

specimen assumes a hybrid appearance. All the anterior appendages except the eyes are those of *Palinurus*; the eyes and the posterior appendages are those of *Scyllarus*, while the intermediate appendages are common to both. It does not belong to any genus of the Palinuridæ; and it does not belong to any in Scyllaridæ: it either unites the two outlying families into one, or it is the type of a form distinct from either. My own inclination is to bring the three into one family; but our want of knowledge of the character of the brephalus of *Synaxes*, whether it be that of *Phyllosoma*, as are those of the other two forms, in each of which are several very distinct and well-defined genera, makes it more prudent for the present to group it in a distinct subfamily in the same tribe as the other two, thus:—

### SYNAXIDEA.

#### Synaxidæ.

*Scyllarina.*

*Synaxina.*

*Palinurina.*

The dried condition of the specimen at my disposal has enabled me only slightly to examine the branchial apparatus; but from what I have seen I think it may be tabulated by the same formula as that of *Palinurus* and *Scyllarus*.

The specimen has been kindly lent to me for examination by Dr. Carte, and belongs to the Natural-History Museum under his care in Dublin. It was taken in the West Indies by Commodore Sir F. M'Clintock; but the depth and precise locality are not recorded.

### EXPLANATION OF PLATE XIV.

Fig. 1. *Synaxes hybridica*. Dorsal aspect.

Fig. 2. *S. hybridica*. Ventral aspect.

Fig. 3. *S. hybridica*. Lateral aspect of cephalon (eye removed).

Fig. 4. *q*, second pair of pleopoda (*Synaxes*, female).

Fig. 5. *p*, first pair of pleopoda (*Arctus*, male); *q*, second pair of pleopoda (*Arctus*, female); *r*, third pair of pleopoda (*Arctus*, female).

Fig. 6. *q*, second pair of pleopoda (*Palinurus*, female); *r*, third pair of pleopoda (*Palinurus*, female).

XX.—On the first Part of a Memoir by Mons. Charles Oberthür on the Lepidoptera of the Isle of Askold. By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

IN the last livraison of his 'Etudes d'Entomologie' (some preliminary diagnoses for which were kindly forwarded to me by the author late in 1880) M. Oberthür gives an account of



a collection of Lepidoptera received by him from the Isle of Askold, Mantchooria.

Whilst lepidopterists are much indebted to M. Oberthür for the numerous careful figures which illustrate this memoir, it must be a cause for regret to all who study it that equal care has not been taken to avoid the multiplication of synonyms.

Monsieur Oberthür is, I feel sure, too genuine a naturalist to be hurt at the correction of any errors which may have crept into his publications; and as the Lepidoptera of China and Japan have, for years past, been my special study, I feel called upon, in the interests of science, to review a paper bearing so intimate a relation as this does to the entomological resources of those countries.

It seems to me that when an entomologist is ready not merely to distinguish every geographical race as a species, but to give a distinct name to every admitted variety or sport, he ought, for the sake of consistency, if for no better reason, to adopt all genera founded upon well-defined structural characters. This, however, M. Oberthür has not done, as will be at once seen by the following revised list of his supposed new species.

The advantage of numerous genera is (it seems to me) to enable a naturalist who does not possess in a large measure the gift of order which would enable him to group allied forms by their external facies, to associate them by the more scientific mode of examining and comparing their structural peculiarities.

The following is a list of the Heterocera in M. Oberthür's memoir, with corrections of their specific and generic names where required:—

### Sphingidæ.

*Smerinthus askoldensis*, Oberth. Belongs to the group of genera near *Proserpinus*, although in some of its characters it more nearly resembles *Pergesa*. It has no connexion whatever with the Smerinthinæ.

*Smerinthus Jankowskii*, Oberth. Near to *Triptogon dyras* from Ceylon.

*Sphinx Davidis*, Oberth. A species of the genus *Hyloicus*.

The three species of Sphingidæ will therefore all stand, although in different genera from those to which they are referred.

### Zygænidæ.

*Procris psychina*, Oberth.



## Lithosiidæ.

*Lithosia gigantea*, Oberth. Referable to the genus *Collita* of Moore.

*Calligenia askoldensis*, Oberth. Near to *Miltochrista miniata*, if distinct.

## Arctiidæ.

*Spilosoma Dærriesii*, Oberth. = *S. punctarium*, Cram.

*Spilosoma Jankowskii*, Oberth. Near to *Spilarctia lacteata* of India.

Of *S. seriato-punctata*, Motsch., which he figures under the name of *S. striatopunctata*, M. Oberthür describes specimens as having more or less rose-colour over the secondaries. As we have both sexes with barely a trace of rose-colour both from Yokohama and Tokei, I strongly suspect that these examples with rose-coloured secondaries are referable to my *Spilarctia rosacea*. The basal black costal dash is characteristic of a group of allied species; but its existence on opposite sexes of two otherwise dissimilar forms is very apt to mislead collectors, who naturally jump to the conclusion that they have discovered the male and female of one species.

## Liparidæ.

*Dasychira virginea*, Oberth.

*Dasychira olga*, Oberth.

*Dasychira acronycta*, Oberth. Two species are here confounded, the male being that sex of *D. lunulata*, Butl.; the female, which is new, may retain the name. We have both of these species from Japan in both sexes; and a mere glance at the two males or females side by side would convince the most prejudiced of their entire distinctness: the male of *D. acronycta* is considerably smaller than the female; and the female of *D. lunulata* is in like manner considerably larger than its own male.

*Leucoma piperita*, Oberth. A species of *Ariaxa*, which we have recently received from Tokei, Japan.

## Lasiocampidæ.

*Pyrosis eximia*, Oberth. Near to *Podalia dorsimacula*, Walk.

*Odonestis askoldensis*, Oberth. Described as a dark variety of *O. potatoria*; but the latter species varies to any extent in this respect; the colouring, however, appears to resemble that of *O. albomaculata*, a common Japanese species which certainly is (as M. Oberthür suggests) distinct from *O. potatoria*.



*Odonestis unicolor*, Oberth. Described as a red variation of *O. excellens*, Butl.

*Trisula andræas*, Oberth. = *Phalera flavescens*, Bremer.

This species is a Notodont, although referred by M. Oberthür to the Lasiocampidæ, next to what he calls "*Bombyx*!" *neustria*; the genus *Trisula*, on the other hand, is a broad-winged Liparid having the larva of a *Lymantria*. *P. flavescens* is a common Japanese species.

*Saturnia Jankowskii*, Oberth. Referable to the genus *Rhodia*.

*Euphranor cæca*, Oberth. A form quite new to me.

*Pseudopsyche Dembowskii*, Oberth. A species of *Panisa* near *circumdاتا*.

### Limacodidæ.

*Limacodes castaneus*, Oberth. = *Phrixolepia sericea*, Butl.

M. Oberthür admits this synonym in the note at the end of his description; but he nevertheless retains his own name.

*Limacodes dentatus*, Oberth.

### GEOMETRITES.

*Nyssiodes olgaria*, Oberth. According to Dr. Staudinger (so M. Oberthür tells us), this is probably the *Biston lefuarius* of Erschoff. If this is so, surely it is unwise to run the risk of adding to the synonymy by proposing another name for it. We have this species from Yokohama, sent by Mr. Pryer.

*Boarmia stipitaria*, Oberth. Very near to *B. consortaria*.

*Boarmia piperitaria*, Oberth.

*Boarmia Dembowskii*, Oberth. This species, in my opinion, does not belong to the Boarmiidæ; the character of its markings is rather that of *Fidonia*. It could in no case be referred to *Boarmia*, if its antennæ are so slender as represented. The *B. mandshuraria* of Bremer appears to me to be a *Melanippe* allied to my *B. abraxaria*.

*Boarmia amphidasyaria*, Oberth. This is a *Hemerophila*.

*Phorodesma Jankowskii*, Mill.

*Phorodesma amænaria*, Oberth. This is a *Comibæna*.

*Nemoria amphitritaria*, Oberth. This is a *Thalera*.

*Acidalia unio*, Oberth. Is not this a *Corycia*?

*Phasiane griseo-limbata*, Oberth. = *Nematocampa straminea*, Butl.

According to M. Oberthür his "Diagnoses" were published in August 1879, and consequently take priority of my paper published in the 'Annals' for November and December 1879.



*Rhyparia askoldinaria*, Oberth. Since it is not advisable to use the same generic name twice over in different groups of the Heterocerous Lepidoptera, I proposed the name *Icterodes* for this genus (see Ill. Typ. Lep. Het. ii. Index, p. ix, and pl. xxxvii. fig. 9), a fact which M. Oberthür seems entirely to have overlooked.

*Melanippe luctuosaria*, Oberth.

*Anticlea Taczanowskiaria*, Oberth. Common at Tokei, Japan.

M. Oberthür refers my *Acidalia unisterpis* to *Camptogramma*, by which alteration he certainly does not improve matters. The species is somewhat variable, and is doubtless identical with Moore's *A. plurilinearia*; it certainly is allied to *A. moniliata*, and is neither allied to, nor does it in the least resemble, any species of *Camptogramma*.

*Eucosmia Hedemannaria*, Oberth. = *Scotosia certata* of Europe, which we have also from Japan. M. Oberthür says that the common transverse line is noticeably more undulated; this, however, is an individual difference existing only between the single example in M. Oberthür's possession and his specimens of *S. certata*.

*Cidaria corussaria*, Oberth. = probably *C. russata*, var., of Europe. There are few species more variable than this, one of the least extraordinary of its modifications being the entire absence of lines or bands from the secondaries. We have specimens very similar to that figured by M. Oberthür both from Japan and North America.

*Cidaria venulata*, Oberth. Near to *C. umbrosaria* and *C. relata*.

*Cidaria fabrefactaria*, Oberth. = *C. corylata* of Europe.

*Cidaria askoldaria*, Oberth. = *C. jameza*, Butl., ♀.

Of this species we have hitherto only received one male, and M. Oberthür one female; the differences between the two are only precisely what exist between the sexes of other species.

*Cidaria ludovicaria*, Oberth.

It is a pity that M. Oberthür did not form a new genus for this species, for *Abraxas junctilineata*, *A. plurilineata*, &c.; they are not true Zerenidæ, yet look quite out of place in *Cidaria*, from which they differ in their shorter palpi, somewhat different venation, and utterly dissimilar coloration. M. Oberthür, however, seems to consider it a hindrance to study to group allied forms together under distinctive names: if this be not the case, it is incomprehensible why he should almost invariably refer his new species to the magazine genera of the older authors.



*Cidaria achatinellaria*, Oberth. = *C. achatinaria*, var.

According to the author this only differs from the European species in its better-defined markings and redder colouring—differences such as occur between individuals of the same species in most genera of Lepidoptera.

#### Notodontidæ.

*Dicranura askolda*, Oberth. = *D. felina*, Butl.

It is strange that, in this instance, M. Oberthür has not even referred to my species; his figure agrees exactly with some specimens from Japan, differing from my *type* only in its paler colouring, due, I have no doubt, partly to starving in the larval condition, and partly to rubbing. The species frequently attains a much greater size.

*Harpyia Taczanowskii*, Oberth. Probably a *Thiacidas*, but most certainly not a *Harpyia* (compare with *H. verbasci* of Europe).

*Uropus Branickii*, Oberth. A *Phalera* of the *P. sigmata* group.

*Notodonta lineata*, Oberth.

We have a specimen of this species from Tokei, Japan.

*Notodonta Jankowskii*, Oberth. Very close to *Peridea dromedarius*.

*Notodonta Dembowskii*, Oberth. Apparently another *Peridea*.

*Notodonta monetaria*, Oberth. A *Peridea* close to *P. trepida*.

*Notodonta bombycina*, Oberth. This species does not appear to me to belong to the Notodontidæ; it may be a Limacodid, a Lasiocampid, or possibly even a Liparid. Without seeing the insect I could not positively refer it to its true family; but its aspect is less that of a Notodontid than of any of the others. In pattern it is more like many of the Noctuites.

*Drymonia biloba*, Oberth. Seems allied to *Colocasia coryli*, Linn.

*Drymonia velutina*, Oberth. Appears to be an *Ochro stigma*.

*Drymonia lichen*, Oberth. Referable to Walker's genus *Cascera*.

*Notodonta plebeia*, Oberth.

*Trabala splendida*, Oberth. Congeneric with *Nadata*.

I am responsible for this generic error, having been misled by Walker's careless assignment of *N. niveiceps* to his genus *Trabala*. A reference to Abbot's 'Insects of Georgia,' ii. pl. lxxxii., will convince M. Oberthür that the proper loca-



tion for *N. splendida*, *cristata*, and *niveiceps* is with *Nadata gibbosa*. The convergence or divergence of the lines on the primaries seems to be an inconstant character in this group.

*Ptilodontis plusiotis*, Oberth. Not a *Ptilodontis* (= *Pterostoma*).

This species has the aspect of *Celeia*, a genus near to *Spatalia*; but M. Oberthür figures it with filiform antennæ, a most abnormal character for a male Notodont. Surely this is an artist's error?

*Lophopteryx Ladislai*, Oberth.

#### NOCTUITES.

*Cymatophora argenteopicta*, Oberth. Near to *C. plumbea*, Butl.

*Cymatophora ampliata*, Oberth. (nec Butl.). = *C. or* var. of Europe?

M. Oberthür's criticism of the lithographic drawing of this species, being based upon the supposition that he possessed my species, falls to the ground. The species recognized by Walker as *C. ocularis*, Linn., but by Dr. Staudinger as *C. octogesima*, seems to me to be referable to *Asphalia*, not to *Cymatophora*; nevertheless it will perhaps be best to give the name of *C. intensa* to the Japanese species of this name, and thus save all confusion.

*Dichonia goliath*, Oberth. Apparently an *Agriopsis*, in which case it should be placed in the Arctiidæ near to *Diphthera*. The type of *Moma*, Hübn. (a genus of Notodontidæ) is *M. ludifica*, not *orion*.

*Leptina macroptera*, Oberth. = *Cyana decipiens*, Butl.

It seems that my specific name was well chosen, since M. Oberthür has been deceived by the mere pattern of the primaries into placing it with the North-American Noctuites of the genus *Leptina*. It is a true Lithosiid, and agrees in all its structural characters with *C. detrita*.

*Apatela Jankowskii*, Oberth.

M. Oberthür says that the nearest European species to this is *Apatela strigosa*; but as *strigosa* is the type of *Hyboma*, it follows that, if allied, *A. Jankowskii* cannot be an *Apatela*. It is more like *Leptina*.

*Leucania inanis*, Oberth.

*Rhizogramma aurilegula*, Oberth.

I think it doubtful whether *E. petrorrhiza* can be separated generically from *Eucalimia* (*E. gnaphalii*); but if so, it might be placed with my *E. saga* of Japan, to which M. Oberthür's species seems also to be allied. I find that *L. petrificata*



(type of *Lithophane*) differs generically from *E. saga*, which I provisionally referred to the same genus.

*Apamea askoldis*, Oberth. Like *A. ophiogramma* in pattern.

*Miana arcta*, Oberth. (nec Lederer). = *Raphia fasciata*, var. ?

Lederer's species is a true *Miana*, so far as I can judge by his figure.

*Miana parietum*, Oberth. Probably = *Raphia fasciata*, Butl.

This figure by M. Oberthür does not represent the white fringes to the tegulæ and whitish metathorax of *R. fasciata*; but it does not appear to be very exact, the markings seem blurred.

*Caradrina albosignata*, Oberth. = *Radinacra*, sp. close to *R. lineosa*, Moore.

We have Moore's species from Tokei, which renders the distinctness of *C. albosignata* a little doubtful; still, if the slight differences noticeable in M. Oberthür's figure are true to nature, the species will stand.

*Caradrina cæca*, Oberth. Described as a variety of the preceding. We have a specimen of this moth from Tokei.

*Agrotis autumnalis*, Oberth.

*Noctua stupens*, Oberth. = *Ochropleura* near *O. musiva* of Europe.

We have this species from Tokei; it is of little more than half the bulk of *O. stupenda*; the name given is so near to mine in sound that it is a pity it was used.

*Noctua hysgina*, Oberth. = *Graphiphora lubentia*, Butl.

*Tæniocampa aurariæ*, Oberth. = *Semiophora*, sp.

*Dianthæcia admiranda*, Oberth. Near to *Epia echii* of Europe.

*Phlogophora pallens*, Oberth. = *Phlogophora periculosa*?, Guén. (faded).

M. Oberthür says that this is without doubt the species which I figured under the name of *P. beatrix*. If M. Oberthür had no doubt about this, why did he (knowing my description was published probably before his specimens were caught) take the trouble to rename it. If M. Oberthür's figure is a good one, *P. pallens* is, without doubt, not my *P. beatrix*; it is smaller, of a different shape, altogether paler and duller, and the belt across the primaries is of a very different form. It agrees exactly with a pale specimen of *P. periculosa* in our collection; and this I believe it to be.

*Aplecta askolda*, Oberth. Described as a variety of *Eurois nebulosa*.

*E. imbrifera* differs from *E. nebulosa* much in the same way.



*Hadena Jankowskii*, Oberth. = *Apamea gemina*, var., Hübn.

Nobody who knows the extreme variability of this species can regard M. Oberthür's form as a distinct species; we have European examples rather larger than his figure and agreeing with it in pattern.

*Hadena kosakka*, Oberth. Near to *H. atriplicis*, but with the white spot of the primaries formed as in *H. auriplena* (*Eurois? auriplena*, Wlk.).

*Telesilla malachites*, Oberth. = *Canna*, sp. close to *C. pulchripicta*.

*Acontia variegata*, Oberth. Apparently an *Anarta* (*A. myrtilli* group.)

*Acontia flavomaculata*, Oberth. Somewhat like "*Erastria*" *rubicunda*, Wlk., but probably congeneric with the preceding species.

*Erastria nemorum*, Oberth. Near to *E. fuscula*, which is common in Japan.

*Erastria costimacula*, Oberth.

*Erastria mandschuriana*, Oberth. Belongs to the *Limacodidae*.

We have this beautiful little moth from Tokei; its coloration and the slenderness of its abdomen must have been the only characters which suggested to M. Oberthür that it belonged to the *Acontiidae*; its short, curled, pectinated antennæ (misrepresented by M. Oberthür's artist), and the scattered shining scales all over the primaries, as also the banding of these wings beyond the middle, should have guided him to the natural family of the species. I would propose to call this genus *Mimerastria*, from the somewhat vague resemblance which the species bears to *E. candidula*, and which has thus misled M. Oberthür.

*Plusia nadeja*, Oberth. = *Plusia zosima*, var., Hübn.

In the British Museum from Japan; it attains a considerably greater size than the figure, which is very poor: the discal line and outer border of the secondaries are wholly omitted by the artist; and the brown patches on the primaries are too pale. If the Japanese form be regarded by M. Oberthür as distinct (as possibly it may be), I will not deprive him of the pleasure of naming it.

*Plusia esmeralda*, Oberth. = *Plusia moneta*, var., Linn. (teste M. Oberthür).

*Plusia locuples*, Oberth. = *Plusia ornatissima*, Walker.

This *Plusia* is fairly common in Japan.

*Amphipyra obscura*, Oberth. = *Amphipyra pyramidea*, L. (teste Oberth.).



*Catocala obscurata*, Oberth. = *C. unicuba*, Walk.

I see that M. Oberthür has united the genera *Chrysorithrum* and *Bolina* ! After this nothing will surprise me ; for I do not think two genera of Noctuites less alike could easily be found.

*Capnodes Jankowskii*, Oberth.

*Madopa flavomacula*, Oberth.

Thus finishes M. Oberthür's first part of his Memoir on Lepidoptera of the Island of Askold. It is sincerely to be hoped that his next will be an improvement upon it, as it is impossible to overestimate the injury, through waste of time, which is occasioned to workers by the publication of duplicate names for the same species—a fault which, of all men, I had believed my friend M. Oberthür one of the most anxious to avoid.

XXI.—*Contribution to the Knowledge of the Family Tintinnodea.* By HERMANN FOL, Professor in the University of Geneva\*.

[Plate XVII. figs. 1–6.]

THROUGHOUT the still imperfectly known class of the Infusoria there is perhaps no group of which the structure, classification, and synonymy are so obscure as those of the family of the *Tintinni*. This is because most authors have thrown pell-mell into this family very diverse forms, characterized so insufficiently that one does not know what to make of such problematical types. Or, again, we have seen authors who only knew a small number of forms belonging to a different group, take these forms as the type of the family, and, upon this erroneous basis, upset the diagnosis of the latter.

But, before seeking to establish the zoological position of our Infusoria, it will be well to cast a glance at the organization of the forms that I have observed, so as to be able to compare my results with those of other authors.

The Tintinnodea are very abundant in the roads of Villefranche, but all belong to a few species which I shall describe hereafter. These species, moreover, will be divided into three distinct genera, taking as the basis of the classification the form of the test. Nevertheless the structure of the animals presents a remarkable uniformity.

\* Translated by W. S. Dallas, F.L.S., from the 'Bibliothèque Universelle : Archives des Sciences Physiques et Naturelles,' 3<sup>e</sup> période, tome v. pp. 5–24, January 15, 1881. The writings of previous authors are referred to by numbers, which are explained in a bibliographical list at the end of the memoir.





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