkh.  
*elinguaria*, L.  
*boisduvaliaria*, Luc.

#### 98. CISTIDIA, Hb.

Face roughly hairy or with loosely appressed scales. Tongue developed. Palpi moderate, subascending, rough-scaled or hairy. Antennæ in ♂ sometimes somewhat thickened towards apex, naked



or very shortly ciliated. Thorax densely hairy beneath. Abdomen in ♂ very elongate. Femora hairy beneath; posterior tibiæ in ♂ much dilated, with all spurs present but short. Fore wings in ♂ without fovea; 10 sometimes out of 9, connected with 9. Hind wings with 8 approximated to cell to or beyond middle.

A curious genus, yet more peculiar in appearance than in actual structure. It seems to be an isolated development of *Pseudopanthera*, perhaps with some relationship to *Abraxas*. The two following species are East Asiatic and Japanese, and I have a third species from Japan, and a fourth from China.

*stratonice*, Cr.

*couaggaria*, Gn. (= *euryppyle*, Mén. = *eurymede*, Motsch.).

#### 99. ABRAXAS, Leach.

Face smooth. Tongue developed. Palpi rather short, sub-ascending, shortly rough-scaled. Antennæ in ♂ stout, ciliated with moderate fascicles. Thorax hairy beneath. Femora glabrous; posterior tibiæ in ♂ dilated, with all spurs present. Fore wings in ♂ without fovea; 10 sometimes connected with 9, 11 out of 10, anastomosing with or running into 12 or absent. Hind wings with 8 approximated to cell shortly or to middle.

A genus of rather limited extent, almost confined to India, China, and Japan, from which countries the few European species are all stragglers; they are all found native there, in company with others, and their present wide distribution is remarkable, and probably to some extent artificial. The genus is a development of *Pseudopanthera*.

*grossulariata*, L.

*pantaria*, L.

*sylvata*, Sc.

*adustata*, Schiff.

*marginata*, L.

#### 100. PSEUDOPANTHERA, Hb.

Face usually more or less rounded or prominent, sometimes slightly tufted on lower edge. Tongue developed. Palpi rather short or moderate, porrected or ascending, rough-scaled. Antennæ in ♂ stout, more or less flatly subdentate, shortly and evenly ciliated. Thorax more or less hairy beneath. Femora glabrous or



rarely slightly hairy; posterior tibiæ in ♂ sometimes dilated, with all spurs present. Fore wings in ♂ without fovea; 10 sometimes out of 9, usually connected or anastomosing with 9, 11 sometimes out of 10 or anastomosing with 10, sometimes anastomosing with 12. Hind wings with 8 approximated to cell to middle.

This genus appears to be principally European, though with occasional representatives in other regions. It is a development of *Crocota*.

- |                              |   |
|------------------------------|---|
| <i>unio</i> , Oberth.        | <i>furvata</i> , F.   |
| * <i>ætheriata</i> , Graes.  | <i>pullata</i> , Tr.  |
| <i>clarissa</i> , Butl.      | <i>sartata</i> , Tr.  |
| <i>punctata</i> , F.         | <i>dumetata</i> , Tr.   |
| <i>bimaculata</i> , F.       | <i>respersaria</i> , Hb.                                      |
| <i>pictaria</i> , Curt.      | * <i>colchidaria</i> , Ld.                                    |
| <i>macularia</i> , L.        | <i>dolosaria</i> , H.-S.                                      |
| <i>syriacata</i> , Gn.       | <i>poggearia</i> , Ld.  |
| <i>disparata</i> , Stgr.     | * <i>gruneraria</i> , Stgr.                                   |
| <i>variegata</i> , Dup.      | <i>exculpta</i> , Butl. (= <i>semi-orbiculata</i> , Christ.). |
| * <i>difficilis</i> , Alph.  | * <i>benesignata</i> , Bell.                                  |
| <i>glaucinaria</i> , Hb.     | <i>hippocastanaria</i> , Hb.                                  |
| <i>sibiriata</i> , Gn.       | * <i>tibiaria</i> , Rbr.                                      |
| * <i>creperaria</i> , Ersch. | <i>asperaria</i> , Hb.  |
| <i>obscuraria</i> , Hb.      | <i>rippertaria</i> , Dup.                                     |
| * <i>onustaria</i> , H.-S.   | <i>scutularia</i> , Dup.                                      |
| <i>ambiguata</i> , Dup.      | <i>partitaria</i> , Hb.                                       |
| * <i>stemataria</i> , Ev.    | <i>petraria</i> , Hb.   |
| <i>obfuscaria</i> , Hb.      | <i>lineata</i> , Sc.  |
| * <i>sericaria</i> , Alph.   |   |
| * <i>nimbata</i> , Alph.     |   |

#### 101. HYPOSCOTIS, Hb.

Face forming a rounded prominence, with appressed scales. Tongue developed. Palpi short, porrected, rough-scaled. Antennæ in ♂ shortly bipectinated, becoming simple toward apex. Thorax slightly hairy beneath. Femora glabrous; posterior tibiæ in ♂ dilated, with all spurs present. Fore wings in ♂ without fovea; 10 out of 9, anastomosing with 9, 11 anastomosing with 12 and 10. Hind wings with 8 approximated to cell to middle.

The single species is very closely related to *Pseudopanthera*, and may possibly be a development of it, but more probably a transitional form marking the passage from *Crocota* to *Pseudopanthera*.

*mucidaria*, Hb.



## 102. THERAPIS, Hb.

Face prominent beneath, with slightly projecting scales. Tongue developed. Palpi moderately long, porrected, rough-scaled. Antennæ in ♂ bipectinated, apex simple. Thorax slightly hairy beneath. Femora glabrous; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 and 11 free. Hind wings with 8 approximated to cell to middle.

Probably a development of either *Crocota* or *Pseudopanthera*. The single species inhabits South-east Europe.  
*flavicaria*, Hb.

## 103. HYPOPLECTIS, Hb.

Face with appressed scales. Tongue developed. Palpi short, porrected, rough-scaled. Antennæ in ♂ bipectinated to apex. Thorax somewhat hairy beneath. Femora glabrous; posterior tibiæ in ♂ slightly dilated, with all spurs present. Fore wings in ♂ without fovea; 10 anastomosing or connected with 12 and 9, 11 absent. Hind wings with 8 approximated to cell to middle.

The single species, which ranges through most of the European region, is an offshoot of *Crocota*.  
*adspersaria*, Hb.

## 104. CROCOTA, Hb.

Face more or less rounded-prominent or nearly flat, with tolerably appressed scales. Tongue developed. Palpi moderate or rather short, porrected or ascending, rough-scaled or sometimes hairy. Antennæ in ♂ bipectinated to apex. Thorax hairy beneath. Femora glabrous or sometimes hairy; posterior tibiæ in ♂ moderately or hardly dilated, with all spurs present. Fore wings in ♂ without fovea; 10 very rarely out of 9, usually connected or anastomosing with 9, 11 rarely out of 10 (*formosaria*), usually connected or anastomosing with 12, occasionally with 10 also. Hind wings with 6 and 7 rarely stalked (*ochrearia*, *curvaria*), 8 approximated to cell to middle. Female sometimes semi-apterous or apterous.

The genus is characteristic of the European region, though stragglers occur elsewhere. It is probably derived from *Biston*.

*lutearia*, F.  
*niveata*, Sc.  
*peletieraria*, Dup.

*sordaria*, Thnb.  
*dilucidaria*, Hb (?=*canitiaria*, Gn.).



<i>cælibaria</i> , H.-S.	<i>saria</i> , Christ.; = <i>opu-</i>
<i>serotinaria</i> , Hb.	<i>lentaria</i> , Stgr.).
<i>andereggaria</i> , Lah.	<i>mundataria</i> , Cr.
<i>operaria</i> , Hb.	* <i>Sieversi</i> , Christ.
<i>zelleraria</i> , Frr.	<i>strigillaria</i> , Hb. (?= <i>bæ-</i>
<i>tenebraria</i> , Esp.	<i>ticaria</i> , Rbr.).
<i>emucidaria</i> , Dup.	<i>formosaria</i> , Ev.
<i>belgaria</i> , Hb.	* <i>rectaria</i> , Frr.
* <i>penulataria</i> , Hb.	* <i>violentaria</i> , Christ.
* <i>tekkearia</i> , Christ.	<i>curvaria</i> , Ev.
<i>conspersaria</i> , F. (?= <i>rau-</i>	<i>gilvaria</i> , F.
<i>naria</i> , Frr.).	<i>ochrearia</i> , Ross.
* <i>lentiscaria</i> , Donz.	* <i>insignis</i> , Alph.
<i>Iveni</i> , Ersch.	* <i>unifasciata</i> , Mén.
<i>acuminaria</i> , Ev. (= <i>glos-</i>	<i>pravata</i> , Hb.

#### 105. THERIA, Hb.

Face with appressed scales. Tongue weak. Palpi very short, porrected, rough-scaled. Antennæ in ♂ bipectinated to apex. Thorax slightly hairy beneath. Femora glabrous; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 out of 9, sometimes connected or anastomosing with 9, 11 out of 9, anastomosing or connected with 12 and 10. Hind wings with 8 approximated to cell to near middle. Female semi-apterous.

A development from *Crocota*, which it closely resembles. The single species is European.

*rupicaprararia*, Hb.

#### 106. LIGNYOPTERA, Ld.

Face loosely rough-haired. Tongue weak. Palpi moderate, porrected, with long rough hairs. Antennæ in ♂ shortly bipectinated, apex simple. Thorax roughly hairy above and beneath. Femora hairy; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 11 anastomosing with 12. Hind wings with 8 approximated to cell to middle. Female apterous (?).

An offshoot from *Crocota*; the only species inhabits South-east Europe.

*fumidaria*, Hb.



107. *Psodos*, *Tr.*

Face with long rough hairs. Tongue developed. Palpi moderate, porrected, with long projecting hairs. Antennæ in ♂ stout, shortly ciliated. Thorax roughly hairy beneath. Femora hairy; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 sometimes absent, 11 anastomosing or connected with 12 and seldom with 9 also. Hind wings with 6 and 7 sometimes short-stalked, 8 approximated to cell to middle.

This small genus, confined to the European mountains, is derived from *Crocota*, with close collateral affinity to *Lignyoptera*.

*alticolaria*, Mn.

*coracina*, Esp.

*trepidaria*, Hb.

*alpinata*, Sc.

*quadrifaria*, Sulz.

108. *HYBERNIA*, *Latr.*

Face with appressed scales or shortly rough-scaled. Tongue developed or weak. Palpi short or rather short, porrected, shortly rough-scaled. Antennæ in ♂ either bipectinated, pectinations sometimes short and terminating in fascicles of cilia, apex simple; or with two very short processes on each side of each joint, emitting long fascicles of cilia. Thorax with small triangular anterior crest, hairy beneath. Femora glabrous; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 sometimes out of 9, sometimes anastomosing or connected with 9, 11 sometimes out of 10, usually anastomosing with or running into 12, rarely absent. Hind wings with 8 approximated to cell to middle. Female semiapterous or apterous.

The genus is closely allied to *Crocota*, and probably derived with it from *Biston*. It is characteristic of the European region, though stragglers occur elsewhere also.

*leucophæaria*, Schiff.

*bajaria*, Schiff.

*marginaria*, Bkh.

*defoliaria*, Cl.

*aurantiaria*, Esp.

*ankeraria*, Stgr.

*declinans*, Stgr.



109. APOCHEIMA, *Hb.*

Face roughly hairy. Tongue very short or rudimentary. Palpi short or moderate, porrected, rough-haired. Antennæ in ♂ bipectinated to apex, or with apex simple. Thorax clothed with dense hairs above, with slight anterior triangular crest, beneath densely hairy. Femora densely hairy; posterior tibiæ in ♂ not dilated, without median spurs, or rarely with spurs present but short (*pedaria* and *tartarica*). Fore wings in ♂ without fovea; 6 rarely out of 9, 10 usually anastomosing or connected with 9, 11 sometimes out of 10 or absent, or running into 12, or concealed by anastomosis of 10 with 12. Hind wings with 6 and 7 sometimes stalked, 8 approximated to cell to middle. Female with wings rudimentary or absent.

Almost confined to the European region; it is developed from *Biston*. The variation in structure is rather considerable, but not available for generic subdivision.

<i>lefuaria</i> , Ersch. (=ol-	<i>pomonaria</i> , <i>Hb.</i>
<i>garia</i> , Oberth.; (=ma-	* <i>lanaria</i> , <i>Ev.</i>
<i>turaria</i> , Christ.).	<i>hispidaria</i> , <i>F.</i>
<i>fiduciaria</i> , <i>Ank.</i>	* <i>arcanaria</i> , <i>Mill.</i>
<i>zonaria</i> , <i>Schiff.</i>	<i>cineraria</i> , <i>Ersch.</i>
<i>alpina</i> , <i>Sulz.</i>	* <i>declinata</i> , <i>Stgr. (?)</i>
<i>græcaria</i> , <i>Stgr.</i>	* <i>tartarica</i> , <i>Stgr.</i>
* <i>liquidaria</i> , <i>Ev.</i>	<i>pedaria</i> , <i>F.</i>
<i>lapponaria</i> , <i>B.</i>	

110. ZAMACRA, n. g.

Face rough-haired, with horny triangular projection. Tongue rudimentary. Palpi rather short, porrected, rough-haired. Antennæ in ♂ strongly bipectinated to apex. Thorax densely haired above, with slight traces of anterior crest, beneath densely hairy. Femora densely hairy; posterior tibiæ without median spurs, in ♂ not dilated. Fore wings in ♂ without fovea; 10 absent, 11 anastomosing with 12. Hind wings with 6 and 7 stalked, 8 approximated to cell nearly throughout.

The single species is a development of *Biston*, from which it does not greatly differ, and inhabits the shores of the Mediterranean.

*flabellaria*, *Heeg.*

111. BISTON, *Leach.*

Face densely rough-haired or rough-scaled. Tongue developed or very short or obsolete. Palpi moderate or short, porrected,



rough-haired or rough-scaled. Antennæ in ♂ strongly bipectinated to apex, or with apex simple. Thorax densely haired above, with slight loose anterior crest, beneath densely hairy. Femora densely hairy; posterior tibiæ hairy, with median spurs very short or absent, in ♂ not dilated. Fore wings in ♂ without fovea; 10 usually connected or anastomosing with 9, 11 usually out of 10, rarely free or absent. Hind wings with 8 approximated to cell to middle.

Probably this may be derived from a form approaching *Phaselia*. The species are not numerous; besides the following, there are a few in India and Africa.

*hirtarius*, Cl.

*necessarius*, Z.

*stratarius*, Hufn.

*tendinosarius*, Brem.

\**hueberarius*, Ball.

*betularius*, L.

#### 112. SPARTOPTERYX, Gn.

Palpi short. Antennæ in ♂ bipectinated to apex. Posterior tibiæ with all spurs present. Female semiapterous, anterior wings linear.

I have not seen the single Siberian species which constitutes this genus, and can only give the above-mentioned fragmentary details from Guenée. I conjecture, however, that it is probably a good genus, and allied to the ancestral form of *Phaselia*.

\**serrularia*, Ld. (= *kindermannaria*, Stgr.).

#### 113. PHASELIA, Gn.

Face with tolerably appressed scales. Tongue obsolete. Palpi very short, porrected, rough-scaled. Antennæ in both sexes bipectinated to apex. Thorax with loose lateral and posterior crests, beneath densely hairy. Femora glabrous; posterior tibiæ without median spurs, in ♂ not dilated. Fore wings in ♂ without fovea; 10 connected with 9. Hind wings with 8 approximated to cell to middle.

Doubtless a development from the *Prosoplopha* group, but the actual point of connection seems uncertain. The genus seems attached to South-east Europe and South-west Asia.

*serrularia*, Ev.

\**deliciosaria*, Ld.

\**strictaria*, Ld.



114. CHEMERINA, B.

Face with appressed scales, crown with defined posterior tuft. Tongue developed. Palpi moderate, porrected, rough-scaled. Antennæ in ♂ bipectinated, apex simple. Thorax hairy beneath. Femora glabrous; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 out of 9, anastomosing with 11 and 9. Hind wings with 8 approximated to cell to middle.

The single species is nearly allied to *Prosopolopha*, of which it may be a development; it frequents the Mediterranean coasts.

*caliginearia*, Rbr.

115. ONYCHORA, n. g.

Face subprominent, with appressed hairs. Tongue developed. Palpi rather short, porrected, rough-haired. Antennæ in ♂ bipectinated to apex. Thorax hairy beneath. Femora slightly hairy; anterior tibiæ very short, with strong apical hook; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 out of 9, anastomosing with 9, 11 anastomosing with 12 and 10. Hind wings with 8 approximated to cell to middle.

The only species is doubtless derived from *Prosopolopha*; it inhabits South-west Europe.

*agaritharia*, Dard.

116. PROSOPOLOPHA, Ld.

Face rough-haired, forehead sometimes tufted. Tongue developed. Palpi rather short, porrected, rough-scaled. Antennæ in ♂ bipectinated to apex. Thorax densely haired, with slight loose triangular anterior crest, beneath densely hairy. Femora hairy; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 anastomosing with 9, 11 anastomosing with 12 and 10. Hind wings with 8 approximated to cell to beyond middle.

This genus was named *Ligia* by Duponchel, but the name is preoccupied in the Crustacea. The limits of the genus and its geographical range are somewhat uncertain; the group to which it belongs is most numerous represented in Australia, but is everywhere fragmentary and now probably dying out.



*modesta*, Stgr.  
\**turanica*, Ersch.  
\**ciliaria*, Mén.  
\**argentaria*, H.-S.  
*jourdanaria*, Vill.  
*opacaria*, Hb.

## 117. AXIA, Hb.

Face rough-haired. Tongue weak. Palpi short, porrected, rough-scaled. Antennæ in ♂ bipectinated to apex. Thorax with collar forming an erect crest, patagia loosely rough-scaled, beneath hairy. Femora slightly hairy; posterior tibiæ in ♂ not dilated, with all spurs present. Fore wings in ♂ without fovea; 10 connected with 9. Hind wings with 8 approximated to cell throughout and to basal fourth of 7, thence diverging.

The peculiar structure of vein 8 of the hind wings distinguishes this genus at once, but it is notwithstanding nearly allied to *Prosopolopha*, and is probably at the same time one of the most primitive types of the *Geometrina*, retaining indications of its affinity to other groups. Only one species is known, which inhabits South-west Europe, and appears always rare.

*margarita*, Hb.

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APPENDIX OF STATISTICS OF NEURAL VARIATION  
IN THE *SELIDOSEMIDÆ*.

As in the *Selidosemidæ* the structure of veins 10 and 11 of the fore wings is in many instances liable to vary to an unusual extent within the limits of the same genera and species, I give here an analysis of the results obtained from the inspection of the specimens examined for the purpose of this paper. Before doing so I have to acknowledge my indebtedness to Miss M. Kimber, F.E.S., for much valuable assistance; Miss Kimber very





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