THE NOCTUIDÆ OF EUROPE AND NORTH AMERICA
COMPARED.

(Fifth Paper.)

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Tribe *Orthosiini*.

The vestiture is woolly, and in this lies a distinguishing character from the *Agrotini* and *Hadenini*, which some genera much resemble, while the body is hardly tufted; the rather broad thorax has sometimes a median ridge. The colours of the moths are often shades of brown, red and yellow, like the autumn foliage, in which many of the hibernating species hide. The eyes of the first genera are hairy; in several the tibiæ are spinose, the reverse being usually the case. Whether our, mostly western, species allied to *Perigrapha cincta* are strictly congeneric, I have not been able to decide. *Acerra normalis* has simple antennæ in the male; the ornamentation in most cases suggests the relationship. There are two European species of *Perigrapha* against seven related North American species. The genus *Teniocampa* has twenty-two described American species and only eleven European; among these is one, *alia*, identical. I have not a particle of doubt that for this genus the term *Graphiphora* Hübn., must be retained. My efforts to place the generic nomenclature upon a final basis, by fixing the types in 1874, has met with thoughtless opposition and incorrect criticism. The question of whether Hübner, or others, held our modern (supposed by empirics infallible) ideas upon genera, is quite beside the question of the oldest and therefore proper name for a genus. I have exposed this sort of reckless criticism in the second part of my Check List, 1875, 1876. Only my desire to avoid contention and to enable a comparison of our fauna by the use of the same terms, has induced me to cede the present instance, because the name *Graphiphora* taken from Hübner (to whom we owe almost *all* the leading generic names in the Noctuidæ), had been mis-applied. I think, now, I may have been wrong in this, and that *Graphiphora* should be used, as I originally proposed, with the type *Gothica*, and *Teniocampa* rejected. Only in this way shall we obtain a stable nomenclature, and the European catalogues must conform, if nearer conclusions are to be arrived at, and lists are to be useful beyond a mere stringing of the different species.

The North American hairy-eyed genera allied to *Teniocampa* are, further, *Crocigrapha*, with a tuft behind the collar; *Orthodes*, *Himella* and *Morrisonia* (the species of which latter curiously resemble *Actinotia*, but seem to hibernate, being found early in the year on sallows); while I have described American species belonging to the naked-eyed European genera *Parastichtis* and *Anhocelis*. Naked-eyed genera, with armed tibiae, are *Pachnobia* and *Metalepsis*, occurring in both faunae, and *Pseudorthosia*, *Choephora*, *Pseudoglaea*, which seem to be American only. *Trichorthosia*, which has hairy eyes, seems to be more allied to *Xanthia*, or *Orthosia*, in the shape of the wings; but, if we do not divide this tribe, as is perhaps unnecessary, it may be ranged with the other hairy-eyed genera, together with the somewhat aberrant *Trichocosmia*. The principal genus is, perhaps, *Orthosia*, of which fourteen European and seventeen American species are described, mostly of a European habitus, and one representative, *ferrugineoides*. While I have referred one identical species (*togata*) to *Xanthia*, which, as distinct from *Orthosia*, contains seven European species, the singular genus *Jodia* Hub. (= *Hoporina* Boisd.), has an American representative of *croceago* in *J. rufago* Hübn. *Eucirroedia* is a modification of the European genus *Cirroedia*; while the peculiar genus *Scoliopteryx* with its one species, *libatrix*, is common to Europe and America, from Hudson's Bay to Virginia, and is probably a survival of the former circumpolar fauna. *Glaea* Hübn. (= *Orrhodia* Hübn., *Cerastis* Tr.) has twelve European and only four American species, but the nearly related American genus *Epiglaea*, which differs from *Glaea*, much as *Richia* differs from *Agrotis*, by the presence, namely, of a median thoracic ridge, has five, and *Homoglaea* two described species. Our most beautiful species is *H. carnosa*, in which the egg is also pink in colour. *E. venustula* is said to be the same as *E. sericea*; if the description of the latter is compared, it will be seen to contradict that of *E. venustula* in important points, which remain incomprehensible if the two are really the same. The genera *Ipimorpha* and *Calymnia* have representative, the genus *Cosmia*, an identical species, *paleacea*. While there are a few peculiar genera in both faunae, such as *Dicycla* in Europe, and *Zotheca* in America, the affinities of the two faunae in this tribe are strongly marked. The peculiar genus *Scopelosoma* has in Europe one, in America nine species. Of these it is difficult to say which is nearest to the European *satellitica*; the identification of Guenée's *sidus*

is hence almost impossible; his type also cannot be found. In my opinion he may have had a form of *Walkeri* before him; but whether this, or *vinulenta*, or even *tri-stigmata*, or *Morrisoni*, cannot, with certainty, be made out from his comparative description. As I have separated all the American forms under distinct names, and Mr. Thaxter has shown the distinctness of most of them by breeding, these names should be retained until further evidence be forthcoming as to the single species indicated by Guenée. A different course would be the result of mere opinion and, without scientific value, only make confusion.

Tribe *Calocampini*.

The vestiture resembles that of the preceding tribe, but the wings are narrower, the legs proportionately shorter, unarmed. The palpi are short; male antennæ thickly ciliate. The primaries are blunt, not widening outwardly as much as usual, with gray or brown, streaky, stone-like markings, hence the name *Lithophane*, used for the principal genus by Hübner. This genus is incorrectly called *Xylina*; Hübner's genus of this name having for type a species of *Hadena*. It seems to have been customary for earlier authors to take names out of Hübner's writings and apply them arbitrarily, with or without diagnosis. The injustice and absurdity of this proceeding must be evident to all thinking persons. Only an empiric, full of his own importance and wishing to elevate himself by contrast, can commit the blunder. If Hübner has not given neurational characters, it is because neurational characters were not then known; at least he has not given us incorrect descriptions of the venation, which is in his favor as compared with certain quite modern writers. *Lithophane* has eight European and about twenty-five American species; again a large preponderance. Of these, *Thaxteri* represents the European *lambda*; but no variety of the latter corresponds with our American form, which must be regarded as a distinct representative species accordingly. The European *ingrica* seems to be represented also by *pexata* and its variety *Washingtoniana*, although in the latter instance nearer comparisons are necessary, which I have not been able to make. *Lithomia* Hübn., which differs by the character of the palpal vestiture and the elevated collar, has apparently a representative species in *germana*; but I strongly suspect that this is really identical with the European *solidaginis*. *Calocampa* has

two European and apparently four American species, one of which is unknown to me; of the other three, *nupera* is said to represent the European *vetusta*, although perhaps identical with it; *cineritia* has the widest range, while both this and *curvimacula* are quite different from either of the European forms. The representation of this tribe in Europe is covered by the American forms.

Tribe *Cuculliini*.

The elongate wings are sharply pointed, the collar hood-shaped; the abdomen is tufted terminally and extends beyond the proportionately small secondaries. The European species (43) greatly outnumber the described American forms (11). There are a large number of closely related species in the European fauna, many of comparatively recent detection. Perhaps more remain to be described in North America, though it is probable that both this and the next tribe will show an excess of European forms. The specific groups seem to be represented in America. I do not know, however, *luna*, which appears to be allied to the European silvery forms. In addition we have a Californian species, *matricariae* Behr. (= *serraticornis* Lintr.), which has pectinated ♂ antennæ; I have doubted its being a true *cucullia*.

Tribe *Cleophanini*.

I have referred to *Cleophana*, two American species with hood-shaped collar and the facies of *Cucullia*, but with a claw to the front tibiæ. The other European genera, *Epimecia*, *Calopharia*, I have not recognized. *Nyctophaæta* I believe to be a Heliothid form.

Tribe *Euteliini*.

In this tribe of smaller moths, the wings are more or less extended in repose, in the American genus *Marasmalus* folded like a fan. The small secondaries ally them to *Cucullia*. The antennæ have a basal tuft; the collar cut out behind, not hood shaped; the abdomen more or less tufted; the eyes naked. The American *Ripogenus pulcherrimus*, a rare moth, seems to be related to the European *Eutelia adulatrix*.

Tribe *Ingurini*.

The male antennæ are simple at tip. An American form coming to our fauna probably from the south. The form resembles the preceding tribe, but the wings are entire. The species of the single genus *Ingura* are small moths, resembling the species of *Abrostola* in ornamentation, except, perhaps, *oculatrix*, which is a pretty, singularly marked moth.

Tribe *Anomiini*.

Thinly or closely scaled untufted forms, with rather broad and pointed wings and slimy vestiture, the larvæ half loopers. *Anomis* has uneven margins to the primaries. *Aletia* (the "cotton worm") has them even, somewhat sickle-shaped. *Pteratholix* and *Chytoryza* have peculiar clear spots and structure of the fore-wings. The tribe is American, and comes to our fauna from the south.

Tribe *Litoprosopini*.

Larger species with *Plusia*-like palpi, untufted, with brown wings, having curious ocellate markings and metallic points on secondaries. *Hatney* from Cuba, *conflicens* from the west coast, *futilis* from Florida, all belonging to *Litoprosopus*, and are tropical American forms intruding into our territory in the south.

Tribe *Calpini*.

The fore-wings are wide, with pointed apices, full external margin, a tooth on inner margin. Eyes naked, lashed. Palpi prominent, hirsute to the tips, terminating bluntly as if cut off. A single genus and species in Europe, *Calpe capucina*, has apparently an American representative in *C. canadensis* Beth. I have not been able to study other genera, indicated by Guenée and figured by various writers. This tribe would seem to be tropical in its origin. The genus *Calpe* probably belonged to the tertiary circumpolar fauna, and is of so pronounced a form that the American and European descendants have retained a decided resemblance. I do not know that *Canadensis* has been bred or carefully compared with its European ally, but I was able to recognize type specimens among Mr. Walker's synonyms and somewhat confusing generic references in this family. Full and careful comparisons are needed in many cases to decide whether the species are representative or identical.