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VOL. XXI.

"Nature never did betray
The heart that loved her: 'tis her privilege,
Through all the years of this our life, to lead
From joy to joy."

Wordsworth.

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Page 168, line 8 from bottom, *for* "*Lycæna*," *read* "*Liparis*."
„ 198, „ 3 „ „ „ "County," „ "Country."
„ „ , „ 8 „ „ „ "*secundum medianas*," *read* "*secundam medianas*."
„ 221, „ 20 „ „ „ "Stephens," *read* "Stevens."

THE

Entomologist's Monthly Magazine

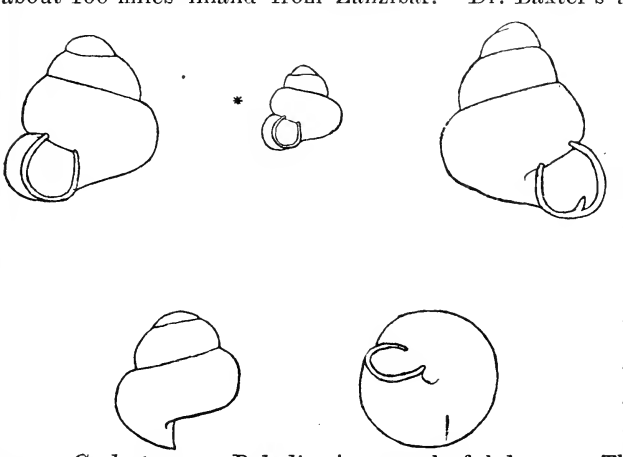
VOLUME XXI.

ON AN EXTRAORDINARY HELICIFORM LEPIDOPTEROUS LARVA-CASE FROM EAST AFRICA.

BY ROBERT McLACHLAN, F.R.S., &c.

At the Meeting of the Entomological Society of London, held on February 7th, 1877, I exhibited "an extraordinary case of a Lepidopterous larva from Zanzibar, sent by Dr. Kirk, who had found it on *Mimosa*. It was probably allied to *Psyche* and *Oiketicus*, and was in the form of a *flattened Helix*, half-an-inch in diameter, formed apparently of a kind of *papier-maché*, with a smooth whitish outside coating." (*Cf.* Proc. Ent. Soc., 1877, p. ii; Ent. Mo. Mag., xiii, p. 240.) Wishing now to have a figure made from that case, I am unable to find it.

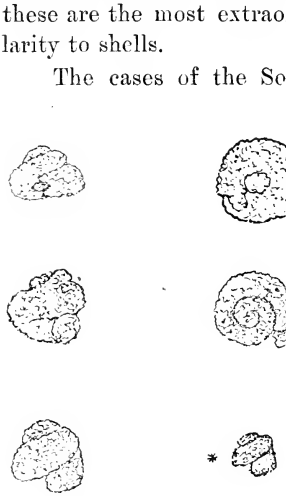
Very recently my friend Mr. Bates gave me nine cases of a somewhat similar character, found by Dr. Baxter at Mpwaipwa, East Africa, about 100 miles inland from Zanzibar. Dr. Baxter's attention had been drawn to them by seeing them carried about by the larvæ that formed them. But these, instead of being *flattened*, are *high*, and resemble shells of the genus *Cyclostoma* or *Paludina* in a wonderful degree. They vary from 9 to 13 mm. in diameter at the lowest whorl, by from 9 to 15 mm. in height. Each forms about $3\frac{1}{2}$ whorls, the sutures indicating which are not very sharp, owing to a coating to be presently alluded to. In six of them the spiral turns from left to right, in three from right to left. The apex is blunt and depressed; the mouth nearly



circular, and there is a deep open umbilicus; all have the mouth perfectly open. Upon making a vertical section, it is seen that the whorls are perfectly separated. They are of extreme lightness, yet the walls are nearly $1\frac{1}{2}$ mm. thick. This lightness is owing to the texture, which, although perfectly hard and firm, is somewhat fibrous. The material is undoubtedly vegetable matter, but whether masticated specially for the purpose, or excrementitious, is uncertain to me. I rather incline to the latter idea, because there is no opening through which the excrement could be ejected, other than the mouth of the case. The exterior has a thin coating of (apparently) silk of a pale drab colour, which renders the cases very smooth, but not glossy; but the older cases are blackened by a coating of what is probably adventitious matter. I am unable to say on what plant they were found, but one of them is attached (at a point indicated in the top right-hand figure) to a fragment of a plant, which may possibly be *Mimosa*.

It is well known that exotic species of *Psychidæ* are given to fabricating cases of extraordinary forms, but, of all that I have seen, these are the most extraordinary, on account of their perfect similarity to shells.

The cases of the South European *Psyche* (*Cochloplanes*) *helix*, are tolerably familiar to most entomologists, but their resemblance to shells is less marked, on account of the *débris* with which their exterior is covered; moreover, the texture is slight and yielding, and at, or near, the apex there is an opening through which the excrement can be ejected. They bear more external resemblance to the now well-known cases of the Trichopterous genus *Helicopsyche*. For the sake of comparison, I give here figures of the cases of *Psyche helix*.



The figures are enlarged to two diameters, but the smallest figure on each block (indicated by *) shows the natural size.

With the above-described cases collected by Dr. Baxter are others formed of twigs, arranged longitudinally or transversely (not uncommon), and one, 47 mm. long, mimicking a shell of the genus *Dentalium*, but such, I think, have already been noticed and described.

Lewisham, London:
May, 1884.

DESCRIPTION OF THE LARVA OF *DEPRESSARIA BADIELLA*.

By the Late WILLIAM BUCKLER.*

On the 28th of May, 1882, I received in a quill three little larvæ found the previous morning by Mr. W. H. B. Fletcher on Freshwater Down, Isle of Wight, living under the leaves of *Hypochæris radicata*, one of the *Compositæ*, of which three little plants accompanied the larvæ. At this time they were nearly 5 mm. long, cylindrical, of a cinnamon-brown colour, with shining darker dots, a blackish-brown frontal plate and anal plate. By the second of June one of these had added 1 mm. to its length and seemed to have moulted, the cinnamon-brown being rather darker than before, the tubercular dots on the back were nearly in a line and darker brown than the body, the plate on the second segment glossy black, the head darker brown than the body, the anal plate shining black, and a transverse narrow black plate on the dorsal portion of the front of the anal segment.

These larvæ live in fine white silken webs between two leaves, or under one leaf, which is spun fast upon some firm substance; they live in this way concealed, though by their feeding on the lower cuticle of the leaf a transparent blotch becomes visible, and they push out from their dwellings little heaps of blackish excrement.

By the 7th of June the most advanced had reached the length of 8 mm.; on the 16th I figured one of them, but minus the blackish tubercular dots, which are at this stage more trapezoidally arranged on the back; a black shield was outside the anal legs.

On the 11th of July I received more of these larvæ from Mr. Fletcher, one of them grown to be 20 mm. long; it was of a dark red colour, greenish when the segmental divisions were stretched, the dots black, ringed with greenish, the black plate on the second segment divided in the centre, and with paler yellowish margin of skin in front, the anal plate black and a small black transverse oblong on the front part of that segment. The head dark reddish-brown, anterior legs black; all the dark red skin dull, the greenish divisions glistening a little, the black dots, head and plates glossy, a fine hair arising from each dot.

These five later larvæ were put with three vigorous growing plants on the 16th, and by the 23rd every part of the plants had been devoured, and for want of food the larvæ had devoured one another, only two escaping the massacre, one of these had spun up in an earth-covered

* This description is given by the kind permission of the Rev. T. Wiltshire, the Secretary of the Ray Society—that Society being now in possession of Mr. Buckler's valuable notes, as well as his magnificent collection of drawings of larvæ, which are to be published by the Society.

cocoon, long and narrow, the other was still alive in the larva state, I tried to get it to feed up on Hawkweed, but in the course of eight days it died.

On the 4th of July, 1883, I again received four of these larvæ from Mr. Fletcher, viz.: one 9 mm. long, one 12½ mm. long, very dark red on a dingy green ground, which is seen at the segmental divisions, and in the fine pale rings round the black dots; another was 19 mm. long slightly tapering from the third segment to the head, tapering again a little on the twelfth and considerably on the thirteenth segment; the head, the second and anal segments with their plates just as described above from the specimens I received in 1882, but the colouring of the body of a deepish sober green, with a darker dorsal pulsating line, the blackish-brown dots appearing very small as their circumscribing pale rings have much faded, the front plate was deep olive outlined with blackish-brown; one entered the earth on the 4th of July, another I watched burrow into the earth on the 5th.

Mr. Fletcher tells me "that when young the larva is found *on* the under-side of leaves of the food-plant. When it is bigger it makes a tunnel or gallery under the plant on the soil, so that when the rosette of leaves is removed the larva is left behind. I think that this tunnel reaches into the turf beyond the radius of the leaves, as many a little sod cut round the plant comes away without the larva. I found one pupa of odd shape in this gallery."

"When full grown the larva often eats out the heart of the plant and bores down far enough into the root to kill it. While the larva is feeding under the leaves its ravages are conspicuous enough, even while small, as it makes brown marks, which are visible on the upper-side of the plant."

In confinement, without earth with the plants, its gallery of silk becomes covered with accumulations of "frass."

Often when the larva attains the last moult we see the dark dingy olive-green variety, with belly rather lighter than the back, the one colour blending with the other, the spiracles round and black, are very minute and situated nearly close below the single row of dots on the side: the pale yellowish margin of skin next the head, in front of the plate on the 2nd segment, is a good and constant character.

The pupa is generally enclosed in a cocoon, covered with grains of earth, of oval shape, 19 mm. in length, rather loosely held together with but very little silk in the lining of brownish-grey colour, the interior of cylindrical form and smooth, 12½ mm. in length, so that the pupa (which is only 10 to 11 mm. long) has plenty of room; it is rather

slender in the ♂, stouter in the ♀, it has nothing remarkable in its form save that beyond the wing-covers, the abdomen tapers gradually in the ♂, more obtusely in the ♀, and the moveable rings are deeply cut, the tip of the abdomen is surrounded with about twelve exceedingly minute curly-tipped bristles, which take a firm hold of the silk lining.

One pupated openly on the surface of the earth, attaching its tail to a leaf of the plant, and this enabled me to see that for some time its colour was of a light greenish-ochreous, afterwards it was light brownish, and still later it turned very dark brown; it was glossy from first to last.

The moths were bred on August 11th, 12th, 17th, and September 13th, 1883.

Notes on Depressaria badiella.—I am indebted to Mr. Stainton for the chance of making a few remarks on Mr. Buckler's life-history of *Depressaria badiella*. And first as to the circumstances which led him to depart from his usual rule of not describing or figuring the larvæ of *Tineina*. I had taken *Botys flavalis* freely at Freshwater in August, 1881. Mr. Buckler was very anxious to have the larvæ of this species, and so, being equally keen to find it myself, I ran over to Freshwater on May 27th, 1882. The only result of a close search was the finding of a few small larvæ of *Dep. badiella*. These I felt sure were the right larvæ. Neither Mr. Buckler nor I bred any moths from this lot; but, on July 3rd, 1883, I was able to find a pupa and several large larvæ, so that we were both successful in rearing some moths. From the first Mr. Buckler told me that the larvæ were not *Pyrales*, but *Tortrices* or *Tineina*. I think there could hardly be a better illustration of his kindliness and great unwillingness to throw cold water on the hopes of a correspondent, than is shown in the fact that, in spite of his knowledge that these larvæ did not come within the scope of his studies, he, on two occasions, took charge of them, beside figuring and describing them with his usual minute care.

Next, two small points in the life-history seem to require notice. Mr. Buckler alludes to the larvæ making a transparent blotch, while I find it by the dark brown marks, on the leaf of the food-plant. Mr. Buckler, no doubt, refers to the immediate result of the feeding of the larva, I to the more distant, when the milky juice of the plant has produced a brown stain on the wounded leaf. The "odd shape" of the pupa mentioned in the extract from my letter has reference to the difference between the flattened pupa of a *Depressaria* and the expected cylindrical one of a *Botys*.—W. H. B. Fletcher, 6, The Steyne, Worthing: *May 14th*, 1884.

NOTES ON THE DISCOVERY, BY MR. W. H. B. FLETCHER, OF THE LARVA OF *DEPRESSARIA BADIELLA*.

BY H. T. STAINTON, F.R.S.

Last September I received from the late Mr. William Buckler a *Depressaria*, on which he wished my opinion.

He had received, from Mr. W. H. B. Fletcher, some larvæ which

were supposed to be those of *Botys flavalis*. "My disappointment" wrote Mr. Buckler "was very great, when I very soon saw there was no hope of their being *flavalis*, and I thought I had got hold of some troublesome *Tortrix*." The "troublesome *Tortrix*," however, turned out a *Depressaria*, and one which had not previously been bred. The larvæ in question had been found by Mr. Fletcher on Freshwater Down, Isle of Wight, feeding on the leaves of *Hypochæris radicata*.

The sight of the single specimen which first reached me did not enable me to determine the species with certainty. I wrote, however, to Mr. Buckler on the 23rd September, 1883, as follows:—

"I believe your *Depressaria* is one that has not been bred before, and, certainly, no larva of that genus was known to feed on *Hypochæris*, so at any rate there is a discovery, which may help to console you for your disappointment. Indeed, if every one of your *disappointments* could result in similar *discoveries*, I should be malicious enough to wish you many of them! Before positively determining the species, I should like to see your other specimens, especially as you say they are not all *exactly* alike."

A week later, I received from Mr. Buckler his other three bred specimens, and I must confess that my first impression was that they were some unnamed species, which, though closely allied to *badiella*, differed from it in the shape of the anterior wings.

Two years previously Mr. Sydney Webb had sent me some specimens of a *Depressaria* he had beaten from thatch at Folkestone, which I had then thought as probably distinct from *badiella*, and it occurred to me that possibly the insect now bred by Mr. Buckler might be the solution of Mr. Webb's problematical species. Moreover, I gathered from Mr. Buckler's letters that Mr. Fletcher had also succeeded in breeding several specimens of the same insect, hence, I wrote to Mr. Buckler on the 30th September, 1883, "before describing the insect you have bred, I should like to see again Mr. Webb's specimens, and also any that Mr. Fletcher may have bred."

Mr. Fletcher being then from home I did not write to him at once, and being much occupied with other matters, Christmas was already past before I wrote to Mr. Sydney Webb and to Mr. W. H. B. Fletcher for their specimens of the *badiella*-like *Depressaria*. They came promptly enough, but, alas, before I could get them examined Mr. Buckler was no more!

Ultimately I came to the conclusion that the specimens were really referable to *badiella*, of which we had previously only known captured specimens, which were more or less worn.

The darker ground-colour of Mr. Buckler's specimens, and the different shape of the hind margin of the anterior wings arising, probably, from the more complete cilia, seem to be the natural results of the finer condition of bred specimens.

Badiella, at the best of times, is always an obscure, dingy insect, and, though of wide distribution, has rarely been met with in any plenty, and as mentioned by Snellen in his "Vlinders van Nederland" (the latest systematic work on European *Lepidoptera*), the larva was quite unknown; hence, its occurrence on one of the *Compositæ* is of great interest.

Mountsfield, Lewisham:
May 13*th*, 1884.

NOTES ON *LEPIDOPTERA* OBSERVED DURING AN ALPINE TOUR IN 1883.

BY GEORGE T. BAKER.

Last summer, in company with my friend Dr. Jordan, my holiday was spent between Aosta, Chamouny, and Geneva. Our route from the ancient city of Aosta, with its interesting old remnants of Roman architecture, lay up the valley of the Buttier, and over the Great St. Bernard Pass, where, of course, we stayed to see the famous monastery, from there, following the course of the Dranse, we descended to Martigny. This valley (of the Dranse) is certainly very bleak and dreary, and the insect life therein not to be compared in richness with that of the Visp and Saas valleys, neither is its flora; to a certain extent, however, this may have been owing to the extreme lateness of the season. From Martigny we walked over the Col de Forclaz, and Tête Noire to Chaumouny, this was our only wet day; after remaining there for a few days we walked to Sallenches, took the diligence from thence to Geneva, where we stayed for about three days. It was then time to turn our faces homewards, but on our way we stopped for a day at Dole, in the extreme west of the Jura district, where we were by no means idle. We started on the 14th of June, and were much favoured in the weather, from a tourist's point of view, not so, however, from an Entomological one, as our captures were by no means up to the average, especially among the *Rhopalocera*, but, as remarked before, this may have been due to the great backwardness of the season, which may be realized when I say that on the 21st of June, the whole of the Great St. Bernard Pass was entirely covered with snow, and we were

thus prevented from taking any of the high Alpine insects. The following is a list of our captures, in which I follow the order of Staudinger's catalogue.

Papilio Podalirius, Dranse valley, near Orsières.

Parnassius Apollo, Dranse and Buttier valleys. I also reared one at home about the end of July, the larvæ were not uncommon.

Aporia cratægi, common everywhere.

Pieris napi, *v. bryoniæ*, summit of the Col de Forclaz: *Daplidice*, Aosta.

Anthocharis Belia, Buttier valley: *cardamines*, Arve valley.

Leucophasia sinapis, Dranse valley, and Gt. Salève near Geneva.

Colias Hyale, Aosta, Dranse valley, and Gt. Salève.

Thecla rubi, Buttier valley.

Polyommatus Hippothoe with its *var. Eurybia*, Arve valley near Chamouny: *Alciphron*, Dranse valley near Orsières: *phlæas*, Buttier valley.

Lycæna Ægon, Dranse valley below Orsières, abundant: *Argus*, Dranse and Buttier valleys: *Baton*, Buttier valley: *Astrarche* and *v. Allous*, Dranse valley below St. Pierre: *Icarus* and *v. Icarinus*, Buttier, Dranse and Arve valleys, we also took in the Buttier valley a beautiful variety with the colouring almost that of *Belargus*: *Belargus*, Buttier valley: *Corydon* and *Hylas*, Dranse valley below Orsières: *Sebrus*, Dranse valley: *minima*, common everywhere: *semiargus*, Buttier and Dranse valleys, also one on the summit of the Col de Forclaz: *Alcon*, Dole.

Nemeobius Lucina, Gt. Salève.

Vanessa urticæ, *Atalanta*, and *cardui*, Buttier and Dranse valleys.

Melitæa Cynthia, larvæ reared from the Great St. Bernard: *Cinxia*, and *Phœbe*, Dranse and Buttier valleys: *Didyma*, Dranse valley: *Dictynna*, Dranse and Arve valleys: *Athalia*, Dranse and Arve valleys. Where are we to draw the line between this species and dark specimens of *Aurelia*?

Argynnis Euphrosyne, Col de Forclaz, Chamouny, and Arve valley: *Latonia*, Buttier and Dranse valleys.

Melanargia Galathea, St. Gervais (Arve valley), and Gt. Salève.

Erebia Ceto, Buttier and Dranse valleys: *Stygne*, Dranse valley, near Orsières, and Arve valley, near Chamouny: *Evias*, St. Remy (Piedmont), abundant.

Œneis Aëllo, St. Remy.

Pararge Mæra, Dranse and Arve valleys: *Hiera*, Arve valley: *Megæra*, Aosta, and Gt Salève: *Ægeria*, Gt. Salève: *Achine*, Dole, plentiful in the pine woods.

Epinephile Janira, common everywhere: *Hyperanthus*, common everywhere.

Cœnomympha Arcania, Gt. Salève and Dole: *Pamphilus*, everywhere.

Syrichthus carthami, *cacaliæ*, and *andromedæ*, Dranse valley below Orsières: *malvæ*, Great St. Bernard. Chamouny: *Sao*, Buttier and Dranse valleys.

Nisoniades Tages, Dranse and Buttier valleys, and Chamouny.

Hesperia Thaumas, everywhere: *lineola*, Arve valley: *Sylvanus*, common in all parts.

Carterocephala Palæmon, Orsières and Chamouny.

Macroglossa stellatarum, Dranse and Arve valleys.

Zygæna scabiosæ, Arve valley: *achilleæ*, Buttier valley: *exulans*, reared from the Great St. Bernard, where the larvæ were very abundant indeed: *trifolii* ab. *orobi* in which the two median spots are not united as is the case in *trifolii* proper. The ground-colour of two specimens from the Buttier valley is steel-blue, with the black border of the hind-wings broader than in typical German or British specimens: *v. dubia*, Staudinger describes this in his catalogue as follows :—

Zygæna v. dubia, "*v. major*, al. ant. macul. 5 vel. 6, al. post. latius nigris" of this we took a large number in the Buttier valley, in none of which are the central or basal spots confluent. The series is so interesting that I will describe them in detail.

a. Fore-wings steel-blue with the median spots red instead of crimson, and narrowly separated, hind-wings also red with a broad black border, spots on under-side all disconnected.

b. Fore-wings bluish-bronze, with the spots crimson, smaller than usual, the median ones being more widely separated, hind-wings crimson with a broader black border.

c. Fore-wings bluish-green with all the crimson-red spots very small, the median ones being very oblique, and still more widely separated, and the hind-wings having an exceptionally broad black border. On the under-side of this specimen there is a distinct trace of a sixth red spot on the fore-wings.

d. Fore-wings greenish-bronze with the crimson spots small, and the 6th spot just visible (well marked on the under-side), the hind-wings are crimson with a broad black border. In none of the foregoing are the anterior-wings at all transparent.

e. Green or blue-bronze, with markings similar to "*d*" but rather redder, and the 6th spot becoming much more visible, the black border of the hind-wings is decidedly narrower and more uniform, and the under-side of the fore-wings is suffused with red, they also have a tendency to being slightly transparent as is noticeable in *filipendulæ*.

f. In this variety the sixth spot is well marked, and were it not for the very broad and blue-black border of the hind-wings, it might be mistaken for *filipendulæ*.

From our specimens of this insect we are much inclined to believe that considerable interbreeding must take place between it and the six-spot *Zygænæ*.

We also took, in the same valley, a specimen with the fore-wings of a beautiful metallic-blue colour, with a distinct trace of a 6th spot, and the other spots well separated.

Zygæna loniceræ, Buttier valley: *filipendulæ*, Buttier valley and Col de Forclaz. It is really difficult to separate this from *transalpina*, but with one exception, we have come to the conclusion that our specimens are *filipendulæ*; on the way up to the Col de Forclaz we took one variety transitional into *v. cytisi*, the two basal spots confluent, as also the two median, but the apical spots are very finely separated.

We now come to the handsome *Zygæna* taken by us in the Buttier valley. The fore-wings of which are opaque dull blue without any lustre, having six very small carmine spots, the median and apical one being very oblique and widely separated, all are united on the under-side by a crimson suffusion; the hind-wings are carmine-red with a deep blue-black broad border. This is either a six-spotted form of *angelicæ* or a fine variety of *transalpina*.

Syntomis Phegea, Aosta. We were very much struck by the large size of these specimens; those we have taken in the Visp valley are quite dwarfs in comparison, measuring 32 mm., in comparison with 41 mm.

Naclia punctata, Aosta, in the vineyards. Not uncommon.

Nola cristatula, Dranse valley below Orsières.

Setina aurita, Buttier valley near St. Remy, and Arve valley: *v. ramosa*, Buttier valley.

Lithosia lurideola, larva reared from Aosta.

Emydia cribrum v. punctigera. I reared a beautiful ♂ on the 29th of July from a larva found near Orsières.

Euchelia jacobææ, Gt. Salève and Dole.

Arctia purpurata, Dranse valley, near Orsières.

Spilosoma menthastri, Arve valley, near Chamouny.

Hepialus humuli, Dranse and Arve valleys.

Fumea —— ?, three specimens taken on the Italian side of the Great St. Bernard, which have a close resemblance to *Sapho*, but we cannot really determine if it is that species.

Porthesia similis, a ♀ reared from larva found at Aosta.

Bombyx neustria, reared, larvæ plentiful in Dranse and Buttier valleys.

Bombyx quercus, Larva found at Dole.

Pygæra pigra, Argentière (Arve valley).

Diloba cæruleocephala, larva reared from Orsières.

Acronycta rumicis, larva reared from St. Gervais (Arve valley).

Caradrina quadripunctata, Aosta.

Amphipyra tragopoginis, reared from larva found in the Dranse valley.

Scopelosoma satellitia, reared from larva found in the Arve valley.

Calocampa vetusta, reared from larva found near Orsières.

Cucullia verbasci, larvæ found in the Buttier valley.

Plusia gamma, Dranse and Buttier valleys.

Anarta melanopa v. rupestralis, Great St. Bernard, near summit of Pass.

Prothymia viridaria, Gt. St. Bernard, Dranse and Arve valleys.

Agrophila trabealis, Gt. Salève.

Euclidia glyphica, Buttier and Dranse valleys.

Hypena proboscidalis, Dole.

Rivula sericealis, Martigny.

Geometra vernaria, Dole.

Nemoria viridata, Chamouny.

Acidalia sericeata, Aosta: *dilutaria*, Aosta: *humiliata*, Aosta, Dole: *holosericeata*, Aosta: *marginepunctata*, Dranse valley below Orsières: *strigillaria*, Dole: *imitaria*, Aosta.

Pellonia calabraria, Gt. Salève.

Abraxas marginata, Dranse valley.

Cabera exanthemaria, St. Remy, Dranse valley.

Ellopia prosapiaria v. prasinaria, Dole.

Rumia luteolata, Martigny. Larger and paler than British specimens.

Macaria alternata, Aosta. Common in the old bed of the river Doire, which was densely overgrown with *Hippophae*: the specimens were smaller and much paler than usual.

Gnophos glaucinaria, Dranse valley below Orsières.

Fidonia carbonaria, Gt. St. Bernard.

Ematurga atomaria, common everywhere.

Diastictis artesiaria, Aosta. Flying with *M. alternata*.

Phasiane clathrata, Dranse valley, Great Salève, Dole.

Scoria lineata, Dranse valley.

Ortholitha bipunctaria, Dole.

Minoa murinata, near Orsières, Dole.

Odezia atrata, Dranse, Buttier, and Arve valleys.

Anaitis plagiata, Dole.

Cidaria dotata, Martigny. Much finer than British specimens:

variata v. stragulata, Chamouny: *turbata*, Gt. St. Bernard, St. Remy, and Chamouny: *aqueata*, Arve valley: *fluctuata*, Dranse valley: *montanata*, St. Remy and Dranse valley: *ferrugata*, Buttier and Dranse valleys, and Chamouny: *incultraria*, Chamouny: *frustrata*, St. Remy: *galiata*, Dranse valley and Dole: *rivata*, Dole: *tristata*, Great St. Bernard, Buttier and Dranse valleys: *molluginata*, St. Remy: *alchemillata*, Great St. Bernard: *adæquata*, Great St. Bernard: *albulata*, St. Remy, Chamouny and Dole, common in every shade of colour, from almost white to quite dark: *bilineata*, Great Salève and Dole: *trifasciata*, St. Remy, very abundant: *berberata*, Aosta: *rubidata*, Aosta and Dole.

Eupithecia rectangulata, Aosta: *tenuiata*, Dole, and several others which we are at present unable to name.

Scoparia dubitalis, Dranse valley, below Orsières, and Dole: *sudetica*, Dranse valley and Chamouny.

Hercyna Schrankiana, Gt. St. Bernard and Chamouny: *phrygialis*, Gt. St. Bernard and Chamouny.

Eurrhypara urticata, Dole.

Botys nigralis, Arve valley: *octomaculata*, Dranse valley: *aurata*, Buttier valley, south of St. Remy: *cespitalis*, common everywhere: *rhododendronalis*, St. Remy: *fuscalis*, Dranse valley: *sambucalis*, Col de Forclaz. Larger and paler than British examples.

Eurycreon verticalis, Dranse valley and Dole.

Pionea forficalis, lower portions of the Buttier and Dranse valleys.

Crambus cerusellus, Buttier valley: *pascuellus*, common everywhere, Aosta specimens very dark and bright: *pratellus*, common everywhere: *dumetellus*, Dranse valley, and very abundant at Chamouny. *hortuellus*, Chamouny and Great Salève: *chrysonuchellus*, St. Remy: *conchellus*, Dranse valley: *culmellus*, Chamouny: *perlellus*, Martigny and Chamouny: *v. Warringtonellus*, Chamouny.

Hypochalcia ahenella, Chamouny.

Aphomia sociella, Aosta.

Among the *Tineæ* I will only mention the following:

Plutella cruciferarum, Gt. St. Bernard near summit of Pass. Antennæ annulated.

Cerostoma persicella, Aosta and Dole. There were certainly no peach trees in the latter place.

Mimæseoptilus serotinus, Orsières.

Aciptilia pentadactyla, Dole.

Alucita hexadactyla, Orsières.

Before closing this account, I cannot refrain from remarking a curious feature we have been much struck by during our sojournings among the Swiss Alps, viz., the remarkable predominence of black (or

so nearly approaching that hue, as to appear black at a very little distance) and yellow as the colours of the majority of the larvæ, this being particularly noticeable at high altitudes, say above 7000 feet. Last summer we found, among innumerable *exulans* larvæ on the Great St. Bernard, several others simulating their general appearance very closely, so that it would seem from this that there must be some protective power in these colours; it cannot, however, be any similarity to their feeding-ground, as they are rather conspicuous on the bright green *Silene acaulis* with its pretty pink flowers, and on the *Alchemillæ*, &c., all just refreshed after the melting of the snow, neither can they be said to coincide with the lichen-covered rocks, over which we have noticed them crawling some distance away from us. Among others we found some handsome larvæ, from which the following hasty and incomplete description was taken at the time. "Ground-colour velvety-black with a narrow band of yellow at the juncture of each segment, and a central dorsal row of yellow spots. The black spiracles finely encircled with yellow are bordered above and below by a row of yellow spots. On each segment are several stout fleshy black spines emitting fine black hairs, which (spines) are most numerous on the central segments. Head, shining black." Only one succeeded in pupating and from this a shrivelled ♂ *Melitæa Cynthia* emerged in July. The pupa had a large proportion of black in it on a greyish ground, but this, undoubtedly, would closely assimilate with the rock on to which it would attach itself. The pupa of *M. Didyma* (which I have reared from the Saas valley and Zermatt) is also similar to that of *M. Cynthia*, and in the same way would have a protective influence. Again, *Parnassius Apollo* has a blackish-purple larva with deep yellow spots. It would be interesting to ascertain whether there can be any protective power in these colours, as if there is, and we knew what it was, we might then be able to account for their preponderance at high altitudes.

As my description of the larva of *Calocampa vetusta* found at Orsières differs from that given by Guenée, and as I have twice found the same variety, it may be well to record it. "Ground-colour apple-green with darker back, and pale green central stripe, on both sides of which is a row of small white spots finely encircled with black from the third to the twelfth segment inclusive, each row consisting of three spots triangularly disposed on every segment. Spiracular stripe white, edged above by a black line. Spiracles scarlet. Fore-legs yellow, claspers tipped with pinkish-buff. Head yellowish. Length, about 54 mm. Stout in proportion."

Augustus Road, Birmingham:
March 24th, 1884.

NEW LONGICORN *COLEOPTERA* OF THE *MONOHAMMINÆ* GROUP FROM TROPICAL WEST AFRICA.

BY H. W. BATES, F.R.S., &c.

The collections sent home by recent travellers from tropical east and west Africa, and particularly from the coast region between Cameroons and Angola, have given indications of a surprising wealth of species in the Coleopterous family *Longicornia*. A large number of new genera and species have been published by Thomson, Von Harold, Quedenfeldt, and others, but countless others exist undescribed in English collections, which it is the intention of the present paper to reduce in some small degree. The *Monohammince* group, of which the well-known European *Monohammus sutor* and *sartor* may be taken as types, seem to be very numerous and varied in these regions; whether they approach in number and variety the rich fauna of Indo-Malaya cannot at present be guessed at, but it is certain they far surpass tropical America, where only five genera are known, two only of which occur in Brazil. It was one of the late Andrew Murray's favourite zoo-geographical speculations to trace an intimate relation between the faunas of West Africa and tropical America, whence he inferred a former land connection between them; but the *Monohammince* lend no countenance to such a hypothesis; no genus at present found being common to the two continents.

TRICHOLAMIA, *n. g.*

General form of *Monohammus*, except that the elytra are relatively shorter (especially in the ♀), and the antennæ very little longer than the body, even in the ♂, considerably shorter in the ♀. The pro- and meso-sternal processes are simple, the claws divaricate, the cicatrice of the scape, though sharply defined and scabrous, only half enclosed by a sharply-defined rim. The head has elevated, but not very pointed, antenniferous tubercles, the front is short and quadrate; the lower lobe of the eyes large and broad; the palpi in the ♂, both maxillary and labial, have the terminal joints broadly truncate-ovate, or campanuliform, in the ♀ slender and sub-acute. The thorax is much broader than long, with lateral tubercles median, broad, and spinose at their apices, the anterior (one) and posterior (two) transverse sulci well-marked, the disc very uneven, with a broad central depression. The elytra are elongate-oblong, convex, obtusely rounded at the apex, sparsely punctulate and clothed (besides the fine compact tomentum) with very long upright hairs. The antennal joints 1—6 are ciliated beneath, and the scape clothed all round with long black

hairs, similar to those of the elytra. The fore-legs are not notably longer than the others; the middle tibiæ have their oblique groove nearer the middle than in *Monohammus*, and unaccompanied by a tubercle. The terminal joints of the ♂ palpi have the same form as in *Tympanopalpus*, but are much less dilated, and there is no other resemblance between the two genera, except in those structural points in which both agree with the *Monohammince*.

TRICHOLAMIA PLAGIATA, *n. sp.*

Clothed with fine tawny-ochreous, the elytra with tawny-ashy, tomentum, the head and thorax partly, the scape and elytra wholly, beset with remarkably long, erect black hairs; the elytra have a basal fascia, and on each side two lateral patches, one larger about the middle, a second smaller near the apex, brownish-black.

Long. 25—28 mm., ♂ ♀.

Mt. Cameroons.

BATOMENA, *n. g.*

Of broader and more depressed form than *Monohammus*, the surface of the elytra armed with numerous briar-like spines arranged in rows, most numerous and continuous on the sides, the middle-sutural and posterior parts free. The head is very similar in form to *Monohammus*, the forehead moderately long and plane, the lower lobe of the eyes elongated, the antenniferous tubercles more elevated and separated by a deeply impressed line, which extends from the occiput to the epistome. The antennæ in the ♂ are nearly twice the length of the body, the cicatrice of the scape enclosed by a sharp rim and hairy, joints 1—5 ciliated beneath. Sterna simple, legs rather elongated; middle tibiæ with tubercle and groove near the middle.

BATOMENA MULTISPINIS, *n. sp.*

Dark brown, clothed with lighter brown laid pubescence, which on the elytra forms short vittæ and spots: head and scape with scattered punctures: thorax transverse, with very strong and acute lateral spine and deep transverse groove in front and behind, the disc rather uneven, impunctate. Elytra sparingly punctured near the base, each with five faint longitudinal costæ, each armed with a row of thorn-like spines, a few only (2 or 3) at the base of the 1st costa, the number increasing to 10—15 on the outermost costa; apex of the elytra rounded.

Long. 34—38 mm., ♂ ♀.

Mt. Cameroons: alt. 7000 ft.

MELANOPOLIA, *n. g.*

Moderately elongate and narrowed behind, interruptedly clothed with fine laid pubescence. Head exserted, front broad and quadrate, lower lobe of the eyes much broader than long; antenniferous tuber-

cles moderately elevated, divergent, apices not produced : palpi slender, pointed. Thoracic lateral tubercles median, conical, more or less pointed. Elytra obtuse or subtruncated at the apex. Prosternum arcuated, simple ; mesosternum either simple, declivous, or vertical in front, plane behind. Legs moderate, middle tibiæ with tubercle and groove near the middle of their outer edge.

Antennæ, ♂, one-half longer than the body, scape nearly as in *Monohammus*, cicatrice scabrous, completely enclosed with a sharp carina, 3rd joint longer than the scape, 4th a little shorter, 5—10 gradually decreasing, 11th longest of all. ♀. As in ♂, except that they are shorter and the third joint is thickened towards the apex into a stout elongate club, clothed with black hairs.

The elongate-clavate form of the 3rd antennal joint appears to be a peculiarity of the ♀ (at least it is so in one of the species), of the other two only females are known. The vertical mesosternum of the first species described is the only structural difference I can detect between it and the other two, and all agree in facies and clothing. The genus has very little in common with *Rhodopis*, in which the 3rd antennal joint is similarly clavate, and appears to be allied to *Domitia* (Thoms.), which has, however, simple middle tibiæ.

MELANOPOLIA FRENATA, *n. sp.*

Shining black ; a tomentose hoary belt across the forehead below the eyes, continued on each side along the cheeks and the flanks of the thorax to the middle base of the elytra, and thence curving to the suture at about one-third the length, dissolving into confluent spots ; similar confluent spots scattered over the remainder of the elytra. Antennæ with joints 3—10 ringed with grey at their bases ; sides of the body beneath and legs thinly clothed with short hoary pile. Thorax with broad conical lateral tubercles, disc a little depressed and uneven, sparingly punctured. Elytra briefly sinuate-truncate at the apex, finely and rather widely punctured, chiefly in lines, throughout, and faintly bicostate. Mesosternum vertical in front. Antennæ, ♂, with the 3rd joint towards the apex very slightly thickened ; ♀, much thickened, and clothed with brush-like black hairs. Long. 16 mm., ♂ ♀.

Gaboon.

MELANOPOLIA FARINOSA, *n. sp.*

Black ; a grey tomentose belt across the forehead below the eyes, continued along the cheeks, lower flanks of the thorax, and the sides of the breast ; two grey vittæ on the vertex, continued to the thorax, curving respectively on each side of the disc, and meeting on the hind margin ; the elytra speckled with grey tomentum, which condenses in larger patches at the base of the suture (including the scutellum), and on the sides near the middle and the apex. Thorax with strong acute lateral tubercles, the disc depressed, uneven, and coarsely punctured. The elytra obtusely truncated at the apex, punctulate throughout, partly in lines. Mesosternum simple, arcuated : body beneath grey.

♀. Antennæ brownish, variable, 3rd and 4th joints grey at the base, 3rd joint clavate, the thickened part clothed with short black hairs. Long. 21—22 mm., ♀.

Gaboon.

MELANOPOLIA CONVEXA, *n. sp.*

Similar in colours to *M. farinosa*, but differing in the much greater convexity of the elytra, especially behind, where they are rather steeply declivous; the thorax is also convex, instead of concave on the disc, and is there tri-tuberculate; the lateral tubercle is equally strong and pointed. The streaks and spots of tomentum are rather whiter, but similarly placed, viz.: the frontal belt is continued along the cheek and flank of thorax to the sides of the breast; and the vittæ on the vertex behind the eyes continue along the thorax from the fore to the hind margin, but they do not converge to or join on the latter: the scutellum is black, and the grey speckled tomentum on the elytra is condensed only near the shoulder. Lastly, the apices of the elytra are not in the least truncated, but rounded. The legs are black, ringed with grey. Long. 20 mm., ♀.

Gaboon.

NOSEROCERA, *n. g.*

Differs from *Monohammus* by the form of the head (though it is not retractile below), and particularly the large volume of the lower lobe of the eyes, also by the tuberculose disc of the thorax, in which characters it resembles the *Phrynetides*. Palpi robust, terminal joints sub-ovate, apex truncated. Antennæ (♀?) rather longer than the body, scape as in *Monohammus*, cicatrice narrow, but sharply limited by a complete rim; 3—5 joints broad, compressed, with their apices sub-nodose, sparsely ciliated. Elytra moderately narrowed behind, apex rounded, surface sub-depressed. Middle tibiæ grooved and slightly tubercled near the middle of their outer edge. Processes of the pro- and meso-sterna simple.

An interesting genus, apparently connecting the *Monohammineæ* with Lacordaire's Group, *Phrynetides*; the species described below somewhat resembles *Homelix unicolor* (Quedenfeldt), belonging to the latter Group.

NOSEROCERA TUBEROSA, *n. sp.*

Elongate, surface rather depressed, cinnamon-brown, clothed with extremely fine laid pubescence; scutellum yellow, coarsely tomentose; thorax impunctate, disc with five large, slightly elevated tubercles, lateral spine strong, elongated, median: elytra with the basal half subseriate punctulate, apical half smooth. Long. 21 mm.

Mt. Cameroons.

MONOHAMMUS PICTOR.

Dark velvety-brown, finely tomentose, crown and thorax with three fine longitudinal lines tawny-ochreous, elytra tawny-ochreous, the basal margin near the shoulders, a large semi-oval marginal spot in the middle, and a similar much smaller

spot adjoining it towards the apex, dark brown, the larger spot enclosing a small ochreous spot adjoining the margin; body underneath clothed with thin and fine tawny tomentum. Head elongated behind the eyes, impunctate like the thorax: elytra gradually attenuated, apex very obtusely truncated, somewhat thickly punctulated over their basal half. Legs elongated, fore-legs in the ♂ greatly so, and with a tubercle at the commencement of the oblique tibial groove; tubercle and groove of the intermediate tibiæ below the middle. Long. 22 mm., ♂ ♀.

Mt. Cameroons.

Forms with the following, and with *M. ruspator* (F.), *irrorator* (Chevr.), and other species a distinct section of the genus. The present species much resembles the Indo Malayan genus *Epepeotes*, but wants the tuberculated mesosternum.

MONOHAMMUS X-FULVUM, *n. sp.*

Clothed with extremely fine, rather silky, brown tomentum, the vertex and thorax with three continuous tawny-buff lines, the elytra, with a large, common, X-shaped figure of the same colour, the upper branches of which reach the shoulders, and the lower (much shorter) approach the lateral margin near the apex, the four branches meeting at the suture and for some distance forming a common sutural vitta; the pale sutural border continues posteriorly to the apex, and there is a narrow pale transverse streak in the middle of each elytron towards the margin. The head and thorax impunctate, except a few large punctures on the stout lateral tubercles, the elytra are punctulate, rather widely, and in some places subseriate, at the base asperate, throughout; the apex obtusely truncated. Long. 22—28 mm., ♀.

River Ogowé; Gaboon; Landana (Loango); Angola.

This well-marked species does not appear to have been described by any of the authors who have described *Longicornia* from the Gaboon and Angola.

11, Carleton Road, Tufnell Park:
May, 1884.

Atemeles paradoxus, &c., in the Isle of Wight.—While collecting at Sandown on April 12th, I noticed a small black ant with something dark in its mouth, which looked like the half of some Hemipterous insect; I tried to make the ant drop the object, but it held to it with great pertinacity, and it was only with considerable difficulty that it was induced to relinquish it: the object then uncurled itself, and turned out to be a fine specimen of *Atemeles paradoxus*, two or three times as large as the ant which was carrying it. In the same place I found three specimens of *Trichonyx Maerkelii* and some other *Scydmænidæ*.

The bitter east winds rendered collecting almost useless. At Ventnor I found *Bryaxis Waterhousei*, *Lithocharis maritima*, and some of the other usual beetles, but all very sparingly; in one sheltered place on the cliffs *Ceuthorhynchus cyanipennis* might be found in some abundance, and a few *Thyamis dorsalis*; *Molytes coronatus* occurred near Brading. On the whole, I never found the Isle of Wight so unproductive.—W. W. FOWLER, Lincoln: *May 8th*, 1884.

Lamprinus saginatus, &c., in Dean Forest.—On Good Friday last, I found a single specimen of *Lamprinus saginatus* in moss, in one of the enclosures in the Forest of Dean. In a large *Boletus* growing on a Beech stump near the "Speech House," occurred *Gyrophæna strictula* and *minima*, and, under the bark of the same stump, I captured *Leptusa analis*, and about 50 specimens of *Pteryx suturalis*. I also took a few specimens of *Homalota eremita* in moss. *H. eremita* has occurred to me in several midland counties, and is, therefore, not altogether a hill species as hitherto supposed.—W. G. Blatch, 214, Green Lane, Smallheath, Birmingham: *May 16th*, 1884.

Coccinella bipunctata, L., and C. variabilis, Ill., in cop.—To-day I found a male of the former in absolute conjunction with a female of the latter. The contrast of colour and marking between the two was very conspicuous, for although *C. variabilis* is protean in the pattern of its markings, it never simulates the constant maculation of *C. bipunctata*.—J. W. Douglas, 8, Beaufort Gardens, Lewisham: *17th May*, 1884.

A hunting ground on the south-east coast.—As the season for visiting the seaside is approaching, it may perhaps be useful to such entomologists as turn their attention to Hastings as a summer resort, to be reminded of one of the few good hunting grounds (at least, for *Coleoptera* and *Hemiptera*) that still remain intact in that growing neighbourhood, where "bricks and mortar" are so rapidly carrying all before them. The spot referred to has been frequently mentioned in the pages of this Magazine, and is known as the Camber sandhills; it consists of a stretch of low dunes of blown sand held together by sturdy growths of *Psamma arenaria*, on the eastern side of the mouth of the Rother. A run of twenty minutes from Hastings in the commodious (!) carriages of the South-Eastern Railway carries the explorer to the ancient town of Rye, the point of disembarcation for Camber. Passing through the town or round the base of the hill on which it is built, a ferry is reached, by which one is conveyed across the muddy Rother. A level and uninteresting walk of about a mile and a half, which in anticipation does not seem nearly so far, then leads along the bank of the river to the sandhills. The visitor should go prepared to make a day of it, for, once landed at Rye, there is (owing to the delightful arrangements of the Railway Company) no chance of a return to Hastings between mid-day and evening, except on one day in the week. Arrived at the sandhills, various rejectamenta first claim attention, and are pretty sure to yield in plenty *Broscus*, the two *Dichirotrichi*, and the disgustingly odorous *Pogonus chalceus*. Excrementitious matters and dead animals generally furnish good *Saprini*, including *immundus*, *metallicus*, and *maritimus*. *Heptaulacus sus* has also turned up on one occasion. At the roots of the *Psamma* there are plenty of common things, some of them, such as *Coccidula rufa*, in absolute swarms. *Notoxus* also is sometimes abundant here. Though not a matter strictly entomological, it may be interesting to note here that the pretty little pseudo-scorpion, *Chelifer Degeerii*, Koch, is common in the same places. All the *Calathi* occur except *piceus*, the most ubiquitous being *mollis*, which is a perfect nuisance to the collector. On windy days *Ægialia arenaria* and *Cneorhinus geminatus* vie with each other in equally futile

endeavours to scale the steep and treacherous sand-slopes, at the base of which are dangerous pitfalls in the shape of burrows of a handsome spider, which is ever on the look out for those hapless insects that have come to grief in miniature sand-avalanches. *Orthochætes* may be found lying about at the base of the sandhills, inert as usual. *Harpalus cordatus* and *servus*, *Ocypus ater*, *Silpha lævigata*, *Sarrotrium*, *Crypticus*, *Microzoum*, *Phaleria*, *Nacerdes*, and *Helops pallidus*, sometimes reward the collector, and at the right season *Cteniopus* forms a conspicuous object on the *Galium*, and *Malachius marginellus* and *viridis* occur by sweeping, the latter being especially abundant at one small spot behind the first range of hills. On the land side moss grows thickly and forms the home of numerous *Brachelytra* and *Geodephaga*. *Philonthi* swarm in it, especially *politus* and the red-spotted species, and the pretty *Xantholinus tricolor* is sometimes tolerably common. The genus *Amara* is well represented, *lucida* and *tibialis* being specially plentiful; *convexiuscula*, *bifrons*, and *rufocincta* have also occurred. In the moss, too, may be met with *Hyperaspis*, *Scymnus frontalis* and *Harpalus anxius*. Amongst more minute species *Phytosus balticus* and *Phlœobium clypeatum* occasionally put in an appearance.

The Hemipterous fauna also is interesting: the moss yields abundance of *Rhyparochromus prætextatus* and *Plinthisus brevipennis*, while *Ceraleptus lividus*, *Calyptonotus lynceus*, and *Rhyparochromus chiragra* and *sabulicola* sometimes turn up. The *Psamma* yields by sweeping, *Chorosoma*, *Myrmus*, and the large and pale *var.* of *Melagoceræa ruficornis*, and the Homopterous *Philænus lineatus* is a perfect pest. *Pœciloscytus unifasciatus* sometimes occurs on low plants, and *Systellonotus*, *Coranus*, and the shovel-headed *Eupelex producta* and *spathulata* at roots. A solitary patch of *Hippophaë rhamnoides*, which crowns one of the mounds, yields *Psylla hippophaës* and abundance of *Anthocoris nemoralis*. *Plagiognathus albipennis* is found on plants of *Artemisia* not far off.

Amongst the *Hymenoptera* may be mentioned the handsome bees *Dasypoda hirtipes* and *Megachile maritima*; and amongst the *Lepidoptera*, *Chœrocampa porcellus* and *Eubolia lineolata*.

In conclusion, I would acknowledge my indebtedness to my friends the Rev. E. N. Bloomfield and Mr. E. P. Collett for some of the information contained in these notes.—E. A. Butler, 7, Turle Road, Tollington Park, N.: *May 13th*, 1884.

Note on Nepa cinerea.—Some time ago, while searching for *Coleoptera* upon the borders of a small pond at Dulwich, I noticed a fly struggling in the mud, some distance from the water, and apparently unable to release itself. Upon closer investigation I found that the insect was in the grasp of a *Nepa*, which had buried itself in the mud, and left merely the tips of the jaw-like anterior-limbs projecting above the surface. This position must, I think, have been voluntarily assumed, for the *Nepa* was some five or six inches distant from the edge of the pond itself, and so could hardly have been left stranded by the retreat of the water consequent upon evaporation, which couldnot, at that time of the year (early in May) have been very rapid. It would be interesting to learn whether the *Nepa* has ever been discovered in a similar position by other observers, or whether this was an enterprising specimen which had departed from the usual habits of its kind, and struck out a line of life for itself.—Theodore Wood, 5, Selwyn Terrace, Upper Norwood, S.E.: *May 10th*, 1884.

Deleaster dichrous at Shirley and Norwood.—On the 29th of last month I took a specimen of *Deleaster* as it was flying along at dusk across the road leading from Woodside Station to Shirley Common. This evening I have met with a second example running upon the pavement adjoining the Crystal Palace. My only previous capture of the insect was on April 17th, 1880, an unusually early date of appearance. —ID.

Gerris rufoscutellata, Latr., near Norwich.—A dead ♀ specimen of a *Gerris*, which agrees in every respect with the description of this species at p. 270 of Vol. IV of this Magazine, and also that in Mr. Saunders' "Synopsis," was found by my friend Mr. H. J. Thouless, floating on the surface of a pond on Mousehold Heath near here, on the 15th March last. The occurrence of this example is somewhat interesting, since it settles, beyond question, the claim of the species to a place in the British list. It is either very rare or peculiar in its habits, for the heath in question has been so very closely worked for *Hemiptera* for some years past, that it is almost impossible that so large and conspicuous an insect could otherwise have escaped detection.—JAMES EDWARDS, 136, Rupert Street, Norwich: 16*th May*, 1884.

[*Vide* Ent. Mo. Mag., xvi, p. 175, and xvii, p. 278.—EDS.]

Great abundance of Chrysopa vulgaris at Lowestoft.—When at Lowestoft last July I was greatly struck with the number of *Chrysopa vulgaris* which swarmed on the sand-hills, in such numbers that a couple of sweeps with a net would often produce ten or a dozen, while in the streets at the other end of the town there were generally six or eight on each lamp by 10 p.m. I did not notice any abundance of *Aphides* to account for this.—W. C. BOYD, Cheshunt: *May* 12*th*, 1884.

Sympetrum Fonscolombii at Deal.—In the summer of 1881 I captured a dragon-fly in the district lying between the marshes and the sandhills at Deal, which was quite unknown to me. Upon referring to Dr. Hagen's Synopsis of the British Dragon-flies in the Entomologist's Annual for 1857, I found it agreed with the description of *S. Fonscolombii*, Selys, a very rare species, of which Dr. Hagen remarks, "Habitat near London (a single ♀ in the collection of the British Museum, formerly in that of Mr. Stephens)." Under that name it has remained in my collection, but I deferred publishing the capture until it had been verified by some authority. Mr. McLachlan's Annotated List in the April No. of this Magazine (Ent. Mo. Mag., xx, 251) at once reminded me of my neglected rarity, and I submitted the specimen to him; he has very kindly examined it, and returned it to me as a veritable *S. Fonscolombii*.—C. G. HALL, 3, Granville Road, Deal: *May* 3*rd*, 1884.

[This is the third British example known to me; it is a ♂, not *very* adult.—R. McL.]

Sympetrum meridionale.—At the sale of the late Mr. Wailes' collection this day, I saw the example of *S. meridionale* alluded to in my "British Dragon-flies annotated," in April last (*cf.* Ent. Mo. Mag., xx, p. 253). It is truly this species, and

bears evidence of having been sent to Mr. Wailes by the late Mr. J. C. Dale, for it bears a label "*meridionalis*" in the handwriting of the latter. It has passed, I believe, into the collection of Dr. Mason of Burton-on-Trent.—R. McLachlan, Lewisham: 14*th May*, 1884.

Varieties of Colias Edusa at Plymouth.—About seven years ago, when collecting one day in a quarry a few miles from here, I secured six specimens of *Colias Edusa* well worthy of a place in the cabinet. Four were fine specimens of the variety *Helice*; one other female was a variety intermediate between *Helice* and the normal form, being of a pale ochreous colour; and the remaining specimen, the greatest prize of all, was a male, in which the usual orange colour was replaced by a clear bright lemon-yellow—a most lovely variety. Considering that not more than a dozen *Edusa* were flying about the quarry, the proportion of interesting variations was satisfactorily large.—G. C. Bignell, 7, Clarence Place, Stonehouse, Plymouth: *May*, 1884.

[Mr. Bignell's note reminds me that in September, 1861, I captured a solitary *Colias Edusa* at Plymouth, a ♀ in which the ordinary pale spots in the black borders of the wings are *totally* obliterated. Amongst hosts of varieties of this insect I have never seen a precise parallel to this example.—R. McL.]

Varieties of Ennomos angularia and Ceropacha ridens.—A larva found some years ago feeding on elm at Exeter, and reared on the same, produced a female *Ennomos angularia*, of which the fore- and hind-wings are entirely of a dark umber-brown, while the thorax is of the usual yellowish colour.

Another beautiful variety reared here is *Ceropacha ridens*, of which I obtained two specimens, having the central band of the fore-wings normal, but the whole of the basal and apical areas of a whitish-green, without any trace of markings or cloudings, except four dark streaks on the nervures before the apex, and the usual spots on the cilia.—Id.

Note on the food plant of Gelechia subocellea.—In Matley Bog in the New Forest, and by the sides of the small streams which trickle down the cliffs near Totland Bay in the Isle of Wight, the larva of this species occurs very commonly in the flower-whorls of a *Mentha*, which I believe to be *aquatica*. On mentioning this to Mr. Stainton he told me that, on the Continent, it also feeds on *Thymus vulgaris*. —W. H. B. Fletcher, 6, The Steyne, Worthing: *May* 14*th*, 1884.

Bryophila impar, n. sp., distinct from B. glandifera.—In consequence of the confusion which appears to be made between the mealy-looking variety of *B. glandifera*, which occurs along with the typical form on the coast, and which is sold by the dealers as var. *Par*, and the *Bryophila* which we take at Cambridge, it will be as well to give the latter, which already has a local habitation, a distinctive name as well. Mr. Stainton, who has seen my series of the Cambridge insect, and considers it certainly distinct from Hübner's var. *Par*, said, in his joking way, "call it *impar*": and by this name I propose to distinguish it for the future. I should add that be-

sides Cambridge, we must now include Cork as a locality. I have seen specimens, belonging to Mr. de V. Kane, which he informs me were caught in that neighbourhood. —W. Warren, Merton Cottage, Cambridge: *May 15th*, 1884.

Effect of Cyanide upon colour.—A very curious case of artificial colouring in a butterfly has been sent me by a friend. He says that the specimen, a male *Gonopteryx rhamni*, was placed in a spare cyanide bottle, and left undisturbed for two years; but that, at some intermediate time, the stopper was tampered with and not properly replaced, so that air was introduced. The result is, that the butterfly is richly coloured with crimson along the costal area, and partially round the other margins of the fore-wings, and has large blotches of the same on the hind-wings. Indeed, the only portion of the wings which is left entirely of the usual brimstone colour is that portion which, in *G. Cleopatra, is clouded with crimson.*—Chas. G. Barrett, Pembroke: *9th April*, 1884.

Obituary.

Edwin Birchall died at Douglas, Isle of Man, on May 2nd, at the age of 65. He was born, we believe, near Leeds, in which town his father was in business in a large way. His early education was received in Leeds, but subsequently he was sent to the Friends' school at York, and among his schoolfellows were T. H. Allis, B. B. Labrey, Tuffen West, and Benjamin and Nicholas Cooke, all of whom subsequently made reputations as naturalists. He became a partner in his father's firm, which sometime after got into difficulties, and he then became Messrs. Pickford and Co.'s agent at Dublin, and, afterwards, at Liverpool. Subsequently he started in business on his own account in Bradford, but soon gave it up, and after holding, for a time, an official capacity in Leeds, settled in the Isle of Man. For several years he had been in very bad health, originating, probably, from a fall down a cliff while engaged in entomological pursuits. Edwin Birchall was a born naturalist, an enthusiastic collector, and of an extremely genial and buoyant disposition; at the same time he was a strong partisan, and enjoyed a controversy in print, especially on theological matters. His first published note (not entomological) with which we are acquainted, appeared in the "Zoologist" for 1850, p. 2954. Afterwards he was a constant contributor on Entomological subjects to the various periodicals. His residence in Ireland brought him more prominently forward; the entomology of that island was but little known. Edwin Birchall set himself to work, with characteristic energy, to investigate its Lepidopterous fauna, with the result of discovering fine new British species, and remarkable local varieties of others already known. These investigations culminated in a List of the *Lepidoptera* of Ireland that appeared in Vol. ii (1866-7) of this Magazine, which may be regarded as about the most important of his published papers. In it he enumerated 961 species (a few more were added in supplements) as against 636 in the previous Irish List Furthermore, these investigations brought him into correspondence with Darwin, Wallace, and other natural philosophers, who profited by his judiciously-reasoned ideas on the origin of the British Lepidopterous fauna, and on that of Ireland in particular.

Mr. Birchall had been long a widower, but leaves three sons and one daughter; the latter devotedly attended her father during his long illness, and some of his published notes were illustrated by her pencil.

Entomological Society of London : *7th May*, 1884.—J. W. Dunning, Esq., M.A., F.L.S., President, in the Chair.

Before the business of the meeting commenced, the President made a few touching and appropriate remarks concerning the loss the Society, and Entomology in general, had sustained in the sudden death since the last meeting of Sir Sidney S. Saunders, one of the Vice-Presidents.

Messrs. William White, of Morden House, Highbury Hill, and W. H. Patton, of Waterbury, Connecticut, U.S.A., were elected Members.

Mr. Kirby exhibited a small dark example of *Samia Cecropia* bred by Mons. Wailly.

Mr. C. O. Waterhouse exhibited two species of Dragon-flies captured by the Rev. F. A. Walker in the Island of Rhoda (? Rhodes); these were *Crocothemis erythræa*, Brullé, and *Trithemis rubrinervis*, Selys. He also exhibited from his garden an *Aphis* on an apple leaf infested by a parasitic *Aphidius*, which latter, instead of undergoing its transformations within the body of the *Aphis*, as is usually the case, came out and formed a silken cocoon beneath the body.

Mr. S. Stevens sent for exhibition specimens of *Andrena fulva*, which this year was so abundant in his garden as to become a nuisance by burrowing in his lawn. Messrs. McLachlan and C. O. Waterhouse said that precisely analogous conditions had recently come under their notice.

Mr. Olliff exhibited a new species of *Helota* collected by Dr. Welwitsch in Angola, which he proposed to term *H. africana*; it was of great interest, the genus being otherwise eastern.

Mr. E. A. Fitch exhibited *Isosoma orchidearum*, Westwood, bred from knots in the stems of *Cattleya Trianæ* in an orchid-house at Southport. He alluded to the vexed question whether *Isosoma* and other *Eurytomidæ* are parasitic or not. Although he could find no other larva in the stems that could be the "host" of the insect, he still believed in its parasitic nature, and his informant distinctly alluded to *two* kinds of larvæ as being in the stems.

Mr. Billups exhibited twelve species of *Hemiptera* collected by him at Headley Lane on January 14th this year, viz., *Acalypta parvula*, D. & S., *Cymus claviculus*, Fall., *C. glandicolor*, Hahn, *Anthocoris sarothamni*, D. & S., *Drymus sylvaticus*, F., *Metacanthus punctipes*, Germ., *Monanthia costata*, F., *M. cardui*, L., *Tropistethus holosericeus*, Hahn, *Piezostethus cursitans*, Fall., *Stygnocoris sabulosus*, Schill., *Peritrechus punctiiceps*, Thoms. Of these *M. costata* and *T. holosericeus* were generally considered rare species in England.

Mr. McLachlan called attention to the 1st vol. of Mr. A. D. Michael's magnificent work on the *Oribatidæ*, a Family of *Acari*, just issued by the Ray Society, and said that such a work was not only a credit to the Ray Society, but did honour to British Naturalists in general, and to the author in particular. The President and others coincided in this opinion, alluding to the extreme minuteness of the creatures and the great skill exhibited by Mr. Michael in the dissections and drawings. Mr. C. O. Waterhouse said that a complete set of the types had been presented to the British Museum.

Mr. A. R. Grote sent a paper (communicated by Mr. Butler) on the Lepidopterous genus *Hemileuca*. Mr. Distant was of opinion that the common N. American species might be easily acclimatized in England.

Mr. Butler communicated a paper on the Lepidopterous genus *Cocytia*.

NOTES ON SOME HAWAIIAN *CARABIDÆ*.

BY THE REV. T. BLACKBURN, M.A.

With reference to the observations of Dr. Sharp on the genera of Hawaiian *Carabidæ* in the Ent. Mo. Mag. (Vol. xx, p. 218), I have to make the following remarks:—

Atrachycnemis.—A re-examination of this genus satisfies me that it is better placed in the *Anchomenini* where Dr. Sharp places it than in the *Harpalidæ*, though I still consider that it has more than a superficial relation to that family. When I originally referred it to the *Harpalidæ*, it was with considerable hesitation, as it seemed to me to occupy a somewhat intermediate position, having the anterior tarsi in the male, at least (if I possess both sexes there is little difference), and the antennæ more or less Harpaliform. The former have the first four joints, though small, very wide and short, the 4th joint being fully as wide as the 3rd; the latter have the 3rd joint very evidently more strongly pubescent than the 2nd. The anterior tibiæ, however (and the tarsi in some respects), are so decidedly Anchomeniform, while the pubescence and porosity of the 3rd joint of the antennæ are so evidently less than of the 4th, that I admit *Atrachycnemis* may be rightly placed in the *Anchomenini*, while still believing that its analogies with the *Harpalidæ* are real. My specimens are without any pronotal setæ.

Anchomenus muscicola, mihi (included, I presume, by Dr. Sharp in his genus *Metromenus*), has a single systematic seta on either side of the pronotum, about the middle of the lateral margin—accidentally removed I suppose from Dr. Sharp's specimens, for the absence of pronotal setæ figures among the characters of the genus. I have two or three specimens in which it is conspicuously present on both sides, and several in which it is present on one side only; in the rest it is evident that the seta has been accidentally removed on both sides, but in every specimen I can detect under a moderate power the minute tubercles from which the setæ spring.

Mauna, *nov. gen.*

It is necessary to add another generic name to those already coined for the Hawaiian *Anchomenini*. This name is required for the insect hitherto called *Blackburnia frigida*, mihi, but several times stated by me (Ent. Mo. Mag., vol. xv, p. 120; vol. xvi, p. 106) to be placed in the genus *Blackburnia* only provisionally, and with much hesitation. After reading Dr. Sharp's paper on the genera of Hawaiian *Carabidæ* (referred to above), with which I heartily agree, I see the impossibility

of placing this insect in any of his, or my, already characterized genera. I, therefore, characterize it as follows:—apex of elytra very obscurely sinuate; elytra strongly margined at base; suture between 2nd and 3rd segments of hind-body strongly defined, the apical three segments with very deep sutures; a systematic seta at base of pronotum on either side. I do not observe any other striking structural distinction from *Blackburnia*, but the species (*frigida*, mihi) is, as a species, very different from the known species of *Blackburnia*. I have given this genus a name from the Hawaiian language, referring to its connection with a lofty mountain.

Port Lincoln, Adelaide:
1884.

NOTES ON *TENTHREDINIDÆ*.

BY P. CAMERON.

(*continued from Vol.* xx, *p.* 265).

Nematus Fletcheri, *sp. n.*

Black; antennæ brownish beneath, as long as the thorax and abdomen, tapering towards the apex; tegulæ, apex of coxæ, trochanters, base and apex of four anterior femora, extreme base and apex of posterior, four anterior tibiæ and tarsi, and posterior tibiæ, except the apex, white. Wings hyaline, costa fuscous, stigma blackish. Claws with a sub-apical tooth. Length, $2\frac{1}{2}$—$2\frac{3}{4}$ lines.

The ♂ I have not bred, but a caught specimen from Thornhill seems to pertain to this species. It has the antennæ as long as the body, the 3rd joint is a little compressed; and they taper very perceptibly towards the apex.

The larva feeds on hawthorn, eating the leaves along the edge against which the body is closely pressed. It is light green, the anal segment red, head brownish.

N. cratægi, Zaddach (Schr. Ges. König., xxiv, p. 147), appears to be very closely allied to this, but it would seem to differ in having the labrum, mandibles, and the edge of the pronotum, white; the antennæ red, except the two basal joints, which are black; and the apex of the middle tarsi and the base of the posterior are reddish-yellow.

Bred by Mr. J. E. Fletcher from larvæ collected at Worcester. I have also found it in Clydesdale. There is a third form found on hawthorn allied to *N. cratægi* and *Fletcheri*, but I have not yet made up my mind as to its specific distinctness.

Nematus politus, Zad. (1883), = *leucostigmus*, Cam. (1876).

Nematus commixtus, Zad., = *nigrolineatus*, Cam.

Glasgow: *June*, 1884.

ON AN EXTRAORDINARY HELICIFORM LEPIDOPTEROUS LARVA-CASE FROM EAST AFRICA: SUPPLEMENTARY.

BY ROBERT McLACHLAN, F.R.S., &c.

I find that the singular shell-like cases from East Africa noticed and figured by me in the last No. (*ante* pp. 1—2) of this Magazine were not quite so unknown as I then suspected. Precisely similar cases from the Zanzibar coast were described and figured by Gerstäcker so long ago as 1873, under the name "*Cochlophora* (?) *valvata*," in the entomological portion of Van der Decken's Reise, Band iii, Abth. ii, pp. 379—381, pl. xvi, figs. 2 & 2*a*.

Gerstäcker's account and my own agree remarkably, even to the variation in the direction of the spiral. He went further than I have done, and burnt a portion of a case, with a view of determining the character of the ash.

In the "Zoological Record," vol. x, 1873 (1875), p. 392, the Lepidopterous portion of which was supplied by Mr. W. F. Kirby, we find, at p. 392, under "*Psychidæ*," the following:—"*Cochlophora* "(?) *valvata*. Gerstäcker figures snail-shells which have been inhabited " by this species, and describes the remains they contain. V. de Deck-"en's Reisen, iii, pt. 2, pp. 379—381." Now, Gerstäcker does not describe the cases as "snail-shells," but perfectly comprehended their real nature. He nowhere describes "the remains they contain," but, on the contrary, is careful to state that in none of the cases could he find the remains of either larvæ or pupæ. It is to be hoped that our "Zoological Record," in the success and accuracy of which all British Zoologists should take the warmest interest, may not often prove so misleading.

Lewisham, London:
June 18th, 1884.

ON THE LARVA, &c., OF *BERÆODES MINUTA*, LINNÉ.

BY KENNETH J. MORTON.

Down to the time of the publication of the "Monographic Revision and Synopsis of the Trichoptera of the European Fauna," writers on the Order had placed the small black insects belonging to the genera *Beræa* and *Beræodes* in the *Rhyacophilidæ*. But at page 490 of the

work referred to, Mr. McLachlan, while still retaining them as forming a Section of the same Family, pointed out that observations made by Brauer and Frauenfeld on the habits of the larva of *Beræodes*, rendered it practically certain that the proper location of the Section was in the *Leptoceridæ*; and in the Supplement, part ii, p. lxiii, and the Systematic Catalogue, the transfer of the two genera to the beginning of the latter Family is carried out. Frauenfeld bred *Beræodes minuta*; but no description of the larva appears to have been published, and the following notes, may, therefore, be of interest as confirming and supplementing what is already known on the subject.

On the 22nd March last, I found at the bottom of a small stream near here, at a place where *Beræodes* occurs rather commonly in the month of June, a number of small blackish cases, agreeing well with the indications given in the "Revision," and tenanted by larvæ having very long posterior legs. Half-a-dozen of these I took home and placed in a vessel having a quantity of river-sand in the bottom, in which a species of aquatic grass was growing. The larvæ got on well, increasing in size, as was evidenced by the slight additions made to their cases, and on 6th of May one fixed itself amongst the root-fibres of the grass, and by the 15th all had "spun up," either in the same way as the first, or on the sides of the vessel.

On the 29th March, I had obtained a few more cases, which were sent to my friend Mr. King of Glasgow. These, probably owing to the influence of a higher mean temperature, made much more rapid progress than mine, spinning up nearly a fortnight earlier; and on the 21st May he had the satisfaction of breeding ♂ and ♀ of *Beræodes minuta*. My first specimen, a ♂, was bred on 4th June, and since then several others have appeared.

Further, at the beginning of the present month, I procured a grass-root literally black with a multitude of cases, and numerous examples of the insect have been bred therefrom.

The larva agrees with those of the species belonging to the typical section of the *Leptoceridæ*, in having the posterior legs of great length, but in other points of structure it differs considerably. In a larva which I believe appertains to *Leptocerus aterrimus*, the head and first two thoracic segments are very narrow; *Beræodes*, on the other hand, has these segments robust and broad, almost as broad as the segments which follow. The first three segments (including the head) are chitinous, and beset with hairs: the head rather large, broadly ovate; pro-thorax very little broader than head, almost quadrate;

meso-thorax about same breadth as pro-thorax, transverse; meta-thorax soft. First abdominal segment with a large dorsal and smaller lateral protuberances;* the remaining segments cylindrical, gradually diminishing in size to the anal extremity; the terminal segment having two small processes bearing the usual hooklets, and provided with a few very long hairs. The respiratory filaments appear to be present only on the first three abdominal segments on the dorsal and ventral surfaces towards the sides, those on the back being turned inwards and almost meeting; they are flagellate in form, consisting of three to five long threads attached to a short and broad foot-stalk. The legs have a few very long hairs.

The larva is pale green: head above olivaceous-brown, with two pale lines, which converge, forming a sort of U, the eyes are very conspicuous, being placed in large pale patches; pronotum beautifully marked with thickly-set, small, round, dark brown or blackish dots, which become larger and less thickly set in the posterior part; mesonotum greenish-fuscous, with two darker points. Legs clear yellowish, darker about the joints. Anal hooklets also yellowish.

These larvæ are almost always found at the bottom, and they do not appear to feed on water-weeds: Mr. McLachlan suggests that, in all probability, their food consists of minute Desmids and Diatoms that must abound in the localities where they occur.

The cases are cylindrical tubes, 7 to 9 mm. in length, much curved and greatly attenuated to the tail-end, formed of fine sand-grains, covering an inner silken tube, and usually very black in colour. When about to change, the larva attaches the case by a silken band, spun round the mouth-end, to the root-fibres, &c., of aquatic weeds, and closes it with a somewhat convex membrane, in which there is an excentric slit. The nymph-state appears to extend over a period of about four weeks.

Carluke, N.B.:
10*th June*, 1884.

[Dr. Brauer was so kind as to send me one of the original larvæ (with its case) obtained by Von Frauenfeld; it agrees in every respect with those found by Mr. Morton.—R. McL.]

* With regard to these protuberances, which are always visible in examples in alcohol, they would appear to be capable of withdrawal and inflation in the living larva. Mr. King directed my attention to this, and I subsequently confirmed it.

MIGRANTS AT LIGHTS

BY ALEX. MACKIE

Mr Gatke reports that at Heligoland on the night from August 8th to 9th, 1888, wind S.E., there was a considerable flight of the silver-gamma moth *Plusia gamma*, but nothing compared with the perfect "snowstorm" of this moth which he passed in the autumn of 1882 all going west.

On October 15th, wind S.S.W., there was a large flight of *Hybernia leucophearia* mixed with *Hybernia marginaria* and also during the nights of the last week in October repeated flights of these moths.

With reference to the great flight of *Plusia gamma* on Heligoland in 1882, a note of which is appended to the report on the Migration of Birds (1885, p. 9), Mr Thomas Williams, of the Hanois Lighthouse, off Guernsey, writes that the moths were observed there in June to July.

Mr James Wilson, from the Tarbat Ness Lighthouse, eight miles from the coast of Ross-shire, writes that on the night of November 2nd 1888 the weather being hazy there was a quantity of all species of birds, from the N.E., but the most remarkable was the number of large moths, with blue wings, which came on board full of snow.

Great Saxe Tower Lighthouse,
Tuesday 18th.

[These notes are extracts from letters. Mr Gatke is the honorary secretary of a Committee appointed by the British Association for the Advancement of Science for the purpose of obtaining information regarding the migration of birds, in which the services of the various lighthouse keepers are largely utilised. We should be glad if this valuable information could be represented to the Committee. The information obtained from systematic observation of the migration of nocturnal insects as observed at lighthouses would also be a point of the highest importance.—Ed.]

DESCRIPTION OF THE LARVA OF *HERBULA CESPITALIS*

BY GEO. T. PORRITT, F.L.S.

A batch of eggs of *Herbula cespitalis*, received from Mr. W. H. B. Fletcher of Wembley, on July 23rd last, deposited by a moth from the second brood, were globular and shining, the colour bright orange.

Four days later, on the 27th, they had shed the next preceding larval being brownish-grey, and the large head black. They were placed in a growing plant of *Primula* [illegible] on which they spun a web quite at the base of the leaf beneath which they retired to undergo and appeared to feed freely on aphis.

By the 4th of September they had attained a length of about three-eighths of an inch, when I took them as follows:—Moderately stout, the cylindrical body tapering little towards the head, which is narrower than the second segment, which in turn is narrower than the third segment, which is can be partially withdrawn. Body cylindrical, and of uniform width throughout, tapering only slightly towards the extremities; segmental divisions deeply cut, and the prominent tubercles give the skin a rather rough appearance.

Ground-colour dull brownish-black, with a slight flesh tinge; head and the large second segment minutely freckled with darker brown spots. Two dull leaden-coloured stripes extending between them the very dark pulsating vessel from the dorsal area; there are no perceptible subdorsal lines, but a dingy whitish stripe of greater or lesser intensity in different specimens extends along the spiracular region; tubercles and spiracles black. Ventral surface, legs, and pro-legs, uniformly of the dull brownish-black of the dorsal area.

Eight days later, on the 12th, they were full-grown when I again described them as follows:—Length about three-quarters of an inch, and fairly stout in proportion; head and second segment dull and glossy, the former rather less than the latter; the third segment, body cylindrical, and of uniform width, tapering a little towards the extremities; segmental divisions well-defined, but the skin has a smoother appearance than when last described, although the tubercles are still very conspicuous.

Ground-colour dull, smoky, brownish-black, the front skin now being apparently quite lost; head and second segment mottled brown, freckled with darker brown spots. Two grey lines, enclosing between them the dark, smoky alimentary vessel, run the dorsal stripe; there are no perceptible subdorsal lines, but a dingy whitish stripe of greater or lesser intensity in different specimens, extends along the spiracular region; the polished tubercles black, finely but clearly encircled with grey; spiracles black, with very minute, almost imperceptible, white centres. Ventral surface and prolegs rather paler and browner than the dorsal area, the anterior-legs tipped with darker brown, and encircled with black at the bases.

They were still living in galleries of web, just above the roots of the food-plants, *Plantago lanceolata* and *P. major*, but, by September 21st, had nearly all spun up. The cocoons were fixed in corners, &c., of their cage; they were one-third to half-an-inch long, very roughly and compactly formed of closely-woven snow-white silk. The pupa is about one-third of an inch long, plump and glossy; the thorax, head, and wing-cases dark sienna-brown, abdominal divisions dark orange.

The imagos appeared during the second week of May last.

Huddersfield: *June 8th*, 1884.

LIST OF THE *DIPTERA* OF THE ISLAND OF MADEIRA, SO FAR AS THEY ARE MENTIONED IN ENTOMOLOGICAL LITERATURE.

BY C. R. OSTEN-SACKEN.

The only strictly faunistic paper on Madeiran *Diptera* is the Dipterological portion of Wollaston's "Brief diagnostic characters of undescribed Madeiran insects" (Annals and Mag. of Nat. Hist., 1858, pp. 113—117; with a plate by Westwood). It contains descriptions of 21 species believed to be new.

All other notices or descriptions of Madeiran *Diptera* have to be sought in the numerous works on descriptive entomology, among insects from other countries. I have compiled a list of all the species hitherto recorded as occurring in that island; owing to the difficulty of that kind of search, there may be some omissions, but they cannot be very numerous.

The list contains 53 species: 20 of these (indicated by *) are European species, for the most part very common; 2 species are common to Madeira and to the Canary Islands; 1 occurs all over Africa; 29 have been described from Madeira only, but among these 29 there are the 21 species described by Mr. Wollaston, which require a closer comparison with the European species, as many of them will probably be found identical. The same may be said of the species described by Mr. Thomson and Mr. Walker.

It appears, therefore, that the data in our possession are too meagre yet to allow of any conclusion about the affinities or the origin of the Dipterous Fauna of Madeira.*

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* This List is published not by request of, but by permission of, the author. It was kindly compiled at my request for the use of a correspondent resident in Madeira, who is anxious to include a List of all recorded Madeiran Insects in the new edition of a book on the island generally. After so much care had been taken in bibliographical research, it seemed to me desirable that the results should also appear in some purely entomological publication.—R. McLachlan.

Sciara cognata, Walk., List, &c., Brit. Mus., Dipt. I, p. 103, from Bogota, is stated by the same author (Ins. Saund., p. 419) to inhabit also Madeira, and to draw blood, like *Culicidæ*. N.B.—This statement is improbable.

**Simulium ornatum* (Meig.), Schiner, "Novara," p. 15.

Dilophus maderæ, Wollaston, Annals and Mag. of Nat. Hist., 1858, p. 115, tab. 5, fig. 1.

Scatopse tristis, *id.*, *l. c.* fig. 2.

Culex longiareolatus (Macq., H. N. des Canaries, p. 99), Walker, List, &c., I, 6. N.B.—Also in the Canary Islands.

Chironomus pedestris, Wollast., *l. c.*

Dicranomyia maderensis, *id.*, *l. c.* (*Limnobia*).

Geranomyia atlantica, *id.*, *l. c.* (*Limnobia*).

Trimicra haligena, *id.*, *l. c.* (*Limnobia*).

Limnophila contraria, *id.*, *l. c.* (*Limnobia*).

Pachyrrhina brevipennis, *id.*, *l. c.*; *lucida*, Schiner, *l. c.*, p. 34.

Thereva nana, Wollast., *l. c.*, fig. 3.

Tolmerus novarensis, Schiner, *l. c.*, p. 191.

Machimus madeirensis, *id.*, *l. c.*, p. 192.

Paragus mundus, Wollast., *l. c.*, fig. 4; **tibialis* (Fallén), Schiner, *l. c.*, *p.* 369.

**Syritta pipiens* (Linné), *id.*, *l. c.*, p. 366.

**Syrphus gemellarii* (Rondani), *id.*, *l. c.*, p. 351; **seleniticus* (Meigen), *id.*, *l. c.*, p. 351; **pyrastri* (Linné), *id.*, *l. c.*, p. 351; **halteatus* (De Geer), Walker, List, &c., III, p. 582; Schiner, *l. c.*, p. 353; **corollæ* (Fabr.), Schiner, *l. c.*, p. 353; *ægyptius* (Wiedemann), Loew, Dipt. Südafr., p. 306 (N.B.—Occurs in all Africa as far as the Cape); *Babyssa*, Walker, List, &c., III, p. 584; *brachypterus*, Thomson, Eugenie's Resa Ins., p. 496.

**Sphærophoria strigata* (Stæger), Schiner, *l. c.*, p. 317 (*Melithreptus*).

**Milesia crabroniformis* (Fabr.), Walker, *l. c.*, p. 561.

Eristalis ustus, Wollast., *l. c.*; **tenax*, L., Schiner, *l. c.*, p. 360.

**Musca domestica* (Linné), Schiner, *l. c.*, p. 306.

Idia lunata (Fabr.), *id.*, *l. c.*, p. 309. N.B.—Besides Madeira, it has been found in the Canary Islands.

**Dasyphora pratorum* (Meig.), *id.*, *l. c.*, p. 304.

Sarcophaga æquipalpis, Thomson, *l. c.*, p. 534.

Cynomyia madeirensis, Schiner, *l. c.*, p. 312.

**Homalomyia canicularis* (Linné), *id.*, *l. c.*, p. 298.

**Heteromyza atricornis* (Meig.), *id.*, *l. c.*, p. 231.

Drosophila repleta, Wollast., *l. c.*, fig. 7.

Tetanocera inclusa, *id.*, *l. c.*, fig. 5; (?) *Walkeri*, *id.*, *l. c.*, fig. 6.

Oscinis signata, *id.*, *l. c.*, fig. 8.

**Sepsis punctum* (Fabr.), Schiner, *l. c.*, p. 261.

**Piophila casei* (Linné), *id.*, *l. c.*, p. 261.

Gymnopa clara, Wollast., *l. c.*, fig. 9.

Acinia insularis, *id.*, *l. c.*; *valida*, *id.*, *l. c.*; *miranda*, *id.*, *l. c.*

Ensina decisa, *id.*, *l. c.*; *vacillans*, *id.*, *l. c.*

**Tephritis amœna* (Frauenf.), Schiner, *l. c.*, p. 269; *cosmia*, *id.*, *l. c.*, p. 269.

**Ceratitis capitata* (Wied.), Loew, die europ. Bohrfliegen, p. 123, tab. 26, fig. 1. N.B.—Attacks oranges, and occurs wherever they grow; the *Ceratitis citriperda*, McLeay, *hispanica*, De Brême, &c., are mere synonyms, or species based on individual varieties.

**Hippobosca equina* (Linné), Walker, *l. c.*, IV, p. 1140.

Heidelberg: *June*, 1884.

Thais Polyxena captured in England.—I wish to notice the capture, near Exeter, on May 27th, of a very good specimen of *Thais Polyxena*; it was taken by two lads near the city, and was brought to me in a match-box in the afternoon of the capture. It appeared as if it had not long emerged from the pupa state, as the hind-wings were not quite extended to the full development, but I managed to get them out on the setting board, and it now presents a respectable appearance. From the size of the body I presume it is a female.

I have not the least idea how the specimen came here, and I tried, by means of a notice of the specimen, and a question if any lady or gentleman had brought home any caterpillars of European insects, that perhaps this might have escaped, but I got no answer through the medium of the press or otherwise. I am not aware if this species has been taken before in England. Perhaps it would be as well to notice this in the Ent. Mo. Mag.—Edward Parfitt, Exeter: *June 6th*, 1884.

[Living pupæ of *Thais* are imported by many of our dealers in Natural History specimens, and can be purchased from them at a cheap rate. We have no doubt the specimen above alluded to was the produce of a pupa so imported. The larvæ feed on *Aristolochia*, of which we have only one species in England, and that is generally reputed not indigenous. Moreover, *Thais* is an essentially southern genus; so there is very little probability of it becoming naturalized here.—Eds.].

Sphinx pinastri at West Wickham.—On May 26th a young gentleman brought me (alive and unpinned) a splendid perfect specimen of *Sphinx pinastri* he had that morning taken off the palings of West Wickham Wood.—William Watkins, The Insectarium, Crystal Palace, S.E.: *June 6th*, 1884.

[The first portion of the editorial note appended to the notice concerning *Thais Polyxena* applies equally here.—Eds.].

Note on Vanessa cardui.—During the hot weather at the end of May, *V. cardui* suddenly put in an appearance in considerable numbers. I think May 23rd was the first day on which I saw them. They were all faded and worn, but much more numerous than last autumn. Whence did they come?—G. B. Longstaff, Twitchen, Morthoe, North Devon: *June 6th*, 1884.

[We think there is abundant evidence that a very considerable immigration of *Vanessa cardui* has occurred this season, but, at present, not in any way equalling that of 1879.—Eds.].

Development of imago in an ichneumoned pupa.—In the March number of the Magazine a correspondent mentions a curious instance of the above in the case of *Dicranura furcula*. A somewhat similar instance may be interesting. Two or three years ago, having dug a large number of pupæ, I broke open those that failed to emerge, so as, where possible, to see of what kind they were. In one, which was some species of *Tæniocampa*, I found that the moth had apparently died, as so often happens, when just ready for emergence, but within the body was a parasite alive, also just ready to emerge. I have kept the specimen, and enclose it herewith.—A. F. Griffith, Sandridge, St. Albans: *April*, 1884.

[This is a very curious instance of parasitism. The moth, apparently *Tæniocampa stabilis*, had so far developed, that head, antennæ, proboscis, legs, thorax, and wings were perfect, but the abdomen was entirely occupied by the pupa of the parasite, a *Tachina*, leaving nothing between it and the pupa-skin of the moth except the skin and scales. The fly must have died when the pupa-moth was opened, as it has not spread its wings.—C. G. B.]

Coleoptera at Bromley.—During the months of June and July last year I captured in the evening in this neighbourhood the following *Coleoptera*, which I think are worth recording. *Homalota elegantula*, Bris., 1 specimen by the side of a wood. *H. exilis*, Er. ?, 1 specimen in the same locality; it appears to me to be identical with *exilis* in all respects except size, and in this respect it is nearly twice as large as that species. I sent the specimen to Dr. Sharp for his examination, and he returned it as being, in his opinion, too large for any of the *exilis* group; it must, therefore, wait till further specimens turn up to show if really distinct or only a large form of *exilis*. *Deleaster dichrous*, Gr., occasionally, flying. *Homalium iopterum*, Steph., and *pygmæum*, Pk., one or two specimens. *Scydmænus Sparshalli*, Den., by sweeping; *elongatulus*, Müll., ditto; *fimetarius*, Th., I have found this year commonly in a hotbed. *Bythinus Curtisi*, Leach, and *Burrelli*, Den., as well as the commoner *bulbifer*, Reich., by sweeping. *Colon brunneum*, Latr., not rare, by sweeping. *Thalycra sericea*, Sturm, one specimen by sweeping, kindly determined for me by the Rev. W. W. Fowler; I had put it aside as a large *Epuræa*.—Edward Saunders, St. Ann's, Mason's Hill, Bromley: *May 15th*, 1884.

Trichopteryx brevicornis, Mots., a species new to Britain.—Among some *Trichopterygidæ* sent me by Mr. T. R. Billups, I found a few species of a *Trichopteryx* which I at first sight referred to *T. atomaria*, but as it did not seem quite to agree with that species, I sent specimens to Mr. Matthews, who pronounces it to be *T. brevicornis*, Mots., a species new to the British list, and hitherto found only in Madeira.

It is slightly larger than *T. atomaria*, from which common species it may be distinguished by having the margins of the thorax bisinuate, by its longer elytra, which have a slightly fuscous tinge, and its shorter antennæ, which are nigro-piceous; the sculpture is also somewhat different. Mr. Billups tells me that he captured the specimens at Canning Town, West Ham Marshes, Essex, on November 29th, 1883, by shaking the bottom of a stack of radish-seed. The locality is the same which produced *Spercheus* a short time ago.—W. W. Fowler, Lincoln: *June 9th*, 1884.

Carabus auratus in London.—I have to record the capture of a specimen of

Carabus auratus in a garden at Pentonville, London, N. I have shown the specimen to Mr. H. W. Bates and Mr. E. C. Rye, who suggest that it may have been introduced through the transport of vegetable substances from the continent; but I have since made enquiries, and find the nearest market garden is at least half-a-mile off. —H. W. Simpson, 2, Robert's Place, Bowling Green Lane, E.C.: *May 24th*, 1884.

[Our correspondent wrongly interprets the purport of the suggestion. There is no necessity for a "market garden." A French lettuce bought at the nearest greengrocer's shop would be sufficient. One London locality for this insect is the Borough Market.—Eds.].

Apion pomonæ and Polydrusus undatus in cop.—The note by Mr. Douglas, at p. 19, reminds me that I saw, beaten out by a friend, at Laughton Woods, near Lewes, on May 16th, a male *Apion pomonæ in cop.* with a female *Polydrusus undatus.* The insects remained in conjunction for more than four hours after their capture.—J. H. A. Jenner, 4, East Street, Lewes: *June 16th*, 1884.

Claviger foveolatus at Lewes.—This insect occurs sparingly in the nests of *Lasius flavus* under stones on the Downs near Lewes, only some half-dozen being usually procurable from any one nest. I was, therefore, much surprised last May, on turning over a stone, to see these insects congregated in masses. The nest was a small one, and the *Claviger* quite outnumbered the ants. I captured fully thirty specimens, while numbers escaped.—Id.

Hibernation of Cetonia aurata.—In wading through previous volumes of the Ent. Mo. Mag., I find a notice in the number for January, 1874, by Mr. John Scott recording the capture of a specimen of this species flying on the 15th October, 1873, with a question as to what could have caused such untimely flight. From this question I take it that it is not generally known that *Cetonia aurata* lives in hibernation through the winter, in proof of which I received during last month a specimen (alive), which had been captured in the thatch of an old house at Helmsley, near Leeds.—John W. Ellis, 101, Everton Road, Liverpool: *May 26th*, 1884.

[There can be little doubt that *Cetonia aurata* assumes the perfect state in the autumn, but ordinarily does not leave the cocoon until the following year. Occasionally, however, certain individuals come out in the autumn (especially in "bursts" of hot weather), and finding themselves overtaken by cold weather, either die, or seek convenient places for hibernation. *cf.* Ent. Mo. Mag., xi, p. 208.—Eds.].

Teredus nitidus, F., Rhyncolus gracilis, Rosen., &c., in Sherwood Forest.—The re-occurrence of *Teredus nitidus* in its original locality (Sherwood Forest), after lying *perdu* for so many years, seems sufficiently interesting to deserve record.

As the result of very hard work during a ten days' visit in last month (May 13th to 23rd), I managed to secure eight specimens of this rare beetle, all of them under bark of oak stumps, and in every case associated with *Dryocœtes villosus.* Whether or not any relationship exists between these two species I am unable to say from my own observation. I searched for larvæ of *Teredus* in the runs of *Dryocœtes*, but saw nothing except those of the latter beetle. All my specimens of the fully developed insect were taken from between the bark and the wood, their position being exactly that of a *Rhizophagus.*

My special object in visiting the Forest on this occasion was to hunt up *Eutheia lavata*; nor was I disappointed, a few examples of each sex being my reward. The riginal specimens occurred under oak bark; but on this visit I found them on both ak and birch—sub-cortical, of course.

In birch wood I found three specimens of *Rhyncolus gracilis*, and from an oak ump I took what I believe to be *Elater coccinatus*, the elongate, almost parallel, ensely punctured thorax agreeing with the description of that rare species.

My other captures must be reserved for a future note; but I may say that I btained two examples of *Ptenidium Gressneri* from a rotten birch stump, this aking the second British locality for this species.—W. G. Blatch, 214, Green ane, Smallheath, Birmingham: *June 16th*, 1884.

Solenopsis fugax, &c., in the Isle of Wight.—On April 12th, while collecting t the foot of the Culver Cliffs, near Sandown, I came across a nest of *Solenopsis ugax*: this, I believe, is the fourth nest of the species that has been found in Britain, two having been found by the late Mr. Frederick Smith, and two by myself, oth in the same locality. I found individual specimens of this ant in one or two ther places, not far from the spot where I discovered the nest, but still far enough way to prove that they belonged to other colonies. It was, however, the position f the nest which made the capture interesting. Sir John Lubbock, on page 78 of Ants, Bees, and Wasps" (International Scientific Series), writes as follows:—Another small species, *Solenopsis fugax*, which makes its chambers and galleries in he walls of the nests of the larger species, is the bitter enemy of its hosts. The atter cannot get at them, because they are too large to enter the galleries. The ittle *Solenopsis*, therefore, are quite safe, and, as it appears, make incursions into he nurseries of the larger ant, and carry off the larvæ as food. It is as if we had mall dwarfs, about eighteen inches to two feet long, harbouring in the walls of our ouses, and every now and then carrying off some of our children into their horrid ens!"

In the case of the nest that I found, the *Solenopsis* had had no occasion to ake galleries; on pulling at a large stone to remove it from the side of the slope n which it was imbedded, the top, which fitted very closely, came off in my hand, nd between it and the lower part the *Solenopsis* had formed its nest: owing to the osition of the stone on a slope, the crack was in direct communication with the side f the hill in which it was imbedded, and here a large colony of *Formica fusca* had ettled behind the stone; not one of the latter, apparently, could have got into the rack, but the *Solenopsis* had, of course, easy access to the *F. fusca*. The weather was rather cold, and the ants somewhat torpid, or I might have made further obervations.

Solenopsis have certainly the power of getting through very small spaces. I hook the nest into a chip box, and enclosed this in two more, and wrapped these in wo pieces of paper, but when I got home I found several in the outermost piece of aper, and the majority had escaped; one or two of the chip boxes were, certainly, ot quite safe for very minute insects, but, at the same time, I thought that they ould not have got through all.

There were a large number of other species of ants to be found in the same lace. *Tetramorium cespitum* and *Formica cunicularia* seemed common, and the

ordinary species abounded ; setting aside the *Solenopsis*, however, my best find wa two specimens of *Ponera contracta*, which I obtained by splitting the chalky base o the cliff. I also found this rarity at Ventnor, in one case under a stone below high water mark ; it is excessively sluggish, and I never found more than one in the sam spot.—W. W. Fowler, Lincoln : *June 9th*, 1884.

Curious habit of Osmia bicolor, Schk.—I was out collecting on the 28th ulto on the slope of one of our hills, the morning was very bright and hot, and a bris wind was blowing. Owing to the dry weather we had lately experienced, the vege tation was more scant than usual, but the *Helianthemum* and the *Lotus* were i bunches of bloom. I had been collecting bees for some days previously in the woo skirting this slope, and had met with *Osmia bicolor* ♀, but could not meet with th ♂, so thought I would try the dry slope of the hill. I had not been standing abou there many minutes, when I saw the female of the bee coming towards me carryin in her jaws a bit of dry bent some four inches long, holding it in the middle, jus exactly as an acrobat would carry a balancing pole to steady himself. As she cam past me I secured her in my net with the bent in her mouth, which, when she foun she was caught, she immediately dropped. Soon after this I saw another an another engaged in the same business ; they would settle down momentarily on th ground, seize hold of a short bent, and start away with it in the direction of th wood below. I saw this done at least twenty times by as many bees, and secure most of them. The moment I saw the first bee with the bent, I recollected I ha observed the same habit last year, but I had not then so good an opportunity watching the bees as now. I at first came to the conclusion that this had somethin to do with their nidification, but am now very doubtful on this point, as the sam day I discovered this bee making its nidus in the shell of *Helix nemoralis*, and cap tured the bee in the whorl of the shell. I shall be very glad to know if this hab has been noticed by others, and, if so, what suggestions they may have to offer, as fancy the habit must be peculiar as well as strange.—V. R. Perkins, Wotton-unde Edge : *June 6th*, 1884.

Lecanium æsculi.—On sheltered paling under young horse-chestnut tre (*Æsculus*) I, this morning (shade-temperature 78° Fahr.), found a newly-emerge male of a *Lecanium*, which I take to be *L. æsculi*, Koll., *sec.* Signoret, Ess. Coch p. 242. It agrees very well with Signoret's description and his figure, pl. xii, fig. 12 it also conforms to Curtis' figure of *Coccus aceris* (Brit. Ent., pl. 717), which Si noret says (*op. cit.*, p. 14) is truly *Lecanium aceris*, Schrank. Signoret, whi admitting that *L. aceris*, auct., and *L. æsculi*, Koll., are very much alike, finds di ferences which he deems to be specific ; from paucity of material I can offer r opinion on the point ; certainly Signoret's figures of the two species, as understoo by him, are not alike.

The scales on the sycamore and horse-chestnut are, sexually, very different form and size, yet very similar on the two kinds of tree. I have often found the during winter and spring on the lowest and most sheltered young branches of the trees, where, doubtless, there is less chance of their being rubbed off by the casualti of winter than if placed on the higher branches, but I have always failed to re the males from the scales removed and kept in glass tubes, and never till now ca tured or saw one of these rarities.—J. W. Douglas, 8, Beaufort Gardens, Lewisham *May 10th*, 1884.

Hydroptila femoralis, Eaton, in Scotland.—At an excursion which the Natural History Society of Glasgow had to the hills above Port Glasgow on May 31st, I was fortunate enough to obtain a nice series of *Hydroptila femoralis*, Eaton, by beating the branches of Scotch firs, and sweeping the herbage along the edge of the burn in the Devol Glen. This species has not, as far as I am aware, been recorded from Scotland; it has been captured by the Rev. Mr. Eaton near Ashbourne, Derbyshire, in June.

It is to be regretted that so little is known about the distribution of these small caddis-flies, which is, no doubt, owing to the difficulty of collection, and also in getting the specimens named. I think that a large amount of the latter might be obviated by examining the specimens when they are freshly killed, as then the anal parts are very clear.—James J. King, 207, Sauchiehall Street, Glasgow: *June 13th*, 1884.

Obituary.

Henry Waring Kidd died at Godalming on March 23rd, aged 39, after three days' illness, according to a recent death-roll in the "Times." Readers of the first eight volumes of this Magazine will remember the numerous and valuable observations by H. W. Kidd on galls and gall-insects. But, probably, very few were aware of the physical disadvantages under which the writer of those notes laboured. A helpless paralytic cripple from birth, utterly without the use of his legs, and almost in an equal degree without the use of his hands, he was a striking example of the consolation derived from a taste for Natural History in the face of such terrible odds.

H. W. Kidd was the son of Dr. Waring Kidd, of Godalming, who, it was long believed, wrote in the old "Entomological Magazine," and in the "Entomologist" of 1840—42, under the pseudonym "Rusticus," and was presumed to be the author of the charmingly written "Letters of 'Rusticus;'" but it was afterwards athoritatively announced that Dr. Kidd only furnished some of the materials.

The South London Entomological and Natural History Society opened their New Rooms at 60, Blackman Street, Borough, S.E., on June 5th, at 8 p.m., with an Exhibition Meeting, which was largely attended, in spite of the inclemency of the weather. The exhibits were as follows:—

Mr. T. R. Billups, 10 drawers of *Coleoptera*, 1 of *Diptera*, 4 of *Hymenoptera*, 1 of *Hemiptera*, 1 of *Arachnidæ*, 2 of *Orthoptera*, and 3 of *Mollusca*; also the life-history of *Tephritis onopordinis*, the destructive celery-fly.

Mr. Wellman, 2 drawers of *Geometræ*, and a series of *Fidonia atomaria*, which included a fine black variety.

Mr. Elisha, 2 drawers of *Tineæ*.

Mr. Adkin, 1 draw of *Geometræ*, 1 of *Cuspidates*, and a series of *Nola centonalis* and *Boletobia fuliginaria*.

Mr. J. T. Williams, 6 bred specimens of *Boletobia fuliginaria*.

Mr. Coverdale, a series of *Lepidoptera*, illustrating his new method of mounting without pinning.

The President (Mr. W. West, L.D.S.), life-histories of 24 species of British *Lepidoptera*.

Mr. West, Greenwich, a collection of leaves infested with *Coleophora*, pupæ of British *Lepidoptera*, and *Actias Selene*, an exotic silk-producer.

Mr. Hall, 1 case of *Lycænidæ*.

Mr. Bliss, 5 drawers of Exotic *Lepidoptera*.

Mr. C. H. Williams, life-histories of 4 species of *Lepidoptera*.

Mr. Vincent, case of *Neuroptera* and *Trichoptera*.

Mr. Eley, a small collection of *Coleoptera*.

The Society's Typical Collection of British Insects was on view.

An interesting feature was a variety of Entomological and other objects exhibited under microscopes.

Mr. W. A. Pearce exhibited mounted Botanical specimens. Mr. Step water-colour sketches of British Fungi. Mr. A. E. Pearce water-colour studies of British and foreign plants.

Walter A. Pearce, Honorary Secretary.

[The modest official report scarcely does justice to the excellence and importance of this exhibition. All Orders of insects were well represented, and the condition of the specimens left nothing to be desired from a purely British point of view. Moreover, the recent enlargement of the scope of the Society, which permits it to include Natural History generally, had a decidedly beneficial effect, which will no doubt be still more apparent on future occasions.—Eds.].

Entomological Society of London: *4th June*, 1884.—J. W. Dunning, Esq., M.A., F.L.S., President, in the Chair.

Captain Richard Holt, of Wandsworth, and F. de V. Kanes, Esq., of Kingstown, Ireland, were elected Members.

The Secretary read a letter from the President of the Society of Natural Sciences of Philadelphia inviting Members of the Society to the Congress to be held there this ensuing autumn.

Mr. Coverdale exhibited specimens of *Micro* (and other) *Lepidoptera*, illustrating his method of mounting on pith without pinning.

Mr. McLachlan exhibited galls on the roots of various species of *Cattleya*, supposed to be produced by *Isosoma orchidearum*, Westwood (*vide* report of previous Meeting, *ante* p. 24). He also exhibited the shell-like larva-cases from East Africa described in this Vol., pp. 1, 2. And nearly 100 microscopic slides of British *Aphides*, prepared by the late Francis Walker in 1847, which had been presented to him by Mr. P. Hubert Desvignes, son of the late Mr. Peter Desvignes, who was one of the original Members of the Society: these slides evinced great care and skill in microscopic mounting, considering that nearly 40 years had elapsed since they were prepared.

Mr. Billups exhibited a south European ant (*Cremastogaster scutellaris*) caught at Greenwich, and suggested that it might have been imported in cork.

Mr. W. C. Boyd exhibited strawberry plants from his garden at Cheshunt curiously deformed, which he thought might be due to the action of some insect or *Acarus*, but of which no trace could be found. The flowers were wholly phylloid and the stems much shortened and flattened, so as to assume the character of the condition known in teratological botany as "fasciation."

Mr. F. Moore communicated Description of new species of Indian Heterocerous *Lepidoptera*, chiefly in the collection of the British Museum.

Mr. W. H. Patton communicated notes on the classification and synonymy of Fig-insects, in which he differed somewhat from the conclusions arrived at by the late Sir S. S. Saunders.

NOTES ON BRITISH *TORTRICES*.

BY CHAS. G. BARRETT.

(*Continued from Vol.* xx, *p.* 270).

Tortrix Branderiana, L.—Larva stout, each segment thickened, especially the third and fourth, and tapering thence to the anal segment. Colour dirty pale green, spots minute, black, with small hairs. Head and plates black, the dorsal plate having in front a white collar. Pupa blackish. Feeding between united leaves of aspen. The larva described—the only one that I have seen—was sent by Mr. Hodgkinson of Preston, who reared others. This one did not produce the perfect insect.

Zeller describes this larva: "slender, very active, when young nearly black, with raised dots of the same colour bearing hairs; when full-grown, head, dorsal plate and claw-feet black, the dorsal bordered in front with white. In May in a folded leaf of *Populus tremula*."

Peronea mixtana, Hüb.—Larva active, cylindrical, rather slender, yellowish-green with green dorsal vessel. Head yellowish-brown, plates bright green. On *Calluna vulgaris* in the beginning of August, drawing together the terminal shoots and forming a chamber among them in which it lives, coming out—apparently at night—to feed on the tips. Pupa dark brown, in a slight cocoon in the same place. The moths emerged early in November.

These larvæ were found in Scotland by my old friend Dr. Algernon Chapman, who very kindly forwarded them to me.

Teras contaminana, Hüb.—Sluggish and rather plump, slightly flattened, when young pale green with head and dorsal plate black, when older the head becomes brown, and when full-grown the body becomes almost yellowish, the head pale brown, and the dorsal plate yellowish, anal plate green at all ages.

Very plentiful in June drawing together leaves and terminal shoots of hawthorn and blackthorn, and feeding between them. Becoming a brown pupa in the same place.

Zeller says it feeds on wild apple, plum, pear, sloe, oak, and mountain ash.

Dictyopteryx Bergmanniana, L.—Larva cylindrical, when young pale greenish grey, paler beneath, sometimes even bluish when very young, head and both plates black and shining. At this time it commonly folds together a leaflet of rose and lives between. When older it often becomes yellow, sometimes very bright yellow, and the anal

plate becomes yellow with a brown spot. Feeding, in night-time, in shoots and young leaves of all sorts of roses, and, sometimes, even on dewberry (*Rubus cæsius*) drawing the leaves together, or even, in small roses, twisting them over like a hood. This latter is particularly observable in *Rosa spinosissima*. The pupa state is assumed among the twisted leaves, and the moth emerges in myriads at the end of June.

Brachytænia semifasciana, Haw.—Larva rather plump and slightly flattened, pea-green, with darker green dorsal and sub-dorsal lines, sometimes with a whitish appearance of efflorescence and whitish segmental divisions. Head yellowish-green, plates both green. On *Salix capræa* and other sallows in May and June, drawing together terminal leaves. Pupa blackish, in a cocoon of white silk between leaves, moth emerging at the end of June and in July.

Penthina betuletana, Haw.—Larva cylindrical, smooth, shining and rather plump but active. When young pale yellowish with broad grey-green dorsal vessel. Spots black, but very minute, hairs transparent. Head and plates jet-black, dorsal plate narrow and placed far back on the second segment.

When full-fed rather attenuated at each extremity. Bright green with yellow folds between the segments, the raised spots distinct and yellow, and having a narrow dorsal, and two sub-dorsal lines grey-green. Head small, yellowish-green, plates pale green.

In May and June in screwed-up leaves of birch. Found on Moncrieffe Hill, Perthshire, by the late Sir Thomas Moncrieffe.

Penthina variegana, Hüb. (*cynosbatella*, L.)—Larva cylindrical rather sluggish, very dark green, spots black, very small. Head and plates black. On hawthorn and blackthorn, drawing together a leaf or two with silk in May and June. Pupa black, in the same place moth emerging at the end of June.

Penthina pruniana, Hüb.—Larva sluggish, short and plump, bright green, spots distinct, and shining black with short hairs. Head and dorsal plate shining black, anal plate either black or green. On blackthorn (*Prunus spinosa*), drawing together the terminal shoots and eating out their hearts, feeding from April to June. When full-fed the larva leaves the shoot and twists or folds a leaf (often of some different species of plant) into a small neat chamber, in which it changes to a black pupa, the moth emerging in June or July.

Treitschke says that it feeds in the different species of *Prunus*, *Cratægus*, and *Rosa*, but this seems doubtful.

Penthina dimidiana, Tr.—Larva short, stout, and wrinkled, slightly tapering at the extremities, but otherwise cylindrical, dark smoky-grey or smoky-black, spots large, raised, jet-black with rather long bristles. Head, plates, and feet shining black. Feeding in August and September in the tops of *Myrica gale* (bog myrtle) joining together the edges of the leaves so as to make a round, somewhat balloon-shaped habitation, eating out the heart of the shoot, and gnawing the upper surface of the joined leaves. When full-fed, leaving the habitation to spin up among fallen leaves, when it becomes a black pupa, and lies in that state through the winter, the moth emerging in May. Found in Scotland, and, also, near Keswick, Cumberland, by Dr. Algernon Chapman, who kindly spent some of his very limited time in collecting them for me. His remarks on it are interesting:—"It is a short, thick, stumpy, inactive, nearly black larva, and feeds from August to October on *Myrica*. It selects a shoot that has done growing for the season, and fastens together the leaves at the top into a very spacious dome-topped nest, by joining them edge to edge, and eats the inner surface of the leaves, filling the bottom of the nest with frass. The larva of *Melanippe hastata* has a precisely similar habit on the same plant, and, till you open the nest, you cannot say which you have, except that there are fifty *dimidiana* to one *hastata*. I have seen one or more to every plant of *Myrica* on hundreds of acres. The young larva makes a very imperfect balloon, it is only in the last skin but one that it makes the complete article."

Hofmann's description of the larva (from Gärtner) must refer to some other species:—"yellowish-green with dark grey warts, head yellow, dorsal plate (neckshield) yellow-green spotted with black, in August on *birch* and *alder*;"—perhaps *sororculana (prælongana)*.

Hypermecia cruciana, L.—Larva active, rather flattened, pale yellow, with indistinct greenish dorsal vessel. Spots invisible. Head light brown, plates yellow. Plentiful in the young shoots of sallow, drawing together the terminal leaves in May and June. Pupa light brown, in a snug little oval cocoon in a fold of a dead leaf. Moth emerging early in July.

Ditula angustiorana, Haw.—Larva cylindrical, slender, active, pale yellowish tinged with reddish behind, and with greenish dorsal region. Head and dorsal plate light brown, both darker on the posterior edge. Pupa pale brown. The larva from which this description was taken, was sent me by Mr. Buckler, who found it feeding in a top of

Mercurialis perennis (dog's mercury) drawing together the tips of the leaves in April. It fed up on this plant, and spun up among rubbish, the moth emerging early in July.

This species is rare—or absent—in Pembrokeshire, but from knowledge of it in other districts, I have no doubt it is extremely polyphagous. I have known it to feed freely on *yew*.

Carpocapsa juliana, Curt.—Larva sluggish, cylindrical, rather plump and wrinkled. Whitish in colour, and having a crossbar of pale brown on the back of the 4th to the 12th segments. Spots prominent, shining, dark red, with minute hairs. Head pale brown, dorsal-plate whitish, with a necklace of black markings forming a large crescent round its posterior edge. Anal-plate black in front, shaded off behind.

Found feeding in the fruit of the edible chestnut in Greenwich Park, by Mr. W. West, and reared by him. I failed to rear those he sent to me.

Stigmonota nitidana, Fab. (*redimitana*, Gn.).—Young larva cylindrical, not active, semi-transparent, dirty white, spots black, large and very distinct, dorsal vessel dark grey and very visible, and with the assistance of the black dots forming a zigzag, or chain-like, series of markings along the dorsal region. Head, plates, and feet jet-black.

When full-grown, active, slender, cylindrical, with rather wrinkled segments, semi-transparent, pale yellow with the dorsal vessel grey or greenish. Hairs rather long. Head and plates bright yellow. Anal legs rather extended.

On oak, generally on low boughs, or oak bushes under the trees. Living between two leaves, the surfaces of which it joins together with silk, and making a tubular habitation of silk between them with a good deal of loose web. Gnawing the inner surfaces of both leaves, and so blotching them extensively. Moving readily to a fresh pair of leaves which it joins in the same way. When full fed, forming a small tough egg-shaped cocoon covered with frass, between the leaves, but not in the silken tube. Feeding from June to September; passing the winter in the cocoon attached to the leaves, where it turns to a pale olive-brown pupa, which is forced partly out of the cocoon when the moth emerges in the succeeding May or June.

I found many larvæ in Canaston wood, and Dr. Wood sent me others from Ledbury.

Stigmonota Weirana, Dougl.—Larva rather flattened, with deeply

divided segments. Dull white with dark green dorsal vessel; spots invisible, hairs rather long, white. Head pale brown, plates faintly tinged with brown. Pupa light brown, with yellowish wing-sheaths. Feeding between two leaves of beech, which it unites by silken ties, gnawing the inner surface of both leaves, and leaving the outside skins. There seems to be no silken tube, and the frass is scattered all about between the leaves. The cocoon is small and tough, egg-shaped, covered with frass, and attached to the habitation. The pupa is partly forced out when the moth emerges. These larvæ were sent me by Dr. Wood of Tarrington, Ledbury, early in September, the moths emerged in the succeeding June.

Grapholitha trimaculana, Don.—Larva rather stout, and slightly flattened, when young greenish, afterwards pale yellow; dorsal region pinkish or brownish, spots minute, black, head and broad dorsal plate shining jet-black, anal plate green.

On elm, between folded or drawn-together leaves, apparently preferring trees to bushes; feeding in May and June. Pupa pale yellowish brown. Moth emerging at the end of June.

Grapholitha geminana, Steph.—Larva cylindrical, active, dirty pale yellowish, strongly tinged with greyish-green in the back, and showing the dark dorsal vessel. Head black-brown, dorsal plate black, anal plate green, spots shining, but hardly visible. Feeds in June on *Vaccinium myrtillus*, uniting the leaves and joining them on to other leaves, and even to other twigs, so that the twisted, contorted appearance of the tops of the *Vaccinium* is very noticeable. It spins up, and becomes a pupa, between the leaves, and emerges in July, and is common in most places in which its food-plant is plentiful.

Hofmann says that he has found it in great abundance on *Erica carnea*, on the mountains.

Grapholitha nævana, H.—The larva of this species is very similar to that of *geminana*, but seems always to have a black head. It is very partial to holly, feeding in a very closely spun-up shoot of that plant, and doubtless on other shrubs, feeding and emerging rather later than *geminana*.

Von Heyden's description of the larva is—"somewhat transparent, whitish-grey, with isolated pale bristles. Head heart-shaped, shining black, dorsal plate with large dots at the back and sides. In spring on fruit trees, and *Rhamnus*."

Pembroke: 15*th December*, 1883.

NOTES ON THE ENTOMOLOGY OF PORTUGAL.

VIII.—*TRICHOPTERA.*

BY R. McLACHLAN, F.R.S., &c.

In October, 1880 (*cf.* Ent. Mo. Mag., xvii, pp. 103—108), I published a List of the *Pseudo-Neuroptera* in part, and of the *Neuroptera-Planipennia*, collected by my friend the Rev. A. E. Eaton during his tour in Portugal in 1880. It was then stated that the *Trichoptera* were so rich in new forms that it might be impossible for them to appear in this series of notes in the first instance. I did not then wish to indicate a long series of species with no specific names, and I have a repugnance to the publication of names without descriptions. The time has arrived, however, when there is no necessity for either of these scruples, because all the new species appear in the "First Additional Supplement" to my Revision and Synopsis of European *Trichoptera*, recently published.

The *Trichoptera* certainly form the most important part of the collections made by Mr. Eaton during his tour. He collected over 65 species, of which 27 were new (excluding a few not described for want of sufficient materials), and others very imperfectly known. And all this was the work of an Englishman in little more than two months, travelling alone in a country of which the language of the inhabitants was strange to him. The species collected can only form a tithe of those that exist.

A remarkable feature is the fact that only one species of *Limnophilidæ* was found. I think this may be accounted for in two ways. Firstly, Mr. Eaton probably avoided (as unhealthy) the marshy districts in which many species of this Family delight; secondly, it was probably too early in the year for those species of it that inhabit the high mountains. As some proof of this latter, it may be stated that he saw the larvæ of some species in great abundance in a lake in the Estrella, at an elevation of over 5000 feet. Moreover, the Family is essentially Palæarctic and Nearctic, scarcely occurring within the northern tropical region (re-appearing in a remarkable manner, in small numbers in Chili and adjoining districts). Over 60 species are known to inhabit Finland, over 50 have been found in Britain. But a gradual diminution occurs as we go south, excepting in the Alps of Central Europe, where *altitude* supplies the deficiency in condition that would otherwise be occasioned by *latitude*.

Unless we should witness the unexpected advent of a native

student of *Trichoptera*, I fear it will be long before another so important a contribution to this portion of the Portuguese insect-fauna can appear.

I have indicated by an asterisk (*) those species that also occur in Britain.

LIMNOPHILIDÆ.

Catadice estrellensis, McLach. (*n. sp.*).—South of Sabugueiro, 4092 ft., 5th June, 3 ♂, 3 ♀. The second species of this *Drusus*-group genus. Apparently quite distinct from the Spanish *C. Bolivari*, McLach., which was described from a single badly-preserved ♂.

SERICOSTOMATIDÆ.

Sericostoma bæticum, Ed. Pict.—About 25 examples from the slopes of Picota and other localities near Monchique in May, and near Cea, Villa Real, and Salamonde, in June, at elevations ranging from 1400 to 2000 ft. These shew considerable variation in the form of the penis-sheaths, apparently due to local influences.

Schizopelex festiva, Ramb.—A long series from near Villa Real, 24th and 25th June. Although from one locality, only a few examples show the typical markings on the anterior-wings; in others they are nearly obsolete; and in the majority these wings are uniformly yellow, suggestive of *S. granjæ*, Ed. Pict., which should, however, be structurally distinct, according to the description.

Micrasema morosum, McLach. ?—I refer here, provisionally, about 15 examples collected near Cea, São Romão, Cintra, and Villa Real. The species of *Micrasema* are amongst the most difficult to define. The types of *M. morosum* were from Carinthia.

Micrasema mœstum, Hagen.—Originally described from 1 ♀ from Spain. Eaton collected a series near Monchique, on the slopes of Foia, and near Villa Real and Ruivães, that in all probability belong here.

Helicopsyche lusitanica, McLach. (*n. sp.*).—Six ♂ from the slopes of Picota, near Monchique. All in alcohol (excepting one damaged example), and with no possibility of defining the colour of pubescence, &c. Allied to the Italian *H. sperata*, McLach., but apparently quite distinct. Mr. Eaton did not discover the larvæ, but it is just possible that the *cases* from Portugal to which Hagen (Stett. Zeit., 1864, p. 130) applied the name "*sericea*," may belong here. I have already

stated that the British Museum possesses *Helicopsyche*-cases from near Oporto.

N.B.—Two ♀ from near Cea are smaller, and probably represent a second Portuguese species: they are in bad condition.

The distribution of *Helicopsyche* in Europe is gradually developing.

Lepidostoma fimbriatum, Ed. Pict.—A ♂ from the slopes of Foia, near Monchique, and a ♀ from near Villa Real, may be referred here. The species is probably distinct from the common *L. hirtum*, F., but if so, the characters are slight.

LEPTOCERIDÆ.

Berœa dira, McLach.—A ♂ from the slopes of Foia agrees sufficiently with the other known examples (from Turkestan and Fiume) to warrant its identification therewith. A ♀ from Cea is doubtful (so also is another ♀ from near Monchique, collected by the late Camille Van Volxem).

* *Leptocerus albo-guttatus*, Hagen.—Near Cintra, 5 ♂, 31st May.

Leptocerus inæqualis, McLach. (*n. sp.*).—Near Almodovar and São Barnabe, 9 ♂, 1 ♀, 8th and 12th May. Of the Group of *L. cinereus*; with peculiar asymmetric anal structure in the ♂.

* *Leptocerus cinereus*, Curt.—This wide-spread species appears to be replaced by others allied thereto in the South of Portugal, but one ♂ (not in good condition) from between Cintra and Lisbon does not seem to differ structurally from the typical condition.

Leptocerus Braueri, Ed. Pict.—Near Monchique, 18th May, 2 ♂. I formerly referred the Spanish types of this as only a form of the protean *L. cinereus*, but further examination of one of them in comparison with the Portuguese examples, convinces me that *L. Braueri* is a distinct species.

Leptocerus cuneorum, McLach. (*n. sp.*).—Near Almodovar and São Marcos da Serra, in May, 7 ♂, 2 ♀. A good species of the *cinereus* Group, but very much resembling in colour the pale variety of *L. aterrimus*, Steph.

* *Mystacides azurea*, L.—At Cintra, end of April, and at Villa Nova de Gaia, near Oporto, 20th June. Those from the former locality are as large as *M. nigra*.

Triænodes ochreella (Rambur). McLach.—Coimbra, 2nd June, Ponte de Morcellos, 12th June, and near Villa Real, 24th June; 6 ♂, 5 ♀. Rambur's localities for this species are Paris and Le Mans. I have seen no French examples other than his types (in bad condition).†

Erotesis (?) *melanella*, McLach. (*n. sp.*).—São Barnabe, 12th May, 4 ♂, 6 ♀. The smallest species of typical European *Leptoceridæ* known to me. Somewhat resembling *Adicella filicornis*, Pict., in its black coloration. In structure scarcely typical of either *Erotesis* or *Adicella*.

* *Adicella reducta*, McLach.—Monchique, Cea, Villa Real, and Ruivães. Larger than British examples, as is usually the case in those from the Continent.

* *Œcetis testacea*, Curtis.—Alferce, 22nd May, and between Coimbra and São Antonio, 3rd June. This pretty and characteristic species has a wide continental distribution.

Setodes lusitanica, McLach. (*n. sp.*).—Near São Marcos da Serra, 1 ♂, and Ponte de Morcellos, 17 ♂, in June. A species with outward resemblance to *S. tineiformis*, Curt.: the anal structure very extraordinary.

Calamoceras Volxemi, McLach.—Described by me originally from two badly preserved females, collected by the late Camille Van Volxem at Coimbra and Alte. Eaton found 10 examples, mostly ♂, in April, May, and June, near Cintra, Monchique, São Marcos da Serra, and Villa Real. The insect somewhat resembles a very large *Goëra pilosa* when in good condition. The genus is (at present) the sole European exponent of a Section otherwise exotic, and chiefly tropical.

HYDROPSYCHIDÆ.

Hydropsyche lobata, McLach. (*n. sp.*).—A pair from the Mondego at Ponte de Morcellos. A near ally of *H. pellucidula*, Curt., but abundantly distinct in structural characters.

* *Hydropsyche instabilis*, Curtis.—Cintra, Villa Real, and Salamonde. Of very wide distribution in Europe.

* *Hydropsyche exocellata*, Dufour.—Ponte de Morcellos, 12th June; a pair.

† Since this remark was printed, I have captured 13th July, 1884 *T. ochreella* in some abundance at a little river close to Dijon Côte d'Or, France.—R. McL.

* *Hydropsyche lepida*, Pict.—Ponte de Morcellos, 12th June.

Hydropsyche (?) *tibialis*, McLach. (*n. sp.*).—One damaged ♀ from near São Romão, 4100 ft., 5th June.

Possibly not a true *Hydropsyche*; differing in the form and proportions of the joints of the maxillary palpi, and in the undilated intermediate tibiæ and tarsi of the ♀. A very interesting insect, the acquisition of the ♂ of which is desirable.

* *Diplectrona felix*, McLach.—Monchique, slopes of Foia, Villa Real, and Salamonde, May and June.

Philopotamus perversus, McLach. (*n. sp.*).—Villa Real and Ruivães, end of June. Might be considered a melanic variety of *Ph. montanus*, in external characters. A distinct difference therefrom exists in the inner anal structure.

* *Philopotamus montanus*, Donovan.—Villa Real, four examples. Scarcely typical.

Philopotamus amphilectus, McLach. (*n. sp.*).—The Estrella (Cea, &c.). A large handsome species, with the external anal structure of *montanus*, and the inner structure of *variegatus*; on the whole more allied to the latter. A solitary ♂ from Villa Real (probably the more typical), differs in some slight colour-characters.

Dolophilus corvinus, McLach. (*n. sp.*).—A pair from São Romão, 9th June. Allied to *D. pullus*, McLach., but with very decided structural differences.

* *Wormaldia mediana*, McLach.—Cea, Ponte de Morcellos and Villa Real, 11th, 14th, and 21st June, 8 examples. Slightly doubtful, being darker than the typical form, but hardly to be referred to *W. subnigra*.

Two ♂ examples of this genus, from Villa Real and Salamonde respectively, remain undetermined.

Plectrocnemia inflata, McLach. (*n. sp.*).—One ♂ from near Villa Real, 1280 ft., 24th June. Allied to *P. geniculata*, McLach.

Plectrocnemia lætabilis, McLach.—One ♂ from near Villa Real, 22nd June. The types were from the French Pyrenees.

* *Polycentropus Kingi*, McLach.—I am unable to separate examples from the slopes of Foia, near Alferce, Cea, and Villa Real, from typical Scotch specimens; they are rather larger. As I saw a

example from the island of Sardinia that also appeared to belong here, it is possible the species has a wide distribution, but is overlooked on account of the general resemblance all the species of *Polycentropus* bear to each other.

Polycentropus corniger, McLach. (*n. sp.*).—Near Villa Real, eight examples, 21st and 23rd June. I have also seen this species from the French Pyrenees.

Polycentropus telifer, McLach. (*n. sp.*).—Near Cintra, and on the Corgo near Villa Real, 4 ♂. A species with peculiar elongate inferior appendages.

Cyrnus cintranus, McLach. (*n. sp.*).—Cintra, 26th to 30th April, 3 ♂, 2 ♀, and a somewhat doubtful ♀ from near Monchique, 19th May. Closely allied to *C. trimaculatus*, Curt., but much larger and apparently distinct.

Ecnomus deceptor, McLach. (*n. sp.*).—Ponte de Morcellos, 12th June, 1 ♂. I have also captured it in Belgium. Closely allied to *E. tenellus*, Ramb., but very distinct in the anal parts of the ♂.

* *Tinodes wæneri*, L.—Near Cintra, end of April and beginning of May, and Almodovar, 6th May, The examples equal in size the largest of those from Britain.

* *Tinodes assimilis*, McLach.—Cintra, 27th April, Monchique, 18th and 19th May, near Cea, 11th June, near Oporto, 18th and 20th June. Common.

Tinodes maculicornis, Pict.—Near Cintra, in April, May, and June. Common.

Tinodes fœdella, McLach. (*n. sp.*).—The Estrella, near São Romão, 2450 ft., near Cea, 1800 ft., near Salamonde, in June; 22 examples. The smallest species known to me, and belonging to the *black* Group.

Lype auripilis, McLach. (*n. sp.*).—Near Monchique and slopes of Foia, in May; 3 ♂. Somewhat allied to *L. phœopa*, Steph. Remarkable for the mixture of golden in the ordinary dark pubescence of the anterior-wings.

Lype reducta, Hagen.—A ♂ from near Cintra, 31st May, probably belongs here.

* *Psychomyia pusilla*, F.?—I refer here, with doubt, several examples from Oporto, Villa Real, Ruivães, and Ponte de Morcellos.

Psychomyia ctenophora, McLach. (*n. sp.*).—Ponte de Morcellos 12th June, 3 ♂, 4 ♀. Remarkable for a peculiar comb-like structure in the superior appendages of the ♂, whence the name is derived.

RHYACOPHILIDÆ.

* *Chimarrha marginata*, L.—Near Monchique, 18th May, Ponte de Morcellos, 12th June, and near Villa Real, 23rd and 24th June.

Rhyacophila relicta, McLach.—The Corgo at Villa Real, 23rd June, near Ruivães, 29th June, and near Salamonde, 30th June. Formerly only known from the French Pyrenees.

Rhyacophila contracta, McLach.—Near Villa Real, 22nd June, 2 ♂. Formerly only known from the French Pyrenees.

Rhyacophila adjuncta, McLach. (*n. sp.*).—Near Villa Real, 23rd to 25th June, 7 ♂, 1 ♀. A very distinct species, possibly pertaining to the Group of *Rh. vulgaris*.

Rhyacophila lusitanica, McLach. (*n. sp.*).—Near São Romão and Villa Real, 9th and 22nd June, 4 ♂, 1 ♀. A very remarkable species forming a distinct "Group" that should probably be placed after that of *Rh. munda*.

Rhyacophila tristis, Pict.—Near Cea, 4th and 11th June, near São Romão, 5th June, near Villa Real, 22nd and 24th June, and near Salamonde, 30th June; many examples.

Glossosoma privatum, McLach. (*n. sp.*).—Near Villa Real, 24th and 25th June, 3 ♂. Allied to *G. spoliatum* in wanting the callosity at the base of the anterior-wings in the ♂.

Agapetus incertulus, McLach. (*n. sp.*).—Near Cintra, 31st May, 1 ♂. Allied to *A. fuscipes*, Curt., but apparently quite distinct.

One ♂ and 2 ♀ from near Monchique, 19th and 21st May, are nearer *fuscipes*, but doubtfully identical therewith.

Agapetus laniger, Pict. (= *pactus*, McLach., *olim.*).—Near Ponte de Morcellos, 12th and 14th June, 2 ♂.

Pseudagapetus diversus, McLach. (*n. sp.*).—Near Cea, 4th June and near Villa Real, 22nd June, 4 examples. Allied to, but apparently quite distinct from, the Pyrenecan *Ps. insons*, McLach.

Catagapetus (*n. g.*) *sp.* ?.—One ♀ from the slopes of Foia near Monchique, 21st May. This new genus is based on a species from

Central Italy; it is remarkable for having a closed discoidal cell in the posterior-wings, &c. The Portuguese species is probably distinct, but one should see the ♂.

Ptilocolepus extensus, McLach. (*n. sp.*).—Between São Antonio and Coimbra, 3rd June, near Cea, 11th June, and a doubtful ♀ from near Monchique, 31st May. Very like *Pt. granulatus*, Pict., but distinct in the anal parts of the ♂.

HYDROPTILIDÆ.

* *Allotrichia pallicornis*, Eaton.—Cintra, 1st June, Villa Real, 24th June, 1 ♂, 4 ♀.

* *Hydroptila sparsa*, Dalm.—Cintra, 26th and 27th April. Slightly doubtful.

Stactobia fuscicornis, Schneider.—Between Cea and Sabugueiro, 7th June, between Oporto and Santa Anna, 18th June, near Villa Real, 24th June; not uncommon.

* *Orthotrichia angustella*, McLach.—Near Cintra, 31st May and 1st June, and Ponte de Morcellos, 12th June; many examples.

Oxyetheira unidentata, McLach. (*n. sp.*).—Near Silves, 17th May. Apparently quite distinct from *O. costalis*.

One or two species of *Hydroptilidæ* remain undetermined.

For convenience of reference, the principal localities cited above are here given according to the *provinces* in which they are situated:—

Ancient Kingdom of Algarve:—Foia, Picota, São Marcos da Serra, Silves, Monchique, Alferce.

Alemtejo:—Almodovar.

Estremadura:—Lisbon, Cintra.

Beira:—Cea, Coimbra, Estrella, Sabugueiro, São Romão, Ponte de Morcellos.

Minho:—Oporto.

Traz-os-Montes:—Villa Real, Ruivães.

In order to complete the Linnæan Order *Neuroptera* (and this series of notes), the *Ephemeridæ* and *Perlidæ* still remain to be enumerated. The former will be supplied by Mr. Eaton himself; the few species of the latter by one (or both) of us, so far as they can be determined.

Lewisham, London:
June, 1884.

THE *NITIDULIDÆ* OF GREAT BRITAIN.

BY REV. W. W. FOWLER, M.A., F.L.S.

The position of the *Nitidulidæ* is somewhat difficult to determine; there is no doubt that they have a connection with the *Silphidæ*, both in structure and also through the habitat of many of the members of the family; on the other hand, however, through *Ips* and *Rhizophagus*, they closely approach the *Trogositidæ* (*Nemosoma*, &c.); in fact, Erichson classed the latter with the *Nitidulidæ*, but they are separated off as a distinct family by the different plan of structure of the maxillæ and tarsi. Perhaps, as a whole, the *Nitidulidæ* come in best between the *Histeridæ*, to which in many ways they bear a close relation, and the *Trogositidæ*; and if the aberrant genus *Micropeplus* is to be removed from the *Staphylinidæ*, as seems necessary, to the neighbourhood of the *Nitidulidæ*, it cannot be better placed than immediately after the *Histeridæ*, as a connecting link between *Onthophilus* and the brachypterous genera of the *Nitidulidæ*.

The genus *Byturus* is often placed in the *Nitidulidæ*. It approaches this family, as remarked by Professor Westwood, "in its habit of frequenting flowers, and in the bilobed form of the third and minute size of the fourth joints of the tarsus," but it recedes from it in several important particulars, notably in having the mandibles with several teeth, and in the fact that the tarsi have the second and third joints prolonged beneath into a membranous lobe. Dr. LeConte and Dr. Horn (Classification of the Coleoptera of North America, p. 141) place this genus in the *Dermestidæ*, at the same time noting the above peculiarities, and stating that the position of the genus has been much disputed:—Erichson placing it in the *Melyridæ*, Du Val in the *Telmatophilidæ*, Redtenbacher and Lacordaire in the *Dermestidæ*, and Kiesenwetter in the *Nitidulidæ*; according to the external skeleton it might perhaps be placed in the *Mycetophagidæ*. The following are the chief characteristics of the *Nitidulidæ*:—

Head small, sunk into the thorax, which is usually emarginate; forehead sometimes straight, sometimes emarginate, in some cases furnished with strong lobes on each side (*Amphotis, Soronia*). Mentum very variable; usually narrow (*Ips, Cryptarcha, Cercus*); sometimes broad, almost semicircular (*Cychramus*); with anterior angles rounded (*Ips*), or produced into a point (*Nitidula*), often bisinuate in front (*Nitidula, Soronia*), or contracted in front and behind, and forming an obtuse angle in the middle of the sides (*Omosita, Epuræa, Carpophilus*), or rounded in front, and furnished with two sharp strong teeth in the middle of the anterior margin, forming between them a deep emargination (*Meligethes, Pria*); the mentum consists of two pieces, the suture of which is more or less plain. Maxill

almost always unilobed; occasionally bilobed (*Brachypterus, Cercus*); maxillary palpi usually short and thick; sometimes longer and more slender (*Pria, Cryptarcha*). Labial palpi short and thick, usually truncate at apex; paraglossæ marked in some species. Mandibles variable: usually bluntly pointed at apex, and toothed immediately behind apex; sometimes quite bifid (*Amphotis*); sometimes simple (*Cychramus, Cercus*); occasionally with a large sharp tip (*Cryptarcha, Micruria*).

Antennæ inserted under margin of front, 11-jointed, ending in a three-jointed, rarely two-jointed, club. (In *Rhizophagus* the club is two-jointed, and the 11th joint is wholly or partially enclosed within the 10th.) The club is strong, round, and compact (*Nitidula, Epuræa, Meligethes*), rather loose (*Ips*), or rather elongate and feebly capitate (*Cercus, Brachypterus*); the antennæ are received into furrows in the head and thorax, which vary much in width, depth, and direction.

Thorax usually widely margined at sides (*Epuræa*), sometimes very narrowly margined (*Meligethes*), fitting closely to the elytra (*Ips, Epuræa*), or overlapping the base of the elytra (*Cychramus, Cryptarcha*). Prosternum usually not produced, but occasionally considerably produced (*Pria, Thalycra, Meligethes*). Anterior coxæ transverse; anterior coxal cavities nearly always closed (open in *Ips*). Mesosternum separating the middle coxæ more or less widely: bifurcate (*Soronia*), or emarginate in a wide curve (*Cryptarcha*), or broadly truncate (*Omosita*), at base; epimera reaching to the coxæ. Metasternum with episterna very narrow; epimera invisible. Elytra entire, covering abdomen (*Meligethes, Soronia*, &c.); sometimes truncate, and leaving more or less of the abdomen exposed (*Ips, Brachypterus, Carpophilus*).

Abdomen with five free ventral segments; males occasionally with a sixth dorsal segment (*Epuræa, Brachypterus, Carpophilus*). Legs short, usually rather stout, nearly always retractile, in some cases (*Meligethes, Omosita*) strongly so; tarsi five-jointed in both sexes, except in one or two foreign families, and in the *Rhizophagina*, in which they are heteromerous in the male; the 4th joint is very small, and the first three are usually broad, and clothed on the under-side with fine silky hairs.

From the above characters it will be seen that the *Nitidulidæ* form rather a heterogeneous family; their clubbed antennæ, however, separate them from a large number of families, and from the other families that also have clubbed antennæ they may be distinguished by the cylindrical anterior coxæ, the free segments of the abdomen, and in most cases by the minute fourth joint of the tarsi.

The following table will be found serviceable for separating the family into tribes; for the greater portion of it, and for other information, I am much indebted to the kindness of Dr. Horn; I have, however, dissected specimens of all the genera, and in some cases of several species in each genus, and representatives of the neighbouring families, and have altered and added to several points in order to suit our fauna; Dr. Horn's system in the main agrees with that of Erichson, except that the latter adds the *Peltides* as a separate group of his *Nitidulariæ*, distinguished by having the first tarsal joint small instead of the fourth, and containing *Nemosoma, Temnochila, Trogosita, Peltis*, and *Thymalus*.

I. Antennæ 11-jointed, terminated by a 3-jointed club; tarsi isomerous, similar in the two sexes, in the British families pentamerous.

i. Labrum free, more or less visible.

A. Maxillæ with two lobes: antennæ with a feeble elongate club... BRACHYPTERINA.

B. Maxillæ with one lobe; antennæ with a strong, round, compact club.

a. Thorax fitting closely to elytra, not covering base of elytra.

α. Abdomen with two segments exposed ... . CARPOPHILINA.

β. Abdomen covered, or only apex of pygidium exposed .. NITIDULINA.

b. Thorax covering the base of the elytra ..... CYCHRAMINA.

ii. Labrum connate with the front, suture more or less distinct ..... IPINA.

II. Antennæ 11-jointed, club 2-jointed, the 11th joint wholly or partially enclosed within the 10th; tarsi dissimilar in the sexes, heteromerous in the males, pentamerous in the females ..... RHIZOPHAGINA.

BRACHYPTERINA.

The members of this tribe may be distinguished by their elongate club, bilobed maxillæ, and very short, feeble, antennal grooves, which are not visible below the eyes; it contains two genera.

1. Claws plainly toothed at base; extra anal segment of male plain..BRACHYPTERUS.
2. Claws not, or hardly, visibly toothed; extra anal segment of male obscure .. CERCUS.

BRACHYPTERUS, *Kugelann.*

1. Elytra one-third longer than thorax.

B. gravidus, Ill.—Easily distinguished from the other species of the genus by its larger size and more convex form, and by having the elytra much shorter in comparison to the thorax: the thorax is bisinuate at base, with the posterior angles almost right angles. Length, 1⅓ to 1½ lin.

Not uncommon, but local; found on the common toad-flax, *Linaria vulgaris*; Hunstanton, Burwell Fen, Maidstone, Mickleham, Reigate, Folkestone, Shiere, &c.

2. Elytra nearly twice as long as thorax.

B. pubescens, Er.—Leaden-black, with whitish pubescence; legs and antennæ pitchy; elytra rather less strongly punctured than is the case with the next species. Length, 1 lin.

Very common on nettles throughout the country.

B. urticæ, Kug.—Reddish-brown, shiny; legs and antennæ rufous; pubescence very thin; elytra rather longer in proportion to thorax than in the preceding species, and with rather stronger punctuation. Length, 1 lin.

Very common on nettles throughout the country.

These species are very often mistaken for *Meligethes* by beginners, but, apart from other differences, they may at once be distinguished by their partially uncovered abdomen, simple anterior tibiæ, and especially in the case of the last two species, by their longer and much less retractile legs.

Thomson places *B. gravidus* in a separate genus, retaining Gyllenhal's old name, *Catheretes pulicarius* (Ins. Suec., i, 245).

CERCUS, *Latreille.*

With regard to the small apical dorsal segment, through the absence of which in both sexes this genus is to a great extent separated from the preceding, there seems to be a difference of opinion; Erichson expressly says that the pygidium is simple in both sexes; Thomson says, "segmento anali maris haud conspicuo;" and Dr. Horn says of the *Brachypterina* generally (including *Cercus*), "the males have a small apical dorsal segment;" as a rule, no such segment is to be seen, but in one of my specimens of *Cercus pedicularius* (♂), there appears to be a very small dorsal segment at the extreme apex, which is only visible under a high power, and when the beetle is held in a certain position.

1. Antennæ long; thorax transverse.

C. pedicularius, Linn.—Very like the next species, but distinguished by its colour—the elytra being reddish-testaceous, with the part round the scutellum and the apex more or less dark—and also by the strongly dilated, triangular, second joint of the antennæ of the male. Length, $\frac{5}{4}$—$1\frac{1}{4}$ lin.

Common on reeds, &c., in marshy localities. I have beaten it in abundance off *Carex paniculata*, in the Isle of Wight. It also occurs on the meadow sweet (*Spiræa ulmaria*) and other flowers.

C. bipustulatus, Payk.—Elytra black, with two large testaceous spots on disc; colour, however, very variable, sometimes entirely reddish-testaceous; in doubtful cases the species may be distinguished by the simple second joint of the antennæ of the male; single female specimens of the two species are sometimes hard to determine. Length, $\frac{3}{4}$—$1\frac{1}{4}$ lin.

Common, under the same circumstances as the preceding. I have beaten it from *Carex paniculata* at Nocton, near Lincoln, in some numbers; also found on *Spiræa*, and it has occurred in *Cossus* burrows in Sherwood Forest.

2. Antennæ short; thorax nearly as long as broad, gradually contracted from base.

C. rufilabris, Latr.—Variable in colour; usually blackish, with reddish mouth and legs; sometimes entirely testaceous; always very easily distinguished by the above characters. Length, $\frac{4}{5}$ lin.

Common in marshy localities, on rushes and reeds, and by general sweeping.

CARPOPHILINA.

The genera of this tribe are distinguished from the *Brachypterina* by their compact club, unilobed maxillæ, and very evident grooves for the reception of the antennæ, and by the fact that a larger portion of the abdomen is left uncovered by the elytra. The species of this

tribe are usually considered to be importations, but one or two have occurred under circumstances that give them a better claim to be considered indigenous than many other species already in our lists.

CARPOPHILUS, *Leach.*

1. Elytra spotted with yellow.

a Thorax narrowed in front and widened behind; elytra scarcely longer than thorax.

C. hemipterus, Linn. (*flexuosus*, Payk.).—Rather stoutly built, short and convex, with thorax much wider at base than at apex; black, more or less pubescent; elytra with a yellow spot at shoulder, and another at apex, sometimes wholly, sometimes partially, covering their apical half. Length, 1¼—1½ lin.

This cosmopolitan species has often been imported with sugar, dried fruits, grain, and other provisions. Dr. Power, however, tells me that Turner once brought him four specimens alive, which he had taken with *Engis humeralis* in *Cossus* burrows in Dulwich Wood. Dr. Power has himself taken *Silvanus*, *Trogosita*, &c., under bark in the open country, and considers that all of them had probably wandered from some other locality.

b Thorax narrowed in front and behind; elytra twice as long as thorax.

C. sexpustulatus, Fabr.—Long and flat, narrow, somewhat shiny; elytra with parallel sides; thorax almost circular, rather broadly margined at the sides; reddish-brown in colour; elytra with two plain impressions on each, and three spots, one at shoulder, which is often obscure, a plainer one in the middle, and a third at apex usually obscure, sometimes almost invisible. Length, 1—1⅓ lin.

This is the most doubtful of the three species as British; only a few examples appear to be known, and they are undoubted importations.

2. Elytra without spots.

C. mutilatus, Er. (*hemipterus*, Fabr., nec *hemipterus*, Linn.).—Considerably narrower in proportion than *C. hemipterus*, Linn., but wider than *C. sexpustulatus*; thorax quadrate, hardly broader at base than at apex, sides very slightly rounded; elytra not much longer than thorax; head reddish, thorax and abdomen darker; elytra rufescent, without spots, apical angles and region round scutellum more or less broadly darker. Length, 1—1¼ lin.

Among some beetles sent me for names by Mr. Beaumont, I found two specimens of this species, which has not hitherto been recorded as British; Mr. Beaumont informed me that they had been given him by Mr. T. R. Hardy, of Manchester, who has himself written to me on the subject; he says that he has considered it to be *C. sexpustulatus* and that he has taken it very commonly at the bottom of old wheat stacks in his neighbourhood. He has also taken it at Sherwood Forest in *Cossus* burrows, which fact goes a long way towards establishing its claim to be regarded as indigenous. Dr. Power possesses two specimens from Mr. E. A. Fitch, which have evidently been imported with corn; it is very probably in many collections, unknown or standing under another name.

(*To be continued.*)

ON THE *COLEOPHORA* OF THE *STATICE LIMONIUM*, HITHERTO ERRONEOUSLY RECORDED AS *GONIODOMA AUROGUTTELLA*, F. v. R.

BY H. T. STAINTON, F.R.S.

In the Entomologists' Annual for 1855, p. 46 (2nd Edition, p. 68), announced the capture in this country of *Goniodoma auroguttella*, on he authority of "a single specimen taken by Mr. S. Stevens in the sle of Wight, last August, on the banks of the Yar, near Yarmouth, y sweeping the herbage."

I believe the description which I there gave was made from Continental specimens, which we now know to be a totally different pecies. The same remark no doubt applies to the description given n the Manual, vol. ii, p. 393.

In the Entomologists' Annual for 1874, when summarising the bservations on *Tineina*, which had appeared in the previous nineteen olumes, I remarked (p. 32) of this Isle of Wight insect, which, by hat time, had been taken also by Mr. Bond and others in considerble numbers:

"This differs rather from Continental specimens, being darker nd larger. The Continental insect feeds on seeds of *Atriplex*, using n empty seed as a case. I am assured by Mr. Bond, who has often ollected in the Isle of Wight, that where this insect occurs there *Atriplex* is wanting."

It seems strange *now* that the idea of its being really distinct rom the Vienna insect had not dawned on one sooner, as Mr. S. Stevens had very kindly supplied me with living specimens as far back s 1855, which, with others subsequently given me by Mr. Bond, had tood in my collection by the side of a veritable *auroguttella* from Vienna, which I had placed there to illustrate the species when it first ccurred with us.

When Zeller wrote his treatise on *Coleophora*, which appeared in 849, in the 4th volume of the Linnæa Entomologica, the Vienna pecies had ceased to be found in its original locality, and had not een detected elsewhere. Subsequently, it occurred in Hungary, vhence I received specimens from Dr. Staudinger in 1866 and in 1876. In 1877, Herr Mann sent it me from Austria.

I had thus been gradually collecting materials for a more thorough comparison of the insects from Austria and Hungary, with those rom the Isle of Wight, insects similar in form and appearance, but f utterly diverse habits, which were still strangely coupled together nder the same name.

Last January I received from Mr. W. H. B. Fletcher an intimation that he thought he had found the larva of the Isle of Wight insect, for on the spot where he had formerly taken the imago freely, he had swept early in September a number of larvæ feeding on the flowers of *Statice limonium*, using an empty flower as a case, much in the style of *Gelechia subocellea*, but when full-fed boring into the flower-stem of the food-plant, or into the culm of a grass, leaving the case outside. The case afterwards generally falling off, leaving only the hole, carefully closed with silk, to indicate the presence of the larva within.

In May, Mr. Fletcher, having spent a night at Freshwater, sent me some old stems of the *Statice limonium*, containing larvæ still unchanged, and from these I have, during the past fortnight, bred a nice series of the perfect insect.

That an insect allied to the *Goniodoma auroguttella*, which Fischer von Röslerstamm had so elaborately figured, occurred amongst a *Statice* at Cannes, has already been recorded in the Annales de la Société Entomologique de France, 1882, bull. cxlix, by M. E. L. Ragonot, who proposed for it the name of *Goniodoma Millierella*, but this insect from the South of France does not appear to be identical with our Isle of Wight insect.

1° *Millierella* is said to be *smaller* than *auroguttella*; now it is exactly the reverse with our Isle of Wight species.

2° No mention is made under *Millierella* of the much darker ground-colour, which so readily attracts our attention when contemplating the species from the Isle of Wight.

3° The great difference shown between *auroguttella* and the Isle of Wight insect in the colouring of the apical portion of the costal cilia, is not alluded to by Ragonot in the brief notice given of *Millierella*. Hence I am forced to conclude that our British species is not identical with the *Millierella* of Ragonot, and I would propose for it the name of *limoniella*; further, as it would hardly be suitable to place it in the genus *Goniodoma*, its habitation not showing any angles I would prefer to locate it, for the present at least, in the genus *Coleophora*, of which we now know several species, that bore into stems such as *C. salicorniæ*, Z. (*binotapennella*, Stn., *non.* Dup.), and the very handsome South Russian *C. argyrella*, H.-S., hence we cannot look upon that habit as furnishing a sufficient justification for separating individual species from the main genus *Coleophora*.

Therefore, I would call the species *Coleophora limoniella*; it may be distinguished from the Austrian *auroguttella* easily, thus:—Expans-

of the wings, $5\frac{1}{2}$ lines (of *auroguttella*, $4\frac{1}{2}$). Ground-colour of the interior-wings deep dark yellow, one might compare it to the colour of brass (of *auroguttella*, the ground-colour is pale canary-yellow); the golden markings seem very similar in both species, though in *limoniella*, from the darker ground-colour, they can be far less easily traced.

The most striking character is furnished by the apical portion of the costal cilia: in *limoniella* these incline from brassy dark yellow to dark grey (in *auroguttella* they are pale canary-yellow, hence very strongly contrasted with the apical black streak immediately below them).

Lewisham: *July 18th*, 1884.

NOTES ON BRITISH *TORTRICES*.

BY CHAS. G. BARRETT.

(*Continued from page* 45.)

Pœdisca rufimitrana, H.-S.—Larva whitish-green, dorsal region slightly greener, but so transparent that the green contents of the intestinal canal (dorsal vessel) are visible in separate masses; spots large and shining, but of the colour of the body; head yellow-brown or honey-colour, jaws rather darker, dorsal plate greenish, anal plate very pale yellow, legs and under-side of body greenish-white.

On *Abies cephalonica*, spinning together the terminal shoots, hollowing out the young needles, and, afterwards, spinning together the older needles in bunches, and eating some of them through near the base.

Found at Merton by Lord Walsingham, in May, 1882. The larvæ spun up in the gauze covering of their cage, and the moths emerged in the beginning of July.

A most elaborate and exhaustive monograph of this species has been published, at Vienna, by Herr Fritz A. Wachtl, the species being at times very destructive in the forests of Southern Germany. He says that the eggs are laid in groups, and are, at first, of a yellowish-brown and covered with a network of fine lines; the larva dirty greenish-yellow, dorsal and anal plates, and under-side clear yellow, head rust-red. He also describes the position of every dot and bristle on the body, and says that the larva is full grown in the middle of June, and assumes the pupa state in the ground or among *débris*. The pupa rust-red, and tapering towards the head as well as at the hinder end. He also

gives the positions, and remarks on the variable number of the bristles at the anal extremity of the pupa; and says that the moth emerges in a fortnight.

In the same work is a monograph, if possible still more elaborate, of another fir-destroying species, *Tortrix murinana*, a mottled-brown insect, which being also very abundant and destructive in South Germany (Lower Austria, Moravia and Silesia), may some day be discovered in this country.

The larva is described as rather flattened, thickest in the middle, light bistre-green with dark green dorsal vessel, sides and ventral region yellower, head and dorsal plate shining black with a whitish collar, spots dark and hairs yellowish. When full-fed it leaves the fir tree and assumes the pupa state in or on the ground. This is from the end of May to the end of June, and the moth emerges in a fortnight.

These two species furnish splendid examples of common names, *murinana* being called "White-fir-shoot-Tortrix," and *rufimitrana* "Red-headed-white-fir-shoot-Tortrix."

142, Denmark Hill, S.E.: *July 16th*, 1884.

DESCRIPTION OF THE LARVA OF *CRAMBUS PRATELLUS*.

BY GEO. T. PORRITT, F.L.S.

Several moths of this species I took here on June 30th last year deposited eggs, and two batches of them I dropped among grass planted in a large flower pot. I do not know when they hatched, and indeed, have no further notes on them until September 12th, when I found the larvæ were about three-eighths of an inch in length, and were living in silken galleries, spun at the bases of the grass-stems above the ground, and in some cases between grass-stems and the sides of their plant pot. Twelve days later, on the 24th, I examined the pot again, to find the larvæ had grown rapidly, had eaten nearly all the growing grass, and were wandering about the sides of the pot and on the gauze covering. I then described them as follows: length about five-eighths of an inch, of average bulk, and of the usual Crambus-shape; head slightly narrower than the second segment, it has the lobes rounded, and is (as is also the frontal plate) highly polished; body cylindrical above, slightly flattened ventrally, of nearly uniform width, tapering only a little towards the anal segment; segmental divisions well defined; the tubercles all polished, large and prominent, the dorsal four oblong-oval in shape, and placed end opposite end, giving the appearance of two transverse ridges on each

egment; the other tubercles of the usual round form. The tubercles ive to the skin a rough and uneven appearance, though in reality it s smooth and glossy.

Ground-colour dingy greyish-olive, of lighter or darker shades in ifferent specimens; head a warm brown, marbled with dark sienna-rown, the mandibles also dark sienna-brown; there are no perceptible orsal, sub-dorsal or spiracular lines; all the tubercles dark smoky-live. Ventral surface and prolegs uniformly of the ground-colour f the dorsal surface, the anterior-legs polished black.

I supplied them with fresh grass-roots, but they soon commenced ibernation.

On March 16th they were all lively again, and apparently in size, olour and markings just as when described in the autumn. On April 4th, being full grown, I took a number of them out again for further otes. They had not much altered since described on September 24th, any of them did not exceed the length then given (five-eighths of n inch), and none did I see over three-quarters of an inch. They vere of the same form, and the most material alteration was in the round-colour, which had become browner, many, indeed, having quite ost the olive tint; the tubercles had also become browner in accord-nce with the ground-colour, and in the centre of each was a minute lack spot, from which sprang a short hair. The very minute spiracles lso black.

They lived in silken tubes spun close to, or on the earth just bove, or even among the roots of the grasses, and came out to feed vith avidity at night. As they ceased feeding they spun firm silken ocoons among the roots of the grass, or very frequently against the ides of the breeding pot, but just below the surface of the soil. The upa is about three-eighths of an inch long, and of ordinary shape; it s glossy, fairly plump, and has all the parts clearly defined. Ground-olour bright yellow-brown, the abdominal divisions darker brown, nd the eye-cases and anal point nearly black.

I bred a good and beautiful series of imagos, the first not ap-earing until June 14th, though I had noticed the species on the wing t large three weeks previously.

Huddersfield: *July* 18*th*, 1884.

Abundance of caterpillars in Wales.—About a month ago a paragraph ppeared in the newspapers to the effect that creatures "like caterpillars" swarmed n some of the mountains in S. Wales to such an extent that they were collected by he people and burnt for fuel in their houses. This was curious enough; and it

passed as one of the periodical exaggerations of local papers. It seems, however that there has been a more than ordinary "visitation;" we cull the followin from a Glamorganshire paper, "The Bridgend Chronicle" of June 27th, as combination of fact, fiction, ignorance and credulity not to be exceeded even in th records of popular entomology. It will be noticed that there is not an atom c information as to what the insects really are, except the "buzzard-moth," whateve that may be, nor a suggestion of a remedy for the mischief caused by them. W may be allowed to suspect that the insects are the larvæ of *Charæas graminis*, whic at times appear in vast numbers, concerning which see Ent. Mo. Mag., vol. xvii pp. 39, 68, 87, and 111.—Eds.

"*The caterpillar plague on Llangeinor and Cwmpark Mountains.*—A Ponty pridd correspondent writes:—The caterpillars on the Ystradyfodwg Mountains sho no sign of diminution; but, on the contrary, seem to be actively spreading. The are now in vast numbers on the mountain between Ffrwdamos and Gilfachgoch During the last few days men and boys have brought some of them down to th valley as curiosities. Many public houses contain specimens, and groups of taproo naturalists are frequently to be seen examining them with great interest. Mar exaggerated statements are in circulation respecting these insects. In some plac it is stated that they have contaminated the water of the reservoir of St. Ma (Ffynon Fair, Fendigaid) on the side of Pen Rhys Mountain. It is from th splendid well of the Blessed St. Mary that this reservoir is supplied with water, an until recent years it was from here the old parishioners obtained water for christeni their children. The water being still held in great reverence, the statement th the insect has polluted it has deepened the awe with which some housewives rega what they describe as 'visitation'—indicating to the mind that Satan has somethi to do with the matter. But there is not a word of truth in the statement that su a contamination has taken place. There is general anxiety to learn the result Colonel Picton Turbervill's application to have the report of competent naturalis as to the nature of the pest, where it came from, and when it is likely to depart."

"Colonel H. H. Davies, Rompney Castle, writes:—Some days ago, whi perusing Mr. John Rowland's ('Giraldus') collection of 'Glamorganshire A tiquities,' I found that a similar plague happened in A.D. 1403. All the grass a leaves were eaten up by immense swarms of strange insects. The people limed th walls and grounds for protection, and ever since whitewashing has continu prevalent in Glamorgan, a fact which gave rise to the old saying—'Morganwg muriau gwynion.' In A.D. 1419, there were three days of such intense heat th men and beasts fell down dead, birds died on the wing, and a brake of wood Margam and some trees and hedges at Nash took fire. The heat also killed t green vermin which devoured the herbage in Glamorgan. Probably the pres pests are the same kind as those which troubled our forefathers centuries a I shall be glad if any of your readers can inform me if there is any record of th visitations since the above date."

"Mr. Bevan, of Tynewydd Farm, Ogmore Vale, has received from a well-kno authority the following description of the insects which are appearing in s extraordinary numbers on the tops of the mountains in that vicinity:—'The ins is known as *Noctuas meph*, a species of caterpillar septinoreare. In the year 18 it appeared in Kent and destroyed all the hops. It takes three weeks from

mport to form a chrysalis; afterwards, in three months, a caterpillar.' The first extraordinary visitation has been followed by another annual one in the locality. Thousands of rooks pay a daily visit early in the morning, and are devouring our first visitors."

"Mr. Thomas James, Aberkenfig, writes:—Having last week read the letter on he pests of the mountains, and heard so many different accounts and opinions of people on the same, I went to see for myself. Having found them, I bottled a few lozens as specimens, and I beg to offer an opinion and an experience of my own. First. What they are and how can we account for such numbers? They are no nore nor less than very common caterpillars which we see every year, and every hild in the country is very well acquainted with the little monster when in full levelopment. They have fourteen feet, and I should say a fine set of teeth, for they levour their allowance with voracious rapidity. But it is for a very short time; heir time of fasting is drawing nigh.

"Second. What will they be? From the egg came forth the cater as slender s silk thread. In nine days or a fortnight it attains its present size; and, as I stood azing at them, many burrowed into the ground, but the majority went into the ufts of rushes and dead grass, there to remain fasting four, five, six, or seven nonths, according to season. In that stage and state we will treat of them next. st. Their bodies contain gluish substance, and, as by perspiration, it flows out all ver the body, and thickens until a cloak is formed that will bear almost every ardship. 2nd. The form turns into a very ugly but harmless grub. In a few nonths it resembles in shape the weaver's shuttle, the swordfish, and the rhinoceros. he middle portion becomes large and lumpy, with a spear one-eighth of an inch rojecting forward from between the shoulders. The hind-part tapers as the shuttle; he head, also sloping, resembles that of the rhinoceros. In this position, without od or water, and to all appearances dead and motionless, it awaits the next ransformation, which takes place according to the season in April, May, June, July, ugust, and September. Now, in either or in all these months, we can expect to e the buzzard-moth, which is the full development of this mysterious cater which causing so much anxiety. This moth, maturing last May, commenced forthwith propagate its offsprings by laying the eggs, and here is the caterpillar. Now, the atural and native place of this species of moth is marshy ground where rushes and ags of all kinds grow, such as are in abundance on flats on mountain-tops and etween them also.

"The buzzard-moth is a thick-bodied animal, small wings in comparison to its ody, of light greyish ground-colour, spotted all over with a dark grey, and expires f old age and weariness in a few weeks after depositing the eggs, if he is left to live long, for the poor harmless thing has many enemies. Birds of all kinds feast on s fat body, and are, therefore, always chasing it. 3rd. How are we to account for he countless numbers of this year? We will return to the summer of 1882, and ake the ordinary number of moths left from the previous winter. They deposited heir eggs that summer, transformed into caters, and, therefore, into grubs, and made heir way to their proper refuges. When the grub fixes in a crevice, and that fills ith rain-water so as to cover it, death is certain. If frost of long duration sets in is destructive to the grubs which are only a few inches from the surface. The rge majority in rushes, old grass, and flags, are the safest by far. But when

neither frost nor water can kill, the curlew and plover, which are so fond of mountains in hard winters, can. These plovers inhabit the sea-marshes, but when frost locks their food there their instinct teaches them to look for it in a similar place, which they find on mountains; and there, when frost and water miss the moth-grub, they will work their beaks into the rushes and grassy tufts, and devour myriads of them in a few weeks. Now, the winter of 1882 was mild, with the exception of two or three days' frost, and left the grubs all alive and kept the birds in their marshes as well. The summer of 1883 produced them all alive. They again fostered in their usual way, and were very numerous. Last winter was mild, and this good summer produces the myriads of caters as a result of two mild winters."

Action of Cyanide of Potassium on colour.—The recent notice in the Magazine of the action of cyanide of potassium on a butterfly reminds me that I have noticed the directly opposite effect. In June, 1880, I was at Zermatt, and filled all my boxes the day but one before leaving, but, having a tin-killing box with a perforated division in it (I always use saturated solution of cyanide) I put my next day's captures between papers in the top part, but, unfortunately, did not remove the cotton-wool from beneath, which was soaked in the cyanide. I was unable to set these for four or five months, and when I took them in hand found that they were all *bleached*. *Lycæna Hylas* and *Damon* were changed into the palest brown or buff. *Satyrus Alcyone* and *Actæa v. cordula*, ♂, had all the colour taken out of them, as well as *hyperanthus* and several others, so much so, that if I had not known what insects were in the box they would have been totally unrecognisable, as they were all thoroughly bleached and rendered more or less transparent.—George T. Baker, 9, Augustus Road, Birmingham: *July*, 1884.

Note respecting Argynnis Jainadeva and A. Adippe.—In a small series of butterflies from the N. W. Himalayas recently presented to the Museum, I found a male example of *Argynnis Jainadeva* so closely resembling *A. Adippe*, ♂, both in its ground-colour and in the size and arrangement of its markings, that I was at first convinced that Mr. Moore must, as some Lepidopterists assert, have erred in separating it from the European species: upon placing it with our series of *A. Adippe* I was, to my surprise, immediately convinced of its total distinctness.

Mr. Elwes has frequently urged upon me the importance, in his opinion, of the expanded fusiform patches upon the median branches in the males of many species of *Argynnis*, as probably constant and therefore valuable characters for the determination of otherwise nearly allied forms; in this opinion I have no doubt he is right, and therefore I do not hesitate to regard *Argynnis Adippe* (the male of which has two such patches upon the primaries) as perfectly distinct from *A. Jainadeva*, in which these patches have not been developed.—A. G. Butler, British Museum, *July*, 1884.

Note on Vanessa cardui.—With regard to the note in last month's Ent. Mo. Mag. (p. 34), I may say that this species appears to be most unusually abundant on the Continent this year. I recently made a short excursion, chiefly in Savoy. Butterflies did not appear to be so common as they usually are in alpine districts. But *V. cardui* was everywhere, from 5500 ft. downwards, and, in individuals, pro

ably represented about one-fourth of all the Butterflies observed. Most of the ecimens bore evidence of hibernation and travel, but occasionally an example was en in so fresh a condition as to induce me to believe it must have recently emerged om the pupa state. I observed no tendency to form "columns," nor of any parti-lar direction in flight; they were simply dashing about in the usual wild manner. R. McLachlan, Lewisham, London: *July* 17*th*, 1884.

Cochlophora (?) *valvata*, *Gerst.* (*cf. ante p.* 27).—It can hardly be expected that should be able to explain how an error originated in one of the "Zoological ecords" of ten years ago; but I wish to point out that although Gerstäcker found remains of larva or pupa in cases, he, nevertheless, found traces of a cocoon or eb still adhering to the opening. The first account of *Cochlophora* (?) *valvata* curs in Arch. f. Nat. xxxvii, p. 361 (*cf.* Zool. Rec. viii [1871] p. 370; and x [1873] . 374 and 392.—W. F. Kirby, British Museum: *July* 10*th*, 1884.

[I had not asked Mr. Kirby *how* his error originated: its existence was pointed t as a warning to his readers. If he had read my paper in connection with erstäcker's account, he would have seen that the "traces of a cocoon or web still hering to the opening" are duly noted by me.—R. McL.]

Habits of Grapholitha olivaceana.—I have just learned from Washington at the Tortricid larva inhabiting the curled tips of *Solidago* in the United States, d which I inferred, from the close resemblance of the young larvæ, might prove to *Pædisca Scudderiana*, has given forth the *Grapholitha olivaceana*, Riley, the life-bits of which were hitherto unknown. This fact will be of interest to those merican Lepidopterists who have followed the discussion of the subject at the eeting of the Entomological Club of the A. A. A. S. last autumn.—C. V. Riley, ontpellier: *June* 24*th*, 1884.

On a singular habit of Osmia bicolor, *Sch.*—Since writing my note on *Osmia color* (p. 38 *ante*) I have had two more opportunities of watching this bee. The first as on the 12th of June, when I went to the same spot from which I made my pre-ous observations; I had not been standing there long when I again had the satisfac-on of seeing this bee engaged on the singular business of gathering dry bents of grass, d carrying them off in her jaws; having, this morning, time at my disposal, I ited about this place for upwards of two hours, and endeavoured several times to ark-down the bees, in order to try and find out what they did with their burden, t in every instance I was disappointed, for they all went to the wood below and re there lost to sight. Following them into the wood I found quite useless, as I uld not make out their whereabouts, though I strolled about where I thought ere was a likelihood of seeing them; so beat back to my old quarters. There was ly one bee that went up the hill, and this I followed; she was more heavily or ther more cumbrously laden than any of the others, for she carried a long blade of nt much longer than any I had previously seen; I marked her down and got close to where she alighted, and thought now I should see what she was doing, and be le to solve the mystery, but she was only resting, for, on my approach, she started , and with the long bent hanging from her jaws, was making for the same direction

that the others had taken, when I stopped her from going any further, and secured her and her burden. Now, here comes a question, why did this *one* bee go up the hill side, when all the others had taken a contrary direction? Can it be put down to instinct? Did she know the burden she was carrying would weigh her down, and that, consequently, she must start from a higher elevation in order to clear the tops of the trees below? It looks uncommonly like it, and we know that the intelligence of this genus ranks very high. The next time I went was to all appearance an equally favourable day, but although I waited a considerable time I only saw one bee with a straw, and this was a very worn and faded insect. Since then I have not seen any specimens of this bee, and conclude that they have entirely disappeared for the season, and, therefore, I shall not be able to prosecute my enquiries further in this direction. I notice that Shuckard, in his "British Bees," in speaking of *O. bicolor* and *O. aurulenta*, says that when they nidificate in snail-shells, after the cells are deposited, "they close up the aperture with earth and pebbles, or sticks agglutinated together;" the one I found is covered-in with plain earth, and nothing else. *Osmia aurulenta* also occurs in this neighbourhood, but I have found this to be a burrowing bee, and I have never observed it carrying bents.—V. R. PERKINS, Wotton-under-Edge: *July* 1*st*, 1884.

Cœlioxys elongata pupating on a thistle.—It may be interesting to note a very curious departure from the supposed ordinary course of this species, which I bred on the 7th July from a cocoon found on a thistle on the 26th June.

My young friend, who has been doing a little to Entomology for the past several years, took unto himself a wife, and during his wedding trip saw a *Vanessa cardui* larva on a thistle. It struck him that he might as well collect a few larvæ of *cardui* and in searching the thistles, he found the cocoon in question, and at once came to the conclusion that it was an ichneumon cocoon. Knowing my weakness for the *Ichneumonidæ*, he boxed it, brought it home, and gave it to me, with another supposed to be ichneumon, but which is without doubt that of a species of *Syrphidæ*.

The cocoon is very compact and hard, and it has resisted my efforts to soften a portion of it in spirits of wine, and afterwards in boiling water. I was desirous of doing this to ascertain, if possible, of what the outside covering consists. I very strongly suspect it consists of portions of the florets of a thistle, as it has every appearance of it, and in examining it with a strong lens, I can see the silken cords of web which formed the foundation of the cocoon. My young friend thinks the web was made by the larvæ of *cardui*, the web being the cause of attracting his attention to the thistle, thinking it contained a *cardui* larva.—G. C. BIGNELL, 7, Clarence Place, Stonehouse, Plymouth: *July* 14*th*, 1884.

Odynerus reniformis, Gmel., at Chertsey.—While rambling along the railway bank at Chertsey in search of *Hymenoptera*, at the latter end of May, my attention was attracted to what appeared to me at first sight to be a species of *Ichneumonid*, but as its flight backwards and forwards was very rapid, it was some time before I succeeded in capturing a specimen; at last I managed to get one in the net, and was delighted to find it was a species of *Odynerus* which I had not before met with. This led me to look carefully for its habitat, which I imagined must be somewhere in the bank close by. Some few yards from where I made my first capture, I ca

upon a small bare spot of ground, certainly not more than two feet square, and here I found a cluster of beautifully granulated curved tubular entrances, eleven in all, closely resembling the entrance tubes made by *O. spinipes* to its nest, the tubes rising from the surface of the ground about one inch and a half, and, while examining these curious structures, I managed to take two more specimens on their return to their storehouses, each having a larva of some species of *Lepidoptera* in its mouth. A heavy shower of rain prevented me from continuing my observations, and from capturing more on this occasion. On taking the three specimens to my friend, Mr. Edward Saunders, for his kind identification, he at once pronounces them to be *Odynerus reniformis*, Gmelin, and informed me that, with one exception, this species had never before been met with in England, he having taken a ♂ at Chobham in June, 1876. Acting upon his advice, I again visited the same spot a few days after, the result being the capture of nine ♀ and two ♂. On opening one of the cells I found it stored with no less than 33 small larvæ of a species of *Noctua*, and 4 sawfly larvæ, all alive, but apparently paralyzed by the sting of the wasp. Upon visiting the same place again at the end of June, I found that the railway company's servants had mown and burnt the herbage along the banks, leaving not a vestige of vegetation, nor of this rare wasp.—T. R. Billups, 20, Swiss Villas, Coplestone Road, Peckham: *July*, 1884.

Deliphrum tectum, Pk., &c., in Warwickshire.—Early in May last, I captured three specimens of *Deliphrum tectum*, under bones placed in a shrubbery at Knowle as a trap for *Homalotæ*. At the same time and place, and under similar conditions, I took *Ilyobates nigricollis*, Pk., and *Callicerus obscurus*, Gr., and *C. rigidicornis*, Er.—W. G. Blatch, 214, Green Lane, Smallheath, Birmingham: *July 16th*, 1884.

Ancyrophorus homalinus, Er., at Bewdley.—Whilst digging into the banks of the Severn at Bewdley a few days since, in search of *Homalota insecta*, I turned out two examples of *Ancyrophorus homalinus*, a beetle new to this district.—Id.

Entomological Society of London: *2nd July*, 1884.—J. W. Dunning, Esq., M.A., F.L.S., President, in the Chair.

Dr. Fritz Müller and Dr. Packard were elected honorary members, and C. G. Barrett, Esq., of Pembroke, an ordinary member.

Mr. C. O. Waterhouse exhibited various species of Phytophagous beetles, to shew the extraordinary effect that exposure to light had produced on their colours. Fiery red had turned to bright green, pale yellow to brown, blue to black, and green to purple. The specimens exhibited had been in the public galleries of the British Museum for twenty-five years.

Dr. Sharp shewed curious cases from house-thatch, containing a species of *Lucanidæ* (*Odontolabris carinatus*), sent from the hills in E. Hindostan, by Mr. Inglis. The cases were about a quarter of an inch thick and smooth inside, they were thought by their finder to be hibernating cases, but Dr. Sharp thought they might possibly prove to be cocoons. He also shewed the larva of a small *Cassida* (*Porphyraspis tristis*, Dej.) from Bahia, which gathers fibres, and makes a nest like an inverted bird's nest, under which it lives.

Mr. E. P. Collett shewed a specimen of *Calosoma sycophanta* taken at Margate, and a series of the ♀ of *Athous difformis* taken at Guestling, by Rev. E. N. Bloomfield, this being the rare sex of this beetle.

Mr. Kirby exhibited drawings from Mr. Gooch of a species of *Mymaridæ*, reared from Coccus off St. Michael's oranges, and a series of drawings of saws of *Tenthredinidæ*.

Mr. Billups shewed the new British species of *Trichopteryx*, described in the last number of this Magazine (*ante* p. 35), and also a nest of a species of *Pelopœus*, taken from a hogshead of tobacco. Mr. Kirby observed that the British Museum had a similar nest attached to a head of maize.

Mr. Olliff exhibited the larva of a Coleopterous insect, mentioned by Mr. Darwin, in "Nature," as having been found in an encounter with an earthworm. Mr Billups and Mr. Distant thought such encounters were far from rare, and Dr. Sharp said he had kept *Cybister* larvæ alive for some time on chopped earthworms, and Mr. Billups had done the same with *Carabus auratus*. Mr. Cole thought this might throw some light on the later stages of some of the parasites which existed in the earthworm in their earlier life, and which had, hitherto, been looked for in birds

Mr. H. T. Stainton sent a note pointing out that the gooseberry caterpillar had been reported in one of the Scotch newspapers as feeding on *black* currant in Perthshire,

Paper read—Further additions to Mr. Marshall's Catalogue of *Ichneumonidæ*, by J. B. Bridgman. Mr. Fitch exhibited specimens of some of the species described therein, and pointed out the great dissimilarity between *Cryptus pygoleucus*, Gr., and *Agrothereutes Hopei*, which are united by Mr. Bridgman as ♂ and ♀ of the same species.

The President enquired if any of the members had been present at the meeting lately held on trinomial nomenclature. Dr. Sharp replied that he had been there, a discussion then ensued on the subject, in which the general feeling of the Society appeared to be adverse to giving a distinctive name to every variety.

ON THE VERY INTERESTING, BUT LONG OVERLOOKED, *DACTYLOTA KINKERELLA*.

BY H. T. STAINTON, F.R.S.

First captured in Holland in 1865, it was not described till 1876 but since then it has achieved considerable notoriety; and probably most European collections of *Micro-Lepidoptera* now possess the insect.

It most likely occurs on all the coast sand-hills of Northern Europe. The perfect insect is so like *Elachista rufocinerea* that it would scarcely be possible to distinguish it, either when at rest, or when running about in the net; but the inner margin of the anterior-wings is more uniformly sprinkled with dark scales than in *E. rufocinerea* (which generally has the inner margin pale), and the base of the costa of these wings is more rounded (more high-shouldered one might say),

The essential character, however, lies in the posterior-wings, which are not only Gelechiform, but have that form exaggerated by the indented angle being prolonged so as to form a slight incision in the wing.

German Entomologists have made pilgrimages to the sandy shores at the mouth of the Oder, and have collected the larvæ in considerable numbers; but in Holland, the specimen taken in 1865 was still unique, when Heer P. C. T. Snellen wrote the concluding portion of his great work on the "Vlinders van Nederland" in 1882. I believe, however, that last autumn some of the Dutch Entomologists have succeeded in finding the larvæ of *Dactylota Kinkerella* in considerable numbers; hence, it becomes of increasing interest to the Entomologists of this country.

I append to this notice extracts from the letters I have received from time to time from Professor Zeller, showing that September is the month for collecting the larva, which unfortunately does not pupate till the following spring. To these extracts I have added the original notice of the insect by P. C. T. Snellen, which appeared in 1876 in the 19th volume of the "Tijdschrift voor Entomologie."

Professor Zeller, writing to me on the 8th September, 1878, said:

"Dr. Wocke came to Stettin on the 30th August on his way to the watering-place Misdroy. His main object was, probably, the larva of *Kinkerella*. He had promised to write to me but did not do so till the day before yesterday; his very first day he collected 20 of these larvæ, the following days he did not find so many, but altogether he got about 50, so that he hopes to breed the perfect insects. The larvæ are much attacked by parasites. Yesterday I called on Professor Hering with this letter, hoping that he might thereby be tempted to make an excursion to Misdroy, in which case I would have gone thither with him for a few days; but I found that the worthy Professor was expecting two visitors, so that he cannot leave home before the end of the month, which would no doubt be too late. However, Herr Büttner is off to Misdroy to-day, and will collect all the larvæ of *Kinkerella* which Wocke has left, so that were I to go on Tuesday, which is the earliest day I could get away, I should probably find there were none left for me. I wrote, therefore, yesterday to Wocke and begged that he would send a few larvæ to Schulz for figuring, and that he would himself write out an accurate description of the larva and its mode of life."

Three weeks later, on the 29th September, 1878, Professor Zeller wrote to me again:

"I have not been to Misdroy, the weather has been too unpropitious This is also probably the reason why Dr. Wocke, who had intended t stay there till the end of the month, came back on the 23rd. He has in accordance with my request, forwarded some *Kinkerella* larvæ t Schulz, and the latter has figured them.

"Büttner has found the larvæ not only at Misdroy, but also a Swinemünde, and at the latter place in such plenty, that he has give some to Professor Hering and to me. I would venture to bet tha this species will also be found in England. It certainly occurs on a the sandy coasts of the Baltic and North Sea, where its food-plan *Ammophila arenaria* (*Arundo arenaria*, L.) grows. Since the larv hibernates in a slight cocoon on the stems and leaves, it would b possible to find it in England even before the end of the present yea Expecting, as I do, to breed the insect, or if unsuccessful in doing s that I shall yet receive it from others, I am forwarding to you ne week my solitary specimen."

Professor Zeller, writing on the 10th September, 1882, said:

"A week ago Dr. Wocke passed through Stettin on his way t Misdroy, where he hopes to cure his asthma. He will principal collect larvæ of *Eupithecia* and larvæ of *Kinkerella*. He has not y been favoured with much good weather."

His next letter, on the 4th October, 1882, reports:

"Dr. Wocke, on account of his asthma, remained a month Misdroy, where he had not only the pleasure of being well bitten the numerous gnats and sand-flies, but he also collected a considerab number of larvæ and pupæ. Of his larvæ the most important in n eyes are those of *Kinkerella*, of which he has collected about 180, a he hopes to bring them safely through the winter by sprinkling the from time to time with salt-water."

The notice of *Dactylota Kinkerella* given by P. C. T. Snellen the 19th volume (1876) of the "Tijdschrift voor Entomologie" m be translated thus:

"Some years ago Heer J. Kinker of Amsterdam, a zealous a careful Entomologist, submitted to me, to Heer de Graaf and others curious little moth taken near Noordwijk, which, from the greyish-wh anterior-wings finely sprinkled with darker scales, would seem, at fi sight, related to *Elachista rufocinerea*, till a closer examination show that from the form of the posterior-wings it belonged to the *Gelechia* Heer de Graaf at once suggested that a new genus should be form

or its reception, and Professor Zeller, to whom the specimen had been ubmitted, concurred in this view, but it seemed desirable, before doing o, that other specimens of the same species should be obtained.

Unfortunately, no second specimen has been found, and the first apture still remains unique, but as in von Heinemann's "Schmetter- nge Deutschlands und der Schweiz" there is nothing agreeing with Ieer Kinker's insect, I have thought it desirable, before describing the nsect in the second part of my "Vlinders van Nederland," on which am at present engaged, to give the new genus a more extended ublication by means of the "Tijdschrift voor Entomologie."

As above mentioned, the peculiar form of the posterior-wings resembling the prow* of a ship) shows that its nearest relations are ith *Gelechia*, Zeller, and the allied genera. Then the labial palpi are ort, but distinctly falciform, with the terminal joint pointed, and ith a little tuft of 10—12 diverging hairs at the base; the maxillary alpi are wanting, the head is smooth.

Amongst the *Gelechidæ* which possess these characters the genera *soricoptera*, *Chelaria*, *Cleodora*, *Ypsolophus*, *Nothris*, *Holcophora*, *ophronia* and *Megacraspedus*, are excluded from our comparison by he labial palpi having a long tuft to the middle joint, or the rminal joint with its under-side roughly scaled. It is thus only ith the old genus *Gelechia* that our new species can be compared. his extensive genus von Heinemann has split up into several naller genera, of which, however, the characters do not appear me to be laid down with sufficient precision. It would have been tter to have laid more stress on the neuration of the wings and the rm of the palpi as foundations for his genera—thus, as regards the uration, the position of veins 3—5 of the posterior-wings, and of —8 of the anterior-wings deserves our attentive consideration.

Turning to our new species we find that vein 2 of the posterior- ings arises at two-thirds, and vein 3 at four-fifths of the inner margin the middle cell, and that in the anterior-wings only veins 7 and 8, hich have a common stalk, terminate in the costa. In these characters resembles only von Heinemann's genera *Pœcilia*, *Ergatis*, *Argyritis*, *Lonochroa*, *Lamprotes* and *Doryphora*, but from all these it may be stinguished by the extremely short, though pointed, terminal joint the palpi, which is scarcely a third of the length of the middle int, and further by the form of the posterior-wings of which the nd margin shows under the point in cell *b* an incision, as though the ing would be split as in the *Pterophori*.

* This comparison is now rather obsolete, as the prow of a ship is no longer formed as it ed to be.—H. T. S.

The characters of the new genus may thus be determined as follows:

Anterior-wings lanceolate, posterior-wings oblong-quadrangular with pointed projecting tip, the cilia very long. Antennæ little more than two-thirds the length of the anterior-wings, filiform, the basal joint oblong, little broader than the shaft with some diverging hairs at the base. Maxillary palpi and tongue wanting. Labial palpi falciform, with pointed terminal joint, the middle joint flat, as long as the head, beneath thin, above half as broad as the eyes, the terminal joint one-third the length of the second joint, of uniform breadth at the base, the tip pointed, both joints are rather rough in front, but smooth-scaled behind.

Head rounded, rather flat, clothed with long closely-appressed scales, the face oblong, broader than the eyes. Eyes moderate, ocelli very distinct. Thorax twice as broad as the head, flatly arched, smooth-scaled. Abdomen a third shorter than the posterior-wings, thin, with a short anal tuft (♂). Legs formed and spurred as usual, of moderate length.

Anterior-wings with 12 veins, the middle cell narrow, pointed, without distinct hind margin, veins 2 and 3 remote from each at two-thirds of the inner margin of the cell, 4, 5, 6, diverging from one point from the apex near the stalk of 7 and 8 which run to the costa, 9, 10, and 11 apart from each other, 12 short; no supplementary cell.

Posterior-wings with perceptible, though short, inner margin, a rounded anal angle, and at vein 4 the rounded curved hind margin, in which below the long projecting point is an incision. Cilia one-fourth longer than the breadth of the wing.

The posterior-wings have the inner-marginal veins very indistinct; vein 2 arising at two-thirds, 3 at four-fifths of the inner margin, 4 and 5 from one point from the inner-marginal angle, the transverse vein tending backwards but soon ceasing, and the middle cell open, 6 wanting,* 7 is the continuation of the anterior margin of the middle cell, and runs very near the costa, ending in the apex of the wing, 8 is very short.

The costa and inner margin of the anterior-wings are parallel, and tolerably straight, the cilia at the apex rounded. The ground-colour of the palpi, antennæ, head, thorax, and anterior-wings is a greyish chalky-white, the latter sprinkled more and more with dark grey scales towards the hind margin and apex, and even on the cilia; these form no definite markings with the exception of a faint intersecting line in the middle of the rather yellowish cilia.

Posterior-wings light grey, with yellowish cilia. Abdomen also light grey, with greyish-white, short anal tuft.

The under-side is greyish-white, paler towards the apex of the wing, with some indications of the intersecting line in the cilia from the apex of the wing.

The middle cell of the anterior-wings occupies about a third of the breadth of the wings, and reaches to three-fourths of their length; that of the posterior-wings is above half the breadth of the wings, and two-thirds of their length.

The specimen, a male, was taken by Heer Kinker, June 5th, 18[illegible] at Noordwijk, probably on the edge of the dunes.

* The posterior-wings have a fold at this place on both sides, so that it is impossible to [illegible] whether vein 6 is really present, or whence it arises.

Possibly this species is not the only representative of the genus, nd perhaps amongst the species placed by von Heinemann in his genus *Doryphora* are some that might be located along with *Kinkerella*."

Mountsfield, Lewisham, S.E.:
May 15*th*, 1884.

Occurrence of the larvæ of Dactylota Kinkerella in Holland.—Since writing ne above, I have heard from my friend Heer P. C. T. Snellen, that the indications I ad sent him last autumn had enabled the Dutch Entomologists to find the larvæ f *D. Kinkerella*, "in the leaves of *Psamma* on the dunes; they were very plentiful Zealand, though much scarcer near the Hague, but dreadfully infected with various chneumonidæ. Moreover, as the larvæ pass the winter unchanged, many die from too much moisture, or from being too dry," so that the prospect of rearing the perct insects was not too bright when my friend wrote to me.—H. T. STAINTON: *uly* 12*th*, 1884.

LIFE HISTORY OF *AGLOSSA CUPREALIS*.

FROM NOTES BY THE LATE W. BUCKLER, EDITED BY REV. J. HELLINS, M.A.

This is one of the species, the larvæ of which my late friend, Mr. Buckler, had in hand at the time of his death, and the following account of it is compiled from the very full and precise notes left by him, with some little additions which were necessary to complete the life history.

The eggs were obtained by Mr. W. H. B. Fletcher, who has also very kindly given his assistance in working out some points in the economy of the larva.

The eggs were laid by a captured moth during the last week of July, 1882, being deposited, for the most part singly, on the sides of a chip box; on August 7th they changed colour, and on the 14th the dark heads of the larvæ were visible through the shell; most of the larvæ hatched on the 15th, several more on the 17th, and one or two again on the 20th and 21st.

The larvæ on hatching immediately hid themselves under a little loose bit of the chip box, as if instinctively seeking their natural habitat, which is among and under rubbish accumulated on the barn floor: they were at once placed on a little of such rubbish, made up as described in the history of *A. pinguinalis*, Ent. Mo. Mag., vol. xx, p. 193) of husks of wheat and oats, bits of straw and dried grass, and various dried stems and seeds—and on this they were reared. Mr. Fletcher considers that very probably they would prefer the wheat-

straw, and husks, and would not by choice eat *Cladium* thatch; one larva sent when nearly full-grown to Dr. Chapman made itself happy on a diet of bread; it seems too that it is needful the food should not be too dry; anything like mildew caused by damp would be injurious, but unless there is a certain amount of moisture in the food, such as would generally exist in shady corners of stables and barns, the larvæ seem to be starved, and certainly decrease in size; and though they will bear starving to some extent, yet if the drought be continued, they die. From the first they spin the rubbish together, making tubes much in the same way as *pinguinalis*, and often making use of a straw, bean-husk, or folded leaf of *Cladium mariscus*, as a private retreat; they seem, when supplied with plenty of materials, to make the sides of their galleries of some considerable thickness, and sometimes two or three larvæ were found inhabiting the same gallery, which, however, in such a case would be noticeably longer than one occupied by a single tenant.

The young larvæ fed away at once, and their growth could be noticed after a few days; in less than three weeks they were 4 mm. in length, and in four weeks more 7 mm.; when disturbed they were very active, jumping backwards, hiding again as soon as possible, and showing great aversion to the light, and this, indeed, is the habit all through with the larva; the number of moults was not observed, but one took place at about the age of two months, when the length was still about 7 mm.; and in another month, November 17th, they had not grown much, but a fortnight later again the largest was 9 mm., and this still was the length of one examined after hibernation on March 4th, 1883; on March 26th one was turned out, which measured 13 mm., but by May 1st most of them had not yet attained that length; by the 21st the largest was 19 mm., while some were only 10 mm. long; on July 17th the largest had become 21 mm., others remaining still very small; and the last examination made by Mr. Buckler, September 18th, found them in the same condition: meanwhile, Mr. Fletcher had noticed that from the first some of the larvæ which he was rearing, were bent on outstripping the rest, though they were all kept together, and received precisely the same treatment; and during the summer of 1883 he bred two moths, and probably would have bred more, had he not killed several of his largest larvæ by keeping their food too dry through the winter, when he supposed they were hibernating; but by far the largest number of his larvæ lived over 1883, and hibernated a second time, as was the case with all those in Mr. Buckler's care; these last came into my possession, and

March 17th, 1884, I measured one fully 26 mm. long when extended in walking, and about 22 mm. when at rest, and this I think would be the full-grown length: on 13th June I found I had three or four cocoons formed, and on the same day received four other cocoons from Mr. Fletcher, two containing pupæ, and two larvæ yet unchanged; Mr. Fletcher bred the rest of his moths in June and July, mine all emerged between July 12th and August 3rd, and on July 26th Mr. Fletcher sent me eggs from a captured moth.

The lifetime, therefore, of an individual of this species may be either one or two years in duration, out of which period its egg-stage occupies three weeks or less, its pupa stage about a month, and the intervening ten or twenty-two months are spent as a larva.

The egg is of a good size in proportion to the parent moth, and is of broad-oval outline, and plump, being about $\frac{11}{14}$ mm. in long diameter, by $\frac{9}{14}$ mm. in the shorter, and $\frac{6}{14}$ mm. in thickness, and seems to be deposited generally on its side; the shell is thin, dull, and covered all over with large shallow irregularly pentagonal reticulation; at first the colour is much the tint of new chip, but in about ten days this becomes a very pale warm drab, and in another week the head of the larva shows as a brown spot on one side of the egg.

The newly-hatched larva is $2\frac{1}{2}$ mm. in length, is just the colour of new chip, head light brown, the neckplate very much paler brown with a margin of pale skin between it and the head; the skin opaque, but allowing the internal vessel to be seen faintly, and at the twelfth segment more plainly; in ten days this internal vessel has become dark, and shows plainly through the pale skin: in another ten days, when the larva is 4 mm. long, the body is wholly of an olive brown colour, the segmental folds showing somewhat paler; three weeks later, the larva, with an average length of 6 mm., is slender, the head light brown, rather shining; the skin transparent, but showing its whitish-grey tint at the segmental folds, and also along the sides when one looks down on it from above; but the internal organs are so dark, of a slaty-drab tint, and show through so plainly, that the general aspect is very dingy, the glossy plate on the second segment is black behind, and paler in front, the eleventh segment shows paler than the rest, and in some examples the thirteenth also; the anal plate is pale almost whity-brown, the usual dots are very minute but show dusky on the pale skin. In another fortnight the internal parts appear quite blackish, with paler intervals on the hinder segments, which show the greyish-white of the skin, the head brown, the plates as before, the belly and all the legs colourless; at this date, during a

moult, the blackish colouring is lost from the interior, so that only th head retains its colour, and the neck plate and two or three followin segments become greyish: the general appearance now remains muc the same for some time, till the length of 9 mm. has been attained, th skin being so clear that the pulsating dorsal vessel can be seen betwee it and the dark internal organs.

During hibernation the length remains the same, but the bod becomes somewhat stouter; at the beginning of March, the head i reddish-brown, the body dark slaty-grey brown with blackish dorsa line, but the back of the eleventh and thirteenth segments, the fron margin of the second, and all the legs, are greyish-white; the skin i still so clear that the tracheal threads can be seen through it. Fro this time, as the larva increases in size, it seems to become darker i tint, and the skin becomes less transparent, and is in itself of a dirt whitish tint, and the dusky dots become less distinguishable; when th length is about 12 mm., the general colour is brownish-black or blac the head darker than before but retaining its reddish-brown tinge, th middle part of the upper lip paler reddish-brown, the jaws black; th anal flap pale-brownish and semi-transparent, as are all the legs, an the papillæ. At this stage, however, it seems the colour may vary a cording to the state of the food, or the proximity of a moult; it w noticed that a larva, which was looking pale greyish-drab, and w therefore considered a variety, on having its food damped turned bla in twenty-four hours; and a figure was taken of a larva, more than mm. long, preparing for a moult, drab in colour, with the dots showi black; probably every moult is preceded by an obscuring of the da internal organs, so that the colour at such times would always be pal

A habitation of the larva depicted by Mr. Buckler represents agglomeration of pieces of straw, &c., about 3 inches long, and m than half-an-inch wide.

The full-grown larva is 22 mm. in length, or 26 mm. when tended, and just 3 mm. across the back at about its middle; the figur cylindrical, and the bulk very even throughout, except that the roun head is rather narrower than the second segment, which is itself so wide as the rest, being not so much puffed at the sides; it noticeable, however, that the sub-spiracular ridge is less promin than in *pinguinalis*; the skin is brilliantly glossy all over, but un the microscope is seen to be very finely and beautifully shagree the divisions between the second and third, and the third and fou segments (as in *pinguinalis* and *farinalis* also) are curiously plica the folds broadening in a curve from the spiracular level to the cen

f the back; the general colour is from the sheen of the surface uzzling to describe, bronzy-invisible-green-black being the combination of words which suggested itself to three or four careful observers, he hinder segments having rather a paler tint; the head deep chestnuted, the collar deeper red and edged narrowly in front with black, the nal plate reddish but paler than the head, sometimes with a yellowish int: there is a double dorsal thread to be seen with a lens under the kin, being probably the borders of the dorsal vessel; the spiracles, hich, except the first and last, are small, are oval in outline, flat, and uite unprotected by any fold, and are of the same colour as the ground; he usual dots, which are hard to detect, are slightly darker than the kin, and each has a fine hair which shines golden in the sunlight, the rapezoidals are arranged very slightly out of the square position, and he microscope detects several obsolete tubercles near them, as well s little rows of glittering foveolæ, which are very curious, and perhaps ndicate the attachments of the muscles at a series of points.

The larva spins a tough web of white silk for the lining of its ocoon, the outside of which is stuck all over with bits of the straw nd husks, among which it has lived; externally it measures about 15 m. by 10 mm., the chamber within being about 12 mm. by 4 mm.; he pupa is 11 mm. long, cylindrical, all the outlines rounded, the ing-cases short and rounded, the abdomen rounded at the end, having here a very short blunt spike furnished with four curl-topped spines; he skin rather glossy, the colour pale mahogany-brown on the back, aler on the under-surface, the anal tip and spike dark brown.

In the newly bred moth the paler markings of the fore-wings have uite a pretty pinkish tinge on them; but in speaking of this point, as ell as of the coloration of the various parts of the larva, I cannot elp feeling the want of that certainty with which I used to rely on Ir. Buckler's unerring judgment in such matters, as well as that picuresqueness of detail generally, which used to invest the larvæ he escribed with quite a personality of their own.

Exeter: *4th August*, 1884.

The "Entomologische Nachrichten."—This useful "fortnightly," now in its 0th year, lately showed signs of irregularity in appearance, and of falling off in the uality of its contents. It has become the property of Messrs. Friedländer & Sohn, nd is now edited by Dr. F. Karsch, of Berlin. We think there are already indiations of great improvement.—Eds.

A NEW SPECIES OF *NEMATUS* FROM ENGLAND.

BY P. CAMERON.

NEMATUS PURPUREÆ, *sp. n.*

Black, covered with close, pale pubescence; labrum, palpi, tegulæ, apical hal of coxæ, femora at base and apex, tibiæ and tarsi, whitish-testaceous; flagellur brownish beneath; base of costa and of stigma clear white, the rest of costa an the stigma at apical half fuscous. Antennæ closely pilose, a little shorter than th thorax and abdomen together, the 3rd joint, if anything, longer than 4th. Clypeu incised. Antennal fovea large, deep, round, shining in the centre; frontal area obso lete; an indistinct fovea below the front ocellus; vertex raised, the lateral suture broad, there is an indistinct transverse one behind. The head and thorax are finel punctured, not very shining, abdomen smooth. The 1st transverse cubital nervur semi-obsolete; 3rd cubital cellule longer than broad, of nearly equal breadt throughout; 2nd recurrent nervure received a little in front of 2nd transverse cub tal. The lower median cellule in hind-wings shorter than upper. The femora hav a more brownish tinge than the tibiæ or tarsi; the black is not continuous, beir absent from the sides and to a certain extent from the lower portion. Tarsi more (less fuscous above (especially the hinder); cerci testaceous, as long as the hind spur Length, 2 lines.

A narrower insect than *N. leucostigma*, and readily known fro it by the black clypeus, much larger antennal fovea, darker cost longer 3rd cubital cellule; by the 2nd recurrent nervure being receive much nearer the 2nd transverse cubital, and by the more densel pilose body, which is also less shining. *N. nigrolineatus*, whic agrees with it so closely in habits, is a larger insect; its legs ar darker coloured, the femora and tarsi being for the greater pa black, the stigma has the apical half black; the pronotum is edge with white at the base, the 3rd cubital cellule is dilated at the ape In having the flagellum brownish beneath, it differs from most of th species.

The larva lives on *Salix purpurea*, the leaves of which are roll down at the edges like what is done by *Nematus nigrolineatus* a *Cecidomyia clausila*. It is clear greenish-glassy, rather stout, becomi suddenly attenuate at the anus, and bears no black marks on t hind segments, thus differing from most of the leaf-rolling larv The head is small and shining, clouded with grey, vertex black.

This interesting discovery we owe to that indefatigable observ Mr. J. E. Fletcher, of Worcester, who found the larvæ near th place, and managed to rear the imagos.

Glasgow: *August*, 1884.

ON AN UNDESCRIBED BUTTERFLY OF THE GENUS *TERACOLUS* FROM ARABIA.

BY ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

The British Museum has recently been enriched by the receipt of a fine collection of butterflies from Aden, and a smaller series from the Somali country, collected and presented by Major J. W. Yerbury; the smaller series contains both sexes of *Teracolus Chrysonome* of the "Symbolæ physicæ."

Hitherto, *T. Chrysonome* has been represented in the Museum collection by an Arabian species allied to my Abyssinian *T. gaudens*, but smaller than any other species of the group to which it belongs; it differs at a glance from *T. Chrysonome* in its inferior size (34 instead of 38—41 mm. in expanse of wing), its paler and duller coloration on both surfaces, bringing it nearer to the *T. Fausta* group, the abbreviation of the black sinuous stripe across the primaries, and the larger, much more confluent, and pinker tinted markings on the under-surface of the secondaries: to this species I propose to give the name of *T. arenicolens.*

TERACOLUS ARENICOLENS, *sp. n.*

Upper surface sandy-ochreous, with the veins slenderly black; primaries white from the base to the end of the cell, slightly tinted with bluish on inner margin; a small, transverse, black discocellular spot; a bi-angulated, discal, black stripe from the costa, about half way between the cell and apex to the second median nervule; a squamose, blackish, sub-marginal stripe, best defined upon the veins; secondaries bluish-white at the base, otherwise finely irrorated with grey, with the exception of an elbowed discal series of spots and a marginal series between the veins; body blackish above, the abdomen pale sandy-brownish at the sides; primaries below pale saffron-yellow, becoming pale creamy sulphur-yellow on internal area and at apex; the upper surface markings represented in rosy greyish; a minute black dot on the interno-median interspace beyond the middle; secondaries pale creamy-yellow, traversed by four nearly equidistant series of sub-confluent, rosy-greyish, more or less fusiform, spots; body pale creamy-yellow. Expanse of wings, 34 mm.

♂. Arabia (*Becker*). Type, Brit. Mus.

It is unfortunate that no more exact habitat was received with this species.

The true *T. Chrysonome* will have to be placed between *T. aurigineus* from Victoria Nyanza and *T. gaudens* from Abyssinia; the latter, which measures 46 mm. in expanse, is the nearest ally of *T. arenicolens.*

British Museum:

August, 1884.

NOTE ON THE ACTION OF POTASSIUM CYANIDE ON ORGANIC COLOURING MATTER.

BY G. B. BUCKTON, F.R.S.

The action of potassium cyanide, both as to discharging or altering the colours of insects, is worthy of the entomologist's attention. The phenomena may, however, be in the greater part explained, when we remember that water, or aqueous vapour, decomposes this salt into either caustic or carbonated alkali, with the simultaneous formation of ammonium cyanide, to the efficacy of which, in the state of vapour, the substance acts as an insecticide.

Mr. C. G. Barrett has lately described* the change of the yellow colour of *Gonopteryx rhamni* to a crimson under the influence of potassium cyanide. Alkalies are well known to convert many organic dyes into rich browns (as in turmeric), and into tints approaching to red, and advantage is taken of such action by way of chemical testing. Alkalies will destroy some colours altogether, and Mr. G. T. Baker† notes the bleaching of insect colours by cyanide in the last number of this Magazine.

In all cases where potassium cyanide is used as an insecticide by the entomologist, the specimen should be exposed only to the vapour disengaged slowly but surely from the damped salt placed between sheets of filtering paper. The vapour acts through the spiracles of the insects, in the *Hymenoptera* very rapidly, in the more sluggish nocturnal *Lepidoptera* much more slowly. I believe that I was the first to recommend this use of the alkaline cyanides, when I exhibited to the Biological section of the British Association at Liverpool, in 1854,‡ the identity of action in the vapour given off by crushed laurel leaves and that of decomposing potassium cyanide.

Care of course is necessary in using potassium cyanide in quantity; but it may be noted that bird and other natural history cases may be cleared from moth by a temporary but prolonged exposure to cyanide vapour, under which treatment *Tinea pellionella*, &c., surely succumbs.

Weycombe, Haslemere:
July 31*st*, 1884.

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* Ent. Mo. Mag., vol. xxi, p. 23. † *id.*, p. 66.
‡ Report of the British Association at Liverpool, 1854, p. 106.

ON A NEW SPECIES OF *HETÆRIUS*.

BY GEORGE LEWIS, F.L.S.

In the area assigned to the European Fauna there are fourteen species of *Hetærius* known to us, five of these are found to the north of the Mediterranean basin, and nine to the south of it. Outside this region six are reported from America, and two from Japan; leaving the vast mainland of Asia (probably rich in species) *terra incognita* as regards the genus. The European species are :—

Hetærius ferrugineus, Oliv.	*Hetærius lioderus*, Fairm.
Marseuli, Bris.	*Bedeli*, Lew.
arachnoides, Fairm.	*pluristriatus*, Fairm.
hispanus, Rosenh.	*Lewisi*, Reitt.
comosellus, Fairm.	*lævidorsis*, Fairm.
setulosus, Reitt.	*grandis*, Reitt.
punctulatus, Luc.	*plicicollis*, Fairm.

Herr Reitter considers that *H. Sartorii* = *Eretmotus Rayei*.

The last addition to this list is :—

HETÆRIUS BEDELI, *n. sp.*

Subrotundatus, piceo-ferrugineus, vix dense sericeo-pubescens, punctulatus; fronte grosse punctata, emarginata; pronoto sub-transverso, parte anteriore dense sat grosse punctata, angulis anticis obtusis reflexis; elytris tristriatis, 1° integro, 2 ultra medium, 3° ante abbreviatis; pygidio piloso; prosterno grosse punctato, meso- et meta-sterno profunde excavatis; pedibus robustis, tibiis angulato-dilatatis. *Long.* 2—3 *mm.*

This species may be placed near *lioderus*, but it is very distinct from all on the list. Its colour and the density of its pubescence, the thickly set punctures on the anterior part of the thorax, its larger size and broad tibiæ, are its most conspicuous specific characteristics. The tibiæ are nearly as much dilated as those of *Eretmotus sociator* or *angerianus*, and they are angulated in the same way, being much broader therefore than any other known species of *Hetærius*. At the base of each elytron there is a faint impression resembling an obsolete stria.

I am much pleased in naming this insect after Mons. L. Bedel, the captor of three examples at Daya, in the province of Oran, November, 1879, and to whose continuous researches in Algeria we owe the discovery of many novelties.

39, High Street, Wimbledon :
July 28th, 1884.

NOTE ON *HYDROBIUS FUSCIPES*.

BY D. SHARP, M.B.

In the Bulletin entomologique of the Annales de la Société entomologique de France, 1883, p. cxxxi, there is a note by C. G. Thomson, of which the following is a translation:

"HYDROBIUS FUSCIPES.—Under this name there are at present confounded two different species; one, for which I preserve the ancient name *fuscipes* of Linnæus, is oblong-oval, not strongly convex, and has always the tibiæ and the extremity of the femora reddish-yellow; the other, which I call *picicrus*, is especially smaller and shorter, notably more convex behind, with the tibiæ as well as the extremity of the femora pitchy, and the hind angles of the thorax form a more obtuse right angle. The diagnoses may be established thus:

"H. FUSCIPES.—*Supra olivaceo-niger, æqualiter leviter convexus, genubus, tibiis tarsisque ferrugineis, prothorace angulis posticis subrectis*

"H. PICICRUS, mihi.—*Supra olivaceo-niger, præsertim postice convexus, breviter ovatus, genubus tibiisque nigro-piceis, tarsis ferrugineis, prothorace angulis posticis obtusiusculis.*

"*Præcedente paulo minor, brevior, et magis convexus, tibiarum colore obscuriore, elytris striis fortius punctatis, prothorace juxta scutellum utrinque evidentius sinuato, angulis posticis minus rectis distinctus.*"

These two forms have long been distinguished by British entomologists, and attention was directed to them by Mr. Rye in a note published in 1871 in Ent. Mo. Mag., vii, p. 36, the var. *a* of Mr. Rye *l. c.*, being the *picicrus*, Thoms. (Mr. Rye being, however, in error in stating that it has no larger irregular punctures on the alternate interstices), and considered by our countryman to be probably the *subrotundus* of Steph. (Ill. Mand., ii, p. 128). So far as the North of Europe goes, the two forms may be possibly distinct, for I find that though the characters mentioned by the talented Swede are variable there is another more important one to which he has not alluded, viz. that in *picicrus*, Th., the pubescence of the hind femora is not quite so extensive, and the punctuation of which it is the accompaniment not quite so dense and fine; but I do not think the two forms will hold good as distinct throughout the whole of the extensive area of the palæarctic and nearctic regions occupied by *H. fuscipes*.

The careful examination of aquatic beetles reveals, however, so much reason for supposing that creatures excessively similar to one

nother may be really distinct—the slight characters being so free rom connecting forms as to offer a presumption that there is no nter-breeding—that it may well ultimately prove that there are everal extremely closely allied species mixed together as *H. fuscipes* n our collections, so that at present *Hydrobius picicrus*, Th. (? *H. ubrotundus*, Steph.), may have the privileges of a good species in our atalogues. I have distinguished a Japanese form recently discovered y Mr. Lewis from *H. fuscipes*, on account of the greatly diminished unctuation of the hind femora; while, on the other hand, Horn has ecently treated three of LeConte's North American species as being ne same as the European *H. fuscipes*.

Shirley Warren, Southampton:
July, 1884.

NOTE ON THE BRITISH SPECIES OF *LACCOBIUS*.

BY D. SHARP, M.B.

I have just had occasion to examine some of the European species f this genus, and have revised the British specimens in my collection; as the result I find we have four species, viz.:—

1. L. SINUATUS, Motsch.
2. L. ALUTACEUS, Th.
3. L. MINUTUS, auct.
4. L. BIPUNCTATUS, Th.

1. L. SINUATUS is the *L. nigriceps* of Th., and as the determination f Motschoulsky's *L. sinuatus* as this species is pretty certainly corect, his name should be adopted. The species is abundant in England nd Scotland, and may be readily distinguished by its larger size and ore oval form.

2. L. ALUTACEUS, Th.—This, according to my experience, is the rarest of the four species, but I have nearly a dozen examples from idely separated localities, viz., Hammersmith, Kingsbury, Deal, outhend, Edinburgh, and Aberlady.

3. L. MINUTUS.—Very abundant in the pond in flower garden at ccles House, Thornhill; I have only besides two other examples, found at Cambridge and at Horning, October.

4. L. BIPUNCTATUS, Th.—Somewhat local but occasionally abundant; Deal, Stony Stratford, Horning, Edinburgh.

The four species may be readily distinguished by the characters

given in Bedel's "Coléoptères du Bassin de la Seine," a work in cours of publication by the Entomological Society of France, but whic may be procured separately, and will be found by far the most usefu work a British Coleopterist can obtain for his assistance. The speci mens should be examined with a moderately high power of the com pound microscope, a half-inch object glass is the best, so that th minute sculpture of the thorax may be seen, when reference to tw characters is sufficient to determine the species, viz. :—

A. Thorax almost without any dense minute punctuation between the larger punc tures.

1. Elytra irregularly punctate. *L. sinuatus*, Motsch. (*L. nigriceps*, Brit. Cat.)

2. Elytra quite regularly punctate. *L. bipunctatus*, Th. (in this species th pallid colour at the extremity of the elytra extends forwards at on point on each wing-case, so as to give the appearance of a pallid spot)

B. Thorax with a dense minute punctuation between the larger punctures.

3. Elytra irregularly punctate. *L. alutaceus*, Th.

4. Elytra quite regularly punctate. *L. minutus*, auct. (*Chrysomela minut* Lin.).

Southampton : *August 5th*, 1884.

DESCRIPTION OF THE LARVA OF *CRAMBUS CERUSSELLUS*.

BY GEO. T. PORRITT, F.L.S.

In the spring of last year Mrs. W. H. B. Fletcher found sever larvæ "under stones" at Worthing which produced *Crambus ceru sellus* ; and this year Mr. Fletcher, whilst at Portland, found numero similar larvæ (some of which he very kindly forwarded to me), whi proved to be of the same species. I had several times received batch of the oval, bright, straw-coloured eggs from various friends, but h always failed to rear larvæ from them.

The larvæ reached me on May 6th, and were feeding on the ro of a short, stiff species of grass. Length about half-an-inch a rather slender ; head highly polished, it has the lobes rounded, and about the same width as the second segment ; body cylindrical, and nearly uniform width, being attenuated only slightly towards e extremity ; skin smooth and rather glossy, the segmental divisions a the tubercles well defined. The ground-colour varies considerab in some specimens being a pinky-flesh colour, in others greyish-bro and in some dingy olive-green ; the head also varies in different amples, in some being bright yellowish with brown mandibles, in oth yellowish-brown, with the mandibles and the freckles on the lobes

darker brown. There are absolutely no markings beyond a small black spot on each side the frontal plate, and the tubercles, frontal and anal plates, and the almost imperceptible spiracles, of a darker shade of the ground-colour. Ventral surface and prolegs uniformly of the ground-colour of the dorsal area, the anterior legs ringed with a darker shade.

Huddersfield: *August 7th*, 1884.

Note on Lycæna Arion.—I feel quite certain that the haunt of *L. Arion* at Bolthead must be looked upon as a thing of the past. I visited the old familiar spot twice this year (28th June and 5th July), without seeing a single specimen. It is now more than twenty years since I first became acquainted with *L. Arion*: my first record in "The Entomologist" of my capture of 36 in one afternoon is in vol. i, p. 295, and when I look back and remember the spot then and what it is now, it is no wonder they have disappeared. When I first visited the place, the fern, furze, and thyme held full possession of the slopes towards the sea—all, comparatively, have gone; the farmer who rents the ground has annually burnt the furze, &c., first one spot and then another; this, no doubt, is the principal cause, but we must also take into consideration the great assistance the elements have given to their extermination during the past seven years.

On the 17th June, 1865, when I captured the above-named species the wild thyme was in full bloom, the fragrance of the flowers, and the aromatic odour rising from running over the plants, made a lasting impression on me; many females I watched that day, and some since, flitting about depositing their eggs on the flowers on the thyme: but now all is changed, for on the 5th instant I could have carried all the flowers of the thyme I saw at Bolthead in my waistcoat pockets and found no inconvenience from the quantity. Although the eggs are laid on the flowers of the thyme and the larvæ feed upon them till the first moult, it is quite certain that it is not their food-plant, but what the food-plant is I am not prepared to state, yet I strongly suspect it is one of the small trefoils or a vetch.

I know *L. Arion* has been on the wing, for I have had the pleasure of seeing nine specimens taken during the first week in July by a gentleman who had visited Bolthead, but gave it up in disgust; he will not at present give the precise locality, for he says the place is so small, that one greedy collector would exterminate the species in a couple of seasons.—G. C. Bignell, Stonehouse: *July 25th*, 1884.

Vanessa Atalanta and urticæ in Wellington, New Zealand.—According to a communication from Mr. T. W. Kirk to the Wellington Philosophical Society (*cf.* Trans. and Proc. New Zealand Institute, vol. xvi, p. 550) several examples of these common English butterflies were observed by him in 1881 in the Wellington Botanic Gardens, having, no doubt, been imported with plants.—Eds.

Protective mimicry in Argynnis Selene, &c.—Much interest has been taken of late in observing the wonderful way in which the markings of insects tend to conceal them in their native haunts, and it has often been remarked how insects will choose for their resting place the objects which blend best with their own markings.

I met with a curious instance of this in the case of *Argynnis Selene* about tw years ago. Walking along a glade of Guestling Wood, I observed a head of th wood-rush (*Luzula glomerata*) which appeared very top-heavy. On looking close I saw that six specimens of *Argynnis Selene* were resting on it, and going little further I found four specimens on another head of the same plant. I saw n more *A. Selene* at rest in that glade, and no more *Luzula*. It was curious to se how well the colours of the butterfly matched with the heads of the *Luzula*, and doubt whether they would have attracted my attention had they not somewha overdone it by congregrating so thickly on these two heads.

A. Euphrosyne and *Selene* are said to have a second brood occasionally. Doubt less this is so, but I am not aware that I have ever met with specimens of the secon brood of the former, though I have seen the latter not very uncommonly. Thus met with several specimens of *A. Selene* on August 28th, 1880, and again on th same date, 1882. As far as I remember, the latest date on which I have seen *A Euphrosyne* this year has been on August 1st, but this may not improbably be a lat specimen of the first brood. On the same day I took *Argynnis Paphia* and *A Adippe*, the latter much worn.

Though I have lived here and collected more or less for twenty years, this is th first occasion on which I have taken either of the above larger species of *Argynnis*.– E. N. Bloomfield, Guestling: *August 7th*, 1884.

P.S.—I have to-day met with a fresh and bright specimen of *A. Selene*, n doubt one of the second brood.—E. N. B.: *August 13th*, 1884.

Eupithecia togata in Roxburghshire.—On the 21st June I took in this localit a specimen of *Eupithecia togata*, and two others on the 24th of the same mont which were in the finest possible condition, apparently just emerged. I sent one these to Mr. Barrett, who at once pronounced it to be a fine specimen of *Eupithec togata*. As this species is excessively local, perhaps a note of locality where tak may be of some interest. I was crossing through a rather extensive plantation Scotch and spruce firs, and when near to its southern aspect I came upon an op glade, surrounded principally by large spruces, their branches coming close do and sweeping the ground; and in passing one of these I noticed a specimen of wh turned out to be *Eup. togata* flutter through the lower branches, presently clear them, only however to be netted. I returned to the same locality a few days aft wards and beat the lower branches of the large spruce firs, with the result of taki two more fine specimens, and I have not made another trial since. The trees at t particular place are large old spruce and Scotch firs, the former predominat *Eup. castigata* was here also numerous, and *Coccyx hyrciniana* abundant, and I t a fine specimen of *Cilix spinula* as it left one of the spruce firs.—A. Elliot, Sam ton, Jedburgh, N. B.: *July 19th*, 1884.

Note on Sophronia parenthesella.—On the 25th July, about 10 p.m., am many *Crambi* which had flown in to the lights in the room was one moth whic did not at first particularly notice, but after a while I was attracted by its quiet for, as if paralyzed at its own audacity in taking an unusual course, it lay motionl though unhurt, on the white tablecloth, and could hardly be persuaded to enter covert of a pill-box presented to it, when I recognised it as a representative of old friend I used to meet at West Wickham 30 years ago, *Sophronia parenthesel*

Certainly I should never have expected to be thus confronted in my own house ith a living reminder of the adventures of a former generation of men and moths, id I was startled with this apparition clothed with scales so unexpectedly, on both des, introduced. Yet it was a dumb visitor, and gave no answer to the question, hence came you? My acquaintance with the tribe and family to which the quasi-urist belongs has long been attenuated, and, therefore, I am not in a position to y if a nearer locality than West Wickham (8 miles off) is now known for the ecies; this individual was neither worn nor travel-stained, and might very recently id close-by have been born, bred and come out of its chrysalis. The mystery of native place might be less if the food of the larva were known, but this part of e history is still in abeyance.

Some insects, from causes over which they have no control, are involuntary igrants, and prosper thereby, or the contrary: I believe that some insects get an sisted passage by railway, or it may be termed a free pass—they enter a railway rriage and are carried a hundred miles before they leave it, besides, when the aterials of which an embankment is formed are removed from a distance, the in-cts attached to the plants thereon are, in some stage of their existence, removed erewith, and take kindly to their new locality. And so, by the railway which now aches from here to West Wickham, this *Sophronia* may have arrived.—J. W. OUGLAS, 8, Beaufort Gardens, Lewisham: *August 4th*, 1884.

Note on Eupteryx abrotani.—On the 13th of August, 1874, I was, with a com-nion who knew the ground well, on the moor near West Kilbride, Ayrshire; after bright, hot morning wind and clouds came up from the sea and brought rain well orthy of the name. We sought shelter in the lone dwelling of a shepherd, and hile waiting I sallied out during a lull to try if there were any insects in a bush of *rtemisia abrotanum* in the garden. A shower of wet came into my net, and with a quantity of small *Homoptera* in all stages of life, which were at once fixed on e wet surface, but I managed to bottle some twenty perfected *Eupteryx abrotani*, undescribed species, and quite new to me (*cf.* Ent. Mo. Mag., xi, 118). I also as long fixed by the rain, but, like the hero of the immortal tale "Tam o'Shanter," whom, when weather-bound, it is said—

> "The storm without might rair and rustle,
> Tam did na mind the storm a whistle,"

was indifferent to that, as well as to the soaking which I got in going to Saltcoats, y consolation, like Tam's, being derived from the contents of the bottle.

On the 27th of June last, on the boundary fence of my garden, I detected a litary individual of this same species, but only one. There is no question that the ecies is attached to *Artemisia abrotanum*, a common cottage plant; the curious ing is that it so rarely occurs and that I should now get it, not on the plant but at distance from it, for although there is a plant of the *Artemisia* in the garden it is away from the place of capture, and neither at the time, before, or since has ere been an *Eupteryx* on it. My wanderer, I feel sure, came not thence, for all e species of the genus are gregarious; *Artemisia maritima*, a coast plant, on ich the species has been found, of course is not here, nor is there, as far as I ow, any other *Artemisia* at hand, yet, I apprehend the foster-plant was not very off. Ten years ago I had to go 500 miles to see the little beauty, now I find it my own door, not having seen one alive in the interval.—ID.: *Aug. 13th*, 1884.

Botys hyalinalis bred from the egg.—On the 27th of last July, my son bei down from London, we took a ramble through the woods near Charing, a few mil from here. The weather was fine till soon after reaching our hunting ground, wh a succession of heavy showers forced us to take shelter, consequently, the afterno found us retreating with empty boxes, bewailing our bad luck, when a moth w disturbed, which I saw at large for the first time. This was *B. hyalinalis*, and n spirits revived as I remembered it was still unknown in the larva state, and I mig now have the chance of working out its life history. We according tried for mo and several females being secured, eggs were obtained, which were shared with n late valued friend, Mr. William Buckler.

A subsequent visit to the spot on bank holiday, August 6th, enabled me to o tain a few more eggs. Of the numerous plants given to the young larvæ as th hatched, the one decidedly chosen was knapweed (*Centaurea nigra*); in this t experience of Mr. Buckler and myself coincided. I think we may fairly conclu it is the right food plant, as many larvæ were successfully fed upon it, and aft spinning up in dry beech leaves for the winter, renewed their attack on the knapwe in early spring. On the 6th of July I had the pleasure of rearing two moths, bo males, and on the 13th a female. Particulars as to the habits of the larvæ, with d scription, may well be reserved for a future paper, which is in course of preparatio —W. R. Jeffrey, Ashford, Kent: *July 22nd*, 1884.

Dichrorampha sequana, and others of that genus, bred from tansy roots.—I d up some tansy roots on the south coast during the winter, in the hope of reari *Dichrorampha alpinana*, of which I took two or three worn specimens on the sa last July. The result is that I have reared a few *alpinana* (which, however, ca out very slowly), a few *politana*, a few *Petiverella*, nine *sequana*, and some exceedin fine and handsome *tanaceti*, with, of course, many ichneumons. The *tanaceti* sh the markings of the species very much more distinctly than the captured specim which I have in my cabinet, and some of the females have exceedingly dark hi wings.—Geo. Elisha, 122, Shepherdess Walk, City Road: *July*, 1884.

A new food-plant for Depressaria Weirella.—I have reared this species fr hemlock (*Conium maculatum*) within the last few weeks. The larvæ were collec along with those of *Alstrœmeriana*, and were all supposed to be of the latter spec I saw numbers crawling about their cage one evening just before changing t food, and if they had shown any particular differences, I must have noticed th All were bright green and very similar, and they fed in the same way—folding leaves—so that I was much surprised when this dark species emerged. The species were in about equal numbers, but *Weirella* appeared first, and was over as *Alstrœmeriana* began to emerge.—Id.

Zeuzera æsculi flying in the day-time.—The larvæ of this species feed he the stems of the lilacs, but the imago is not often found. I have more than seen an individual take a low, short flight by daylight from one bush to another there settle, but I thought that this was an involuntary migration, caused by th trusion into the lair of the Wood-leopard of a cat or troublesome sparrow, and a place of rest from the wicked one was being sought. To-day, however, at 2 when the sun was shining brightly, a *Zeuzera*, as if voluntarily, flew leisurely me, took a turn over the lawn, then mounted spirally and settled in an acacia 25 feet from the ground, evidently in the ascendant mood, and taking part i

ting-charade of *Altiora peto* :—and a very curious figure it was, its long body pen-nt, and its wings seen distinctly vibrating in the *Excelsior* course.—J. W. Douglas, Beaufort Gardens, Lewisham : *June 29th*, 1884.

Adicella filicornis, Pict. ; an addition to the British Trichoptera.—On the 14th June last, on the occasion of the excursion of the Glasgow Natural History ociety, I captured by the river Mouse, near Cleghorn, Lanarkshire, a single ♂ *Adicella filicornis*, Pict., a species of *Leptoceridæ* new to our lists. During the ter part of the same month the locality was visited by Mr. King, of Glasgow, and yself, and a small number of both sexes were taken by each of us. They were tained by sweeping the vegetation about a rock-spring. Only two or three ex-mples were seen on the wing when the sun was shining brightly ; the flight was ry lazy.

A. filicornis may readily be distinguished from the only other British (and lown European) species of the genus by the almost black pubescence of the wings. he Mouse is one of the larger waters which fall into the Clyde. About Cleghorn flows through a very deep rocky glen, the sides of which are thickly wooded. ell sheltered, it is a good locality for Caddis flies, and produces *Diplectrona felix*, *anæcia irrorata*, *Tinodes aureola*, and many other species.—Kenneth J. Morton, Cruke, N.B. : *August 9th*, 1884.

[*A. filicornis* has a very wide continental distribution, but southern rather than rthern. I have taken it on several occasions, but mostly only singly.—R. McL.].

The electric light as an attraction for Trichoptera.—One evening in July, 1881, I was at Spa, in Belgium, in company with Baron de Selys-Longchamps and his family. There was a fête, and as part of the attractions to visitors an electric light was used. It was also attractive to insects, for the man in charge was obliged to keep continually brushing them away. *Those insects were mostly Trichoptera.* On Monday evening in the present week I arrived in Paris from the south ; it was the occasion of the "Fête Nationale," and I took two hours' stroll to see the illuminations. At the Place de la Concorde, four electric lights were so placed as to throw their rays on the four sides of the Obelisk of Luxor from a considerable distance. Close to the lights it became evident that a multitude of insects, appearing like silvery atoms as they entered within the limits of the rays, were attracted by them. I inspected the masonry against which three of the lights were fixed. It was simply covered with insects, and again they were *almost entirely Trichoptera*, mostly *Leptoceridæ*. My collecting bottle was not in my pocket ; but even if it had been I might have thought twice before attracting the attention of the mass of humanity everywhere about by using it. The carbon points were exposed, but it did not appear to me that the insects immolated themselves against them as is usually the case at an ordinary light ; the heat seemed to cause them to drop before they had damaged themselves. I was greatly surprised at the small number of *Lepidoptera ;* the only other insects in any abundance were sundry small green *Hymenoptera*.—R. McLachlan, Lewisham : *July 17th*, 1884.

Trichoptera from Unst, North Shetland.—Mr. C. A. Briggs has been so kind as to send me a few *Trichoptera* collected by himself in the above-named remote portion of the United Kingdom last month. They are : *Limnophilus sparsus*, Curt., *Stenophylax latipennis*, Curt. (apparently common), *S. concentricus*, Zett., and *Plectrocnemia conspersa*, Curt., all well-known species, but all are remarkable for small size and dark coloration. Records of any species (even the most common) from the Shetland Islands are desirable.—Id. : *August 2nd*, 1884

THE *NITIDULIDÆ* OF GREAT BRITAIN.

BY REV. W. W. FOWLER, M.A., F.L.S.

(*Continued from page* 58.)

NITIDULINA.

I. Prosternum depressed behind anterior coxæ, not produced.
  1. Antennal grooves convergent, the convergence varying in degree.
    i. Tarsi dilated on all the feet; disc of thorax smooth.
      A. Labrum bilobed; males with 6th dorsal segment.
        a. Thorax widely margined.
          α. Posterior-legs approaching one another ..... EPURÆA
          β. Posterior-legs considerably separated ... . OMOSIPHORA
        b. Thorax with hardly perceptible margin ..... MICRURULA.*
      B. Labrum only feebly emarginate; males without 6th segment... NITIDULA
    ii. Tarsi not dilated; disc of thorax with impressions ..... SORONIA
  2. Antennal grooves parallel, or nearly so.
    i. Front very strongly lobed; mandibles bifid at apex ..... AMPHOTIS
    ii. Front not lobed; mandibles not bifid, but with a strong tooth about third from apex ... . OMOSITA
II. Prosternum produced behind.
  i. Head without antennal grooves, or with very indistinct ones.
    a. All the tibiæ simple ..... PRIA
    b. Front tibiæ simple; hinder pairs of tibiæ furnished with spines... THALYCRA
  ii. Head with distinct antennal grooves.
    a. Tarsi not dilated; front tibiæ simple, produced into a strong point externally at apex ....POCADIUS
    b. Tarsi all dilated; front tibiæ more or less strongly, and very variably toothed..... .... MELIGETHES

With the exception of *Ipidia*, which does not belong to our fauna, the genera as above given are the same as those comprised in the tribe *Nitidulinæ*, of Erichson (Naturgeschichte der Ins. Deutsch., iii, 13). Thomson separates the tribe into three: the *Meligethina* containing *Pria* and *Meligethes*; the *Thalycrina* containing *Pocadius* and *Thalycra*, and the *Nitidulina* containing *Amphotis*, *Omosita*, *Soronia*, *Nitidula* and *Epuræa*. The tribe, however, as above given, is easily distinguishable from the preceding by the abdomen being almost, if not entirely, covered by the elytra, and from the next (*Cychramina*) by the thorax only fitting closely to the base of the elytra, and not covering it.

EPURÆA, *Erichson.*

This genus is one of the most difficult of all our genera; some of the species are very distinct, so much so that they have been held to form separate genera; two of these have been adopted above, and

* Previously MICRURIA: *cf.* Wiener Ent. Zeitung, iii, 209. (August, 1884.)

almost as much reason a third might be introduced—*Dadopora*, Thoms., to include *E. decemguttata* and *E. diffusa*; other species, however, come exceedingly close to one another, and it is almost impossible to distinguish them, except by comparing them with authentic types: all the species are more or less testaceous or reddish in colour, and the males have a distinct extra abdominal segment. *E. silacea* is the largest (2 lin.), but it is hard to say which is the smallest, as some of the species (*e. g.*, *E. æstiva*, *E. deleta*, and *E. obsoleta*) vary in size in a remarkable degree; this is especially noticeable in a large picked series, such as that of Mr. Rye, whose whole collection of this genus has been very kindly lent me by Mr. Mason, together with those of Mr. Wilkinson, and others in his possession. The species live under bark, at flowing sap, and in flowers, and to a certain extent they may be separated by their habitat; this point, however, must not be pressed too far, as the flower-frequenting species (*e. g.*, *E. florea*) are occasionally found at sap.

Although no division of this genus has been found that is quite satisfactory, yet the following hints concerning some of the chief points of difference between the species may be of some practical use.

I. Tibiæ widely dilated at base; intermediate coxæ almost contiguous; hind femora in male either furnished with a blunt tooth or thickened (*Dadopora*, Thomson).

E. decemguttata, Fabr.—Rather a large species, distinguished at once by its contour, which is oblong-ovate, its colour, and its thick legs; the thorax has light margins, with the disc more or less dark: the elytra are dark, except the margins, which are very plain, and five testaceous spots on each, three on the margin, a long one at apex, and one behind the middle; occasionally they are confluent: the male has the posterior tibiæ excised at apex, and the posterior femora are armed with a blunt tooth or projection. Length, $1\frac{3}{4}$—2 lin.

Found at sap of oaks, &c., but is usually connected with the burrows of *Cossus ligniperda*. Dunham Park, near Manchester, New Forest, Shirley, Addington, Birdbrook, Sherwood Forest, Swansea; a very local species.

E. diffusa, Brisout.—This species, which was separated by M. Charles Brisout de Barneville (Grenier, Catalogue des Coléoptères de France, 1863, p. 46), is very like the preceding, but it is a great deal smaller, and the spots on the elytra are not nearly as well marked, and sometimes are so confluent that the elytra appear almost entirely testaceous; the elytra are somewhat more acuminate at the extremity than is the case with the preceding species, but this is not a marked character. In the male the posterior tibiæ and femora are rarely more than thickened.
Length, $1\frac{1}{4}$ lin.

It is a question whether this is anything more than a small variety of the preceding species; the only structural character that gives it

a claim to rank as a separate species is the fact that the male is said to have simple hind tibiæ and femora; this, however, is not always a constant character; in one of Mr. Wilkinson's specimens, which is undoubtedly *E. diffusa*, the hind tibiæ and femora are formed as in *E. decemguttata*, and the latter insect varies in the characters of these parts in degree, and also varies considerably in size. A male specimen of Mr. Rye's, now before me, is placed by him as intermediate between the two species, and this specimen and the one above referred to, form very good connecting links, and shew that, however far apart the extremes of each series may seem, yet it may be very hard, if not impossible, to separate the species altogether.

It is found under the same circumstances and in company with the preceding; Addington and Shirley, in *Cossus* burrows. Mr. Chappell has taken it at sap of oak exuding from *Cossus* burrows in Dunham Park, near Manchester, with *E. decemguttata*; Mr. Reston has taken it at Stretford, near Manchester, flying over a wood yard; it is decidedly uncommon.

Although M. Brisout first gave a detailed description of *E. diffusa* as a separate species, as above-mentioned, yet it must not be forgotten that it is the *var. minor, elytris immaculatis* of Waterhouse's Catalogue, and the *E. fuscicollis*, of Stephens; the specimen from which it was originally described (taken by Mr. Waterhouse) was entirely testaceous, with dark thorax, and so it obtained its name.

II. Tibiæ, at most, slightly dilated at base, intermediate ones often sinuate in male; intermediate coxæ moderately separate; all the femora simple in both sexes.

i. Upper- and under-sides entirely testaceous, or rufo-testaceous, unicolorous; disc of thorax not darker than margins. (Occasionally these species have a dark spot or two towards the apex of the elytra, but this is usually deceptive, being caused by the folding of the wings against the semi-transparent elytra.)

A. Species more or less oval and convex; anterior margin of thorax strongly emarginate.

a. Antennæ with the last joint broader than the penultimate.

E. æstiva, Linn.—This species may be distinguished by the large apical joint of the antennæ, which is always broader than the penultimate; antennæ unicolorous; thorax with distinct, but not broad, margins, sides rounded, and somewhat narrowed towards apex; there is often a round darkish spot on each elytron in this species, but it is usually deceptive; all the tibiæ simple in both sexes; punctuation close and fine, but distinct. Length, 1—1½ lin.

Very common in flowers everywhere, especially in hawthorn blossom in spring. Mr. Chappell tells me that he has found the larv

plentiful in a nest of *Bombus lucorum*, which he put into a tin, and from them reared a large number of the perfect insect in the following spring.

b. Antennæ with last joint narrower than the penultimate.

E. melina, Er.—Easily distinguished from the preceding, which it most closely resembles, by its much stronger and less close punctuation, the black club of its antennæ, and its darker colour. Erichson says of this species that the "legs in both sexes are simple." Thomson says that the "male has the intermediate tibiæ sinuate." I have examined a number of specimens, and Dr. Power has kindly examined his series for me, and all these have the intermediate tibiæ simple: this is only one out of many points on which authorities are found at variance in this genus.

Length, $1\frac{1}{2}$ lin.

Found, like the preceding, in flowers, especially hawthorn, but much rarer. Bowdon near Manchester, Wimbledon Common, Caterham, Mickleham, Darenth, Amberley, Claygate, Holm Bush, Dulwich, Bretby near Repton, &c.

E. silacea, Er.—The largest species of the genus; flatter than the two preceding species, with much wider and stronger margins to the thorax; sides of thorax narrowed in front, contracted and almost sinuate just before posterior angles; punctuation not so strong as in *E. melina*, but stronger than in *E. æstiva*; antennæ unicolorous, last joint hardly narrower than the preceding; apex of elytra truncate; male with intermediate tibiæ sinuate. Length, 2 lin.

Very rare; Mr. Champion has taken it at Aviemore at sap of birch (Thomson considers it as exclusively attached to flowers); it has also occurred at Braemar, and in a rotten birch stump at the foot of Cross Craig, near Camachgouran, Rannoch; it seems to be exclusively a northern species.

B. Species strongly oblong; anterior margin of thorax almost straight, or feebly emarginate.

a. Punctuation extremely fine, almost invisible.

E. oblonga, Herbst.—A light coloured species, easily distinguished from the two succeeding by its extremely fine and close punctuation; side margins of thorax very distinct, especially in front; sides of thorax more dilated in front than in the next two species, last joint of antennæ distinctly narrower than penultimate; male with intermediate tibiæ sinuate. Length, $1\frac{1}{3}$—$1\frac{1}{2}$ lin.

Rare; Dunham Park, in cracks of Scotch fir, Mr. Chappell; Braemar, Shirley, sap of pine, Mr. Champion; Shirley, under bark of felled pine, Mr. Rye.

b. Punctuation distinct.

E. longula, Er.—Distinguished from the preceding by its stronger punctuation and dark, almost black, club of its antennæ; and from *E. florea* by having the anterior margin of the thorax distinctly, though slightly, emarginate, by its rather

longer and narrower form, by the side border of the thorax being much broader, especially towards the base, and by the dark club of the antennæ; male with anterior tibiæ sinuate. Length, 1¼—1½ lin.

Not a common species; Nettlecomb (Somerset), Tilgate Forest, Esher, and other places in the London District. Found in flowers.

E. florea, Er.—Rather a shorter and usually darker coloured species than the two preceding; punctuation distinct; anterior margin of thorax straight, with hardly a trace of emargination, sides of thorax narrowly bordered; antennæ unicolorous, club not darker; male with intermediate tibiæ sinuate. Length, 1—1⅓ lin.

Robin's Wood Repton, Hampstead, Norwood, Cowley, Wimbledon, Weybridge, Esher, Whitstable; found both at flowers and sap. Mr. Reston has taken it on Chat Moss, on *Umbelliferæ*. Not an uncommon species, but local.

ii. Upper-side spotted or flecked with black; darker portions often ill-defined sometimes the whole surface of a dark red unicolorous colour, with dis of thorax (except in immature specimens) darker than the margins under-side more or less dark.

A. Sides of thorax gradually becoming wider for two-thirds or more their length from apex, thence contracted to base, sometimes di tinctly sinuate at point of contraction.

E. deleta, Er.—Testaceous, with suture and apex of elytra usually dark, th dark colour at apex often enclosing two light spots; it is a very variable specie both in size and colour; in Mr. Rye's series there is a specimen entirely of a lig testaceous colour, and about ¾ lin. in length, and several others that are very differe from the type; these may easily be distinguished from specimens of *A. æstiva*, whi they somewhat resemble, by the shape of the thorax, which has its sides almo obliquely cut off from apex to within a third of base, and from thence contract with a strong sinuation; the last joint also of the club of the antennæ is narrow than the preceding, whereas in *A. æstiva* it is broader. Length, ¾—1½ lin

A very common species in fungi, especially boleti, near Linco where it generally occurs in company with *Gyrophænæ*; it also found at sap of oak, pine, &c.; Mickleham, Darenth, Shirley, Loug ton, New Forest, Rannoch, Aviemore, &c. Common, and genera distributed.

E. parvula, Sturm.—A very dark species, often almost black with margin thorax and elytra only lighter; sides of thorax almost as in *E. deleta*, except t they are slightly waved and uneven, which is a peculiar characteristic of this spec before the base of thorax there is a strong sinuation; in many respects it co close to *E. obsoleta*, but may be easily distinguished from that species by its n flat shining appearance, dark colour, and by the more pronounced margins of thorax and elytra, as well as by the shape of the thorax, and also by the fact the intermediate tibiæ of the male are simple. Length, 1½ li

A very local species, but somewhat plentiful where it occurs; I have found it in numbers in Sherwood Forest with Mr. Matthews, by beating faggots over a sheet, also a smaller variety by beating faggots of a species of *Tilia* (called "bass" by the country people) in Langworth Wood, near Lincoln; Stretford, flying over old wood-yard, Mr. Keston; Aviemore; Darenth, faggot stacks, Mr. Champion; also taken near Scarborough. It will be noticed that the habitat of this species is rather peculiar.

E. immunda, Er.—This species is very little known, and others are perpetually made to do duty for it in collections; it is perhaps best distinguished superficially by the colour; the apex of the elytra and the sides, for the greater part of their length, are suffused with dark colour, and the space of the elytra enclosed within is testaceous; this, however, is not always the case; the margins of the thorax are narrow, of the elytra very pronounced; the thorax is contracted towards base with sinuation, and is as broad as the elytra without the margins, which make it appear narrower. From *E. deleta*, which it approaches in some points, it may be distinguished by its colour and the darker club of its antennæ; from *E. obsoleta*, with which it is most often confounded, it may be separated by its broader form, and by having the last joint of the antennæ about as broad as the penultimate, whereas, in *E. obsoleta* it is distinctly narrower; the thorax also is slightly more contracted at base than in the latter species. Male with intermediate tibiæ sinuate.

Length, $1\frac{1}{2}$ lin.

A very rare species. Mr. Champion has taken it at sap of birch at Aviemore and Invercannich, Scotland, and Messrs. Wilkinson and Lawson at Scarborough.

E. variegata, Herbst.—A very distinct species of a dark red-rust colour, with transverse evenly rounded thorax, which is strongly contracted at base, the base being much narrower than the base of elytra; the sides show no trace of sinuation; each elytron has a strong blackish spot in the centre, and a smaller and more obscure one at apex; punctuation distinct, rather strong; male with intermediate tibiæ simple.

Length, $1\frac{1}{2}$ lin.

A very rare species; Aviemore, Scarborough, Surrey; found at sap or under bark.

E. obsoleta, Fabr.—One of the most difficult species of the genus to determine; variable both in size, colour, and to a certain extent in structure of thorax, and in consequence often confounded with other species; the elytra are, as a rule, obscurely marked with dark patches, but occasionally the whole insect is of a reddish colour, and may in that case be confounded with species belonging to the first group, as *E. fulvea*; from this species small unicolorous examples of *E. obsoleta* may be distinguished by the plain emargination of the anterior margin of the thorax, and by the dark club of the antennæ; from *E. pusilla*, which it often closely resembles, *E. obsoleta* may be distinguished by the emargination being much less, by its truncate elytra, more rounded sides, and narrower margins of thorax, and by the dark club of its antennæ; from other neighbouring species, such as *E. parvula*, it may be separated by the sinuate intermediate tibiæ of the male. Length, $\frac{3}{4}$—$1\frac{1}{2}$ lin.

Shiere; Burnt Wood, Staffordshire; Dunham Park, Manchester, under chips in the midst of exuding sap; New Forest; Darenth; *Cossus* trees in Addington Park; Aviemore and Forres; not an uncommon species, but local.

B. Sides of thorax strongly rounded in front; not contracted behind.

E. neglecta, Sturm.—One of the most distinct species of the genus; like *E. parvula* in colour, dark, with the margins of thorax and elytra light; easily distinguished by its very narrow thorax, which is twice as broad as long, rounded in front and not contracted at base; base fully as broad as the base of the elytra; elytra narrowed towards apex; punctuation strong, almost rugose. Length, 1⅓ lin.

Very rare; in Mr. Rye's collection there is one specimen with no locality attached;* Dr. Power possesses one or two specimens from the Holt (Selborne); in Mr. Champion's collection it is not represented; in Mr. Rye's collection there are two doubtful specimens placed on one side under *E. neglecta*; one appears to be rather an abnormal *E. parvula*, and the other, except as regards size, agrees in many points with the description of *E. pygmæa*, Er., which has not hitherto been recorded as British (Stephens' *E. pygmæa* being only *E. æstiva*); whether, however, it really belongs to this species has yet to be ascertained.

C. Sides of thorax almost parallel, at most very slightly contracted at base.

E. pusilla, Er.—A long and rather narrow species, distinguished by the anterior margin of the thorax being very strongly emarginate, and the anterior angles in consequence very prominent, by the very slightly rounded almost parallel sides of the thorax, and by the rounded apices of the elytra; the elytra usually present more or less cloudy dark markings, and the disc of the thorax is generally dark, but pale examples are very common; these, however, are easily distinguished by the above characteristics, and by the fact that all the tibiæ of the male are slightly curved, and the intermediate ones very strongly sinuate. Length, 1½ lin.

A common species at sap, and under bark of stumps of felled trees, pine, oak, &c., both in England and Scotland.

E. angustula, Er.—Very distinct, easily separated by its narrow, oblong form, long, parallel-sided, almost quadrate thorax, and dark rufous, sometimes almost black colour; out of a series of eighteen examples that I have before me, there is one entirely testaceous, but this is evidently an immature specimen; from small examples of *E. pusilla* this species may be distinguished by the dark club of the antennæ, and also by the fact that the thorax is wider in front than behind, that is, the sides slightly converge to base in almost straight lines; in *E. pusilla*, as in all the other species of *Epuræa*, the posterior margin is wider than the anterior. Length, 1—1¼ lin.

Very rare. Scarborough, Mr. Lawson and Mr. Wilkinson; one specimen near Shiere, Dr. Capron; one specimen under bark of beech in Dunham Park, Mr. Chappell; Mr. Reston has taken it by sweeping on Chat Moss. (*To be continued.*)

* This was an old specimen from Mr. G. R. Waterhouse's collection. The "two doubtful specimens placed on one side under *E. neglecta*" were never supposed by me to have any relation with that insect; they were simply put aside in a convenient space.—E. C. Rye.

LIFE-HISTORY OF *BOTYS HYALINALIS*.

BY THE REV. J. HELLINS, M.A. (ASSISTED BY W. R. JEFFREY).

On July 27th, 1883, Mr. W. R. Jeffrey captured a female moth of this species, which deposited her eggs between July 30th and August 2nd; the larvæ hatched August 11th, and on being supplied with leaves of various plants growing in the locality where the moths were flying, soon showed their preference for those of *Centaurea nigra*, at once spinning little webs along the side of the midrib towards the stem; they ate away the under-side, leaving the upper cuticle untouched, and thus making little transparent blotches, which showed where they were feeding; they were, however, themselves so glassy and translucent, that they were most difficult to detect, and hence several were lost or destroyed in changing their food: they continued to grow till the beginning of October, and as it then became apparent that they would hibernate, Mr. Jeffrey supplied them with dry beech leaves, on which they soon constructed their tough hibernacula, and were afterwards placed out of doors with a potted plant of *Centaurea*; about the middle of December, during mild weather, it was noticed they had nibbled some of the leaves, but the larvæ themselves were not seen. In January, 1884, I received Mr. Buckler's stock of hibernating larvæ, some ten or twelve in number, but did not examine them for some time: on March 8th I opened a little web, and found the enclosed larva quite dormant: soon after this they must have begun to feed again, for on March 19th Mr. Jeffrey found a *Centaurea* leaf nibbled asunder near some loose spinning of silk, and on the 21st, I found similar indications of my larvæ being at work: on April 4th, in the evening, I examined my growing plant of *Centaurea*, and saw that I had three larvæ alive and feeding, apparently still using their hibernacula for hiding places, and spinning short galleries from them to the tender young leaves just shooting out of the earth, the whole substance of which they ate in the usual way; one of these larvæ was about to moult: on May 8th I found them full grown, and during the next fortnight they spun gauzy cocoons, and became pupæ during the first week in June; unfortunately, I kept them too dry, and bred only one moth, June 27th; Mr. Jeffrey's larvæ were rather later in their dates, becoming pupæ towards the end of June; and he bred the moths July 5th—13th, and again captured the moths flying at large on July 31st.

The eggs are described as being deposited in little patches, somewhat overlapping each other; they are flat in form, of a pale honey

colour, and so transparent that the development of the larvæ within could be plainly watched; thus, in about a week the eyes could be seen, and in two or three days more the organs of the mouth were visible, and an undulatory motion of the whole body was set up, as if the larva was feeding on whatever fluid remained in the egg shell with it. The newly-hatched larva is glassy or translucent; in about five weeks time it has become greenish, with black spots, and reminds one of the larva of *S. olivalis*; at about the age of two months, when 9 or 10 mm. in length, they spin their hibernacula, which are very tough flat cocoons of roundish outline, some 10 mm. in length by 7 or 8 mm. in width, and made of thin but very close-woven pale grey silk; the larvæ during hibernation seem to become dingy, for the one I examined was reddish-brown in colour, with the spots large, prominent, and glittering, but as three-fourths of my stock did not feed again in spring, it may be this dingy colour which I noticed was not the colour of health during the hibernating stage. After the last moult I made notes of the larva at two dates; in April, just as it was beginning to feed again, it was about 11 mm. long when at rest, 14 or 15 mm. when in motion, of shortish fat figure, stoutest about segments six and seven, and thence tapering dorsally in a curve to either end; colour all over dull opaque white; head horny, pale yellowish-brown, mouth darker brown, a small dark spot on the top of each lobe; the collar, which covers the whole of the back of the second segment, paler than the head; anal plate not distinguishable; the usual dots small and black, placed on pale Indian-ink warts, which glitter brilliantly; the front pair of the trapezoidals on each segment are on the largest warts, which are in outline stumpy pear-shaped, having the broad ends turned inwards towards one another, and the blunt stems pointed outwards and backwards; the hinder pair of trapezoidals are placed on paler and narrower warts (growing broader in figure on the hinder segments), which have their long diameter placed transversely; each dot bears a pale brown bristle; the dorsal vessel appears as an interrupted fine brown thread on the latter half of each segment, and there is a little transverse streak of the same tint at each segmental division, and also at the middle wrinkle of each segment; the spiracles appear of the ground colour ringed with brown.

Early in May the full grown larva is about 16 mm. long when at rest, and quite 22 mm. when extended in walking, 3 mm. wide at segment seven, where it is stoutest; the colour is still dull opaque white, with perhaps the faintest tinge of green; the dorsal region with a faint shade of black from the internal vessels; the head very

pale reddish, with a dark dot on the top of each lobe, and another dot on each cheek; the collar now with scarce any reddish tinge at all, but showing its dots distinctly, namely, a row of six small ones close to its front edge, about the middle on either side a double dot like a figure of 8, and then a transverse row of eight dots varying in size, and lastly, a pair near the dorsal line just on the hinder edge; the belly is now of a yellowish-white, the spiracles black, the thoracic legs rich brown; the dots and warts just as before, perhaps more prominent, and as the lateral and ventral dots, as well as the dorsal, are all placed on shining warts, the effect is striking.

The cocoon is regular in figure, about 20 mm. long and 12 mm. wide, of very fine gauzy texture made of white silk; the pupa is slender, 13 or 14 mm. long, tapering gradually to the tail, the tip of which terminates in a long spike with square end, set with six long curled spines; the pupa skin is glossy and shining, curiously ornamented with tufts of hair; on the back of each segment, just in the region of the sub-dorsal lines, there is a pair of tubercles, each set with a whorl of eight or ten harsh looking waved and curled hairs; three of the anterior segments bear in addition each a pair of longish transverse ridges behind these tubercles, and closely set with shorter curled bristles, and on the sides of the two segments next the head there is a group of three or four small spine-bearing tubercles; below the spiracles the abdomen is ornamented with tubercles bearing fewer and shorter bristles than those on the back; the general colour is pale chestnut-brown, the wing-cases and some patches on the back of the front segments darker brown; the bristles, which under a lens look like cocoa-nut fibre, are light brown: altogether, this is one of the most singular pupæ I have seen.

Exeter: *September 6th*, 1884.

DESCRIPTION OF THE LARVA OF *SCOPARIA CRATÆGALIS*.

BY GEO. T. PORRITT, F.L.S.

On the 6th of April last I received from Mr. W. H. B. Fletcher, of Worthing, a supply of *Scoparia* larvæ, with the information that he had collected them from lichens, "off a paling formed of oak-planks like sleepers; many of the larvæ live far in the wood, probably using holes made by larvæ of *Dasycera sulphurella*. They are easy to find, as they make a slight web over the lichen." Two days later, on the

8th, another batch of larvæ reached me from Mr. Fletcher, which he had found in abundance on lichens on hawthorn twigs. The specimens were smaller and evidently younger than those from the oak-post lichens, but on a close examination I felt sure they were of the same species, as they appeared to differ only in the broad, transverse, whitish-grey streaks on each segment (described further on), seeming closer together, forming, indeed, a somewhat heart-shaped mark. Both lots of larvæ proved to be those of *Scoparia cratægalis*. Specimens of the first batch I described on April 7th, as follows:—Length, about half an inch, of moderate bulk when at rest, but appears rather slender when crawling; head and frontal plate highly polished, the former has the lobes rounded, and is narrower than the second segment, into which it can be partially withdrawn; each segment is plump and conspicuously divided from its neighbours by the deeply cut divisions, and these, with the large raised glossy tubercles, give to the skin a somewhat rough appearance.

Ground-colour dark olive-green, throwing into rather striking relief two whitish-grey, or cream-coloured, transverse streaks on each segment, the front streak being broader and larger than that behind it. On these streaks are situate the intensely black tubercles, which being as broad as the streaks, appear to divide them into sections, and the streaks are further divided by the dark, fine, thread-like dorsal line: there are no perceptible sub-dorsal lines, but an irregular greyish stripe extends along the spiracular region, and on each segment below this line is a small black spot: head and frontal plate, like the tubercles, of intense glossy black; the small spiracles also black.

Ventral area and pro-legs dingy dark olive-green, and on the outside of each of the latter a black spot; anterior-legs encircled with black.

They grew very slowly, and it was not until the beginning of June that the last were full-grown. They were then nearly three-quarters of an inch long: the dorsal area had the ground-colour of a paler olive-green, but in other respects was the same as when described in April. Ventral surface and pro-legs olive-green; the 5th and 6th segments had each three transverse black spots, and similar spots, but smaller and more irregular, occurred on others of the segments; a black spot on the outer side of each pro-leg; the anterior-legs encircled with black.

Huddersfield: *September* 11*th*, 1884.

NOTE ON A NEW *NEPTICULA* BRED FROM ROSE IN LANCASHIRE BY MR. HODGKINSON.

BY H. T. STAINTON, F.R.S.

Mr. J. B. Hodgkinson has been so fortunate as to breed three pecimens of a brilliant *Nepticula* new to science, from larvæ found ıst autumn mining in the leaves of roses, at Leyland, near Preston, ı Lancashire.

Mr. Hodgkinson's first impression was that he had simply de-ected a new locality for *N. centifoliella*, which Mr. W. C. Boyd has epeatedly met with at Cheshunt; but the very first glance I had of Ir. Hodgkinson's specimens satisfied me (as it did also Mr. Boyd) that ; was a very different species from *centifoliella*.

For this new species I would propose the name—

NEPTICULA HODGKINSONI.

t may be described as follows:

Exp. alar., 2½—3 lines. Tuft of the head black. Anterior-wings with the en-re basal portion rich golden-brown (with no tinge of purple before the fascia), scia placed beyond the middle, nearly perpendicular, bright pale golden; beyond ıe fascia the apical portion is deep purple, with the cilia grey. There are two ecimens exactly alike, which both appear to be males. The third specimen is a male, and has the basal portion of the anterior wings paler, more bronzy; the scia is more of a silvery lustre, and rather obliquely placed.

The mined rose-leaves, of which Mr. Hodgkinson has sent me ecimens, are ordinary sized leaves, thus not to be mistaken for the aves of *Rosa spinosissima*, which, moreover, does not grow at Leyland.

It may, however, not be undesirable to mention that Mr. W. H. . Fletcher has noticed near Worthing that the leaves of *Rosa spino-ssima* growing in very sheltered places "well underneath the nut ushes" were mined last autumn by the larva of a *Nepticula* which osely followed the margins of the leaf, and of which the mine emed to be too small for either of the common rose-species.

Lewisham: *September* 19*th*, 1884.

ON PARTHENOGENESIS IN THE *TENTHREDINIDÆ*.

BY P. CAMERON.

Since the publication, in 1882, of the first volume of my Mongr. rit. Phyto. Hym., wherein I gave an account of what was known up) that time of the occurrence of Parthenogenesis in saw-flies, I have

been able to prove, experimentally its existence in the following British species:

1. *Nematus appendiculatus.*—Females bred.
2. *Nematus ruficornis.*—Eggs were laid, but the larvæ died very young.
3. *Nematus compressicornis.*—Eggs were laid, but did not develop; they were, however, certainly fertile.
4. *Nematus cadderensis.*—Males bred.
5. *Nematus conductus.*—Females bred.
6. *Crœsus septentrionalis.*—Males bred.
7. *Crœsus varus.*—One female bred.
8. *Cladius padi.*—Males bred.
9. *Cladius rufipes.*—Eggs laid, but did not yield the larvæ.
10. *Abia nitens.*—Males bred.
11. *Trichiosoma lucorum.*—Males bred.
12. *Hylotoma ustulata.*—Eggs laid, but the larvæ perished in them.
13. *Lophyrus pini.*—Males bred.

Glasgow: *September* 15*th*, 1884.

A SYNOPSIS OF THE CENTRAL AMERICAN SPECIES OF *JOPPA* WITH DIAGNOSES OF NEW SPECIES.

BY P. CAMERON.

The following new species will be more fully described in Messrs Godman and Salvin's "Biologia Americana-Centrali."

Joppa melanocephala.

Flavo-testacea; capite, antennis, abdominis apice tarsisque posterioribus nigris; alis flavo-hyalinis, apice violaceis, stigmate flavo. *Long.* 21—22 *mm.*

Hab.: Panama, Volcan de Chiriqui, 2500—4000 feet; Bugaba 800—1200 feet (*Champion*).

Joppa varipes.

Flavo-testacea, antennis, vertice, abdominis apice, tarsis, femoribus proparte tibiarumque apice nigris; alis flavo-hyalinis, apice fumatis, stigmate flavo. *Long.* 11—12 *mm.*

Hab.: Panama, Volcan de Chiriqui, 2500—6000 feet (*Champion*).

Joppa melanostigma.

Flava, antennis, vertice, mesonoto, abdominis apice, geniculis posterioribus læte tarsisque posterioribus nigris; alis flavo-hyalinis, apice fumatis, stigmate nigro. *Long.* 14 *mm.*

Hab.: Bugaba (*Champion*).

Joppa xanthostigma.

Flava, antennis, vertice, mesonoto, mesosterno, abdominis apice, tarsis posterioribus tibiarumque posticarum apice nigris; alis flavis, apice fumatis, stigmate flavo, ♂. *Long.* 13 *mm.*

Hab.: Cache, Costa Rica (*Rogers*).

Joppa maculicornis.

Flava, antennis, capite postice, mesonoto, mesopleuris, metanoti basi, abdominis apice, tarsis posterioribus femoribusque posteriorbus, dimidio apicali nigris; antennarum medio annulo albo; alis nigris, medio flavo-hyalinis. *Long.* 12 *mm.*

Hab.: Volcan de Chiriqui, 4000 — 6000 feet, in Panama (*Champion*).

Joppa nigriceps.

Nigra, metathorace, abdominis segmentis 1—2, *coxis, trochanteribus, femoribus tibiisque proparte, flavis; alis violaceis, albo-maculatis.* *Long.* 18—19 *mm.*

Hab.: Volcan de Chiriqui, Vera Paz (*Champion*).

Joppa Rogersi.

Differs from *J. nigriceps* in the scutellum not being raised into a sharp peak in the centre, it being flat along its entire extent, and traversed by two or three carinæ; in the 3rd abdominal segment being shorter than all the succeeding segments, it being longer than them in *J. nigriceps*, in the metathoracic areas being all clearly defined, and the pronotum not transversely striated.

Hab.: Irazu, 6000—7000 feet, Costa Rica (*H. Rogers*).

Joppa geniculata.

Nigro-violacea, facie, metapleuris, abdominis segmentis 1—2, *coxis, trochanteribus, femoribus tibiisque proparte flavis; alis violaceis, albo-fasciatis.* *Long.* 16—18 *mm.*

Hab.: Gubilguitz, Vera Paz and Volcan de Chiriqui (*Champion*).

Joppa xanthostoma.

Nigra, ore, palpis, metathorace, coxis, trochanteribus, femoribus proparte, tibiis anterioribus proparte posticisque (basi excepto) flavis; alis violaceis, albo-fasciatis. *Long.* 20—22 *mm.*

Hab.: Guatemala and Panama.

Joppa eleganter, Smith, and *J. pulchripennis*, Smith, are referable

to *Trogus*; the former = *Trogus blandita*, Cresson. *Joppa maculosa*, Smith, may be referred to *Ichneumon*.

SYNOPSIS OF THE SPECIES.

1 (9) Mesonotum without black.
2 (8) Wings hyaline, black at base.
3 (4) Head entirely black ..... MELANOCEPHALA, Cam.
4 (3) Head only black above.
5 (6) Hind coxæ entirely yellow, base of 2nd abdominal segment not black, extreme apex of hind tibiæ only black ..... VARIPES, Cam.
6 (7) Hind coxæ entirely black, metanotum smooth, almost impunctate, abdomen longitudinally striated ..... VARIOLOSA, Smith.
7 (6) Hind coxæ yellow, with two black spots, abdomen longitudinally aciculate, metathorax longitudinally striated ..... ELEGANTULA, Cresson.
8 (2) Wings entirely black ..... FUMIPENNIS, Cresson.
9 (1) Mesonotum marked with black.
10 (11) Wings entirely yellow ..... ALTERNANS, Brullé.
11 (12) Wings yellowish, a small fascia at base of radial cellule, metathorax with two short spines behind, petiole black ..... SUTURALIS, Brullé.
12 (15) Wings yellowish, the apex smoky.
13 (14) Apex of tibiæ and stigma black ..... MELANOSTIGMA, Cam.
14 (13) Apex of tibiæ and stigma yellow ..... XANTHOSTIGMA, Cam.
15 (22) Wings yellowish, the base and apex black.
16 (19) Pleuræ entirely yellow.
17 (18) Scutellum and base of metathorax black ..... DECORATA, Cresson.
18 (17) Scutellum and base of metathorax yellow ..... INCERTA, Cresson.
19 (16) Mesopleuræ black.
20 (21) Apex of hind femora black, apex of tibiæ yellow ..... MACULICORNIS, Cam.
21 (20) Apex of hind femora yellow, tibiæ broadly black ..... HILARIS, Smith.
22 (27) Wings violaceous, the middle more or less hyaline.
23 (26) Pro-, meso-thorax, and head black, femora broadly black.
24 (25) Scutellum flat in centre, 3rd abdominal segment shorter than all the succeeding together ..... ROGERSI, Cam.
25 (24) Scutellum sharply peaked, 3rd abdominal segment longer than all the succeeding together ..... NIGRICEPS, Cam.
26 (23) Pronotum and pleuræ yellow, hind knees only black ..... MODESTA, Smith.
27 (22) Wings hyaline, apex and one or two fasciæ in the centre black.
28 (33) Mesonotum entirely black.
29 (30) Pleuræ entirely yellow, hind knees only black ..... CHIRIQUENSIS, Cam.
30 (29) Pleuræ entirely black, femora broadly black.
31 (32) Metanotum black, a small fascia in middle of hind-wings ... GENICULATA, Cam.
32 (31) Metanotum yellow, no fascia in hind-wings ..... XANTHOSTOMA, Cam.
33 (28) Mesonotum yellow, with three black longitudinal lines, metanotum spotted with black ..... SUMICHRASTI, Cresson.

ON THE PROBABLE EXTINCTION OF *LYCÆNA ARION* IN BRITAIN.

BY HERBERT GOSS, F.L.S.

During the last five and twenty years, *Lycæna Arion* has been gradually disappearing from its known localities in this country. This species was certainly extinct in Barnwell Wold, Northamptonshire, when I first visited that locality in June, 1865; and I was informed by the late Rev. W. Whall, then resident at Thurning, in that neighbourhood, that it had rarely, if ever, been seen in the Wold since the wet summer of 1860.

I have not seen *L. Arion* in Gloucestershire since June, 1877, nor have I heard of its occurrence in that county since 1878; and now we learn, from Mr. Bignell's note in the last number of this Magazine, of the disappearance of this species from its head-quarters on the south coast of Devon. It seems highly probable, therefore, that in the course of a few years, "the large blue," like "the large copper," will be numbered amongst the extinct butterflies of the United Kingdom.

In the last week of June, 1876, I spent a few days in Gloucestershire, and on the 26th of that month I first had the pleasure of seeing *L. Arion* on the wing. The scene of this event was an old disused quarry in the Cotswolds, not many miles from Stroud, and at an elevation of over 700 feet. Although there was a considerable extent of wild land in the locality to which I am referring, on the same geological formation, and with an identical flora, *L. Arion* appeared to be confined to a space of about an acre or less; but within this limited area it was not uncommon, and in the course of an hour I netted upwards of a dozen specimens. On the hill-sides in this locality wild thyme was most abundant; and in addition to *Lotus corniculatus*, *Hippocrepis comosa*, and other common *Leguminosæ*, there were occasional patches of the local *Astragalus hypoglottis*, together with the sweet-scented little musk orchis, *Herminium monorchis*.

After spending an hour or so on the hill-sides, and in the old quarries, I entered a beech-wood at no great distance, and having traversed it for more than two miles I arrived in some open sunny glades, where there was an abundance of flowers, especially wild thyme. Here *L. Arion* was far more plentiful than on the open hills or in the quarries, and was, moreover, not confined to such a limited area, specimens being met with over an extent of ground more than a mile in length.

In the open glades of this old beech-wood as many as three or

four specimens of *L. Arion* were sometimes to be seen at the same time, flying gently about, or settling on the thyme, and they were accompanied by numbers of *Lycæna Alexis*, and by a good many *L. Adonis* and *L. Agestis*. I boxed several female *L. Arion*, in the hopes of getting ova, but did not obtain any. Amongst the other insects noticed in this wood were *Chelonia plantaginis*, *Platypteryx unguicula*, *Ephyra trilinearia*, *Melanippe montanata*, and *Acidalia ornata*.

In the end of June, 1877, I again visited Gloucestershire, and stayed from the 25th to the 29th of the month, in a farm house about two miles distant from the localities in which *Arion* had occurred in the preceding year. I was delighted to find that the species occurred in both localities more plentifully than in 1876, and was even more widely distributed in the open spaces in the beech-woods extending for a distance of nearly two miles.

On the 29th June, 1877, the day on which I left the district, *L. Arion* was commoner than on any previous occasion, and although many specimens were worn, others, both ♂ and ♀, were just emerging from the chrysalis, so that in this species there appears to be a succession of specimens during June and the early part of July.

In June, 1878, I heard from Mr. Marsden, of Gloucester, that *L. Arion* was very rare that year; and from that time to the present he has been unable to report to me the capture of a single specimen.

Last year, after an interval of six years, I was again staying in the neighbourhood of Stroud, from the 18th to the 26th June, and visited the old localities on every day when the weather was fine and calm; but neither on the hills, in the old quarries, nor in the beech woods, did I see a single specimen of *L. Arion*. Not only were there no *L. Arion*, but *L. Adonis* and *Agestis* were both conspicuous by their absence; and with the exception of a few *Chortobius Pamphilus* and a casual *Lycæna Alexis*, insect-life seemed almost extinct. I could scarcely realize that I was in the same locality as that which I had left in June, 1877, so full of life!

There seems to be no satisfactory explanation for this sudden disappearance of *L. Arion* from these localities in the Cotswolds. It has been suggested by some persons acquainted with the district that the apparent extinction of the species may be attributed to the practice of burning the grass on the hill-sides for the purpose of improving the pasture. Had the herbage on these hills been burnt for the first time in 1878, it might, with some reason, have been considered the probable cause of the extinction of *L. Arion*; but as the practice of burning the grass is not a new one, but has, as I have been

nformed on local authority, existed from time immemorial, it cannot e accepted as a satisfactory explanation for the sudden disappearance this butterfly. But even assuming that the disappearance of *L. rion* might be due to this cause on the hills, commons, and sheep-alks, both in the Cotswolds and in Devonshire, that would not count for the extinction of the species in the open spaces in the eech-woods, where, of course, from the nature of the surroundings, ne burning of the grass has never been practised. Other persons ave suggested that the extinction of *L. Arion* is due to the rapacity collectors. This, I believe, may probably be the case where the pecies is confined to such a limited area as in the locality which I rst described; but it seems incredible that an insect which was as mmon in 1877 as I have reported it, and which was distributed over n extent of ground nearly two miles in length, could have been ddenly exterminated.

It seems more probable that the sudden and total disappearance *L. Arion* from the locality in which I found it so plentiful in 877, may have been due to an unprecedented succession of mild nters, ungenial springs, wet and cold Junes, and other unfavoura-le meteorological conditions, rather than to the burning of the grass which, at least in one locality, had never been practicable—or the rapacity of collectors which could scarcely have been equal to the tsk of the extermination of nearly all the "common blues" and ther species, which, together with *Arion*, had been plentiful in the ame localities in 1877.

Surbiton, Surrey:
September 8th, 1884.

Note on second brood of Argynnis Euphrosyne and Selene.—As I have met with the second brood of *A. Selene* so early as August 13th of this year, I am now inclined to think that the specimen of *A. Euphrosyne* taken on August 1st (*cf.* Ent. M. Mag., xxi, 88) may have been one of the second brood. Can any of your readers give us information with respect to the second brood of the latter species?

The *Luzula* on which I found *A. Selene* congregating was *L. campestris var. congesta*, Sm.; how it came to be printed *L. glomerata* I cannot imagine.*—E. N. Bloomfield, Guestling: *September 1st*, 1884.

Deilephila lineata at Dover.—A fine specimen of this insect was picked up near here by a working man yesterday morning; it was given by him to Mr. Davis of this town, in whose cabinet it will find a resting place. It was shown to me alive, and may be worth a record in your Magazine.—Sydney Webb, Maidstone House, Dover: *September 19th*, 1884.

* Through an unfortunate editorial *lapsus*.—Eds.

A notice of Coleophora paripennella at Kennington in 1851.—Just a third of a century ago, my friend, Mr. William Thomson, who was then living at Brixton, brought me some *cases*, which he had found on an old wooden fence at Kennington and he assured me there were more where these came from.

The cases he brought were different from any with which I was then acquainted though I certainly apprehended they must belong to some species of the genus *Coleophora*—their position on the fence was described to me as different from the ordinary pose of the *Coleophora* cases, with which we were then acquainted.

I resolved, therefore, to visit the fence myself, and see the cases *in situ*; and having been furnished with a plan of the locality, I had no difficulty in finding the identical palings—open palings, about four or five feet high. I found the cases plentiful enough, lying well-nigh flat to the surface of the paling, some on the outer side, but more on the sides of the openings of the palings. I had been at work about half-an-hour, when I found that Mr. James Francis Stephens (then living in the Foxley Road, Kennington) had come on the same errand as myself, and was busily picking these cases off the fence. I believe at the time we had neither of us the slightest notion what species these cases would produce.

I am sorry that I have no record of the date of this visit to the palings at Kennington, but it was in 1851, and I think probably in the month of March.

On the 31st May the perfect insects began to emerge—they were *Coleophora paripennella*, at that time a great rarity, and in very few collections. Only six came out on the 31st of May, but early in June they came out more freely, and for several days I bred some twenty or thirty a day; the last came out on the 20th of June, and I then found that I had set out 224 specimens of this hitherto rare insect.

How many cases I collected on that visit to the palings at Kennington I cannot say, but as I no doubt distributed many cases amongst my friends, it seems probable that my total haul of cases would be little short of 500; Mr. Stephens I know collected a goodly number, and it is probable that other entomologists had also been put upon the scent by Mr. Thomson, and had taken their fill.

Behind the fence grew a somewhat stunted hedge, on which my notes are somewhat at variance, it was, however, either hawthorn or sloe. When the larvæ had been feeding the previous autumn that hedge must have been a curious sight.

I believe some years elapsed before we became familiar with the feeding larva of *C. paripennella*, the large lateral appendages to the case of the feeding larva giving it a very different appearance to the case of the hibernated larva.

I was told the other day that the larva of *C. paripennella* was solitary, yet I think had my informant seen that hedge at Kennington in the autumn of 1850 he would scarcely have applied that epithet to the scores of larvæ he would have seen there.—H. T. Stainton, Mountsfield, Lewisham, S.E.: *September 6th*, 1884.

Note on Aciptilia microdactylus.—It has been stated that the larva of *A. microdactylus* feeds in or on the *flowers* of *Eupatorium cannabinum*; I feel quite certain that it feeds in the stem immediately below. In many cases the plant attacked can be at once distinguished, from the dwarfing of the central head of blossoms, caused by the attack of the larva on the terminal portion of the stem having been made when it was tender, so that the side bunches of flowers overtop it. In ordinary circumstances the head of blossoms is all on the same plane. W

he stem is attacked lower down, where it is harder, the blossom is not affected. If he larva fed on the flowers and afterwards entered the stem, I doubt very much whether there would be any swelling in the stem, as the plant has ceased to grow when in full bloom. Yesterday I found a larva in a stem that was not in flower, nd I doubt very much its having come from another plant. In some plants I have een able to see a small hole above the joint, where I should think the larva first ntered; and the reason why the hole below is so much larger is evidently to enable he larva to turn out its frass.—G. C. Bignell, 9, Clarence Place, Stonehouse, Plymouth: *August* 27*th*, 1884.

[The history of this species was detailed by the late Mr. Buckler, in vol. xii of his Magazine, pp. 234—236. He found the larvæ in the stems, even in a very oung stage, but his account was not drawn up absolutely *ab ovo*; so far as it goes agrees altogether with Mr. Bignell's observations.—Eds.].

Ennomos alniaria (autumnaria) at Deal.—Last evening, about 10 p.m., when eturning from sugaring on the sandhills with Mr. Powell, I had the good fortune o capture two lovely *E. alniaria* at light. I have since taken another at rest. The hree specimens are females, and I have already obtained ova.—C. Fenn, Glynde Iouse, Deal: *September* 18*th*, 1884.

Laverna Langiella at Cheshunt.—About five years ago I noticed in my garden me empty mines in the leaves of *Circæa lutetiana*, which I supposed had belonged o *Asychna terminella*; but until this year could not find one still tenanted. Last Iay, however, I succeeded in getting a few larvæ, from which, somewhat to my urprise, I bred a couple of *Laverna Langiella*. Both specimens have a good many hite scales scattered round the anterior-wings.—W. C. Boyd, Cheshunt: *Septem-er* 13*th*, 1884.

Nonagria fulva on rushes.—I find that by examining the rush-stems at night ith a lantern I can obtain as many *N. fulva* as I like, for they seem to be very mmon this year. One evening, when waiting to visit my sugar, I thought I ould light the lantern and look round the rushes in the marsh. I found four that me perched about half way up the rushes. If touched, they immediately fell, etending to be lifeless, but I have noticed them to propel themselves downwards rough the grass by an almost imperceptible motion. I worked them up in my are time on other evenings since. Two or three out of a dozen appear to be males.—Chas. G. Barrett, Jun., Pembroke: *August* 21*st*, 1884.

Great abundance of Tipulæ and Vanessa cardui.—I suppose you are deluged ith notes recording the excessive abundance of *Tipulæ* and *V. cardui*. The arlings, here, stuff themselves with the former all day long; and the latter throng gether in warm sheltered nooks, sunning themselves on *Inula dysenterica*.—A. E. aton, Osmington, Weymouth: *September* 20*th*, 1884.

[The above may be taken as indicating facts that must be patent to all entomo-gists, at any rate in the *south* of England: but what is the condition with regard *Colias Edusa* and *Hyale*?—Eds.]

Hydrobius æneus: change of name. — Until recently, two species had been mixed in European collections of *Hydrophilidæ* under the name of *Hydrobius æneus*, Germ. One of these occurs in our country, and is recorded at present in our Catalogues as *Paracymus æneus*. Sahlberg has lately pointed out the confusion, and has proposed the trivial name of *nigro-æneus* for our species, which will, therefore, now stand as *Paracymus nigro-æneus*, Sahl. The true *H. æneus*, Germ., is a rather smaller and narrower insect, with paler legs and palpi; it is common in brackish waters in Southern Europe, occurring also in the Paris district, so that it may possibly be found in this country. Although the two species are superficially very similar, the structure of the antennæ is different; I am, indeed, strongly inclined to the opinion that the two will have to be generically separated, for while there are nine joints in the antennæ of *Paracymus nigro-æneus*, Sahl., I can only find eight in those of *H. æneus*, Germ. The specimen of this latter that I have mounted in balsam, in order to ascertain the fact, has not, however, made a very successful preparation, so that I do not feel quite satisfied on the point.—D. SHARP, Southampton: *August* 30*th*, 1884.

Blaps mortisaga at Hitchin.—On July 22nd, a friend brought me two beetles alive which he had caught in a trap in his cellar, and which he thought were different to the ordinary cellar-beetle (*B. mucronata*). On examination they proved to be *Blaps mortisaga*. I have now taken all the British *Blaptidæ* in this neighbourhood, viz., *B. mortisaga*, Hitchin, two specimens; *B. mucronata*, Hitchin, abundant; *B. similis*, Pirton, rather common.—JOHN HARTLEY-DURRANT, Bancroft House, Hitchin, Herts.: *September* 13*th*, 1884.

Amara fusca, Dj., at Doncaster.—Among a number of beetles recently collected for me from beneath stones at Doncaster by a non-entomological relation, and which I found awaiting my arrival there in a pickle-bottle with a piece of wet rag as "cover," I was pleased to find a single specimen (a male) of this scarce species which had survived several days' imprisonment in the said bottle, while having for companions principally *Pterostichus vulgaris* and *Harpalus ruficornis*.—JOHN W. ELLIS, 101, Everton Road, Liverpool: *August* 31*st*, 1884.

The British species of Laccobius. — Upon reading Dr. Sharp's remarks on these insects in the September issue of this Magazine (*cf.* Ent. Mo. Mag., xxi, 85), I examined my own specimens very carefully, and find I have examples of all the four species he describes. *L. sinuatus*, Motsch. (= *L. nigriceps*, Th.), of course carried away the palm in point of numbers, but was approached very closely by *L. alutaceus*, Th., of which I took several specimens near Bognor in April of the present year. I do not seem to have this species from any other locality; it is probably very local. Of *L. minutus*, Sharp, I could only find one example, without note as to locality, &c., but probably also from Bognor. *L. bipunctatus*, Th., I took plentifully from ditches on Selsea Bill in April, and also, more sparingly, near Aylsham, Norfolk, in June; considering it to be only a varying form of the common species, however, I unfortunately neglected to mount more than two or three examples. My solitary specimen of *L. minutus* has distinct traces of the white spot at the apex of the elytra, which is so conspicuous in *L. bipunctatus*; has Dr. Sharp noticed this in his series? 'The punctuation of the thorax, however, is essentia

ifferent, and the distinctions between all the four species, indeed, are so well arked as to render it somewhat surprising they should so long have been overoked.—Theodore Wood, 5, Selwyn Terrace, Upper Norwood, S.E.: *September 2nd*, 1884.

Additions to the Hemiptera of the Hastings district.—During a short stay at Hastings at the beginning of August, I was fortunate enough to add the following three species of *Hemiptera-Heteroptera* to the list of 242 species already recorded from that neighbourhood.

Henestaris laticeps.—A tolerably numerous colony at Bulverhythe, at the roots of various plants and amongst *débris*; the species was extremely local, being confined to a few square yards of ground at the base of a low cliff; it was only just arriving at maturity, and many were in the larval condition, in which they are of a pale ochreous colour.

Teratocoris antennatus.—A single specimen on the sand hills at Camber, at the roots of *Psamma arenaria*. This insect has apparently been recorded hitherto only from Wicken Fen and Reigate. Much searching failed to discover a second specimen of the imago, though I saw what I imagine to be the larval form.

Sigara Scholtzii.—Plentiful in a pond near Guestling Church; I could have taken any number; they were to be had only by scraping the net round the roots of patches of rushes growing on the margins of the pond.—E. A. Butler, 7, Turle Road, Tollington Park, N.

Lype reducta, Hagen; an addition to the British Trichoptera.—On August 25th, I and Mr. J. J. King made an excursion to Weybridge. The weather was cold and damp, and the sudden change seemed to have rendered insects torpid, for very few were to be seen. When sweeping the banks of the Thames opposite Weybridge, I captured a single *Lype*, ♂, which, in the form of the "dorsal plate," and of the spaces of the inferior appendages (as detailed in the "Revision and Synopsis," p. 44, pl. xlv), agrees with *L. reducta*. A second visit to the locality (this time in company with Mr. K. J. Morton), on the 11th inst.—a glorious day—resulted in the finding of several *L. phœopa*, Steph., but in nothing that can be considered *L. reducta*. The distinctive characters between the two are undoubtedly slight; moreover the form of the "dorsal plate" in *L. phœopa* is decidedly variable; yet I have seen nothing purely intermediate. If it should prove that the two are really not distinct, then *L. sinuata*, McLach., of which I have seen only two individuals (one from Austria, the other from Finland), will also have to be united with *L. phœopa*, from which it is less distinct than is the form known as *L. reducta*.

On each of these excursions, a few examples of *Ithytrichia lamellaris*, Eaton, were captured; this Hydroptilid has, I think, only been recorded as British from the original localities, viz.: Ashbourne and Romsey.—R. McLachlan, Lewisham: *September 15th*, 1884.

Cœcilius atricornis, McLach., near Chertsey.—On the 11th inst., when sweeping with short herbage on the banks of the Thames above Chertsey Bridge, close to the

water's edge, I found an example of this rare species of *Psocidæ* in my net. *C. atricornis* was described in this Magazine, vol. v, p. 196 (January, 1869), from several examples (two of which are before me) found by the late Mr. J. C. Dale, at Freshwater, Isle of Wight, amongst rubbish in a dry ditch, on November 5th, with hoar-frost on the ground. Until now, it had not been re-discovered in Britain, and was only otherwise known from a specimen taken in Holland, in Albarda's collection. Perhaps it is a truly autumnal species. My Chertsey specimen is slightly immature, and the head is greyish, rather than reddish-yellow, with the black suffusion (very conspicuous on the fore-part of the disc in the original examples) only slightly indicated. It appears to me that the words "articulo tertio ad apicem testaceo" (relating to the antennæ) in the original description involve an error, and that "ad basin" should be substituted. Indeed, Kolbe, who probably drew up his diagnosis (Entom. Nachrichten, viii, p. 211) from the Dutch example, says, "drittes Glied an der Basis gelbbraun;" he says also, "Kopf oben schwarz," which does not agree with the original examples, which have the head decidedly yellow in the middle of the disc; but the black suffusion may possibly sometimes occupy the whole of the disc.

On the same day I found two examples of *Stenopsocus stigmaticus*, Imhoff, between Weybridge and Chertsey, an addition to the few recorded British localities for this species.—ID.

ENTOMOLOGICAL SOCIETY OF LONDON.—*August 6th*, 1884: J. W. DUNNING, Esq., M.A., F.L.S., President, in the Chair.

Mr. Pascoe exhibited *Lecanium* (*Pulvinaria*) *vitis*, found by him on a vine at St. Heliers, Jersey.

Mr. Durrant exhibited *Blaps mortisaga* from near Hitchin, together with *mucronatus* and *similis* from the same locality.

Mr. Distant, in alluding to *Cilix spinula*, called attention to the extraordinary resemblance this insect bore when at rest to an Homopteron of the genus *Flata*. Mr. Fitch alluded to the resemblance borne by the same insect to the excrement of birds. Mr. A. G. Butler spoke concerning the resemblance borne by certain N. Holland *Lepidoptera* (*Homopsyche*) to *Homoptera*.

Mr. Pascoe exhibited a pretty Chalcid belonging to the *Cleonymidæ* from Jersey, and remarked on its resemblance to certain *Hemiptera*.

Mr. Billups exhibited the following *Tenthredinidæ* new to Britain, viz., *Camp niscus apicalis*, Brischke, from Weybridge, and *Blennocampa alternipes*, Klug, fr Loughton: also a *Chelogynus* which he had found in the burrows of *Halic morio* at Chertsey.

Miss E. A. Ormerod, in exhibiting a piece of hide perforated by the larv *Œstrus* (or "worbles" as they are termed), called attention to the practical portance of the subject, and the desirability of preventing the deposition of eggs, or their destruction before hatching. Mr. Distant concurred, and allude the loss occasioned by perforated hides. Mr. Fitch said the amount of damag casioned was irregular and uncertain. Young short-horns seemed the most li to attack; whereas, mature Welsh and Scotch beasts scarcely suffered at all.

Riley said that in Illinois it was the practice to rub the backs of the cattle with mercurial ointment or kerosene oil in the late autumn, and this means was usually successful.

Mr. Wailly exhibited hybrids between *Attacus Roylei* and *A. Pernyi*, and between *Samia Cecropia* and *S. ceanothi*, but he could not persuade the sexes of *S. ceanothi* to pair. Likewise *Crecula trifenestrata* from Madras, bred for the first time in Europe; the silk appeared to be of little commercial value. Furthermore, he exhibited a long series of *Attacus Atlas*, showing its variation in colour and size according to locality.

The Secretary exhibited a photograph of *Chrysopa perla* sent by Mr. Bignell, and remarked on the apparent use of photography in illustrating neuration. He also exhibited, on behalf of Mr. McLachlan, specimens of *Cecidomyiidæ* bred from the galls on the roots of *Cattleya* exhibited at the June meeting, and which were supposed to be wholly owing to the attacks of *Isosoma orchidearum*. Prof. Riley was of opinion that the flies would prove to be inquilines, and not the true makers of the galls.

Mr. Roland Trimen sent notes on the habits of *Platychile pallida*, F., as observed on the sandy sea-beach near Cape Town. During the day they bury themselves in the sand, and are apparently only nocturnally active.

Dr. Fritz Müller communicated a series of interesting notes on the habits of South American Butterflies, and sent some South American fig-insects.

Mr. A. G. Butler communicated a paper by Surgeon-Major Forsayth on the life histories of sixty species of *Lepidoptera* from Central India, and exhibited drawings in connection therewith.

Entomological collecting on a voyage in the Pacific (*concluded from vol.* xx, p. 225).—The "Kingfisher" remained at Callao until the 31st December, when she left, with the greater part of the Pacific fleet, for a cruise to the southward. On January 16th, 1884, we put into the roadstead of Arica, where we remained for nearly a week, leaving again on the 22nd. During this time I worked the strip of damp grassy land, which extends along the shore for some distance to the northward of the town, pretty assiduously for insects, but without much success. Nearly all the *Lepidoptera* that I met with were of common Callao-forms, the only exception to all noteworthy being a specimen of the fine *Deilephila Annei*, Guér., of which I had previously possessed a pair from Coquimbo. I found also one or two larvæ of a large *Acrosila*, which were unfortunately ichneumoned. Butterflies were represented by about eight species, viz.: *Pyrameis Carye*, two "blues," a *Thecla*, two *Pamphilæ*, a *Pyrgus*, and a *Thymele*, all common at Callao. A good many ordinary *Pyrales* and small *Geometers* were obtained by beating some cotton bushes near the sea, and a pretty and conspicuous *Tinea*—not unlike *Adela De Geerella* in size and marking, but more purplish in tint, and with short, densely ciliated, antennæ—was plentiful, flying in the sunshine round the tops of the fig-trees; and a small dark *Eulepia*, found rarely at Callao, here abounded in wet places. Beetles were poorly represented by a dwarf ♀ of the common Callao *Golofa*, and by a species of *Phaleria*, very like others, found commonly under refuse on the beach. The hammer-headed shark,

Zygæna malleus, was quite common in the roadstead, the dorsal fins of four or five individuals being often in sight at once, and a small, but fine, specimen of this most extraordinary fish was caught by one of our officers.

Proceeding southwards, the fleet arrived at Iquique on January 23rd, and left again on the 26th. Here, although the whole country is as completely destitute of vegetation as can well be imagined (save for a few *Cacti*), I noticed *Pyrameis Carye*, a *Pyrgus*, and a small *Agrotis*, in the course of a walk along the beach.

The fleet reached Valparaiso on February 6th, having called in at Coquimbo for a day or two, *en route*. During our stay here of about a fortnight, I found plenty to do in the way of collecting, both in the neighbourhood of Valparaiso, and at El Salto; the weather being beautifully fine, although the best part of the season for insects was over. Among the butterflies the fritillary *Euptoieta Hortensia*, Blanchard, was by no means rare, especially at El Salto, and was a welcome addition to my collection. Its larva occurred in plenty on a wiry, viscid plant with blue flowers like those of a *Campanula*, growing on the railway-banks, but they were all small, and I failed to rear any to the perfect state. The two pretty *Satyridæ Neomœnas Servilia*, Wallgr., and *N. cœnonymphina*, Butler, were not scarce on the hills behind Valparaiso, among the arborescent grass, but were usually much worn especially the former. A good many moths, new to me, chiefly *Geometræ*, were obtained by beating, and a specimen of the fine grey sphinx, *Protoparce Eurylochus* Phil., was a very welcome addition. Larvæ were generally scarce, though I again found those of *Deilephila spinifascia* in small numbers on the "Quilo."

The "Kingfisher" left Valparaiso on February 23rd for a short trip to Talcahuano, where we arrived on the evening of the 25th. Here the aspect of the country gives evidence of a much moister climate than that of Valparaiso and the farther north; the hill-sides being clothed with fine and luxuriant forest, chiefly consisting of evergreen trees and shrubs: while in the direction of the large town of Concepcion (12 miles distant) and round the head of the Bay of Talcahuano, the land is generally flat, sandy, and marshy, with a copious growth of thistles, coarse grass, wild mint, reeds, &c. The common bramble forms a great part of the hedges which were loaded with splendid blackberries, here neglected even by the boys: and in the woods, the beautiful and well-known climbing plant, *Lapageria rosea* (known in Chilé as "Copigue") is a frequent and conspicuous object, with its lovely crimson flowers. The whole surrounding country is very pretty and productive, wheat being the chief crop; and, as during our stay of nine days the weather was all that could be desired, I had no reason to complain of any want of success in collecting.

I met with some twenty species of butterflies in all, the greater number occurring in damp fields at the foot of the hills behind Talcahuano, and on the banks by the railway to Concepcion. Of these, the most abundant was *Colias Vautieri*, Gu., which literally swarmed, but was in such exquisitely fresh condition that, common as it is throughout Chilé, I could not resist taking a long series. Next in point of numbers came a beautiful little skipper of the genus *Carterocephalus* (I think *flavomaculatus*, Blanch.) which I had never seen before, but which was so plentiful in certain spots among long grass, that I sometimes had four or five in the net at once. A small dusky-brown *Pamphila* (? *P. fusca*, Reed) was not rare on the

railway-bank with the commoner *P. fulva* and *fasciolata*, but was not easy to obtain in good order. *Pieris Blanchardii*, although not common, was finer and larger than those from Coquimbo, &c., and I saw a stray *Callidryas Drya*, probably at its southern limit of distribution. *Pyrameis Terpsichore* (scarce, but in most lovely condition) and *Carye* were also represented, with *Euptoieta Hortensia*; and two worn specimens of *Elina Flora*, Phillipi, a pretty *Satyrid*, new to me, turned up in the marshes. On the hill-sides but few butterflies were to be obtained, except *Epinephele limonias*, Phil. (common, but worn), *Coctei*, Guér. (abundant), and *Pales* ?, Phil *Hipparchia chiliensis*, Guér., a fine species, common at Coquimbo, as represented by two ♀ specimens, and *Argynnis Cytheris* was fairly plentiful, the specimens being very large and fine.

Among the *Heterocera*, the greatest prize was the splendid Emperor-moth, *Polythysana Andromeda*, Philippi, which was sufficiently common for me to *see* as many as twenty or thirty specimens during its brief period of flight from 10.50 a.m. to about 2 p.m.: but it careers over the tops of the trees in so wild and erratic a manner, that it cost me many a hard run, and much "waste of tissue," to obtain only four males in fairly good order. I was not able to meet with the ♀, or the insect in any of its earlier stages. One specimen of the smaller, but very handsome, *Hyperchiria erythrops*, Blanch., was brought to me, and the curious little bluish-black *Procris melas*, Guér., was obtained in plenty, both by beating in the earlier part of the day, and flying briskly over the tops of the bushes after 3 p.m. Two *Hepialidæ* (the plain brown *Dalaca pallens*, Blanch., and another) were picked up singly, and a very pretty *Eulepia*, somewhat like *E. grammica*, but larger, and with entirely black hind-wings (figured in the Atlas to Gay's "Fauna Chileña" as *Pelonia vittigera*, Blanch.), occurred not rarely in slightly salt marshes. Large companies of the handsome larva of *Macromphalia chilensis*, Felder, reminding me of those of our *Clisiocampa castrensis*, were found feeding on several plants and shrubs, but they were exceedingly difficult to rear in confinement.

Noctuæ were represented, among others, by the widely distributed *Leucania unipuncta* and *Heliothis armiger* (the latter appears to be a very common Chilian insect), and by several species of *Agrotis* (*saucia*, *fennica* ?, and a very fine species not unlike our *A. valligera*, occasionally beaten out of thatch). *Plusia nu*, Guenée, *bipha*, Walker (one worn example), and the pretty yellow under-wing *P. virgula*, Linch., were taken flying by day; but the finest thing of the group was a very handsome insect not unlike a *Catocala* in aspect, expanding 2½ inches, of a general mottled iron-grey colour, with bright orange hind-wings, banded with black. I bred this from a hard oval *Cerura*-like cocoon found attached to a small bough, and obtained another specimen by beating, which method yielded at least 40 species of *Geometræ*, more than half of which were new to my collection. Among these were several large and handsome *Ennomidæ*, a fine *Boarmia* ?, near *rhomboidaria* in aspect, but tinted with fulvous on the hind-wings (not rare), and, perhaps, the prettiest of all, the delicate sulphur-yellow *Caberid*, *Syllexis lucida*, Butler. *Pyrales*, *Tortrices*, and *Tineæ* were not numerous, but a few fine species of the two latter groups turned up, among others a pair of the beautiful blood-red *Pachyphœnix sanguinea*, Butler (Trans. Ent. Soc., 1883, p. 81).

Coleoptera were not as a rule plentiful, but I obtained a large dung-chafer,

Megathopa villosa, Esch., the brilliant blue and coppery *Carabus*, *Ceroglossus chilensis*, and (through the kindness of a non-entomological resident of Talcahuano) a fair pair of the enormous brown *Prionid*, *Amallopodes scabrosus*, Lequien, a fine *Bolbocerus*, and a specimen of the large and curious *Molorchid* Longicorn, *Callisphyris macropus*, Newm. A few *Heteromera* and small *Carabidæ*, &c., mostly of species not previously met with by me, occurred under stones, and a fine black and white *Otiorhynchid* weevil was plentiful, crawling on dry bramble stems.

We left Talcahuano on the evening of March 5th, and next morning anchored off the little town of Lota, famous for its coal-mines, the most productive in Chilé. The roadstead is protected to the northward by a well-wooded promontory, which is partly occupied by the beautiful park and gardens belonging to a wealthy Chilian lady, Madame Cousiño. I spent two or three hours in these gardens, and, the morning being very fine, common butterflies were attracted in swarms by the profusion of geraniums and other flowers. Among these I had the pleasure of taking a small series of *Eroessa chilensis*, Guér., one of the most beautiful insects that Chilé produces. It somewhat resembles our *Anthocharis cardamines*, but is much larger, with the apical half of the fore-wings deep black, enclosing a large ova transverse spot of bright orange. Nearly all the specimens that I took were ♂, in splendid order; they appeared partial to the flowers of a species of *Lantana*, and their flight being comparatively slow and feeble, they were easy enough to catch. saw a good many ♂ of *Polythysana Andromeda* in the gardens, but failed to tak any. We left the same evening, and after a brief stay at Valparaiso, arrived Coquimbo on the 12th, at which post we remained until May 14th, when we finall left under orders for home.

Insects had become decidedly scarce at Coquimbo by the middle of March, a decreased in numbers every day. I managed, however, to find enough larvæ *Callidryas Drya* on the low *Cassia* bushes to produce a very fine series, and obtain a few *Bombyces* and *Noctuæ* new to me: notably, a pretty little *Heliophob* which occurred sparingly under stones on a sandy plain, in company with seve species of *Agrotis*, including our familiar *A. suffusa* and *saucia*. *Eulepia*? *vittige* was plentiful at the end of March, but was only to be obtained in any numbers wading knee-deep in a marsh, swarming with most ferocious mosquitoes, and sm ling anything but agreeable when the mud was stirred up. The larvæ and pupæ this moth were to be found here, the former feeding on a species of rush; I a took the handsome Emperor-moth, *Hyperchiria Acharon*, Butler, at rest in marsh. As before, the pupæ of *Papilio Archidamas* could be obtained in alm any number, attached to rocks and *Cactus*-stems, those of *Alamis polioides* be almost equally common under stones.

We stayed at Valparaiso from May 15th to 18th, when, however, I did collect any insects myself: though I was enabled, through the kindness of s entomological friends, to add to my collection several conspicuous Chilian butter and *Bombyces* which I had not been able to meet with. On the 22nd, we reac Corrál, the port of Valdivia—a most promising looking spot—but as we remained only until the morning of the 24th, and it rained heavily nearly all the time, I nothing except a small *Hepialus*.

Resuming our southerly course, we reached Port Otway, a fine harbour in peninsula of Tres Montes, on the evening of May 27th, and lay there the night

anded for an hour in the twilight, but was unable to penetrate into the dense and aturated forest which surrounds the harbour, or to do anything except to pick up a ew shells on the beach. Next day (28th), we crossed the stormy Gulf of Peñas, nd entered the Messier Channel, where we were at once in smooth water, the eather being fine for these regions, and the scenery on either hand most magnificent. Ve anchored for the night in Island Harbour, a singularly beautiful land-locked asin, barely large enough to allow the ship to swing. As there was an hour's day-ght left, I landed and had a pleasant scramble among the dense woods, but btained only a large cricket, and a pretty green *Pentatomid* bug, under bark. Gray Iarbour was reached at 1.45 p.m. on the 29th, and I spent the rest of the afternoon a shore. The beauty of this very picturesque harbour is sadly marred by the fact iat all the trees on the south side of the harbour for several miles have been estroyed by fire (I think on the occasion of the visit of the "Challenger," in anuary, 1876), and nothing remains but a melancholy array of bleached, bare stumps, ith a few green bushes springing up between them. Such a quantity of dead mber gave promise of at least a fair number of beetles, but two or three hours of lerably hard work, produced only a small *Atomaria*, a *Lampyris* larva, and two ecimens of a fine, flat, wiry-legged, pitchy-black beetle, I think related to *Cucujus*, c. A bug of the genus *Xylocoris* was abundant under loose bark, but was usually mature. Passing through the "English Narrows," a lovely piece of scenery, but cidedly ticklish as regards navigation, at noon the next day (30th), we reached ort Grappler in the evening, in time for a run ashore before dark. Here I got thing beyond a few ferns (which were still in great profusion and beauty, although e winter was far advanced), but one of my messmates brought me a prize in the ape of a fine *Geometer*, 1½ inches in expanse, with the usual lines handsomely arked in whitish on a rich sepia-brown ground: unfortunately, it was a little maged in capture. After dark, we were visited by a canoe containing 10 Fuegians all ages and both sexes, who remained alongside the ship for several hours. It is fficult to imagine a more striking picture of savagery than they presented, as they t huddled round a small fire in the bottom of the canoe, nearly all of them being tirely naked, although the thermometer was down to 40°, with sleet and rain. ot one of them was as much as five feet in height, their skins being of a rather ht tawny-brown colour, and with shocks of coarse, ragged black hair falling over eir flat, broad, beardless faces. They knew the English and Spanish names for a w commoner objects, and clamoured loudly for "tābācā" and "galleta" (ship's scuit), with which they were liberally supplied, as well as with old clothes, sailor's knives, twine, lucifer matches (of which they fully understood the use), and other articles: and they departed late at night, evidently well pleased with their reception.

Next day (31st) we made a good run to Molyneux Sound, where we anchored at 3 p.m., and I went ashore for an hour; but no insects turned up except a minute *Aranea*. On June 1st we started at daylight, and ran through the Guia Narrows, one of the grandest scenes in the Channel, at noon. Here the passage is contracted to less than a mile in width, the eastern shore being a series of colossal bluffs, rising sheer to a height of 2500 feet above the water, without a break, covered with snow more than half-way down, and most luxuriantly wooded in the lower portions; the western side, though not so high, is equally bold and precipitous, and even more rugged. Our halting-place for the night was Puerto Bueno, a lovely little inlet

enclosed in an almost complete circle of snowy mountains, though its shores are comparatively low and open, and afford much better walking than usual. I spent the remainder of daylight on shore, but observed only a few grubs of a moderate-sized Lamellicorn beetle, and a minute *Helix*. Mussels of excellent quality were abundant, and were brought on board and devoured in almost incredible quantities. We left at 6 a.m. on the 2nd, and the day being clear and still (a very rare circumstance here) we were at last able to fully appreciate the wild grandeur of the unrivalled scenery of the western Channels of Patagonia. The Cordillera o Sarmiento, a snowy range of mountains on the mainland, over 6000 feet high, wa seen to great advantage: its summits being broken into the most extraordinary an fantastic shapes, and every valley filled with a deeply crevassed glacier, of the mos lovely blue tint: while away to the southward, Mount Burney, a grand, solitary truncated pyramid, 5800 feet high, appeared to close up the Channel in tha direction, the whole forming a scene of indescribable magnificence, never to b forgotten. We put into Isthmus Bay for the night, but I did not land here: leavin again early next morning, the weather soon became thick and squally, and we wer compelled to anchor in Otter Bay, among some small islands in Mayne Channe Here we were weather-bound until the morning of the 5th: it rained and snowed good deal, but I took advantage of a party going for mussels, to land on one of th islands, and to procure a few nice sea-shells.

We entered Magellan's Straits at 11 a.m. on the 5th, and anchored in Po Angosto, on the Fuegian shore, at 4 p.m., too late to land. This is a most beautif harbour, extending inland about a mile, with a width of barely 250 yards, a completely shut in by wooded cliffs, 600 to 1500 feet in height. Leaving aga early next morning, with a strong breeze against us, we got as far as Fortescue Ba on the Patagonian side of the Strait: here I landed, but got nothing whatev Next day (June 7th), we rounded Cape Froward, the grand promontory whi terminates the South American Continent, at 8 a.m., and reached the Chili settlement of Punta Arenas (Sandy Point) in the afternoon.

The weather had been steadily getting colder during our progress southwa and in the Straits of Magellan the country was covered with snow to the wate edge: at Punta Arenas everything was frozen hard, with ice on the pools and lago thick enough to admit of skating. In spite of this, in an afternoon's ramble found sundry *Geodephaga* and *Rhynchophora* (mostly of species oblained here me in December, 1880) abundant under logs of wood, &c., as were also the larvæ a species of *Agrotis*, these being, like the beetles, quite lively. The pretty gr *Carabus suturalis* (not unlike a small *C. auratus*) occurred rarely, and I foun good many cocoons of a species of *Macromphalia* attached to the under-side of l The only Lepidopterous imago I saw was a small *Gelechia*? hibernating in c panies of seven or eight under bark.

We left Punta Arenas on the morning of the 10th, having stayed only just l enough to procure coal, &c.; but owing to contrary tides and short daylight, we d not get fairly out into the Atlantic until 9 p.m. on June 11th. After a somew rough passage, we arrived at Monte Video on the evening of the 21st. We here for four or five days, and then leave for St. Vincent, Madeira, and Plymo where we hope to arrive before the end of August.—J. J. Walker, Monte Vi *June*, 1884.

DESCRIPTION OF THE LARVA OF *STENIA PUNCTALIS*.

BY THE REV. J. HELLINS, M.A.

After several fruitless attempts by others in former years at unveiling the life-history of this species, complete success has been achieved during the past season by Mr. W. H. B. Fletcher, who has reared the imago from the egg, and again from larvæ taken at large in their habitat. For instructions as to when and where the moth could be found he was indebted to the Rev. C. R. Digby, who, like myself, had captured it in more than one locality, sometimes almost on the beach, sometimes at the top of the cliff, but always close to the sea; the larva, when at large, must, in stormy weather, be quite within reach of the salt spray, but it has thriven very well without any such seasoning to its food in captivity.

Towards the end of the second week in August, 1883, Mr. Fletcher captured several moths, and some more again a little later, and in both cases obtained eggs from them; the larvæ were hatched in about a fortnight or rather more, and fed away readily on flowers and leaves of *Lotus corniculatus*, making awnings (not tubes) of very sticky silk; Mr. Fletcher carried his stock through on the same food, supplemented at times with clover. About Michaelmas Mr. Buckler, who had received eggs from him, sent me a larva, which I placed in a bottle, and, after a little time, rather neglected; however, to my surprise, I found that my neglect had done no harm, for this larva seemed to enjoy its food when damp and rotten rather more than when freshly gathered. Before long Mr. Buckler made the same discovery; he had been giving his larvæ knapweed and plantain, and on one occasion when changing the food was obliged to put back a decaying leaf, because a moulting larva was fixed on it, and the next time he looked there were three of them eating it in preference to the fresher leaves; and so through the winter his batch of larvæ remained shut up in tin boxes, and contentedly living among a mess of dead knapweed and plantain leaves, and heaps of their own frass, all spun together with fine but tenacious silk. They moulted four times in the autumn, and I think twice again in the spring, and in May several appeared to be full-fed. At this date Mr. Fletcher made an expedition with Mr. Digby to the locality in which the moths had previously been taken, and by carefully removing pebbles and stones was most fortunately enabled to find the larvæ at home, feeding under their silken coverings on vegetable rubbish composed of grass stems and roots, dead leaves of plants,

and withered *Zostera marina*; the larvæ thus discovered were not quite so far advanced as those in my possession, but were larger than Mr. Fletcher's own stock, which had been feeding all along on fresh food: in May and June they all became pupæ, and during the last ten days of June and the first week of July I bred several moths, Mr. Fletcher's moths appearing rather later; and on July 12th I received some eggs obtained by Mr. Sydney Webb from captured moths; probably the imago has rather an extended period of flight. I may add here that the newly-hatched larvæ of this season, from the first, ate withered leaves as readily as those freshly gathered.

Where or how the moths deposit their eggs we do not know; my own recollection is that of seeing them flying rather freely at my approach, but over a very limited area, during daylight, whilst, on one occasion, Mr. Fletcher found them hiding under the leaves of *Centaurea* and *Pyrethrum* during a gale; perhaps the egg is deposited on the under-side of the lowest leaves. It is roundish-oval in outline, flat, and soft looking; the shell thin, glistening, and thimble-pitted all over the slightly convex upper surface; in colour yellowish; its longer diameter about $\frac{1}{14}$ mm., the shorter diameter $\frac{9}{14}$ mm.

The newly-hatched larva is yellowish in colour, with dark head and collar, slender, with the segments well defined; it at once spins a silken covering, under which it feeds; it grows away through August and September. I have just now (October 8th) measured one, which is quite 12 mm. long, slender in figure, viewed from above pretty well uniform in bulk, except that the first segments taper slightly, both sideways the front segments and head are seen to taper considerably; the skin is very glistening and translucent, the colour a pale but warm amber, the food showing through blackish in whatever region of the internal vessels it happens to be; the head very shining, of light reddish tint; the collar on second segment large, brown, its pale median line edged with almost blackish-brown; the usual dots small, black, placed on large glittering warts darker than the skin, those on third and fourth darker than the rest; spiracles indistinct; legs pale; like the larvæ of *Pyralidæ* generally, it lives quietly enough on or among its food, but is very active when disturbed, wriggling and jumping backwards or forwards with agility.

The full-fed larva is about 19 mm. in length, with proportions much as before, slender, being stoutest at segment 8, with the body tapering each way slightly in a curve, the head narrower than segment 2; the skin at last less translucent, but still very glittering; ger

olour of a pale yellowish stone tint, but all the middle space of the ack shows ashy-grey from the internal vessels, and through this space uns the darker interrupted pulsating dorsal vessel; the segmental olds also show darker; the head very glittering, in colour clear eddish-chestnut; the collar is of a much darker brown, reaching cross the whole length of segment 2 on the back, but curving forards at the sides, and being cut in two by a pale line, and each half bordered with darker brown again along this line, and also for a ort way along the front and back edges; the spiracles are prominent, t not easy to see, and are ringed with brown; the usual dots are ry tiny and jet black, placed on large shining warts; on each of gments 3 and 4 there is a pair of large roughly triangular warts ar the front edge, and four rounder ones on each side, and all these e noticeably darker than the warts on the other segments, and apprently form a distinguishing feature; on the other segments the apezoidals are placed on large warts of an oblong shape, the front ir being squarer than those behind, but with each pair the greater ngth runs transversely; these warts, with the lateral ones, which are under, are all pale blackish; there is no distinct anal plate; all the dts bear fine longish bristles.

Mr. Fletcher describes his larvæ, fed on fresh leaves, as being watery yellowish-green in colour, with sage-green warts, this difference of course being caused by the different colour of the food seen through the transparent skin.

The larva makes a toughish cocoon, lined with a fabric of white silk, and coated externally with leafy rubbish, about 15 or 16 mm. long, and about 6 mm. wide. The pupa is about 11 mm. long, slender, 2 mm. across the thorax; the eye-cases rather prominent; the tongue-, antenna- and leg-cases soldered together, are attached to the body as far as the end of the wing-cases, thence free, and reaching quite to the end of the abdomen, and over-reached by the spike only; the shoulders swell gradually from the head, the abdomen tapers very gently, the general figure is cylindrical; the anal spike is slightly curved, and is furnished with six curl-topped spines; the pupa-skin is smooth, not very shiny, under a lens appearing rather roughened; the colour generally yellowish-brown, the eyes, the tip and the rings of the abdomen, and the tip of the tongue-case, chestnut, the spike still darker.

Exeter: *October 9th*, 1884.

DESCRIPTION OF THE LARVA OF *CLEDEOBIA ANGUSTALIS*.

BY GEO. T. PORRITT, F.L.S.

For the opportunity of making acquaintance with this interesting larva, I am again indebted to the kindness of Mr. W. H. B. Fletcher of Worthing. A few specimens reached me on June 13th last, and described them as follows:—

Length, about an inch, slender, and of almost uniform widt throughout: head and frontal plate glossy, the former has the lobe rounded, and is slightly narrower than the second segment: bod cylindrical, the segments clearly defined, the 3rd, 4th, and 5th hav several transverse depressions, which give them a wrinkled appearanc the remaining segments have each one transverse depression; the sk altogether has a tough appearance.

There are two forms:—In var. I, the ground-colour is dir smoky-black: head perfectly black; frontal plate dark chocola brown; anal segment pale brown. The only other perceptible mar ing is the perfectly black, but indistinct, medio-dorsal line.

Ventral surface and pro-legs uniformly of a rather paler shade the colour of the dorsal area, and having a tinge of dark green: t anterior-legs perfectly black.

In var. II, the ground-colour is pale chocolate-brown, stron suffused, however, especially on the anterior segments, with di smoke colour: head perfectly black; frontal plate chocolate-bro edged in front with black; side tubercles and spiracles smoke col

Ventral surface and pro-legs pale chocolate-brown, with a green tinge, the 2nd, 3rd, and 4th segments, and the anterior-legs, black

Mr. Fletcher found the larvæ feeding on damp ground in a spe of moss, which, after examination of the old withered remnants by my larvæ, Mr. Hobkirk believes to be *Hypnum cupressiforme* kept the moss saturated with water, and probably the larvæ would have kept healthy had it been allowed to become dry. They live pletely hidden in the moss, but their whereabouts is easily seen fro patches of frass which are thrown above and kept together by s threads which the larvæ seem to spin over where they feed.

The cocoon is shaped somewhat like that of a *Zygæna*, a formed of firmly-spun white silk among the moss. The pupa is half to five-eighths of an inch long, of ordinary shape, and with a parts clearly defined: it is highly polished, the colour rich b wing-cases bright yellow, but all the parts margined with brown cases and abdominal point dark chocolate-brown.

The imagos emerged from August 2nd to 8th.

Huddersfield: *October 6th*, 1884.

NOTES ON THE LARVA, &c., OF *ASYNARCHUS CŒNOSUS*, CURT.

BY KENNETH J. MORTON.

Asynarchus cœnosus, the only British representative of a genus of *Trichoptera* which is boreal in its distribution, is a very common insect during the months of August and September on the elevated moors of this district, and no doubt occurs in similar localities all over Scotland and the northern part of England. This season I succeeded in rearing the species, and am thus enabled to give a few notes concerning the larva, nymph, and case.

The larvæ were abundant during the summer in the pools of a peat bog (about 800 ft. above sea-level), and, as far as I could discover, were the only caddis-worms which occurred there. Out of a few taken home at the beginning of August and placed in a glass vessel with a piece of peaty earth, one in a few days fixed its case to the peat and became quiescent. On the evening of the 31st of the same month, a nymph was observed swimming about in a vigorous manner. It very soon left the water and ascended to the muslin covering of the glass. The perfect insect, a ♀, appeared after a short interval.

The larva appears to be of the usual Limnophiliform type, with a small ovate head, almost quadrate prothorax and transverse mesothorax; the abdominal segments slightly depressed, and from the third to the penultimate inclusive with a lateral thick fringe of very short, fine hairs. The head and pronotum are blackish-fuscous in colour; mesonotum paler fuscous, with dark dots and streaks, and narrowly margined with blackish posteriorly; rest of body greenish-yellow; respiratory filaments whitish.

A nymph taken from its case, and probably not quite mature, was uniformly pale yellowish, excepting the eyes, which were blackish. The mandibles agree in form with the figure of those of *Limnophilus* in the "Trichoptera Britannica." The respiratory filaments rather numerous, arranged on either side of the lateral lines; the last three abdominal segments have a strong lateral fringe; anal extremity with two long, slender processes (present also in *Stenophylax* and *Halesus*, and probably common to all nymphs belonging to the *Limnophilidæ*). The tarsi of intermediate legs fringed with fine, rather long, hairs: these legs, I take it, are the principal natatory organs in the nymph.

When the larva is young, the case is rather loose, long, slender, slightly curved, composed of imbricated short lengths of fine stems. The older case is firmer, made of what appear to be small pieces of

bark, short lengths of stems, &c.; it is very slightly curved, and of nearly equal diameter throughout, in shape not unlike the cases made by *Stenophylax*. The case from which the insect was bred had the one end closed with a little heap of sand (in nature, vegetable fragments, irregularly drawn together, are made use of); the other end was closed with a membranous network.

McLachlan (Mon. Rev. Tr. Eur. Fauna, Sup., pt. II, p. xxviii) describes the case of *A. Thedeni* from Lake Ladoga as almost entirely composed of stony fragments. He says, however (*l. c.*, p. xxvi), that *A. cœnosus* is an aberrant species of the genus in which it is at present placed. It is very probable, at the same time, that the materials employed by *A. cœnosus* may vary according to the conditions in which the larva is placed.

Carluke, N. B.: *October* 1*st*, 1884.

NOTES ON BRITISH *TORTRICES*.

BY CHAS. G. BARRETT.

(*Continued from p.* 63).

In response to my request (*cf.* Ent. Mo. Mag., xix, 136), specimens of the original reputed Scottish *Retinia duplana* were kindly sent to me by the Rev. H. Burney and Mr. J. B. Hodgkinson. These were certainly *R. turionella*, but smaller and darker than those taken in the South of England. Mr. A. H. Jones has now allowed me to examine two of his specimens taken in the middle of June among young Scotch Fir at Rannoch. These interesting specimens help very much to explain the insertion and long maintainance of the name of *Retinia duplana* as a British species. They are exceedingly dark in fore- and *hind*-wings, much darker than any English *turionella* that I have seen, not more than half the size of the latter, and the fulvous patch is almost confined to the apical space. Nevertheless, they agree in form and markings most accurately with *turionella*, and I have no hesitation in saying that I believe them, and all other supposed British *duplana*, to be truly *turionella*. The bright orange colour of the head and collar is very persistent.

The genuine *duplana* from Germany is a very glossy mottled species, with rather more elongated fore-wings and a grey head and thorax.

Pembroke: *September* 19*th*, 1884.

BRITISH *HOMOPTERA*—AN ADDITIONAL SPECIES OF *IDIOCERUS*.

BY JAMES EDWARDS.

IDIOCERUS DISTINGUENDUS.

Idiocerus distinguendus, Kbm. Cicad., 157, 9 (1868).

„ *cognatus*, Fieb., Verh. k. k. z.-b. Ges. Wien, xviii, 455 (1868).

Elytra lacteo-hyaline with three wide brown bands, which do not reach the costa, and are placed as follows, viz., one at the base, one just beyond the middle, and one occupying the 2nd, 3rd, and 4th apical areas. Face greenish-yellow, more or less suffused with fuscous, the latter colour, in strongly marked examples, occupying the entire surface from the base of the crown as far as the lower margin of the eyes, leaving a spot adjoining each eye, also a triangular central spot on the base of the crown, and a transversely-oval spot adjoining the lower margin of each eye, of the pale ground-colour. The two last-named spots are frequently connected by a pale line. These markings, however, are exceedingly variable, and more or less perfect in different individuals. Pronotum greenish-yellow in the ♂, somewhat bluish-white in the ♀, more or less suffused with fuscous in such a manner as to leave the margins narrowly, a narrow central line, and a small somewhat round spot near the middle on each side, of the pale ground-colour; in front of each pale lateral spot are two or three (generally two) black points. Scutellum pale, with a triangle on each side of the base and two small roundish spots near the transverse channel, fuscous. Elytra as stated above; nerves white, except in the brown bands, where they are dark brown, those of the corium distinctly bordered with punctures; base and apex of the anal nerve white; first sub-apical area parallel-sided, about two-thirds as long as the 2nd, 1st apical area reaching about three-fourths as far as the 4th. Abdomen black above, with narrow green margins to the segments, greyish-green beneath. ♀ genital plate with its hind margin somewhat roundly produced, pale, with traces of a broad dark central stripe, which is, perhaps, caused by the oviduct showing through. Legs pale, apex of tarsi more or less fuscous.

♂ wanting the usual plate on the antennal setæ.

♀, when fresh, with the face and legs rather strongly tinged with pink.

Length, ♂, 2¼ lin., ♀, 2½ lin.

Inhabits white poplar; 2 ♂ 12 ♀ examined.

Easily confounded with *Id. tremulæ*, from which species the paler bands of the elytra, and the constantly pale costal, sub-costal, 1st sub-apical, and 1st apical, areas serve to distinguish it.

Norwich: *October 10th*, 1884.

[I quite concur in the identification of this species. Kirschbaum's description has priority by its first publication in the "Jahrbüchern des Nassauischen Vereins für Naturkunde," xxi and xxii (1867 and 1868).

From the one poplar tree (*Populus alba*) in Beaufort Gardens, Lewisham, I obtained, at the end of September and beginning of October of this year, altogether more than fifty examples, of which only

two were males, which is curious, and if the disparity be real is suggestive of polygamy. In former years I have often beaten this tree without any result; the present occurrence of this *Idiocerus* seems, so far, to confirm Kirschbaum's remark concerning it—"Auf *Populus alba* und *canescens* stellenweise häufig." Failing the opportunity to draw up a description, Mr. Edwards has had the goodness to do so from some of my captures.—J. W. D.].

A POSTSCRIPT CONCERNING PARTHENOGENESIS IN *ZARÆA FASCIATA*.

BY J. A. OSBORNE, M.D.

The observations made by me this year on *Z. fasciata* may have some interest as bearing on the questions of parthenogenesis and sex. Last year (1883) I had 310 cocoons made by larvæ that had been taken off the bushes the year before. Of these about 28 were ichneumonized, and from the remaining 282 (or thereabouts) 142 living flies (of which only one was a ♂) were excluded during the summer. On opening the other cocoons I found dead larvæ, nymphs and flies, in 31 of which the sex (♀) was determinable, making 172 females in all to one male. In the present year the results have been somewhat different. I had a stock of 311 cocoons classified as follows: 270 were what I may call singly parthenogenetic, *i. e.*, reared from parthenogenetic eggs laid by flies emerging from cocoons spun the year before by larvæ taken from the bushes; 32 were doubly partheno-genetic, *i. e.*, bred from unfertilized flies, themselves parthenogeneti cally bred from larvæ taken in 1881. These and their parents therefore, had been in captivity and under artificial conditions som three years. The third lot consisted of 9 cocoons reared from egg laid after observed union between the ♂ and ♀. From the 270 cocoon only 100 living flies were excluded, and of these 3 were males. I the remaining 170 cocoons, besides 134 dead larvæ and 1 mould nymph, I found 32 dead ♀ and 3 ♂ flies; that is, no less than 6 ♂ t 129 ♀ flies, or a proportion of 1 : 21.5; or, if we add to these 12 ♀ flies, 23 more from the other two lots, making a total of 152, th proportion of ♂ to ♀ flies is still only lowered to 1 : 25.3 as again 1 : 172 in those flies bred from free larvæ and only one year in co finement.

From the 32 doubly parthenogenetic cocoons only 4 living fli were excluded, all ♀, and in the unopened cocoons I found besid dead larvæ, 11 more ♀ flies. The 9 cocoons from presumably fertiliz

eggs yielded 5 living and 3 dead ♀ flies; a single insect perished in the larva stage. All the cocoons had been kept through the winter under similar conditions in metal boxes in a drawer. Of the 4 doubly parthenogenetic flies only one laid a few eggs which did not develop. Besides the 6 male flies, the lot of 270 yielded also at least 4 ♀ flies, which showed one of the ♂ characteristics to a greater or less extent, that is, the basal ring of the abdomen, in place of being quite light as in the ♀, was much darker in various degrees, almost to perfect black. But none had the masculine lateral tufts at the apex of the abdomen. The males, when put with females for the purpose of breeding, seem invariably to suffer mutilation in the loss of their tarsal joints, especially of the fore feet, in their struggles with the female. In union, the attitude observed was venter to venter.

Whether, then, it is to be attributed to continued parthenogenesis or to the effect of prolonged artificial and unfavourable conditions of life, the changes observed appear to be threefold: *first*, there is a smaller number of flies excluded alive from the cocoons, thus—in the 282, 270 and 32, respectively came out 1 in 2, 1 in 2.7, and 1 in 8; whilst in the case of the 9 cocoons from fertilized eggs, more than half excluded living flies, and in all but one of the remainder the insects had reached the imago state: *secondly*, there is progressive infertility; flies from fresh larvæ lay eggs abundantly, their descendants much more sparingly, and in the third generation hardly any eggs were produced: *thirdly*, we see a striking increase in the proportion of males in the second generation.

That so many insects should perish in the cocoon points perhaps to the effect of unfavourable artificial conditions. The diminution in fertility might also be referred to weakening of the constitution from the same cause; but the increase in the number of males in the second generation, and the increased viability in the 9 cocoons from fertilized eggs, seem to indicate a necessity for recurrence occasionally to sexual reproduction. It is curious that in the case of bees, &c., the exactly converse necessity prevails; without a mixture of agamic reproduction the species would become extinct. On the theory of Von Siebold, &c., fertilized eggs of bees would yield no males in the next generation, and a generation of virgins would produce nothing but drones, with which the community would come to an end in the grandchildren.

Milford, Letterkenny:
October, 1884.

A NEW SPECIES OF *CIS*.

BY THEODORE WOOD.

I have much pleasure in recording the capture of this most singular insect, which, as it appears to be unknown on the Continent, I venture to describe as new to science. I have met with it upon three occasions during the present year. Firstly, a single ♂ specimen beneath the bark of a decaying pine-tree, on January 23rd; secondly, September 15th, in the utmost profusion, from boleti upon a decaying birch; and, thirdly, September 23rd, a single ♂ from a large fleshy fungus upon an ash-tree, a mile and a half from the scene of the former captures. All three localities are at West Wickham, and it is astonishing that so conspicuous an insect should have been passed over for so long, more especially in a district which has been worked by some of our best collectors.

As will be seen from the description, the male insect can be at once distinguished from any of our British species, and would appear to be most closely allied to *Cis quadridens*, Mellié, from which, however, it is abundantly distinct. The female, being without the lamellæ upon the clypeus and the thorax, is less conspicuous, but, when fully mature, could hardly be confounded with any other species. I have taken the insect in all stages of its development, and find that in the ♂ pupa the lamellæ are fully as noticeable as in the imago.

I append a description, which, with his usual kindness, the Rev. W. W. Fowler has drawn up for me.

Cis bilamellatus, *sp. n.*

Oblongus, sub-cylindricus, fusco-testaceus, parum nitidus, parcius flavo-pubescens. Caput modicum, lævissime rugulosum, oculis prominulis; antennis flavo-testaceis, clavâ fuscâ; clypeo feminæ simplici, maris in lamellam latam producto. Pronotum maris sub-quadratum, margine anticâ posterâ vix angustiore, valde depressâ et dehinc in lamellam latam sicut in clypeo productâ, lateribus antrorsum leviter rotundatis et contractis; feminæ longius, lateribus minus rotundatis, paullo magis antrorsum sensim contractis; amborum densius subtiliter punctatum, interstitiis lævissime rugulosis, angulis posticis rotundatis, medio tenuissime ad basim lævi, leviter marginatum, pube paucâ flavâ sparse vestitum. Elytra pronoto haud angustiora, fortius et densius rugose punctata, pube flavâ ordinibus dispositâ vestitum, leviter marginatum, apicibus sub-rotundatis. Pedes testacei.

Valde differt clypeo et pronoto maris in lamellas pari magnitudine productis, margine anticâ plerumque rectâ, interdum plus minusve emarginatâ instructas.

Pitch-brown, or yellow-brown, rather shiny, scantily covered with yellow pubescence. Head not very large, slightly rugulose, with the eyes prominent; antennæ yellow, club blackish. Clypeus simple in female, but in male produced into an upright and broad plate. Thorax of male sub-quadrate, narrowed in front, with anterior margin produced into a broad plate, similar to that upon the clypeus, sides anteriorly rounded; that of female longer than broad, sides less rounded, and more gradually contracted in front; in both sexes closely and finely punctured, with interstices slightly rugulose, posterior angles rounded, rather emarginate, and scantily covered with short, yellow pubescence. Elytra not much narrower than thorax, more strongly and closely punctured, slightly emarginate, with rows of yellow pubescence, apex somewhat rounded. Legs testaceous. Length, $\frac{3}{4}$—$\frac{7}{8}$ lin.

In conclusion, I have only to ask any Coleopterist wishing for specimens to communicate with me.

5, Selwyn Terrace, Upper Norwood, S.E.:
October 13*th*, 1884.

MORE PROOFS OF APHIDIAN MIGRATIONS.

BY JULES LICHTENSTEIN.

When Kaltenbach made a character of the *habitat* of the under-ground plant-lice, and established a division for them under the name of *Erdlaüse*, *Hyponomeutes*, of Hartig, and *Rhizobius*, of Burmeister, he was perfectly aware of the insufficiency of such a negative character as was that of "winged forms unknown."

For me, since the very day when I gave the history of the migration of *Phylloxera* from the roots to the leaves of the plant (1879), I said, I expect to show, some day or other, more astonishing facts of migration from plant-roots to trees, and all gall-making plant-lice will some day prove to be only a stage of life of under-ground species.

I had soon discovered that *Aploneura lentisci*, Pass., passes from the *Lentiscus* galls to the roots of *Bromus sterilis*, *Tetraneura ulmi* and *Tetraneura rubra* from the elm to *Zea mais*, *Cynodon panicum*, &c.

Now, this year, I had the opportunity for the first time since many years to be at leisure in the country in October, and to make new discoveries. I had, as usual, tied round the stems of some elms and poplar the paper strips which so well attract the flying plant-lice of the *pupifera* stage, and at the same time I searched the roots of all plants where I saw under-ground lice, and kept them in bell-glasses under muslin, to see if really these *Hyponomeutes* remained always apterous. I had, amongst these earth lice, the common *Rhizobius menthæ*, Passerini, which I had kept for years and years without success, and the *Rhizobius sonchi*, Pass., which also had given me constantly, in spring and summer, apterous descendants. I was not a little surprised now, late in the season and rather cold weather (6° Réaumur),

to see some of my captives acquiring wing-cases, and shortly after becoming winged, and showing the character of the genus *Pemphigus*, Hartig.

Therefore, these under-ground lice pass from this day from the genus *Rhizobius* to *Pemphigus*, as the winged form is no longer unknown, and we ought to say, *Pemphigus menthæ* and *P. sonchi*.

But this is not all; the very same day in which I obtained in my study these winged forms, my strips of paper on the trees furnished me with the same lice in liberty, the first on the elm, the second on the poplar.

As regards the elm, little doubt is possible, there is only one *Pemphigus* on that tree, described already by Haliday, under the name of *Eriosoma pallida*, some fifty years ago (1838), and the *Pemphigus* of the mint-roots is exactly similar to the example taken the same day on the elm. I think *Rhizobius menthæ* must disappear altogether, as it is the under-ground stage of *Pemphigus pallidus*,* of which the whole history is now known.

Just the same is to be said of *Rhizobius sonchi*, which is the under-ground form of *Pemphigus bursarius*, a Linnean name, which has, of course, the priority. Yet this second fact is not so sure as for the elm gall-louse, as there are to my knowledge 20 to 25 different species of *Pemphigus* on the poplar (in Europe and America). But I think, by the markings of the antennæ, it is *bursarius*, easy to distinguish from all others by its gall fixed on the stem. The only one which does not fall in winter, but remains on the tree.

I must add, for those who, like Prof. Rudow, describe the gall-lice found late in the season in the gall as the authors of the swelling, that there is a great chance of error in that proceeding. The lasting gall of *Pem. bursarius* is very often adopted by all winged gall-lice of the pupiferous stage, as a convenient winter dwelling for depositing their sexuated proles, which pair in the gall and conceal their eggs in the same; so that now, in the first days of October, for an example or two of the true *Pem. bursarius*, there are hundreds of *P. spirothecæ*, *P. affinis*, *P. pyriformis*, *P. marsupialis*, *P. populi*, &c. Even true Aphides are not uncommon in these galls, and *Chaitophorus populi* mixes often with the *Pemphigi*, in order to deposit its eggs in the same galls.

In conclusion, *Rhizobius menthæ* and *Rh. sonchi* must be placed as synonymous to *Pemphigus pallidus* and *Pemphigus bursarius* as under-ground forms of the same.

Montpellier: *October 6th*, 1884.

* The genus *Eriosoma* was not adopted on the Continent, where the Hartigian names prevailed, and even Buckton, in his "British Aphides," gives *Eriosoma* only as a synonym.

On the duplication of generic names employed by Walker.—It is well known that certain Lepidopterists ignore the greater part of Walker's work; but recently my friend Meyrick has employed at least one of the generic names used by that author in a totally different sense from that intended by the original describer.

The "genus" *Barsine* was characterized by Walker in the second volume of his Catalogue of Lepidoptera-Heterocera for the reception of a *Lithosiid* moth congeneric with *Miltochrista*, but representing a group in that genus consisting of species larger and somewhat more coarsely ornamented than the *M. miniata* group.

The name *Barsine* has now been applied by Meyrick to a group of Geometrites; and as I find that writers in New Zealand are already beginning to adopt this wrong use of Walker's generic name, I feel called upon, although with reluctance, to point out the error; I would ask Mr. Meyrick to alter it himself, but, as I may have to quote the genus before many months have elapsed, and as it would be probably a year before I could discover what name he had employed, I must myself propose that the New Zealand genus be henceforth known by the name MEYRICKIA.—A. G. BUTLER, British Museum (Nat. Hist.): *September 26th*, 1884.

On the probable extinction of Lycæna Arion in England.—Mr. Herbert Goss in his interesting paper "On the probable extinction of *Lycæna Arion* in Britain" (*cf.* Ent. Mo. Mag., xxi, 107), inclines to the opinion that the sudden and total disappearance of *L. Arion* from the Gloucestershire localities may have been due to an unprecedented succession of mild winters, &c. In this conclusion I can quite agree with him.

It may be observed, that although the abnormal meteorological vicissitudes experienced throughout Great Britain during the past six or seven years must have not only considerably checked the increase of many species of *Lepidoptera*, but have also greatly reduced the normal numbers of some other species, still, a series of unfavourable meteorological conditions during a period of several years would hardly lead to the extermination of those species which are generally distributed. Even the not unimportant assistance of the most assiduous collector and an occasional grass or furze fire would fail to effect so much. In the case, however, of local species, the chances of escape from such a combination of hostile agencies would be rather precarious.

With such species as *L. Arion*, confined to somewhat limited areas of widely separated districts, there exists what may be termed a predisposition to extinction, and a series of seasons meteorologically unfavourable may effect the extermination of the species, first from one and then another of its limited retreats, until its final extinction in the country would be accomplished.

By predisposition to extinction I mean, that when the limit of the range of a species is reduced to a very small portion of a district, independent of the range of its food plant, it may be assumed that that species is in danger of extermination from the operation of one or the other, or a combination of several unfavourable conditions. In effecting a "sudden and total disappearance," I should certainly consider unfavourable meteorological conditions to be the prime influence.

Almost the same remarks will apply to any species of *Lepidoptera* restricted to the limited habitat of its food plant; with this additional contingency, the food

plant itself might be exterminated either by the occurrence of a land slip, or in the case of an annual plant, by some animal or animals devouring it; or the eradication of the plant might be effected by the improving hand of man.

According to Mr. Goss, *L. Arion* occurred in some numbers in two localities in Gloucestershire during the years 1876 and 1877. The species was rare there in 1878, and from that year to the present time not a single example has been captured in Gloucestershire.

Now, on the hypothesis that the issue of the 1877 *L. Arion* were, all, but a few, destroyed in one or other of the earlier stages by some unfavourable meteorological influence, the scarcity of the imago in 1878 is accounted for. Mr. Goss does not say whether the few *L. Arion* seen in 1878 were captured or not, but any way, this would matter but little. Probably but few ova would be deposited, and the larvæ, if any, resulting from them would, if not entirely annihilated by the wretched spring of 1879, have been so considerably reduced, as to come within a perilous distance of such an occurrence. Since 1879 the ungenial nature of our springs has precluded all chance of the species recruiting its numbers, but, on the contrary, has most probably completed the business of exterminating *L. Arion* from the Gloucestershire localities.

L. Arion still exists in South Devonshire (or did last year), and a few favourable seasons might tend to increase the numbers of the species in its particular haunts in that county; but I am afraid that its tenure on its Devonshire estate is not a very secure one, and that in the near future "the large blue" will be, as Mr. Goss suggests, extinct in Great Britain.—Richard South, 12, Abbey Gardens, St. John's Wood: *October 15th*, 1884.

Abundance of V. cardui and other Lepidoptera in Ireland.—It may be interesting to record when the abnormal abundance of any species of *Lepidoptera* in certain seasons in England corresponds with a similar profusion on this side of the channel.

Mr. Barrett last year referred to the prevalence of large numbers of *Plusia gamma*, and propounded a query whether this might not indicate an immigration of that species on a large scale from the Continent.

Now, at Dursey Island, the promontory which stretches out into the Atlantic on the west coast of Ireland, between Kenmare and Bantry Bay, a locality singularly unlikely to be thus replenished, I observed last summer a great profusion of this insect, sporting on the flowers of the thrift. And I think it likely that the cloud of moths which, in the same autumn, visited the lantern of the Fastnets Lighthouse was composed of this species, flying on a thick night from land toward the illumination. Unfortunately, no specimens were preserved.

This summer, an abnormal abundance of *V. cardui* has been noticeable all over Ireland (I cannot speak of the most northern counties, except Derry), from Cork and Waterford, to Westmeath, Monaghan, and Derry; and in the west, Connemara and Sligo.

Now, last season I observed a tolerable number of this species, which is notoriously fitful in its apparition in this country, and it seems that the sunny season has favoured its propagation. I may note that I observed its larvæ feeding on the giant mallow.

V. Atalanta has appeared occasionally and singly here and there this summer as *cardui* did last year, and I should predict a similar abundance of it, therefore, next year, if the weather be propitious.

My observations, therefore, lead me to the conclusion that climatic influences rather than immigration account for these phenomena. As to *Colias Edusa* (*C. Hyale* is not, I think, found in Ireland) I have not seen or heard of its occurrence for some years in any abundance, and I have met with none this summer.

Will the Editors kindly state if the swarm of caterpillars which visited the Rhondda Valley were those of *Chæreas graminis*,* as, from the description of their life history quoted from a local savant, not much could be gathered.—W. F. de V Kane, Kingstown: *October* 16*th*, 1884.

Nonagria sparganii, Esp., at Deal.—Amongst some moths captured for me at Deal by my mother at the beginning of September, there was a species of *Nonagria* unknown to me at the time, but which I have just found, on comparison with the European Collection at the British Museum, to be *N. sparganii*. The specimen was nettted when on the wing at dusk in the garden of a house in Park Street. This insect, although common on the Continent, has only recently been discovered in this country by Mr. Sydney Webb.—R. Meldola, 21, John Street, Bedford Row, W.C.: *October* 18*th*, 1884.

Laphygma exigua at Pembroke.—On the 19th September a kind friend at Pembroke drove us over for a "last fond lingering look" at one of our favourite resorts; a lovely bay in a wild stretch of rocky coast facing the Atlantic and backed by extensive sand warrens. After securing the horse at the nearest available spot, we were walking over the warren towards the shore, when from our very feet sprang up a moth, which, from its aspiring flight and whitish hind-wings, was instantly distinguished from the hosts of *Stenopteryx hybridalis* around us. It pitched down again at once into the very short grass, head downwards, actually resting on the grass with its head on the ground as though striving to burrow. In this position it was instantly recognisable as a lovely specimen of *Laphygma exigua*; but, before I could box it, it sprang up into the air perpendicularly as before and again plunged down, this time into a tuft of *Ammophila*, where, by good fortune, I was able to secure it. The sun was shining brightly at the time, and *Lycæna Agestis, Scopula ferrugalis*, and *St. hybridalis* were very lively, but no other specimen of *L. exigua* could be disturbed.—Chas. G. Barrett, 68, Camberwell Grove, S.E.: *October* 20*th*, 1884.

Acronycta alni at Wisbech.—A fine larva of this species, which appears to be less rare in Norfolk than elsewhere, was found at Castle Rising at the end of August, feeding on a standard rose.—A. Balding, Wisbech: *October*, 1884.

Variability of Tortrix Lafauryana.—On looking for this species in the locality

* No precise information came to hand; but it is believed the species was *Heliophobus populeris*.—Eds.

where I accidentally captured a specimen last year, I found it quite abundant in the larval state. It appears to prefer the low isolated bushes of *Myrica gale*, on which it feeds, rather than those bushes which are growing in dense patches and are more luxuriant. Only one or two larvæ could be found on a bush, so that I imagine the eggs are laid singly; but over a large expanse of small, scrubby, separately-growing bushes of bog myrtle, scarcely a bush appeared to be uninhabited by the species. I visited the locality again when my specimens were emerging, and found the insects flying in plenty. By standing quite still they might be seen flitting about among the low bushes, even several at a time; but, on moving towards them, they fly quickly into the nearest bush. There is considerable variety among the insects I have taken, assimilating to several allied species: the predominating colour is a light yellowish-brown, somewhat like *corylana*; others are a greyish-brown, like *sorbiana*, or the deep reddish-brown of *heparana*; and there are intermediate tints, but in all cases there is a far more silky appearance than the species named, and all are more uniformly reticulated. The males only show any markings which are darker towards the costa. Many have two costal blotches, and in some specimens the blotch near the base of the wing is produced as a fascia obliquely across the wing, somewhat like the blotch in *heparana*, but instead of there being an elbow projecting on the inner edge, the edge is nearly straight, excepting a slight hollow near the inner margin. The external edge of the fascia is twice bluntly angulated, and sometimes faintly united with the sub-apical blotch.—Id.

Notes on the Geometrina of Cambridge.—The larvæ of *Epione apiciaria* and *Pericallis syringaria* were scarce last spring. The larvæ of *Iodis vernaria* may generally be found on the *Clematis vitalba* growing on the Cherryhinton chalk-hills, but it is not very abundant this autumn, and it was still less so last year. The perfect insect was scarce this summer. The larvæ of *Metrocampa margaritata* were plentiful on hornbeam last April and May, and those of *Crocallis elinguaria* were common on hawthorn at the same time; naturally the perfect insects have not been scarce. *Rumia cratægata*, *Halia wavariá*, *Abraxas grossulariata*, and *Camptogramma bilineata* have been even more than ordinarily abundant; indeed, the three latter have absolutely swarmed in our garden, and *Boarmia rhomboidaria* has also been very common. I bred *Eupithecia assimilata* last July from a green caterpillar found in June in united leaves on the top shoots of a black currant bush.—Albert H. Waters, Mill Road, Cambridge: *September 10th*, 1884.

An enigma.—In October, 1860, I beat for the first time a number of the larva of *Eupithecia succenturiata* from *Artemisia vulgaris*. This plant is rather abundant on one side of Exeter, but, as happens so often with species that feed on some tree or plant of common occurrence, the locality for the pugs is very limited in extent and except on two sides of one field it is in vain to hunt for them, however temptin the mugwort may appear in other hedges. This spot I have visited in most years but with varying success; latterly, the greater care of the farmer in keeping hi hedges pared has a good deal injured one's sport, and sometimes it has been difficul to get even a couple of larvæ, where twenty years ago fifty or sixty could be go easily. Together with *succenturiata* there have always been a few *absinthiata*, an

ow and again (of course) *castigata*, also stray examples of *H. thymiaria*, and one r two other *Geometræ*; but last year (1883) there turned up what the late Mr. Buckler termed a "puzzler." I had sent him without examination the whole of my rst take from the mugwort, but when, at his desire, I went a second time, and the arvæ had grown bigger, I found amongst my captures one that I could not deter- mine; so, when I sent it on I called his attention specially to it: in his reply he old me he had already detected a similar larva in the first consignment, which he ad placed by itself for observation, and that he had at length come to the conclusion hat it was something he had seen once before, but did not know what to call it. Dr. Knaggs had on one occasion sent him this larva (I presume from somewhere on he South coast), but the moth had not been bred.

For a time, therefore, we were very pleased at our luck, and looked to be able o announce some species at least "new to Britain;" but our hopes were not destined o be long-lived: one of these two larvæ my friend injured when changing its food, nd the other gradually ceased feeding, and died of inanition, though it had been ried with various flowers, and had seemed for a time fonder of *Solidago virgaurea* han of the *Artemisia*; it was captured about the middle of October, and it lived n to November 21st or 22nd.

This year again I visited the locality on October 4th, and the first larva that ell into my umbrella (I got but a bare half-dozen of all sorts on that day) was nother of these puzzlers; whether or not I hurt it, I cannot say, any way, I was oon spared any uncertainty, for after it was boxed it never fed, and in three or four ays' time was dead, and I have not been able to find another.

In the hope that some one else may be more fortunate, I send this note, with he following description of my this year's example:—

Length, 13 mm. Figure rather stumpy, skin rugose, ground-colour rich creamy-hite, head brown, the dorsal thread rather darker than the ground, and bordered hroughout with strong streaks of full brown, which are widest just at the middle f each segment, and narrow where they meet at the folds; in the same way the rown sub-dorsal line varies in width, swelling out in the middle of each segment, nd tapering to the folds; on segments 5—9 these lines, dorsal and sub-dorsal, are nited at their broadest by a deeper brown suffusion, which leaves the fold pale, but ncloses the front pair of pale trapezoidals, and is hollowed out behind on either ide the dorsal line so as to let the hinder pair of trapezoidals stand as the apices of wo pale spaces extending to the fold, and altogether presenting something of the ffect of a good fat M, supposing its middle V filled up; there is a redder brown vaved line just above the spiracles, which stand on pale ground colour, and beneath hem a darker brown suffused region fading off paler into the pinkish-white of the elly, and there is a central ventral line of brown.

Expallidata, perhaps, comes nearest to this larva, but the difference is apparent n comparison, and the stranger belongs to a smaller species.

I am conscious my description does not express exactly what I see; however, Mr. Buckler made very careful drawings, both life size and magnified, and Mr. Bignell has now very kindly figured two segments for me, and preserved the last arva; we have ample materials for identification, therefore, when the larva turns up again.—J. Hellins, Exeter: *October 15th*, 1884.

Scarcity of Diasemia literalis in Pembrokeshire.—I have just (August 7th) paid a visit to the *literalis* ground. I left home by the 10 a.m. train, and returned at 8 p.m.: the day was intensely hot. By extremely hard working I took eight specimens. It is only just coming out, so I must go again.

On a second journey I worked hard two days, and brought back in all nine *D. literalis* and twelve *Eupœcilia Mussehliana*. I got up the second morning at half-past 5, for the chance of a flight before the sun got hot, and obtained only one moth. I went down again for the afternoon flight, and captured one *D. literalis* and one *E. Mussehliana*; so all one day's labour was for three moths.—C. G. Barrett, Jun., Pembroke: *August 21st*, 1884.

Notes on the Tortrices of Rannoch.—An account of the *Tortrices* I met with at Rannoch during the last half of June, may not be devoid of interest.

I reached Kinloch on the 14th June, and on the following day I visited the Black Wood. The only species I met with on this occasion was *Phoxopteryx myrtillana*, which was very common among *Vaccinium*.

A plantation of young Scotch firs proved to be rich in species. Flying briskly round the tops of the trees from morning until late in the afternoon, *Coccyx cosmophorana* was not uncommon, and I here also took a fine series of *Mixodia rubiginosana* and *Retinia pinivorana*, also five *Retinia duplana* of our lists (Scotch form of *Retinia turionana*?), and one *Stigmonota coniferana*.

In open places between the fir-trees, *Phoxopteryx unciana*, *Penthina dimidiana*, *Clepsis rusticana*, were all more or less common, and *Eupœcilia ciliella* absolutely swarmed.

On the 20th June, I took a fine series of *Euchromia arbutana*, *Euchromia mygindana*, and *Coccyx nemorivagana*, on the hills, flying in the afternoon sunshine among their food-plant, *Arctostaphylos Uva-Ursi*. *Mixodia Schulziana*, and *Phoxopteryx unguicana*, occurred commonly among heath; *Penthina prælongana* and *Phlæodes tetraquetrana* among birch; and *Grapholitha campoliliana* among sallow. The last two species differed considerably from the southern form.

On the 24th June, I again visited the Black Wood. *Tortrices* had now increased in numbers, for, in addition to *Phoxopteryx myrtillana*, which was still on the wing, *Mixodia palustrana*, *Coccyx ustomaculana*, *Sericoris lacunana*, *irriguana*, and *Daleana* were all to be met with rather commonly among *Vaccinium*. *Irriguana* is, I believe, considered only a small form of *Daleana*, and I think it will be proved some day that *Daleana* is only another form of *lacunana*. I also took *Stigmonota coniferana* not uncommonly flying around the branches of the larger fir-trees, and one *Coccyx cosmophorana*, ♀, the only specimen I met with in the Black Wood.

Although the days were mostly fine, they were not fine enough for "hill work," and it was not until the 25th June that a favourable opportunity presented itself for visiting the higher slopes. *Penthina Staintoniana* was then nearly over, for I only secured four or five fine specimens. They were flying among *Vaccinium myrtillus*, upon which the larva is supposed to feed. On the same ground I took three beautiful *Amphysa Gerningana*. I was surprised to meet with the species at such an elevation, considering that in more sheltered localities on the Loch side it had not yet put in an appearance. On the brow of the hill, among "grey moss," *Scoparia alpina* was common, one or two flying up at every step.

Of larvæ, I collected only a few, but I may mention that larvæ feeding in the erminal shoots of *Myrica gale* produced a beautiful and varied series of *Pædisca emifuscana*.—A. H. Jones, Shrublands, Eltham, Kent: *September 13th*, 1884.

Penthina Staintoniana, Scotch form of Penthina sauciana?.—It has frequently been suggested that *Penthina Staintoniana* is only a northern form of one of the *Penthinæ*, but of which it has never been determined. The only species with which t can be associated is *sauciana*. On comparing it, the markings appear to be identical, and the only difference between the two species is in point of colour, *Staintoniana* being much paler than *sauciana*. To this difference I attach but little importance, considering the varied forms which are produced by altered conditions. Both pecies occur among *Vaccinium myrtillus*, which may be taken as additional evidence. Staudinger and Wocke, in their Catalogue, do not mention "*Staintoniana*." They ive as the geographical distribution of *sauciana*—"Germany, Central and South Alps, *Scandinavia*, Lapland, Livonia, England. I have but little doubt that *Staintoniana* is only the "Scandinavian" form of this species.—Id.: *October 3rd*, 1884.

[*Penthina sauciana* differs from *Staintoniana* in the shape of the fore-wings, which, in *sauciana*, are broader with arched costa and truncate hind margin. The difference between these two species is much the same as that between *capræana* nd *betuletana*. Nevertheless, the subject will bear further investigation.—C. G. Barrett.]

Note on Laccobius minutus.—This seems to be a rather scarce species. Since Dr. Sharp's remarks on the genus (*cf.* Ent. Mo. Mag., xxi, 85), I have separated he specimens in my cabinet, and find the result is—*L. sinuatus*, Motsch., from Worthing; *L. alutaceus*, Th., from Deal; and *L. bipunctatus*, Th., from Folkestone. *L. minutus*, auct., I do not possess. Mr. Wood remarks (*cf.* Ent. Mo. Mag., xxi, 12) that he has only one example; and my friend, Mr. Newbery, also informs me e has all the species, but only *one* of *L. minutus*, and that specimen from an old ollection, without any label.—C. G. Hall, 7, Beaconsfield Road, Deal: *October 0th*, 1884.

On setting Coleoptera.—So many of the carded specimens of beetles sent me by orrespondents in various parts of the country are not in a sufficiently clean state of ounting to please my—perhaps, too fastidious—views of what a collection of eetles should look like, that I venture to call attention to a method of setting introduced by Mr. J. H. Smedley, of this city, and which has been adopted by all to hom we have shown it. All Coleopterists must have noticed that, no matter what ure be employed, some beetles cannot be mounted with tragacanth without the ard bearing traces of the setting needle, in the form of a rough, woolly-looking urface, showing as a dirty blotch round the legs and antennæ of the specimen. he method we adopt entirely does away with any unpleasant appearance. The ecimens, after having been killed with boiling water, and drained on blotting aper, are set with *hot, thin glue* upon pieces of old stout card—stout, because thin ard curls up as the glue contracts on drying. The specimens are set on this in the me manner as when tragacanth is employed, but with far less trouble, and in one-xth of the time, for as each leg or antenna is drawn to its place it is retained

there—who has not lost his patience in setting (or trying to set) *Byrrhus* with tragacanth? and such genera as *Hister, Byrrhus, Coccinella, Parnus*, &c., can be made with no difficulty to show the palpi, antennæ, and legs as easily as a *Notiophilus*. Care must be taken not to have the glue too thick, or there is a liability of the limbs being detached, but a little practice will soon teach the requisite consistence. Another benefit to be derived from this plan is that among the "Staphs" there is no retraction of the segments of the abdomen, but once laid on the glue and pressed down with the needle, this portion of the insect retains its normal appearance. The cards, each containing a day's captures, are marked with date and locality, and put away until time permits of their being re-mounted—a nice pastime for the long winter evenings. Then the cards are cut into pieces, each holding ten or a dozen specimens, these are dropped into boiling water, the specimens at once leave the glue and float on the surface, they are fished out quickly—so that no time for their relaxation occurs—on to blotting paper to drain, and mounted without any needle by placing them with a brush on a drop of tragacanth (to which a little acacia is best added) on the *whitest obtainable* card. In a short time the specimens may be cut out, ticketed with locality and date, if desired, and put away in a condition which no one can find fault with. It may be objected that the tarsi may become "beclogged," and the specimens daubed with glue, during the setting, but even if this does take place, the momentary immersion in boiling water effectually removes all traces of this, and restores the specimens to their pristine beauty. The trouble of having to carry a small glue-kettle, and keeping the glue hot while away on a holiday, is far counter-balanced by the rapidity with which a day's "bag" may be set, and the safety with which the glued cards of specimens will travel.—John W. Ellis, 101, Everton Road, Liverpool: *September 23rd*, 1884.

Reviews.

Our Insect Allies: by Theodore Wood. London: Society for Promoting Christian Knowledge. 1884, 8vo, pp. 238.

This is a pleasantly-written readable little book, containing much sounder information than is usual in works of the same class, and profusely illustrated. It is we think, almost the author's first attempt at book-making, and his production compares very favourably with many other works on popular entomology. The aim is to give an account of insects that aid us, either as parasites on other noxious species, or as scavengers that hasten the destruction of dead or decaying animal or vegetable matters. The exigencies of this position sometimes lead to a dilemma. For instance, if the author were to write a book on noxious insects he would certainly include gnats among them, and yet we here find them doing duty as "allies," because their larvæ undoubtedly tend to purify stagnant water. We must point out to the author one serious error. At p. 160 he figures what he says is the larva of a Lace-wing fly (*Chrysopa*) devouring an *Aphis*. The figure represents, if anything, the larva of a *Syrphus* engaged in such an operation; and the error is unaccountable, because he largely quotes Mr. Buckton's Monograph, and the latter author very correctly figures a Lace-wing larva on pl. lxxiv, fig. 2. There are some other blemishes or mis-statements; but we have no desire to be severely critical on a writer who has evidently tried to be correct, and, with a few exceptions, has succeeded.

The Butterflies of Europe, illustrated and described by Henry Charles Lang, M.D., F.L.S. London: Reeve & Co. 1881—1884, pp. 396, super royal 8vo, with 77 chromo-lithographic plates.

We congratulate Dr. Lang on the conclusion of what was really a gigantic undertaking, and in having satisfactorily supplied what was a distinct *desideratum* to the numerous tourists with entomological proclivities who annually take their holiday on the Continent, and to others who, without being themselves travellers, collect European Butterflies. It is the only work of the kind in existence, and is likely to remain so. Not claiming to be a strictly scientific book, it can, nevertheless, scarcely fail to be consulted by all classes of entomologists, as a collective work. The arrangement followed is that of Staudinger, but the species *figured* are those that occur in Europe proper; the other palæarctic (and some nearctic) species are simply described. The descriptions are (with few exceptions) original, with notes on distribution and brief references to the larvæ (when known). More than 800 figures are given on the 77 chromo-lithographic plates; they are mostly successful, and in many cases infinitely superior to some hand-coloured figures, already published, of the same species; but they fail in giving a correct idea when *metallic* colours (blues and reds) are necessary, as in the *Lycænidæ*. Possibly there is a deficiency in what is commonly termed "readable matter." Type and paper are excellent, and the "printer's errors" not numerous (but occasionally unaccountable). Without reckoning "varieties" or "aberrations," the author enumerates 550 species of Butterflies as belonging to the "European (Palæarctic) Fauna," but we are not clear (from the Systematic List) as to the number of those now known as occurring in Europe proper; the additions from the Asiatic extension of the "Fauna" have been very numerous of late. The result of the labour of three years is now before those likely to be interested, who will, no doubt, judge for themselves as to how far it meets their requirements; we repeat that, in our opinion, a distinct *desideratum* has been supplied.

Catalogue of the Lepidoptera of the Bristol District. By Alfred E. Hudd. From the Proceedings of the Bristol Naturalists' Society. 1878—1884.

This is another valuable addition to the several local lists that have appeared of late, and which, useful as they are at the present time, cannot fail to be of greater service, for comparative purposes, to future generations of local entomologists. The "District" is a large one, and includes portions of both Gloucestershire and Somersetshire. In the immediate vicinity of Bristol are the celebrated Leigh Woods (doomed we fear to early destruction), the home of *Drepana sicula*, and probably the only spot where the Lime (*Tilia parvifolia*) is indigenous in Britain. The total number of species listed is 1310 (as against 1341 in Yorkshire and 1246 in Norfolk), of which 55 are Butterflies, 73 *Nocturni*, 208 *Geometræ*, 25 *Drepanulæ* and *Pseudo-Bombyces*, 215 *Noctuæ*, 57 *Pyrales* and *Deltoids*, 42 *Crambidæ*, 205 *Tortrices*, 410 *Tineina*, and 20 *Pterophori*. There have been many energetic workers in the Micros in the District, who have helped to swell the list considerably. Here, as everywhere in this country, we have constantly the remark that Butterflies are becoming extinct or scarcer than formerly; but it is satisfactory to find that *Vanessa c-album* still occurs in profusion in some parts of the District. Mr. Hudd and his fellow-workers are to be congratulated on having produced an excellent local list.

THE *NITIDULIDÆ* OF GREAT BRITAIN.

BY REV. W. W. FOWLER, M.A., F.L.S.

(*Continued from page* 98.)

MICRURULA, *Reitter.*

M. melanocephala, Er.—Thorax without separate side border, which gives the insect the appearance of a *Meligethes* rather than an *Epuræa*; its entirely different contour and certain differences in its mouth organs, especially the mandibles, seem to justify its separation as a distinct genus. The elytra are testaceous, thorax dark, antennæ and legs reddish; thorax gradually contracted from base to apex, much narrower in front than behind, base as wide as base of elytra; punctuation fine and close; last joint of antennæ as broad as preceding; legs rather short and strong.

Length, 1¼ lin.

The colour of this species is variable; some specimens are entirely testaceous: this rather common variety is the *Nitidula affinis*, of Stephens; a much rarer variety, the *N. fusca*, of Heer, is entirely black or fuscous; of this I have only seen two specimens, which are in Mr. Wilkinson's collection, now in the possession of Mr. Mason.

This is rather a common species, and occurs on flowers. Shiere, Mickleham, Caterham, Amberley, St. Mary Cray, Purley Down, Gumley, Birch Wood, Forres; I have beaten it from wild cherry blossom in early spring, at Foremark, near Repton.

OMOSIPHORA, *Reitter.*

O. limbata, Er.—Distinguished from *Epuræa* by its long legs, the posterior of which are somewhat widely separated, and by its different contour. Oval, convex; thorax twice as broad as long, contracted at base, dilated in middle, as broad as elytra, with strong, broad border; testaceous or rufo-testaceous, with apical half of elytra and thorax (all but margins) dark; antennæ rather long, with last joint slightly narrower than the penultimate; punctuation rather strong.

Sometimes plentiful in fungi, but very local; Dartford, Walton-on-Thames, Shiere, Horsell, Burnham Beeches, Nocton, Repton, &c. I once beat a specimen from an old cabbage stump, which had been pulled up and left to decay. Erichson says it is taken at sap, and also under fallen leaves in sunny places in early spring.

Some of the distinctions above given for the different species of *Epuræa* and its allies are very slight, and are often mere matters of comparison; in dealing, however, with the genus, it is impossible in many cases to give very plain and tangible descriptions; the only way to obtain a knowledge of the species is by a careful comparison with types, as was said above; unfortunately, the rarer species are very difficult to procure as British, but foreign types are easily obtainable, and any one who wishes to work the genus would do well to furnish

himself with them, and so avoid the confusion that is constantly occurring: this also applies to other genera, like *Meligethes*; in many points the best authorities differ in their descriptions, and in some cases the differences they point out may be appreciable in one specimen of a series, but very difficult to make out in another; when once, however, the general distinctions have been grasped, the species as a rule are not hard to determine.

As regards the difference of size and colour, and the frequent occurrence of pale examples of the species that usually have dark markings, it must be remembered that *Epuræa* is a gregarious genus, and that a number of specimens are usually found together unassociated with other species; it is, therefore, very easy to determine them in such cases.

NITIDULA, *Fabricius*.

I. Thorax entirely black.

i. Elytra with yellow or reddish spots; thorax with anterior margin straight.

N. bipustulata, Linn.—Elytra of a dull black colour, with one well-defined reddish-yellow spot on each, placed a little behind the middle; antennæ entirely black, or dark red with black club; legs red; occasionally the margins of the thorax and elytra are reddish-brown, and sometimes the whole body-colour is brownish; the punctuation, although fine, is stronger than in our other species, but differs somewhat in the sexes, as does also the contour of the thorax, which is somewhat more narrowed in front in the female than in the males; the anterior margin of the thorax is straight, with hardly a trace of emargination. Length, $1\frac{1}{2}$—$2\frac{1}{4}$ lin.

Universally common under dead birds and animals, old bones, &c.

N. quadripustulata, Fab. (*carnaria*, Schall.).—This insect, at first sight, in size and colouring resembles some species of *Epuræa*; the elytra are dark, with four irregular light spots often confluent and forming bands; antennæ red with dark club; legs red; punctuation of thorax fine but distinct; anterior margin of thorax quite straight. Length, 1—$1\frac{1}{4}$ lin.

This is the smallest of our species, and is rather variable as regards colour: Stephens' *N. variata* is a pale variety; its habitat is the same as that of the preceding species, but it is local and by no means common — Hunstanton, Whitstable, Sheerness, Gravesend, Chatham, Darenth, Blackheath, Shirley, Weybridge.

ii. Elytra without spots; thorax distinctly emarginate.

N. rufipes, Linn. (*obscura*, Fab.).—Body entirely dull black, with very fine, almost invisible punctuation; antennæ red with black club; legs red; elytra with traces of striæ. Length, $1\frac{1}{4}$—$2\frac{1}{4}$ lin.

Habitat the same as the preceding; very local, and by no means a common species; Dr. Power has taken it in some numbers at Da-

renth, and it has been taken at Sheerness, Gravesend, Chatham, Esher, &c.; Stephens describes it as rather abundant, and gives the following localities: Norfolk, Suffolk, Devonshire, Netley, Glanvilles Wotton, and Swansea, so that it appears to be generally distributed; with the exception, however, of Dr. Power, no collector seems to have taken it in any numbers for a long time past.

There seems no good reason why the preference should be given to Fabricius' name for this species, as is now generally the case, as the insects in the Linnean collection standing under *Silpha rufipes* are our *Nitidula rufipes*; it is, however, true that the description given by Linnæus does not accord with them (*vide* Ent. Ann., 1867, 112), yet neither does it agree with *Meligethes rufipes*, which his insect is generally supposed to have been.

II. Thorax with margin broadly yellow.

N. flexuosa, Fabr.—Elytra black, with two very variable spots on each, one at base, and one in middle close to suture; the four spots are often confluent, and enclose a dark space round scutellum; antennæ rather long, yellowish, with dark club; legs yellow; punctuation extremely fine, almost invisible; thorax with anterior margin somewhat emarginate, broadest behind middle, and from thence contracted to base. Length, $1\frac{1}{2}$—$2\frac{1}{3}$ lin.

A very rare and doubtful species as British; Scarborough, Mr. Lawson; Northumberland, Mr. Bold; very probably imported with hides or bones; Mr. Bold himself considered his specimens taken near Newcastle-on-Tyne to have been not truly indigenous.

The species of the genus *Nitidula* are extremely variable in size, as may be seen from the lengths above given.

Soronia, *Erichson.*

The species of this genus, and also of the genus *Omosita*, are readily distinguished from all the other *Nitidulidæ* by having the disc of the thorax distinctly impressed or wrinkled; some species (*e. g.* *Omosiphora limbata*) have a distinct longitudinal furrow at the base but their disc is smooth; slight traces of impressions are visible in many specimens of *Epuræa parvula*, and *Amphotis* and one or two species of *Rhizophagus* occasionally show small impressions or punctures, but these are apparently abnormal, and need hardly be taken into account when compared with the sculpture of the thorax of the above-named genera; our two species of *Soronia* resemble each other very closely in colour, having the thorax and elytra variegated with black or dark brown and yellowish or reddish spots; the elytra have four or five raised lines on each.

S. punctatissima, Ill.—Usually much larger than the following species, but occasionally specimens are found that are not larger than a moderate sized *S. grisea*. In Dr. Power's collection there are several of these small specimens taken by him among a large number of the type form. As a rule, the species may be separated by size, but apart from this, *S. punctatissima* is a broader and more convex insect with closer punctuation, and with the sides of the thorax more parallel; the margins of the thorax and elytra are also somewhat broader and more distinct.

Length, $1\frac{3}{4}$—$2\frac{3}{4}$ lin.

Usually found in or near burrows of *Cossus ligniperda*: Shirley and Esher, in birch, Dr. Power; Dunham Park, Manchester, in oaks and alders, Mr. Chappell; Shiere, under stones and by sweeping, Dr. Capron; Isle of Wight, Darenth, Chatham, Addington, &c.

S. grisea, Linn.—Narrower in proportion and less convex than the preceding; also rather less closely punctured; it is also usually of a lighter colour.

Length, $1\frac{1}{2}$—$2\frac{1}{3}$ lin.

A widely distributed and rather common species; not so often associated with *Cossus* as the preceding: Notting Hill, in willows not infested by *Cossus*, Dr. Power; Stretford, Manchester, under bark of old apple trees, Mr. Reston; Prestwich, under bark of alders near *Cossus* burrows, Mr. Chappell; at sap of *Cossus*-infected trees, common, Mr. Champion; I have beaten it from hawthorn blossoms near the banks of the Trent at Repton, and in Bretby Wood near the same place, and have also taken it in flood refuse.

The larva of this insect is figured in the first volume of the Transactions of the Linnean Society by Mr. William Curtis, and again in Westwood's Classification of Insects, vol. i, p. 142; it inhabits willow trees and feeds on frass; the pupæ, according to Westwood, are found at the foot of the trees, beneath the surface, amongst the moist earth and *débris* there collected.

Amphotis, *Erichson.*

This genus may be at once distinguished, apart from differences in the mouth-organs, by the very broad and smooth margins of the thorax and elytra, and the very greatly enlarged first joint of the antennæ, which, when viewed from above, gives the forehead the appearance of being strongly lobed; the second joint is inserted beneath the lobe formed by the first, which slightly overlaps it, and not at the end of the first joint, as is the case with *Omosita* and other genera, which have the first joint thickened.

A. marginata, Er.—Thorax and head ferruginous: elytra dark, with some lighter markings, and with five distinct raised longitudinal lines on each; margins of thorax and elytra very broad and smooth, of a uniform red colour; punctuation of thorax fine and close, of elytra stronger and more diffuse. Length, 2—$2\frac{1}{2}$ lin.

Rare; in chinks and crevices of beech and other trees near the runs of *Formica fuliginosa*: Birch Wood, Tilgate, Coombe Wood, Mickleham, Horsell, Maidstone, &c.

OMOSITA, *Erichson*.

1. Length, 1¼ lines; thorax ferruginous, elytra strongly margined.

O. depressa, Linn.—Entirely of a rust-red colour, except the head, scutellum, centre of thorax, and a few scattered spots on elytra, which are darker; thorax with two impressions on disc behind middle, and a strong longitudinal furrow on each side; posterior margin very distinctly bisinuate; elytra very finely, almost invisibly, punctured, with strong margins.

A local species, common in the north of England and in Scotland; it is usually found under old bones; Aviemore, Braemar, Dumfries, North Derbyshire, Llangollen (under stones), Shiere, &c.; Stephens gives Bottisham, Netley, and Glanvilles Wootton, as localities.

2. Length, 1½ lines; thorax dark, with margins somewhat lighter; elytra very slightly margined.

O. colon, Linn.—This and the next species are at once distinguished from the preceding by their much smaller size, different colouring, less close punctuation, more oblong form, and much narrower margins of elytra; in fact, *O. depressa* might for many reasons be made a separate genus. *O. colon* may be separated from *O. discoidea* by its colour, which is dark, with the margins of the thorax somewhat lighter; the elytra have each a rather small spot behind middle, reaching to suture, and a few other light spots towards base; the thorax is strongly rounded and contracted in front, so that the anterior margin is considerably narrower than the posterior, and the base shows very slight traces of sinuation. Length, 1—1½ lin.

Very common under old bones, and generally distributed.

O. discoidea, Fabr.—Distinguished from the preceeding by having the thorax not much contracted in front, so that the anterior margin is nearly as broad as the posterior, and by the elytra having a common light yellowish spot reaching from base to beyond middle, and from suture nearly to side margin: the posterior margin of the thorax shows hardly a trace of sinuation. Length, 1—1½ lin.

Very common under old bones, and generally distributed.

PRIA, *Kirby*.

This genus at first sight closely resembles *Meligethes*, but is distinguished by the oblong club of its antennæ, by the thorax having a lateral stria close to margin, and by the simple front tibiæ.

P. dulcamaræ, Ill.—Rather smaller than *Meligethes æneus*, of a dark oliv testaceous colour, with suture of elytra and under-side darker; punctuation thorax fine, of elytra almost invisible; legs yellow; anterior tibiæ simple; under high power slight traces of teeth are visible, and the posterior tibiæ are seen to clothed with very short white hairs on their margins; the antennæ are rather long in the males than in the females, and the eighth joint in the former sex is enlarg laterally, so that the club appears to be four-jointed in the males, and three-joint

in the females. Stephens, deceived by this, considered them to belong to separate genera, the female being his *Meligethes dulcamaræ*, and the male his *Pria truncatella*. Length, 1 lin.

Local, but widely distributed, on flowers of *Solanum dulcamara*.

THALYCRA, *Erichson*.

T. sericea, Sturm.—Bright rust-red, shining, ovate; thorax strongly punctured; elytra strongly punctured at base, more feebly at apex; elytra and thorax closely fringed with short white hairs; antennæ with first joint enlarged, almost semicircular, club round and very compact; anterior tibiæ simple, posterior pairs armed with spines on the exterior side; occasionally the elytra are of a darker colour. Length, 1½—2 lin.

Widely distributed, but rare; at sap of infected *Cossus* trees, and occasionally by evening sweeping; Birch Wood, Shirley, Ripley, Esher, Surbiton, Mickleham, Loughton, Balcombe (Sussex), Tilgate, Bromley, Forres; it is the same as *Strongylus fervidus*, Steph., which, according to Stephens, inhabits fungi; Erichson says that the probable habitat of this species is under-ground, as the structure of the legs seems to indicate, but that on hot summer evenings it comes out on grass and low vegetation.

POCADIUS, *Erichson*.

This genus has a sort of superficial resemblance to *Thalycra* and *Cychramus*, but may be distinguished from the first by the regular rows of punctures on the elytra, which are separated by regular rows of yellow hairs, and from the latter by the compact round club of the antennæ (the club in *Cychramus* being elongate), and the fact that the anterior tibiæ are produced into a strong point at apex.

P. ferrugineus, Fabr.—Oval, convex, shining, of a reddish-brown colour, apex of elytra sometimes darker; antennæ very short, light red, with dark club, which is very compact; thorax very short in comparison with elytra, with narrow, though distinct, margins, rather diffusely and obscurely punctured; elytra punctured as above; legs light red, with all the tibiæ produced into a point at apex. Length, 1½—2 lin.

Local, but widely distributed, in fungi, especially *Lycoperdons*.

(To be continued).

Cis bilamellatus, Wood.—In the description of this insect on p. 130 of this volume, owing to a mistake, "*pube parcâ*," which I wrote, was printed "*pube paucâ*," and "*utrumque*" was omitted in line 11, which should read "*utrumque pube flavâ ordinibus dispositâ vestitum*," &c. I had nothing to do with the description in English, which I did not see until I received the Magazine, but I may perhaps be allowed to point out that in lines 8 and 10 for "emarginate" we ought to read "margined."—ID.: *November 13th*, 1884.

REVISION OF THE BRITISH SPECIES OF *SPHECODES*, LATR. (INCLUDING NINE ADDITIONAL).

BY EDWARD SAUNDERS, F.L.S.

In my Synopsis of the British Hymenoptera Aculeata (Trans. Ent. Soc. Lond., 1882, pp. 195—199) I described the few British species of this genus then known to me, enumerating six in all. In the same year Von Hagens, of Düsseldorf, published the last of his several important papers on *Sphecodes*, in which he describes all the German species known to him, and gives figures of the genital armatures of the males, and it is from this paper, published in the Deutsche Entom. Zeitschrift, 26 Jahrg., 1882, 2tes Heft, pp. 209—228, pl. 6 and 7, and from specimens very kindly sent to me by v. Hagens himself, that I have been able to identify our species with his.

There is no doubt that the genus is a very difficult one to work out, and that the species are superficially exceedingly alike; but, at the same time, the characters exhibited by the genital armatures of the males are most pronounced, and it is only necessary for collectors to extract these with a fine needle (which is very easily done when the insects are still moist), to enable them to name their captures with ease and certainty. Apart from these characters, the antennæ and alar hooks and puncturation afford peculiarities in most cases by which the species may be recognised; but in some (as far as my examinations have gone) it is positively necessary to extract the armature to refer a specimen for certain to its proper species. In the females it is almost equally necessary to extract the terminal abdominal segment, which is wont to get hidden under the 5th, as its dorsal valve affords characters which are often most useful; other characters appear in the number of alar hooks, the colour of the tibial spines, and in the puncturation of the mesothorax, as well as in the sculpture of the metapleuræ.

The really great difficulty is to assign the right females to the various males, as the sexes are only to be found together for about a month (in August), and even then, as several species sometimes colonize in the same bank, the difficulty is scarcely lessened. The group in which this difficulty has not yet been satisfactorily surmounted is that which was formerly known as *ephippium*, Kirby, but which now includes four British and no less than nine German species. Here the males are easily distinguishable, but the females are very much alike. v. Hagens has distinguished eight forms, but it still remains to be shown for certain which are referable to which of his nine males

although he makes suggestions which seem, as far as I can judge, to assign them correctly. Any one studying this genus ought certainly to procure his papers, as there is yet room for hope that more of the European species may turn up in this country.

I have pleasure in thanking the Rev. E. N. Bloomfield, and Messrs. Bridgman, Harwood, Marquand, Parfitt, Perkins, and Service, for the loan of their specimens, and for several rarities which they have kindly given me.

TABLE OF SPECIES.

(8) 1. ♂ & ♀. Hooks of posterior-wings 7—10, large species.

(7) 2. ♂. Posterior tibiæ not spinose.
♀. Mesothorax very shining, puncturation large and remote.

(4) 3. ♂. Basal pubescent bands of the antennal joints reaching to about one-third of the length of each joint, and widened at the sides.
♀. Glabrous centre of apical dorsal valve very narrow, almost linear... *gibbus.*

(3) 4. ♂. Basal pubescent bands of antennæ very narrow, not widened at the sides.
♀. Glabrous centre of apical dorsal valve more or less wide.

(6) 5. ♂. Lacinia of armature not bifid, 2nd sub-marginal cell very narrow.
♀. Sides of metathorax reticulated, apical dorsal valve rather narrow, spines of tibiæ black..... *reticulatus.*

(5) 6. ♂. Lacinia of armature bifid at the apex, 2nd sub-marginal cell not very narrow.
♀. Vertex of head sub-quadrate, sides of metathorax strigose, apical dorsal valve wide and flat, spines of posterior tibiæ pale ... *subquadratus.*

(2) 7. ♂. Posterior tibiæ armed with pale spines along their external margin, as in the ♀.
♀. Thorax dull, closely and rugosely punctured ..... *spinulosus.*

(1) 8. ♂ & ♀. Alar hooks 5—6, large or small species.

(18) 9. ♂. Stipites of armature without a wide longitudinal groove.
♀. Dorsal apical valve wide, flat and dull, or with the mandibles not toothed, or very small (niger) with mandibles toothed, but with the 2nd segment of abdomen more or less suffused with black, and the 3rd segment not foveated at the sides.

(15) 10. ♂. Stipites not strigose, finely reticulated or rugose or nearly smooth.
♀. Mesothorax finely punctured, apical dorsal valve not dull and punctured.

(14) 11. Second sub-marginal cell wide in both sexes.
♂. Genital armature longer than wide.
♀. Mandibles not toothed.

(13) 12. ♂. Lacinia of armature not fringed with hairs at the apex, its membrane produced along the inner edge of the stipes.
♀. Larger and darker, apical dorsal valve narrowly rounded at the apex, and with an impressed line parallel to the margin ..... *puncticeps.*

(12) 13. ♂. Lacinia fringed with hairs, its membrane not produced along the edge of the stipes, abdomen entirely black or piceous.
♀. Smaller and lighter, apical dorsal valve widely rounded at the apex, its margins reflexed ..... *longulus.*

(11) 14. Second sub-marginal cell narrow in both sexes.
♂. Genital armature nearly twice as broad as long.
♀. Mandibles toothed ..... *niger.*

(10) 15. ♂. Stipites distinctly strigose.
♀. Mesothorax closely and rather largely punctured, apical dorsal valve wide, flat and punctured.

(17) 16. Larger. ♂. Abdomen elongate, armature with the lacinia flat and submembranous, clothed with long hairs at the apex.
♀. Dorsal apical valve slightly reflexed at the edges ..... *pilifrons.*

(16) 17. Smaller. ♂. Abdomen short, armature with the lacinia bifid at the apex.
♀. Apical dorsal valve distinctly margined ..... *similis.*

(9) 18. ♂. Stipites each with a wide longitudinal groove.
♀. Mandibles toothed, apical dorsal valve shining, or with the 3rd abdominal segment with a black fovea on each side.

(22) 19. ♂. Basal segment of abdomen entirely red, or with three small black spots at its extreme base.
♀. Third abdominal segment not foveated at the sides.

(21) 20. ♂. Larger, with the base of the abdomen entirely red ... *ferruginatus.*

(20) 21. ♂. Smaller, with the basal segment of the abdomen more or less spotted at the extreme base ..... *hyalinatus.*

(19) 22. ♂. Basal segment of the abdomen black.
♀. Third segment of the abdomen with a black fovea on each side.

(26) 23. ♂. Antennæ with a grey pubescent basal band on each joint.

(25) 24. ♂. Antennæ entirely black ..... *variegatus.*

(24) 25. ♂. Antennæ more or less rufescent in front ..... *divisus.*

(23) 26. ♂. Pubescence of antennal joints extending almost to the apex of each.

(28) 27. ♂. With the thickened portion of the lacinia produced at the apex inwardly and considerably widened ..... *dimidiatus.*

(27) 28. ♂. Apex of lacinia not widely dilated on its inner margin ..... *affinis.*

1. *gibbus*, Linn., Syst. Nat., ed. x, vol. i, p. 571. E. Saund., Trans Ent. Soc. Lond., 1882, p. 196, pl. viii, f. 3. v. Hag., Deutsch Ent. Zeit., xxvi, 1883, pl. vi, f. 4.

Black, base of abdomen more or less red. A bright shining species, the ♂ wit long antennæ, the 3rd joint of the flagellum several times longer than the shor transverse 2nd joint; mesothorax largely and rugosely punctured; abdomen rathe strongly punctured; wings slightly dusky; 2nd sub-marginal cell not quite so wid at the base as long; genital armature with each lacinia produced into two elongat processes, clothed with long hairs, the upper one the longest.

♀. Mesothorax very shining, largely and remotely punctured; metathorax s

the sides rugosely strigose; wings darker than in any of the other species; 2nd sub-marginal cell shaped much as in the ♂; abdomen shining, indistinctly punctured; apical dorsal valve with a very narrow glabrous centre; spines along the external margin of the tibiæ black. Length, 8—10 mm.

A common species, I believe. I have taken it commonly at Chobham, and received it from Norwich (J. B. Bridgman), Colchester (W. H. Harwood), Gloucestershire (V. R. Perkins), Guestling, near Hastings (Rev. E. N. Bloomfield), Exeter (E. Parfitt), Penzance (E. D. Marquand).

2. *reticulatus*, Thoms., Opusc. Ent., 98, 3; Hym. Scand., ii, p. 155. v. Hag., Deutsche Ent. Zeit., xxvi, 1882, pl. vi, f, 5.

Very like the preceding, but rather smaller, and the puncturation of the thorax in both sexes rather less coarse. ♂ with the antennæ neither quite so long nor so thick as in *gibbus*, each joint with the basal pubescent band much narrower; anterior-wings with the 2nd sub-marginal cell very narrow, its sides sub-parallel, almost twice as long as wide; abdomen shining, less strongly punctured than in *gibbus*; the armature quite differently formed: the lacinia being produced into a simple point, with a sub-membranous wing along its inner margin.

♀ differs from *gibbus* in its narrow 2nd sub-marginal cell, its less smoky wings, the reticulated (not strigose) sides of the metathorax, the wider sub-carinated dorsal valve of the abdomen, and in the much more finely punctured, less shining, and grey pubescent 4th segment; the black of the apex of the abdomen also does not extend on to the apex of the 3rd segment, as is usually the case in *gibbus*.

Length, 7—9 mm.

I took a few males in August this year at Chobham, flying over a sandy bank, and find a ♀ mixed with *subquadratus* taken at Chobham in 1873. I think it must be local, as I have not received it from any correspondent.

3. *subquadratus*, Sm., Zool., iii, p. 1014, f. 5. E. Saund., Trans. Ent. Soc., 1882, p. 197, pl. viii, f. 2. v. Hag., Deutsche Ent. Zeit., xxvi, 1882, pl. vi, f. 6.

Just like the preceding in colour, but distinguished in both sexes by its rather larger size, and much wider 2nd sub-marginal cell; in the ♂ also by the bifid lacinia and very different shape of the armature; and in the ♀ by the incrassate vertex, the strigose metapleuræ, the wide flat dorsal valve, and the pale tibial spines.

Length, 8—10 mm.

A common species and widely distributed. Chobham; Norwich (J. B. Bridgman), Hastings (Rev. E. N. Bloomfield), Penzance (E. D. Marquand), Lundy Isle, nearly black ♂ (F. Smith), Gloucestershire (V. R. Perkins), Dumfries (R. Service), Colchester (W. H. Harwood), Hampstead (T. R. Billups).

(To be concluded in our next).

ON A REMARKABLE NEW GENUS OF *CUCUJIDÆ* FROM BRAZIL.

BY A. SIDNEY OLLIFF.

ACIPHUS, *gen. nov.*

Body elongate, much depressed. Head moderately large, broadly transverse. Eyes small, elongate, situated just behind the base of the antennæ, very finely facetted and not prominent. Antennæ, 11-jointed; the basal joint very long, slender, widening out into a flattened club at the extremity, the second joint very short, but distinctly longer than broad: the third about twice as long as the second; the fourth to tenth nearly equal in length; the apical slightly longer than the preceding. Mandibles prominent, incurved, moderately stout and not grooved. Prothorax considerably longer than the head; the sides oblique, with a feeble emargination on each side just behind the middle. Scutellum rather long, the sides nearly parallel, pointed behind. Elytra only extending to just before the base of the second abdominal segment; humeral angles somewhat prominent; outer apical angles rounded. Abdomen with the terminal segment rounded behind. Legs rather short; femora very stout; the four anterior tarsi 5-jointed, the first joint slightly elongate, the second and third somewhat shorter, the fourth small, the fifth about as long as the three basal joints together; posterior tarsi 4-jointed, the basal joint as long as the two succeeding ones together; claws with a slight enlargement near the base.

The genus characterized above is allied to *Diagrypnodes*, Waterh. (Trans. Ent. Soc. Lond., 1876, p. 13), but differs in having the head transverse, the mandibles simple instead of grooved, and in the form of the scutellum. The basal joint of the antennæ is longer, and the eyes are situated nearer the bases of those organs.

ACIPHUS SINGULARIS, *sp. n.*

Elongate, very strongly depressed, pale reddish-testaceous, shining; the disc of the head except near the base, mandibles, apex of each elytron and the knees pitchy-black. Head much broader than long, narrowed in front of the eyes, extremely finely punctured; the sides nearly parallel; the posterior margin with a slight sinuation on each side of the middle. Antennæ slender, filiform, reaching beyond the apex of the elytra. Prothorax much longer than the head, considerably broader in front than behind, somewhat concave, with scarcely any trace of punctuation; anterior angles rounded; the sides oblique, with a feeble emargination just behind the middle; posterior angles obtuse; the median line indistinct. Scutellum extremely finely punctured. Elytra at the base slightly narrower than the head, widening posteriorly, extremely finely and very sparingly punctured; the sides arcuately rounded behind: each elytron with a very feebly impressed line extending from the shoulder to just before the inner apical angle. Abdomen pale testaceous; all the segments except the first with a moderately large dusky spot on each side of the middle. Length, 6 mm.; greatest width, $1\frac{1}{4}$ mm.

Rio Janeiro (*Squire*). Type in the collection of Mr. E. W. Janson.

This curious species is allied to *Diagrypnodes Wakefieldii*, Waterh. (*l. c.*), described from New Zealand.

London: *November 18th*, 1884.

ON A SMALL COLLECTION OF *TRICHOPTERA* FROM UNST, NORTH SHETLAND.

BY R. McLACHLAN, F.R.S., &c.

At p. 91 of this vol. I published a short note on four species of *Trichoptera* captured in Unst by Mr. C. A. Briggs. A somewhat larger collection, comprising twelve species, made by Mr. E. P. Roper Curzon, in August of this year, has just been presented to me by Mr. Meek. It merits a longer notice, and more especially as there is one insect of extreme interest. It may be well to mention that the northernmost point of Unst lies in nearly 61° N. latitude.

The following are the species:—

Phryganea varia, F.—One ♂, small, and of a peculiar tint.

Limnophilus auricula, C.—Two ♂, *excessively* small, the expanse being only 12½ mm., almost one-third less than the smallest example I had previously seen of this species.

Limnophilus griseus, L.—Two ♀, both dark, and one *very* small, expanse only 13½ mm.; the other expands to 20 mm., which would be rather small for an ordinary ♂, and the ♀ in this species is usually much the larger.

Limnophilus sparsus, C.—One ♂, two ♀, rather small (expanse, about 19 mm.), and all of a peculiar variety, with nearly unicolorous smoky-grey anterior-wings and ill-defined pterostigmatic mark. I have found such a condition at great altitudes (about 6000 ft.) in the Alps, and have seen it from Finland. It reminds one forcibly of the British type-form of *Asynarchus cœnosus*, C., only with narrower fore-wings. The species is notoriously variable, and the main point in these Unst examples is their comparative constancy.

Stenophylax latipennis, C.—Three ♂, two ♀, small, and very smoky in colour; similar to those taken by Mr. Briggs. *S. latipennis* and *S. stellatus*, C., are very closely allied, but distinct, unless connecting links in the slight structural differences be proved to exist. Perhaps there may be slight doubt concerning these Shetland examples. The superior appendages have retracted in drying, so as to be invisible.

Stenophylax concentricus, Zett.—Three ♀, not larger than an ordinary small ♂, and with the anterior-wings very decidedly tinged with brown.

Mesophylax impunctatus, McLach., *var.* zetlandicus.

Apart from its pigmy size, it differs from the type-form as follows:—Head and

thorax blackish-fuscous above (the usual warts and lines obscure reddish). Abdomen fuscescent above. Spines of the legs darker, brownish. Anterior-wings smoky-grey, the membrane rather thickly sprinkled with whitish-grey dots: neuration blackish-fuscous. Posterior-wings with a greyish tinge: neuration fuscescent.

In the ♂ the anal structure is apparently identical with that of the type-form, but the colour is darker.

Length of body, ♂, 9 mm. Expanse of wings, ♂, 23 mm.

It was with astonishment that I realized the connection (and probable specific identity) of the single specimen with *M. impunctatus*. The latter was separated by me from the decidedly South European (and cave-frequenting) *M. aspersus*, Rambur, in the 1st Additional Supplement (published this year) to my "Revision." The typical *M. impunctatus* is also generally of South or Central European distribution. But an additional interest attaches to this Unst insect, because a little more than a year ago, Mr. J. J. King recorded (Ent. Mo. Mag., xx, p. 19) an example of the type-form taken in Dumfriesshire by Mr. Service, and I appended a note thereto, explaining that I had not seen it from farther north than Bavaria, and making, a probably lame, attempt to account for its presence in Scotland. The smallest ♂ of the type-form that I had previously seen expands to 33 mm., this ♂ to only 23 mm. (thus in exaggerated correspondence with the other *Trichoptera* of Unst, and proving its native origin); the general colour is so much darker that the appearance is quite changed, and were it not for the almost unerring characters afforded by the anal parts, the close (and, as I believe, specific) relationship of the Unst insect to *M. impunctatus* could hardly have been suspected. More materials will, I have no doubt, confirm this, but the form is distinctly worthy a varietal name.

A somewhat parallel case exists with regard to *M. aspersus*. I have described a form of this (*var. canariensis*) taken by the Rev. A. E. Eaton at a great elevation on Grand Canary, which also differs from the type-form of that species by its very small size (expanse, 22—25 mm.), but the discrepancy is less, and the general appearance is but little changed.

Probably many discoveries in the way of *Trichoptera* have yet to be made in this country, but none of them can exceed the present in interest.

Halesus radiatus, C.—One ♂, rather small, but not differing from more southern examples in the character of its markings.

Drusus annulatus, Steph.—One ♀, rather small, but presenting no special features.

Œcetis ochracea, C.—One example (abdomen wanting), whiter than (not so ochraceous as) the southern form, but resembling what appears to be the usual condition in Scotland.

Plectrocnemia conspersa, C.—One ♂, small, and *very* dark.

Polycentropus flavo-maculatus, Pict. ?.—One ♀.

Thus, small size and dark colour are the dominant features of the Shetland *Trichoptera*, just as occurs in those most remarkable *Lepidoptera* from the same quarter that have excited so much interest with British Lepidopterists, and which are proving equally interesting on the continent.

Two ♀ examples of *Hydroptila* from the Island of Hoy are not determinable.

Lewisham, London:
November 8th, 1884.

ON THE *SCOPELODES UNICOLOR* OF WESTWOOD AND WALKER.

BY ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

The genus *Scopelodes* (a group of *Limacodid* moths) was characterized by Westwood on page 222 of the fifth volume of Duncan's "Naturalists' Library;" the typical species, *S. unicolor*, being described on the following page, and figured on plate xxviii (fig. 2).

S. unicolor, of Westwood, is described as follows:—"The colour of the entire moth is buff, the wings having a silky gloss, and the palpi have a pale ring near the apex; the back of the abdomen is rather more fulvous, and marked with short black bands. It is an inhabitant of Java, and is in the collection of the Rev. F. W. Hope. The expansion of the wings is two inches and three-quarters."

It is perfectly clear that Walker never referred either to description or figure of this species; even his reference, "Dunc. Nat., xxxvii, 222," proves so much, since the volume is not quoted and the number of the plate (which Walker evidently believed to be that of the volume), is not quoted correctly: but it is also evident that, if the description had been looked at, the locality given by Westwood, "Java," would have had some weight in Walker's identification of the species, and the figure (which, by the way, is only misleading, as it is coloured utterly unlike any *Scopelodes* that ever existed, with a combination of burnt-sienna and brick-red), might have made him unwilling to give the name *S. palpalis* to the common species of Java.

Walker's *Scopelodes unicolor* was evidently believed to be Westwood's species, from the fact that it is nearly unicolorous: it occurs at Silhet and Moulmein; the var. γ of Walker's description, from Ceylon, being a much rubbed example of Moore's *S. aurogrisea*, and in place of Walker's "Fore-wings with a broad, diffuse, slightly paler band," it should have been noted that the "Fore-wings are much rubbed in the centre." I propose to call *S. unicolor*, of Walker, by the name of *S. testacea*; as it is distinct from *S. unicolor*, of Westwood, which we have from Java, and which also is quite distinct from the much commoner *S. palpalis*.

SCOPELODES TESTACEA, *n. sp.*

Scopelodes unicolor, Walker (*nec* Westwood), Lep. Het., 5, p. 1104. n. 1 (1855).

Primaries and thorax shining brownish-testaceous; secondaries pale shining golden-ochreous, with white-tipped fringe; palpi greyish, with a white sub-apical band and black tip; abdomen deep ochreous, with two or three dorsal dots and the anal segment black: expanse of wings, 72 mm.

Silhet and Moulmein. Type, B. M.

S. unicolor is represented in the Museum by two specimens, rather smaller than that from which Westwood's description was taken: the primaries and body are of a shining golden-testaceous colour, and the secondaries whitish-testaceous; the fringe of all the wings white; the palpi with a white band near the tips; the abdomen, as described by Westwood, has a dorsal series of black tufts or "short bands," and the tarsi are tipped with black; *S. palpalis*, on the other hand, has shining, foxy-red, primaries and thorax, and deep ochreous secondaries and abdomen; the fringes of the wings being tipped with silvery-white; the abdomen with dorsal bars and anal segment black.

British Museum:
November, 1884.

DESCRIPTION OF A NEW SPECIES OF *COCYTIA*.

BY HERBERT DRUCE, F.L.S., F.R.G.S., &c.

COCYTIA RIBBÆI, *sp. n.*

Primaries and secondaries bluish-hyaline; the black external borders of the male narrow, as in *C. chlorosoma*; in the female the borders are much broader, the intermediate streaks shorter than in *C. Durvillei*. The primaries without the sub-basal orange patch common to all the other described species. The thorax and abdomen light bluish metallic-green, except the anal segments, which are black. On the under-side the orange-coloured patch is present, as in *C. Durvillei*.

Expanse, ♂, 3 in.; ♀, 3¼ in.

Hab. : Aru Islands. Mus. Druce.

This very distinct and beautiful species is at once distinguished from all those hitherto described by the entire absence of the sub-basal orange-coloured spots on the primaries, and by its more brilliantly coloured abdomen. The primaries are also somewhat narrower and shorter. I have named this fine insect after its captor, Herr C. Ribbé, who obtained it this year in the Aru Islands.

On examining the fine series of specimens of *C. Durvillei* in my own collection, I find the orange sub-basal patch very variable: in some specimens it is quite small and round, in others large and oval. The black external borders also vary considerably in width.

The Beeches, Circus Road, N.W. :
November, 1884.

Observations on Lepidoptera near Reading.—

Argynnis Paphia v. Valezina.—I saw two specimens of this variety in a wood at Streatly, near Reading, in July, 1876, and secured one of them, which is now in the collection of the Reading Museum.

Argynnis Selene.—I took a specimen some years ago in Odiham Wood much suffused with smoky-black, all the markings being much larger and blacker than usual, and those across the centre of the wing forming a band of large square blotches.

Melitæa Artemis.—Varieties of this species also occur near Odiham, some being much suffused with black and with a broad blackish fascia, others with a moderately broad yellowish fascia, and once a specimen was found with the under-side of the hind-wings nearly devoid of markings.

Satyrus Janira.—A female specimen was taken a few years ago at Pangbourn in which the whole of the usually dark borders of the wings are white, the only colouring being the usual tawny colour of the middle of the wings. This specimen is also in the Reading Museum.

Satyrus Hyperanthus.—The variety of this species in which the "ringlets" are absent from the under-side is occasionally found in this district.

Sphinx ligustri.—Of this species I have reared two specimens in which the pink colour of the hind-wings and of the abdomen is replaced by yellowish-white. When they emerged these portions were of a pale lemon colour. These specimens are also in the Reading Museum.

Liparis dispar.—In August, 1870, at Odiham, I was in the wood one day, and had been running after *Vanessa polychloros* until, being tired out, I flung myself down to rest in a wood-ride. As I lay there a moth flew across the ride which, jumping up, I secured. To my surprise it was a male gipsey moth in fairly good condition. This specimen is also in the Museum here. Its colour is much greyer than that of the males of the domesticated stock of this species.

Lithosia griseola var. stramineola.—This variety is found in fair numbers in a

wild marshy tract a few miles from here. It is not, however, to be found in other neighbouring places in which the typical *griseola* is common.

Spilosoma fuliginosa.—Common in this district. On one occasion I found a larva feeding on a leaf of *Listera ovata*, and pursuing the search found a considerable number on this unlikely plant.

Amphidasys betularia.—This species is common here, always of the usual peppered form, but one specimen taken several years ago is very coarsely peppered, being, in fact, almost blotched with large black dots. It, however, does not resemble the dark Lancashire varieties.

Strenia clathrata.—Several specimens have occurred in one of our meadows in which the wings are suffused with black, with only a few white spots towards the margins.

Anticlea sinuata.—This species occurs here occasionally on the chalk.

Anticlea rubidata.—Rather plentiful about *Clematis vitalba* with *Melanthia procellata* and *Phibalapteryx tersata*. *Ph. vitalbata* is much less frequently found, although double brooded.

Phibalapteryx lignata.—Very common in marshy places and low meadows. I have reared it from the egg, the larva feeding especially on a common *Galium* growing by ditch sides, but being apparently willing to eat any species of *Galium*.

Cidaria corylata.—I have found at Odiham one specimen of the curious bandless form of this species, usually found in the north.

Xylophasia sublustris—Common here at sugar.

Xylophasia scolopacina.—I have taken one specimen in a small wood in this neighbourhood. It was at rest on the trunk of a fir tree.

Agrotis cinerea.—One specimen occurred a few years ago on a gas lamp in this town.

Agrotis agathina.—This also has occurred singly, and, contrary to its usual habits, at sugar. This was on September 11th, 1876.

Noctua rhomboidea.—This species may always be depended upon at the end of July and beginning of August, at sugar in some of our woods.

Dasycampa rubiginea.—This species has also occurred here once, at sugar.

Xanthia aurago.—I never saw, or expected to see, such a sight as met my eyes when I commenced to examine my sugar on the night of September 22nd, 1876. *Aurago actually covered* every patch of sugar on some of the trees. I never saw any moth, not even *N. xanthographa*, in such swarms. I secured as many as I could possibly find room for, picking out the finest specimens and most beautiful varieties, but causing no apparent diminution in their numbers. Many trees were so crowded with them that nothing else could get at the sugar, but at one end of my ground where they were not quite so plentiful, I secured nine *Epunda lutulenta*, four *Xylina semibrunnea* and one *Agrotis saucia*, besides many other species. *Aurago* was to be found in plenty every night for the succeeding ten days.

Xanthia gilvago.—This species occurs every year, at sugar, on some small beech and fir trees.

Cosmia pyralina.—This also occurs here, at sugar, but sparingly.

Aplecta occulta.—A single specimen, of a beautiful dark grey colour, was taken at sugar, a few miles away, seven or eight years ago.

Aplecta nebulosa.—Specimens taken here differ in colour remarkably from those

from the New Forest, the latter are white with distinct markings and very large, but ours are generally smaller and always much suffused with grey, approaching in this respect to Yorkshire specimens.

Xylina semibrunnea.—This species is to be found close to the town, even among the allotment gardens. We find it in the neighbourhood every year, at sugar and ivy.

Epunda lutulenta also occurs annually, at sugar.

Cucullia lychnitis.—On June 28th, 1873, I found larvæ near here on *Verbascum*, from which the moths were reared.

Eremobia ochroleuca.—The only specimen of this species which has occurred here, to my knowledge, was in the larva state, feeding on *Mullein* and was reared on that plant.

Spilodes palealis.—Taken here once only.

Pionea stramentalis.—I have taken two specimens in a wet bushy place.

Argyrolepia dubrisana occurs about chalk pits among the wild carrot.

Theristis caudella occurs in lanes among spindle, and in the spring is fond of flying across the road in the bright morning sunshine, when it looks very conspicuous. —William Holland, 138, Chatham Street, Reading: *November 11th*, 1884.

Colias Edusa near Weymouth.—*C. Edusa* has been common at Osmington during the past summer. I saw two ♂ there only last Saturday (October 25th) in a sheltered field, visiting *Scabiosa succisa*: *Vanessa cardui* has not yet retired into winter quarters, several were sunning themselves yesterday morning on the cliffs near Osmington Mill.—A. E. Eaton, Osmington, near Weymouth: *Oct. 30th*, 1884.

P.S.—*C. Edusa* and *V. cardui* are still flying here.—*Nov. 3rd*, 1884.

Migration of Insects.—In the November number (*ante* p. 134) I noticed some remarks on the occasional occurrence of large numbers of certain species of *Lepidoptera* in Ireland, usually more or less scarce. In connection with this subject I thought the following might be of some interest. In June, 1879 (the 6th, as far as I can remember), I was on board a steamship in the St. George's Channel; the weather was warm and misty, and there was little if any wind. About the middle of the day a number of insects began to alight on the vessel, and several others were flying round, the species being *Vanessa cardui*, *Plusia gamma*, *Stenopteryx hybridalis*, and others, including some *Diptera*, such as *Musca Cæsar*. This would seem to point to a migration of insects to or from Ireland, and, moreover, that the insects were not blown by the wind, but migrated voluntarily. It would be interesting to learn whether the species I observed were specially abundant or the reverse in Ireland in 1879.—T. D. A. Cockerell, 51, Woodstock Road, Bedford Park, Chiswick: *November*, 1884.

Silk culture in Assam.—We have received from the India Office an important Official Report by Mr. E. Stack, Director of Agriculture in Assam, on the present state of the Culture in that district, and on the prospects of success so far as regards exportation to England is concerned.

The Report is confessedly by no means encouraging, but still hopeful. The indolence and suspicion of the natives stand much in the way. Silk is "culti-

vated" there, but in a peculiar way. They have domesticated species, viz., *Bombyx textor* and *Crœsi* ("Pát"), *Antheræa aassama* ("Muga"), and *Attacus ricini* ("Eri"). The two latter appear to be the most promising. It is recommended that the cocoons be exported, and not the thread. "Pát" seems to be a near relative of the ordinary mulberry silkworm, whereas the others are "tusser." The enemies, diseases, &c., to which larvæ in Europe are subject appear to be equally present in Assam, and there are *rats* in addition. It is stated, with regard to "Eri," that the number of moults is *four*, that eight broods can be obtained in a year, and that the minimum life-cycle from egg to oviposition may be only 43 days (the maximum is given as 83 days). With "Muga" it is somewhat different. Five broods are recognised by vernacular names, and the minimum and maximum are 54 and 81 days respectively.

There are also about ten "wild" species of silkworms, some of which are probably only the original condition of the domesticated races; but others are totally different, and these are mentioned as of little importance; nevertheless, the silk is occasionally used for purposes of adulteration.

The empty cocoons of *Antheræa Paphia* (if correctly determined, the vernacular name for the form is "Sálthi,") are utilized as tobacco, or betel, boxes, or as cups for dipping oil. The pupæ of this, as of all other wild silkworms, are considered delicate morsels by the natives.

Mr. Stack's Report bears the impress of being genuine in all its details. The facts are concisely stated, and no attempt is shown to generalize upon them in a manner that would lead them to be suspected of being no longer facts.—Eds.

Green larva of Ennomos autumnaria (*alniaria*).—On the 16th August I found, between two sycamore leaves in my garden, a rather large "Thorn" larva of a green colour, minutely besprinkled with white dots.

Although a good many years have elapsed since I bred *fuscantaria*, I could not recognise it as being the larva of that species, but as it was evidently making up for pupation, I knew that a very short time would solve the riddle.

I must own, however, that I was greatly surprised when a finely coloured male *Ennomos autumnaria* emerged. I have reason to believe that the moths bred by Messrs. Tugwell and Davis (the latter this year) were all from stick-like *brown* larvæ.

Autumnaria is evidently well established in this neighbourhood; I have had wild specimens every year since I came. It is, I am almost sure, attached to sycamore, as there is generally one of those trees near the gas lamps they have been taken on.

The bred specimens are better coloured and larger than those caught. The larvæ in confinement do very well indeed on whitethorn, and thrive on it better than on birch or maple.—Sydney Webb, Maidstone House, Dover: *Sept. 19th*, 1884.

[The published descriptions of this larva all seem to agree in giving the ground colour as *brown*.—Eds.].

Is Pterophorus gonodactylus doubled brooded?—Is it known whether *Pterophorus gonodactylus* is double brooded? It is usually supposed to be a June insect, but in this district is more frequently taken in the autumn, and during the past season was not uncommon at the beginning of September. The larvæ of the early

brood are said to feed in April *in* the flower stem of *Tussilago farfara*, just below the flower head; but, by the time the larvæ of the second brood should be feeding, the flowers have of course long been over, and the larvæ must feed on or in some other part of the plant. To me there seems little doubt that this is the solution to the problem by Mr. C. S. Gregson in the Entomologist for July, 1873, p. 427, where he says, "I once bred a *gonodactylus*-like insect from a larva found feeding in a kind of gallery made in, or under, the woolly under-side of a coltsfoot leaf found growing on the limestone rocks at Llanferras in June."—Geo. T. Porritt, Huddersfield: *November 17th*, 1884.

Notes on Dermestes vulpinus and other beetles in Sheppey.—About the end of October, having heard casually that a bone-boiling works at Queenborough was greatly infested with "bugs," which the workmen employed therein could not keep out of their houses, I took advantage of a cold, and consequent loss of the sense of smell for a time, to stroll over and see what the creatures really were. I never before saw beetles in such amazing abundance, the whitewashed walls in the interior of the buildings being literally blackened with *Dermestes vulpinus*, which could also be picked up by handfuls under bones, bits of sacking, &c., on the ground. With it *Necrobia rufipes* occurred in nearly, if not quite equal numbers, *Corynætes violaceus* and *Alphitobius piceus* being also well represented: the last-mentioned beetle was more retiring in its habits than the other three, and was usually to be found in the folds of the sacks containing the bones.

The foreman of the works complained bitterly of the damage done to the woodwork of the building by the "bugs," and showed me a thick oak plank, about 12 feet long by a foot wide, reduced to a perfect honeycomb by the ravages of the *Dermestes* larvæ. These, when full-grown, had bored into the solid timber to change to pupæ, of which I dug out numbers with the point of a knife, as well as many imagos in a pallid and immature condition. The other beetles appeared to do no damage whatever. Some fowls were kept in the works, in the endeavour to reduce the number of beetles, if possible; but they appeared to prefer picking the scraps of meat off the bones, which, I was informed, came from various parts of the world, but the greater portion was brought from South America.

On the same day I found a specimen of the rare *Aphodius consputus*, Cr. (named for me by the Rev. W. W. Fowler) in wet *débris* and dead grass on the bank of a fresh-water ditch, in company with large numbers of *Litodactylus leucogaster* and *Pachyrhinus canaliculatus*.

In the course of a walk along the Sheppey Cliffs yesterday, I found *Erirhinus scirpi* not rarely in dead *Typha latifolia*, hibernating in the galleries bored in the plant by the larvæ of *Nonagria typhæ*. With it were *Limnichus pygmæus* (very rarely), *Telmatophilus typhæ* (in profusion), &c., &c.—James J. Walker, 23, Ranelagh Road, Marine Town, Sheerness: *November 18th*, 1884.

Note on Helophorus crenatus, Rey, as a British species.—In a paper by M. Cl. Rey, just published in the Revue d'Entomologie, vol. iii, No. 9, entitled "Notices sur les Palpicornes, et diagnoses d'espèces nouvelles ou peu connues," there appears the following notice of a species of *Helophorus*, which is recorded as from Britain only: "*Helophorus crenatus, Rey.*—This species is related both to *H. strigifrons*, Thoms., and *H. planicollis*, Thoms. It has a less thick-set (ramassé) form than the

first, and the sides of the thorax more rounded. It differs from the second in not having the frontal fovea widened in front, and in having the elytra even more strongly crenate-striate than in that species. L. 3.7 mill. Angleterre (Pandellé)." Dr. Sharp regards both *H. planicollis* and *H. strigifrons* as varieties of *H. æneipennis*, and the above would seem to be another variety; it is, however, worth recording, and may be identified from the above notice by entomologists who may have it among their *Helophori*.—W. W. Fowler, Lincoln: *October 20th*, 1884.

Captures of Coleoptera near Lincoln.—On October 23rd, in company with Mr. J. J. Walker, I went to Langworth Wood, about eight miles from Lincoln, for two or three hours' collecting. This wood is chiefly known to Entomologists as one of the localities for *Hesperia paniscus*, which has been fairly abundant this year during the end of May and beginning of June. The best beetle we took was *Epuræa parvula*, of which we beat about two dozen from faggots, from which we also obtained *Bradycellus placidus*, *Litargus bifasciatus*, *Alexia pilifera*, *Conurus immaculatus*, and *Ocalea castanea* in some numbers; I have never before found this widely distributed insect plentiful in any one spot; by sweeping we obtained *Erirhinus salicis* and *Batophila rubi*, and by shaking moss *Mniophila muscorum*, *Agathidium nigrinum*, *Cœliodes fuliginosus*, *Myllæna brevicornis*, and *Bythinus puncticollis*. Among other beetles I have at different times taken in this Wood are the following: *Choleva spadicea*, *Amphicyllis globus*, *Meligethes erythropus* and *viduatus*, *Scaphidema æneum*, *Corymbites pectinicornis*, *Trachys minutus*, *Agapanthia lineatocollis*, *Rhytidosomus globulus*, *Rhynchites pubescens*, *Cœliodes subrufus*, *Elleschus bipunctatus*, *Ceuthorhynchus marginatus*, *Apoderus coryli*, *Thyamis patruelis*, and *Lina longicollis*, the latter abundant on sallows in all stages of development. On May 24th I took a very fine pair of *Aleochara ruficornis*; the female occurred on some long grass in a broad ride, and after an hour's fruitless sweeping for further specimens, I came back to the same spot and swept the male off evidently the same place where the female was taken.

In Nocton Wood, near Lincoln, I found last year, on May 19th, several specimens of *Symbiotes latus* and *Mycetophagus populi* in an old stump, accompanied by *Cis bidentatus* in some numbers; *Gyrophæna affinis* was common in fungi.

In flood rubbish near the town I have taken *Deinopsis erosa*, *Ilyobates nigricollis*, *Trogophlœus halophilus*, *Lathrobium longulum*, *Anisotoma litura*, *Rhinonchus inconspectus* and *bruchoides*, and many others.

Saperda carcharias occurs close to the town, and *Ocypus fuscatus*, *Oxypoda nigrina*, *Phlæocharis subtilissima*, *Trichopteryx longula*, and *Psylliodes picina* may be added to the above list.

The water beetles are singularly poor for a fen district, as far as I have worked them, which is, certainly, very little; not one rare species has turned up, the best that I have found being *Liopterus agilis*.—Id.

Idiocerus distinguendus, Kirschb., = *I. cognatus, Fieb.*—Although the accessible evidence warranted the conclusion stated by me, at p. 127 *ante*, that Kirschbaum's name for this species had priority over that given by Fieber, it yet appears that I was in error, for Dr. Franz Löw, of Vienna, who at my request has kindly referred to the works in which the respective descriptions were published, informs me that Fieber had priority of publication: the name to be adopted is therefore *I. cognatus*, Fieb.—J. W. Douglas, Lewisham: *October 31st*, 1884.

Entomological Society of London.—*September 3rd*, 1884: R. McLachlan, Esq., F.R.S., in the Chair.

Lieut.-Col. C. Swinhoe, of Winchester, was elected a Member.

Mr. Coverdale exhibited a fine collection of *Micro-* and other *Lepidoptera* mounted in a new fashion on the heads of pins flattened out and turned down at a right angle.

Mr. Stainton exhibited specimens of *Coleophora limoniella* and *auroguttella*, and remarked on their distinctive characters; and he said that in Mr. Coverdale's box were examples from Shoeburyness that scarcely accorded with the typical *limoniella*.

Mr. Billups exhibited smooth spherical excrescences on birch twigs, about the size of small apples. They were hard, and with no trace of insect agency. It seemed to be uncertain whether they were, or were not, the young condition of the "witch knots" on birch which Miss Ormerod states to be due in the first instance to a *Phytoptus*. Also *Ocypus cyaneus* found by Mr. South in Devonshire, and *Loxops coccineus* captured by himself at Chobham. Also *Odynerus reniformis* and its parasite *Elampus Panzeri*, from Chobham.

Mons. Wailly exhibited, and remarked upon, several silk-producing Bombyces, some of which had been reared in this country for the first time.

Mr. Olliff exhibited, and remarked upon, a "*Cassida*" received by Lord Walsingham from Mr. J. C. Grant, of Bahia. It proved to be *Porphyraspis tristis*, Bohem. With it were the larvæ which cover themselves with a coating of filamentous excrement, not unlike an inverted bird's nest in miniature, and supported by a furcate anal process; they fed on cocoa-nut palm.

Mr. Poulton read a lengthy paper, illustrated by beautifully coloured diagrams, in continuation of his former remarks on larval markings, &c., and their protective associations. He detailed the history of several of the larger *Sphingidæ* from the early larval stages, showing the modifications undergone during growth, and the apparent influence of food, which although seemingly certain, did not appear to be constant. A discussion took place, in which Messrs. White, Stainton, Weir, McLachlan, &c., joined.

October 1st, 1884: J. W. Dunning, Esq., M.A., F.L.S., President, in the Chair.

Haygarth Addison, Esq., of 145, Seven Sisters' Road, was elected a Member.

The Secretary read letters from Drs. Packard and Fritz Müller, thanking the Society for their election as Honorary Members.

Mr. Jenner Weir exhibited an example of *Vanessa cardui* from the New Forest, in which the under-wings had blue pupils to the spots. Also a large species of *Acrydiidæ* from the interior of Africa, of curious robust form, stated to be eaten by the Earthmen of the District (the Kalobari Desert).

Mr. Horner exhibited a long series of rare British *Coleoptera* recently captured by him, including *Myrmedonia Haworthi*, *Philonthus astutus*, *Homalota planifrons*, *eximia*, and *languida*, *Stenus morio*, *Dyschirius extensus*, *Trichonyx Maerkelii*, *Lathridius testaceus*, *Cryphalus fagi*, *Phlœotrya Stephensi*, and *Ocalea latipennis* and *castanea*.

Mr. J. J. Walker exhibited a large collection of beautiful *Lepidoptera* obtained during his recent cruise in the Pacific. All were in admirable condition.

Mr. McLachlan exhibited an example of a species of the Neuropterous Family *Nemopteridæ*, taken by Mr. Walker at Coquimbo, North Chili, and remarked

upon it as being the first recorded instance of the occurrence of the curious insects of this Family in America. He also exhibited a photograph of a Dragon-fly wing sent to him by Dr. Puton. This was the production of a young medical student at Lyons, and was prepared simply by placing the wing under glass upon a piece of sensitized paper and exposing it to light, the neuration showing out most beautifully distinct in white on the dark ground. Mr. Meldola said any number of impressions might be produced from this, photographed upon glass. It appeared admirably adapted for truthfully detailing complex neuration.

Mr. Billups exhibited a specimen of a species of *Homalomyia* bred by him, in which the left intermediate leg was perfectly double, so far as regarded the tibiæ and tarsi.

Baron Osten-Sacken communicated "Facts concerning the importation, or non-importation of *Diptera* into distant lands," in which much curious information was given, mostly in connection with North American species.

Mr. Rosenstock communicated a paper on Australian *Lepidoptera*.

Colonel Swinhoe communicated notes on the larvæ and habits of many species of Indian *Lepidoptera*.

November 5th, 1884: The President in the Chair.

A. W. Kappel, Esq., of Burlington Gardens, Chiswick, was elected a Member.

Mr. Douglas sent for exhibition specimens of the new British Homopteron *Idiocerus cognatus*, Fieb. (*cf. ante* pp. 127 and 162), taken by him at Lewisham, with examples of *I. tremulæ*, Estl., for comparison. Also the following *Coccidæ* from Lewisham, viz., *Lecanium ribis*, A. Fitch, from red currant (which, however, did not appear to materially damage the plants); *L. æsculi*, Koll., ♂ imago, and ♂ and ♀ "scales," from horse-chestnut; *L. aceris*, auct., ♂ and ♀ "scales," from sycamore; *L. genevense*, Targ.?, ♂ and ♀ "scales," from hawthorn; *L. coryli*, L., ♀ "scales," from hazel. Likewise parasitic *Chalcididæ* (*Coccophagus* and *Encyrtus*?) bred from the last four species.

Mr. Felton (present as a visitor) exhibited a large collection, principally *Coleoptera*, from Espirito Santo, Brazil. There appeared to be some interesting species.

Mr. Meldola exhibited the example of *Nonagria sparganii*, Esp., from Deal, recorded at *ante* p. 135.

Mr. Theodore Wood exhibited *Cis bilamellatus*, from West Wickham, recently described by him (*cf. ante* p. 130).

Mr. W. F. Kirby exhibited specimens of *Ephestiæ* bred from cocoa in a warehouse in London; they were mostly *E. elutella*, but *E. parasitella* was also apparently present. They occasioned great damage. Mr. McLachlan suggested "baking" as a remedy, but it was remarked (by Mr. Weir and others) that this remedy was scarcely applicable in large warehouses, with innumerable bags of the material stored therein. Mr. J. J. Walker said that *Ephestiæ* affected ship biscuits, and lime washing was found useful in such cases. Mr. McLachlan said that the insects would feed indiscriminately on any comparatively dry material, and Mr. Stainton doubted if any warehouse in London were free from them.

Mr. Olliff exhibited a specimen of the very rare *Parandra 6-striata*, from the Zambesi, belonging to the Museum at Amsterdam.

Baron Osten-Sacken communicated a new and revised edition of his Essay on Comparative Chætotaxy in *Diptera*, in which the importance of the characteristic bristles as a means of classification was insisted upon, as were also the connection of the bristles with the condition of the eyes, and of the latter with the habits of "poising" so well known in many Dipterous insects.

A WEEK ON THE "BROADS."

BY F. D. WHEELER, M.A.

During the last few years, the Norfolk Broads have come somewhat prominently before the public: not only have Mr. Barrett, Mr. Farn, Mr. Bird, and others brought their entomological treasures to light, but a large number of gentlemen from all parts of the kingdom have been attracted to them by the unrivalled opportunities they afford for yachting and fishing. In the present season, besides scores of parties from the inland counties, who had hired boats or pleasure wherries on the spot, I met with two gentlemen who had sailed round from Yorkshire in their own yacht, and heard of another who had come from Ireland in the same way. Consequently, I do not expect to be able to contribute anything new to a large proportion of readers of the Ent. Mo. Mag., but thought that a short account of a trip on these inland waters might be interesting to some of the large class of beginners who have not tried fen-collecting, and have not yet acquired a taste for more purely scientific articles.

The date of our excursion was fixed by "circumstances over which we had no control;" I should much have preferred to go earlier, but my occupation as a schoolmaster made that impossible, and we started on Saturday, July 26th. Our force consisted of three of my boys, whom I will designate as B. S., H. F., and H. S., and myself.

We made our start by the 9.13 train for Wroxham, where a cart met us to convey our traps to Irstead shoals, the port at which we were to embark. After getting out our boat, cleaning and trimming lamps, and other preparatory measures, we took our "trial trip," pulling away up the Ant, across Barton Broad—a fine stretch of water, close upon a mile in length, and of considerable width—and again up the Ant above the Broad, to a spot where I have many times had good sport. Here we got out our paraphernalia, lit and hoisted the big lamps,* and proceeded to explore.

The nature of what by courtesy we may call the ground, precluded us from going far; except on the river bank, there was nothing but a floating crust of vegetation, that yielded to the tread in a manner unpleasantly suggestive. As dusk came on, a few of the commoner fen species began to appear: *Hydrocampa nymphæalis* and *stagnalis*, *Paraponyx stratiotalis*, *Cataclysta lemnalis*, *Eudorea pallida*, *Crambus pascuellus* and *selasellus*, *Chilo gigantellus*, *phragmitellus*, *mucronellus*, and *forficellus*, but though the night was breathless and not cold, the

* For description of apparatus, see Ent. Mo. Mag., vol. xiii, p. 246.

number of insects was small. As soon as it grew fairly dark, some few *Noctuæ* put in an appearance: *Leucania impura* and *Apamea fibrosa* kept us occupied by dashing round our lamps, and, among these commoner things, *Leucania straminea* occurred sparingly, while the sallow bushes around us, the leaves of which were covered with honey-dew, proved yet more attractive to *A. fibrosa* than our lights. After continuing our work till 11 p.m., without any startling success, we started for Irstead, taking at the last moment a fine specimen of *Celæna Haworthii*, a species of very uncertain appearance in the fens.

The return home was uneventful, thanks to long experience of the Broad, but small to a stranger would be the chance of finding his way across one of the larger Broads at night. Even by day it is wonderful at how short a distance the mouth of a river becomes invisible: the whole margin is fringed with reed, and marked with numberless indentations, among which the river mouth is lost. At night, then, when distant landmarks are invisible, the crossing of a Broad is a task not lightly to be undertaken, and the shores are so irregular, that to coast along them is a tedious, not to say impracticable, business.

On *Monday* commenced the grand work of embarkation. All our goods and appliances were brought down to the dock (a convenient recess behind an old alder stump) and had to be stowed away for the voyage; our vessel, and home for the week, consisted of an open boat, 19 ft. long × 5 ft. 4 in. beam (the "Ant"), fitted with a mast and lug sail, but without keel, and drawing only 8 or 9 inches of water. As tender to this we had a small collapsible canvass boat of the Berthon Company pattern—"The Coracle." Into these two we had to pack the appliances for a week's boating expedition, including provisions, and the following sundries, viz.:—one setting case of 100 boards, containing also pins and other setting apparatus, 250 pill-boxes, nets, killing bottles, pinning boxes, &c., one box about 2 ft. × 1 ft. 2 in. × 1 ft. 4 in., containing large and small attracting lamp, the one for hoisting, the other to stand on the ground below for Micros, 9 ft. pole for lamp, tin box of books, papers, &c., fishing rods and apparatus, hand-lamps, and lamp for boat, one large tin (2 galls.) of paraffine, a smaller one of benzoline, and two of methylated spirits; and also ourselves.

But it is wonderful how things can be packed in a boat, and the "Ant" is fitted with lockers, not only at bow and stern, but all along the sides too, and has a box made to fit under the main seat. Thus by careful packing, we stowed all the loose articles and heavy boxes on board, while the bedding and clothes were folded in the tarpaulin and consigned to the "Coracle."

It was not, however, until afternoon that we fairly started, and the "Ant," with "Coracle" in tow, drifted down her namesake river, with a faint and fitful breeze. The morning had been cloudy, but the sun now shone hot and glaring, though the appearance of the sky portended rain. Needs not to tell of the "*moving* incidents by flood," by means of which we reached the Bure, ascended it for about two miles, then traversed Ranworth dam and the smaller Broad, and reached Ranworth Staithe about 4.30 p.m. Here we took on board *another* big lamp-box and pole, which really did begin to make our boat look full, and struck off for our camping-mud, for I can hardly call it either ground or water. In a recess of Ranworth Broad may be found (by those who know where to look for it) the mouth of a small dike, leading up to a fine expanse of fen. I say, advisedly, "by those who know where to look for it," for since I have been acquainted with the locality, its position has altered considerably: in these morasses, where the water is only an inch or two deep, a detached clump of *Typha* or *Sparganium* will drift into the channel and take root, and in one season the whole is closed, sometimes so effectually that it is more convenient to re-open it in a fresh direction. Even since the opening was where now it is, I have directed a friend to it in vain, though I gave him full instructions, and even a rough plan of the Broad, he wholly failed to find the spot, so hard is it among the numberless indentations to detect the mouth of a narrow dike not facing directly toward the open water. The dike in question varies from 6 to perhaps 20 ft. in width, and from 6 in. to rather less than nothing in depth, as regards *water*—we had nothing long enough to sound the depth of *mud*, mud so liquid that you scarce could tell where water ended and mud began. Growing in it, and on both sides, and at times almost blocking it for many yards together, is a dense jungle of reed, *Sparganium*, *Typha*, &c., but occasionally it opens out into clear water, bordered by fens beautifully studded with flowers, yellow and purple loosestrife being predominant. Up this dike we forced the boat for about a quarter of a mile, by dint of over half an hour's hard pushing. Arrived at our encampment, I noticed a small *Tortrix* on the wing, it proved to be *Sericoris Doubledayana*, rather worn. Before tea was well over, the sight of other specimens took me ashore, and I soon had three or four *S. Doubledayana*, one *Eupœcilia Geyeriana*, and a few commoner species. While boxing the *E. Geyeriana*, I accidently dropped a pill-box, and in searching for it among the herbage, disturbed a *Noctua*, which fluttered sluggishly up—a glance was enough—next moment, *Nonagria brevilinea* was in my net: the first of the season.

Now, we proceed to make ready for night. Two pairs of irons, into the form of an X, with the bottom half enormously expanded at the expense of the top, are fitted into sockets in the boat, the mast is laid upon them, and a cover of heavy unbleached calico stretched over and tied down tightly all round. Under this tent we spread our cushions, and then sally forth to work. We now light up at once, two of the boys taking one pair of lamps, I and the third the other, about 50 yards off, or rather more. Our boat is situated at N.W. angle of a low alder-car, or marshy plantation of alder and sallow. The wind has now dropped away, and the night promises to be perfect, warm and close, with hazy clouds thickening fast as darkness comes on. We have not long to wait: it is scarcely dark when *Noctuæ* begin to dash about, not exactly coming to the lamp at first, but yet passing within reach, and in quick succession, *Leucania impura*, *L. phragmitidis*, *Apamea fibrosa*, *A. oculea*, *Noctua plecta*, *N. augur* (worn out), *Epunda viminalis*, *Nonagria fulva*, *despecta*, and *brevilinea* are announced, together with abundance of *Acidalia immutata* and *scutulata*, *Cabera exanthemaria*, *Fidonia clathrata*, *Lomaspilis marginata*, *Coremia unidentaria*, &c., while *Eudorea pallida*, *Paraponyx stratiotalis* and *Cataclysta lemnalis* are perfect pests. As the night draws on, *N. brevilinea* becomes more numerous, probably more so than any other single species of *Noctua*, and other things add to the excitement; the "footmen" are there, *Lithosia complanula*, three or four, *L. griseola* and *var. stramineola* by dozens, and a few *L. muscerda*, the latter unusually scarce and already somewhat worn; one or two *Odonestis potatoria* and *Bombyx neustria* dash wildly about, exciting B. S. to high-pressure pitch, presently he makes a furious rush, waves his net about, and returns in triumph with—*Abraxas grossulariata!* This now appears in force, but, though netting and examining scores of specimens, we did not detect a single variety. Presently comes a bang on the lamp-glass, followed by a noisy fluttering in the herbage, and *Smerinthus populi* is in the net. Then a big white moth proves to be *Liparis salicis*, a species that swarmed in parts of the Norfolk fens 12 or 13 years ago, but seen fast following in the steps of *Lycæna dispar* in this locality. More white *Bombyces* follow, but they prove to be only *L. auriflua*. And so the sport goes on, now active and exciting, with four or five moths round the lamps at once, now slacking off till, for several minutes at a stretch, nothing is to be seen but a "magpie" or two, and a few *immutata* and *P. stratiotalis*.

Meanwhile, the ground-lamp has been doing but little; on these still nights moths of all kinds will rise to the upper light, whereas with

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PART OF THE NORFOLK BROADS.

any wind the lower lamp furnishes almost all the sport—even the things that are attracted by the top one drop down to the ground as they come near. Only one or two Micros come to it to-night, chiefly *Peronea Shepherdana* and *aspersana*, though with these there occur a few *Pœdisca semifuscana*, two or three *Sericoris Doubledayana*, and one *Orthotœnia antiquana*, an old inhabitant of the Cambridgeshire fens, but apparently scarce here. *Hydrelia unca*, too, is there, looking at first sight like some new *Tortrix*, and *Laverna phragmitella* helps to make up the score.

Later still, *Geometra papilionaria* puts in an appearance, then *Chelonia caja*, one only !, on the very spot where, four years ago, we had to net *caja* with great diligence, and destroy them, in order to give anything else a chance of getting near the lamp. But we are all tired, and at 1.30 a.m., though the captures are still fair, we agree to give up for the night. A steady gentle rain has set in some time ago, and for the last two hours we have all been working in macintoshes and leggings or high boots. The dress I find most suitable is a rough tweed suit, the coat with two pockets, each capable of holding 200 pill-boxes, or a vol. of the "Encyclopedia Britannica," marsh boots coming up to the knee, and over all in wet weather a fisherman's tarpaulin coat and sou'-wester hat.

Once back in the boat, we soon drop into our places, each encased in a sack drawn up under the arms, and for pillows, one with a carpet bag, another with the knife-box; but getting to sleep is not so easy: the first night on the boards of a boat is not conducive to sound sleep, though after a night or two nothing could appear more comfortable.

Tuesday.—Waked at 7 a.m. by our alarum, we get the bedding, &c., packed under cover, for it is still raining, though not much, and having made all ship-shape, remove the cover. We are due at Horning by 10 a.m., to pick up another of our boys, C. L. Accordingly, at about 7.45, we make a start, leaving behind the "Coracle" and all the heaviest luggage stowed away in the alder-car. The same agreeable process of pushing down the dike has to be gone through, then away to the ferry, which we reached just about our time, and settle down there for breakfast, the rain having now ceased. Presently C. appears, and we make our way back to Ranworth. On the way up the dike a keen look out is kept for larvæ of *P. Machaon* on the abundant heads of *Peucedanum palustre*, but only three or four are found, the bulk having apparently fed up; when we reached the camp, an extended search over the fen revealed any quantity of plants eaten, but very few larvæ. Having made ready for the night, we proceeded to com-

mence collecting; but a light N. wind had sprung up after the rain, and the air was clear and cold: *Micros* were hardly to be seen; beating the sallows produced a few *Teras caudana*, but nothing else of much interest, while in the open fen even *N. despecta* seemed loath to fly. The lamps at first produced very little, which was the more disappointing as C. had come but for one night, and I was anxious that he should have a good catch. However, most of the species of last night occurred, though in smaller numbers, and when at 10 o'clock we adjourned to the boat for a cup of cocoa, C. had already three *N. brevilinea* in his pinning box, besides several other insects. After supper, the night somewhat improved, *Abraxas grossulariata* became abundant, and *Cidaria testata* began to show up in numbers, while *A. immutata* was more numerous than we required. Eleven o'clock came, twelve o'clock, and then one *Chelonia caja* appeared on the scene! A shout ensued, and, much to my amusement, C., who had just before been boxing *N. brevilinea* with the greatest equanimity, appeared to have suddenly taken leave of his senses, and executed a pæan of triumph, when, at last, he had actually secured his "tiger." A somewhat less violent demonstration announced the capture of *Geometra papilionaria*, and when, at 12.30, we turned in for the night, C. had a very fair box of insects; the others had also done pretty well at their lamp, taking *L. straminea* and *phragmitidis*, *N. brevilinea*, *Simyra venosa* (2nd brood), *G. papilionaria*, and other commoner species.

Wednesday. Up at 8.30; after breakfast, and once more leaving our impedimenta behind us, we push down the dike, and visited several promising localities in search of larvæ of *P. Machaon*. Of these we found only four or five, together with two or three of *Simyra venosa*, one of *Notodonta dromedarius*, and a few commoner species. Then we struck off for Horningferry, to put C. ashore, and faced back for Ranworth.

Meeting with a party of fishermen on our way back, who seemed to be having good sport, we moored to the bank close by them, under a magnificent reed rond, and tried our luck. But fate, or else the lack of ground bait, was against us, and we caught only two or three little bream flats, while our friends in the boat close by kindly exhibited for our benefit a lot of fine bream *they* had pulled out. We soon had enough of this, and made off for the camp. Arrived here, H. and I occupied ourselves in setting, for the captures of Monday night had only been pinned as yet, and those of yesterday were still in the boxes. For pinning insects from pill-boxes, I generally use chloroform applied by a capillary bottle to a slit in the box lid; but it is a grea

saving of trouble on board a boat to have a huge tin box, something like a brobdignag laurel tin, into which the pill-boxes can be shot on returning from work, while the false bottom allows ammonia to be poured in: by the morning the moths are dead, and beautifully relaxed. Of course, all green and metallic-coloured insects must be kept out, but such do not occur much in the fens.

Dinner followed, or rather tea. The water of the "Broads" and dikes is rather too *lively* to be good drinking until it is boiled, so we had tea or coffee to every meal. Our stores had included several tins of soup, but we had no saucepan, so we had contented ourselves with *looking* at the soup, and eating other things; to-day, however, we made a bold venture, and, at the cost of burnt fingers, managed to heat some in its own tin; served out in tea-cups it proved delicious. This being the last night at our camping ground, I left the boys to wash up, and started to have a good hunt for *Micros* (the boys despise all "small beasts"). *Sericoris Doubledayana* occurs again, but sparingly—by the way, I never met with any other species (except, perhaps, *Cataclysta lemnalis*) that dies so soon in a pill-box; repeatedly I have found it dead and stiff before the next morning, when far smaller insects were quite lively. Moths on the whole are not plentiful on the early flight this evening, and of those that are about, the bulk are worthless—*Sericoris lacunana* and *Nonagria despecta* are the two commonest species.

It was now time to beat to quarters, so we took our positions for the night. For myself, I took one of the smaller lamps, and went round to the other side of the alder-car, to a spot where my friend Mr. W. H. B. Fletcher found *N. neurica* abundant some years ago. Here, however, I had no success at all: scarcely a moth was flying, and the only thing that visited my lamp was rather too large for capture—an owl! At 10 o'clock I struck, and came back to the boat. During the rest of the night I worked on our old spot, taking B.'s lamp, as he had turned in. Moths were not rare, but mostly of common species; *N. brevilinea* in very small proportion to the others—possibly we had thinned them off from that particular spot, the ♂s at all events, for the ♀s are not much attracted by light. One insect, however, was on the increase, *C. caja*. It was far from appearing in its old numbers, but I saw probably a dozen or more. One or two new species also turned up, *Caradrina alsines*, *Platypteryx hamula*, *Coremia propugnata*, and *Arctia fuliginosa*—a common insect in the Cambridgeshire fens, but not abundant in Norfolk. *Cidaria testata* is already becoming a pest, but to counterbalance this, *A. grossulariata* is going off. Soon

after midnight the boys turned in, and though I worked on till 1.30, I did not take much; the best being two or three *Gelechia palustrella*, and another *O. antiquana*.

Thursday. Next morning, after breakfast, we turned our back on the alder-car, and pushed down the dike for the last time, feeling very well satisfied on the whole with our work on this spot. Yet I do not think insects were so abundant as I have seen them there, and I missed some old friends. *Nudaria senex* and *Lithosia muscerda* used at one time to be almost pests at light, yet this season the one was wholly absent, and the other scarce. *Charæas graminis* was another species conspicuous by its absence, and our catch, though fair, was by no means so varied as I have known in former years.

In travelling down the dike, we secured a few *Gonopteryx rhamni*, just emerged, but the second brood of *P. Machaon* does not appear. On reaching the staithe we landed one of our attracting lamps, which had proved troublesome, to be sent to Norwich for repairs, and despatched B. S. to S. Walsham to procure a saucepan. Here, too, we found a fresh consignment of bread awaiting us—a welcome addition, for it is astonishing how rapidly provision vanishes on board. Our ambassador having returned in triumph with his saucepan, we proceeded down the Ranworth Dam, and down the Bure to our next camping ground, a very short distance, and this time alongside the main river. There was a small dike running about 100 yards inland, up which we intended to haul our boats, but the water was so low that our dike had become only mud, completely blocked with a dense growth of *Sparganium*, and, after pulling and heaving for a few minutes, we convinced ourselves that it was impracticable, and had to be satisfied with simply drawing up by the bank. Here we occupied ourselves variously. Next comes the work of getting things in order for the night: three promising spots are found, and the remaining three attracting lamps conveyed to them; the "Coracle" is drawn up and stowed inland, and all the impedimenta either put in the boat or concealed, for this is on the track of wherries, and small articles left lying on the bank are not always there when you return. All being made ready for the night we adjourn to our posts, but can already foresee what our fate will be—the sky is cloudless, and a bright half-moon shining, while along the river and in parts of the fen, even now, a hazy mist is rising. Still, *N. despecta* and *E. pallida* are flying thickly enough, and, probably, other things may turn up. Night comes on, and the fog thickens, but ever and anon clears off a little, and during the intervals a few moths come to the lamps. By 10 o'clock it is thicker than ever

and on meeting for a cup of cocoa, which B. S. has prepared for us, the boys decide to give it up for the night. Nobody has taken much. B. S. has secured one *N. brevilinea*, and I three; of other species, *Crambus paludellus* is the best, and of this each of the boys has taken one: I was too far inland for it. Leaving them to get an extra allowance of sleep, I went back to my lamp; nor was I unrewarded, for, by 11 o'clock, the moon had set, and for a quarter of an hour the fog wholly cleared off. During this interval sport was really good:—*Nonagria fulva*, of course, swarmed, but with it came *N. brevilinea* five or six, *L. straminea*, *S. venosa* (2nd brood), *Notodonta ziczac* and *dromedarius*, besides *Epunda viminalis*, *A. fibrosa*, *Hadena thalassina*, and the first instalment of that pest in the fens—*Noctua rubi*. But the fog then returned with redoubled strength, and though I waited till 12.30, it did not clear again.

Friday, August 1st. Up in good time this morning, but as we have not far to go, we decide to remain at our mooring till the afternoon, that the boys may try for butterflies. But the fates are adverse, and though *P. Machaon* is seen, they cannot catch one. At 2 p.m. we start again, re-ascending the Ant, toward Irstead: our destination for to-night, however, is a promising stretch of fen just opposite Howe Hill, or the "Mountain," which might be described in the guide books as "a lofty precipitous height, crowned by a windmill." In reality, it is a little hill of gravel, jutting into the surrounding marsh of the Ant valley, small in itself, but conspicuous by the level character of the fens for miles around, and commanding a most extensive view. We turned just into a dike leading into this stretch of fen, and settled down to the important occupation of dinner.

Having made all ready for the night, we walked down to the river, and availed ourselves of the first opportunity for some days of a bathe in which all could join, for the Bure is too deep for those who cannot swim, and the Ranworth mud is not exactly tempting. As we came back along the dike, *Chilo gigantellus*, with a few *C. mucronellus* and *phragmitellus* were on the wing, as well as *Nonagria despecta* and the universal *P. stratiotalis*; but the moon was high and bright, and there was every sign of a fog. Nor were we disappointed; the fog came on, thick and damp, while overhead not a cloud obscured the moon. Anything worse for lamp-work could hardly be, and except a *Chilo* or two, and a few of the common *Pyrales*, nothing came to the light. The honey-dewed leaves of the sallows, however, were more attractive; *Apamea fibrosa* literally swarmed; *A. oculea* occurred, and a single *A. ophiogramma*, three or four *Leucania straminea*, and *L.*

phragmitidis were sharing the feast, so that if not very profitable, at all events our night was not without interest. It is curious that so near as this piece of fen is to the haunts of *N. brevilinea*, yet that species should appear to be wholly absent; for I am persuaded that the sallows showed us a fair sample of the *Noctuæ* about, and *N. brevilinea* is well-known to be partial to this kind of banquet. Moreover, I had one night there last year, when the weather was eminently propitious for lamping, and saw none, though the next night it turned up on the Bure fens close to Ant Mouth, and less than two miles off in a direct line, with almost unbroken fen between the localities. I had on the former occasion taken *Gelechia palustrella* in some plenty here, and it was that fact in part that decided us to try it now. The *Gelechia*, of course, was absent, not wonderful on such a night, but it was more noticeable to miss *Charæas graminis*, which had simply swarmed before, and I would fain have repeated my former capture of *L. obsoleta* had it been but (as then) an odd specimen.

We all turned in pretty early, as there was really nothing to be done when the attainable sallow bushes had been examined, for not a moth was stirring after the first flight.

Saturday, August 2nd. Up at 6, and made a start as soon as possible for Irstead Shoals, which we reached in little more than half an hour.

Such was our experience, nothing surprising, or of special interest; yet I have thought that, perhaps, to those who have never seen a "Broad," and have scarcely netted a "wainscot," a rambling narrative such as this would give a more lively idea of the work and the locality than any formal description.

Should any beginner wish to try fen work, I would say—if he wishes simply to make the largest catch possible—let him go to some good locality, *e. g.*, Horning or Ranworth, or possibly Hickling, *and stop there*, working steadily *every* night, and all night long; if, however, he wish to combine as much pleasure as possible with his sport, let him hire a boat with fittings, so that he can sleep on board: a boat whose draught of water is small enough to allow it to get up the dikes, and yet one roomy enough to hold plenty of baggage; and let him wander at his will in this labyrinth of rivers and "Broads," exploring the great fen lands, of which only a small part as yet has ever known the tread of the entomologist.

The map accompanying this article may, perhaps, prove useful to future visitors to the district, and it indicates the several camping places during our excursion.

Paragon House, Norwich:
October, 1884.

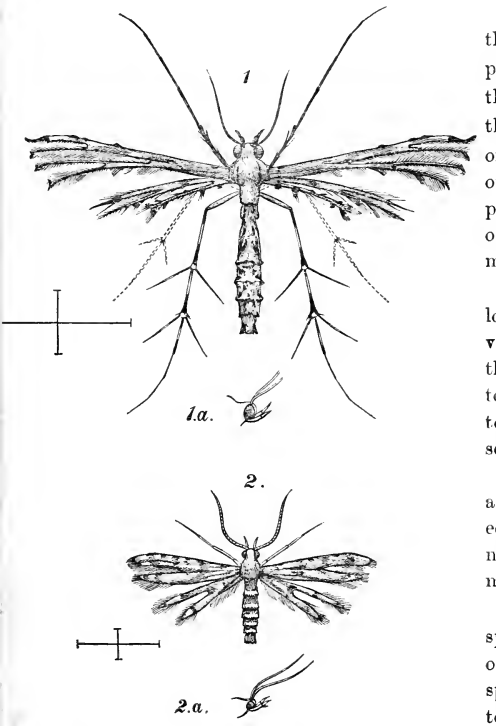
CHARACTERS OF TWO NEW GENERA OF *PTEROPHORIDÆ* FROM SPECIMENS IN THE BRITISH MUSEUM.

BY LORD WALSINGHAM, M.A., F.L.S., &c.

Heptaloba, *gen. nov.*

Palpi capite longiores; alæ anticæ ultra medium fissæ; laciniæ singulæ, antica ad medium postica ultra medium, etiam fissæ; cilia digiticuli costalis ad apicem acuminata, aliorum sub-abrupte deflexa; alæ posticæ trilobatæ, fissuræ, antica vix ultra medium, postica prope basim, projectæ; digitum tertium denticulatum; tibiæ posticæ cristatæ, calcaribus prelongis; abdominis margines sub-ciliatæ.

Palpi longer than the head, the third joint more than half as long as the second.



Fore-wings cleft beyond their middle; the anterior and posterior lobes being also cleft, the one to half, the other to more than half its length; the fringes of the anterior or costal division of the upper lobe running to a point at the apex, those of the other three divisions ending more abruptly.

Hind-wings with three lobes; the upper cleft extending very slightly beyond the middle, the lower cleft reaching nearly to the base. The posterior lobe toothed with projecting tufts of scales on the abdominal margin.

Abdomen somewhat fringed at the sides on the posterior edges of the segments, much ornamented with triangular pale markings above.

Legs with very long slender spurs, tufted above at the base of each pair. The first pair of spurs on the hind legs are equal to each other in length.

This Ceylonese genus is distinguished at first sight by the presence of four lobes in the fore-wings, instead of two only, as is usual in the *Pterophoridæ*; *Deuterocopus*, Zell., which has three, being the only other known exception. It appears to be allied to *Amblyptilia*, Hüb., having the first pair of spurs on the hind legs equal to each

other in length as in that genus. It is remarkable that Mr. Walker should not have mentioned the very peculiar form of the fore-wings in his description of this species.

Type: *Heptaloba argyriodactyla* (figs. 1 and 1*a*).

Platyptilus argyriodactylus, Walker, Cat. Lep. Het., B. M., xxx, p. 929 (1864).

I would remark that the first plume of the hind-wings does not "become wider from the base to the tip," as asserted by Walker, and there are more than one small squamous tuft on the posterior lobe of the hind-wings.

CENOLOBA, *gen. nov.*

Antennæ fortes; palpi labiales capite bis longiores, maxillares depressi; alæ anticæ pæne ad medium fissæ, angulo anali obsoleto; alæ posticæ bilobatæ vix ultra medium fissæ.

Antennæ stout, reaching to the cleft of the fore-wings, pubescent in the male.

Maxillary palpi drooping. Labial palpi more than twice the length of the head, having the second joint slightly tufted beneath its apex, the apical joint short and somewhat obtuse.

Fore-wings cleft into two lobes nearly to the middle; the anal angle of the posterior lobe not defined.

Hind-wings widely cleft to a little more than half their length into two lobes only, the base of the cleft rounded; costal margin of the anterior lobe slightly raised towards the base.

The posterior pair of legs are wanting in the type.

The distinguishing peculiarity of this Australian genus is the possession of only two lobes in the hind-wings.

Type: *Cenoloba obliteralis* (figs. 2 and 2*a*).

Pterophorus obliteralis, Walker, Cat. Lep. Het., B. M., xxx, p. 945 (1864).

To Mr. Walker's description I would add—that there is a series of about seven inconspicuous spots along the costal margin of the fore-wings, and a conspicuous fawn-coloured spot at the base of the fissure in the hind-wings.

If this remarkably distinct genus is known to Mr. Meyrick, I hope that his knowledge of other Australian *Pterophoridæ* may enable him to assign to it its proper position in the Family. Its appearance would place it near to the genus *Aciptilia*. The neuration is evidently very simple, but I have been unable to examine it critically.

London: *December*, 1884.

REVISION OF THE BRITISH SPECIES OF *SPHECODES*, LATR. (INCLUDING NINE ADDITIONAL).

BY EDWARD SAUNDERS, F.L.S.

(*Concluded from page* 151.)

4. *spinulosus*, v. Hag., Deutsche Ent. Zeit., xix, 1875, p. 317; Deutsche Ent. Zeit., xxvi, 1882, p. 216, pl. vi, f. 3.

The largest species of the genus, and easily known by the spinose tibiæ of the ♂, and the closely punctured thorax, and almost entirely red abdomen of the ♀. Antennæ in the ♂ shorter than in the preceding species; 3rd joint of flagellum scarcely longer than the 1st and 2nd together; thorax closely punctured, rather densely clothed with grey hairs; wings with the 2nd sub-marginal cell wide, being as wide at the base as long; alar hooks 10; abdomen coarsely punctured, wider than in the *gibbus* group: armature with the lacinia short and pointed, with a membranous wing, produced along the inner margin of the stipes; tibiæ with fine pale spines on their outer edge.

♀ resembling *pilifrons* in sculpture, but known at once from it by the larger number of alar hooks, viz., 7; the head and thorax are closely punctured, and clothed with short grey hairs, giving them quite a greyish tint, the wings are dark smoky-brown; the abdomen has the first three segments entirely, and the sides of the 4th, red; the apical valve is wide, and slightly narrowed to the apex, which is rounded, and the sides slightly reflexed. Length, 11—12 mm.

Apparently rare. I have a ♀ taken at Littlehampton in July, 1873, and a ♂ and ♀ without note of locality. Mr. V. R. Perkins has taken both sexes in Gloucestershire.

5. *puncticeps*, Thoms., Op., 99, 6; Hym. Scand., ii, p. 157. E. Saund., Trans. Ent. Soc., 1882, p. 198, pl. viii, fig. 1. v. Hag., Deutsche Ent. Zeit., xxvi, 1882, pl. vii, f. 24.

This species resembles the species of the *ephippium* group, but the wide 2nd sub-marginal cell in both sexes, and the simple, finely-pointed mandibles of the ♀, will easily distinguish it.

The ♂ has the pubescence of the base of the antennal joints extending to about the third of their length; the vertex is closely punctured; thorax shining, rather remotely and strongly punctured; wings with the 2nd sub-marginal cell as wide at the base as high, slightly narrowed to the apex; sides of the metathorax strongly rugose; abdomen with the apex of the 1st segment, the whole of the 2nd, and base of the 3rd, sometimes red, sometimes entirely black or piceous; armature orange-red in colour; the stipites finely rugulose; the lacinia simply triangular and sub-membranous.

♀ rather more brightly and clearly coloured than in many of the species; mandibles long and pointed, without any tooth near the apex; thorax shining, distinctly and rather strongly punctured; wings very clear, the 2nd sub-marginal cell shaped as in the ♂; abdomen with the 4th and following segments black; the apex of the 3rd also more or less clouded; apical dorsal valve narrow, punctured, with a rather deeply impressed line parallel to its margin. Length, 6—7 mm.

Chobham, ♂ and ♀, Wandsworth, ♂, Bournemouth, ♂; Hastings, ♂ (Rev. E. N. Bloomfield); Gloucestershire, ♀ (V. R. Perkins); Norwich (J. B. Bridgman), apparently rather rare.

6. *longulus*, v. Hag., Deutsche Ent. Zeit., xxvi, 1882, p. 25, pl. vii, f. 25.

Very like the preceding, but decidedly smaller and more elongate, it is one of the smallest of the genus. The ♂ is entirely black, and can only be confounded with the preceding and following species; from *puncticeps* the form of the lacinia will distinguish it, as also the pubescent bands of the antennæ, which are produced to nearly half the length of each joint; from *niger* its armature will distinguish it at a glance, and the wider 2nd sub-marginal cell of its wings with more contracted apex.

The ♀ may be known from *puncticeps* by its smaller size, paler legs, and paler red colour of the abdomen, and in the form of the apical dorsal valve, as given above. Length, 5—5½ mm.

Chobham, 2 ♂, 1 ♀; Weybridge, 1 ♀ (T. R. Billups).

7. *niger*, v. Hag., Deutsche Ent. Zeit., xxvi, 1882, p. 227, pl. vii, f. 26.

Another very small species, and very peculiar on account of the unusual form of the armature in the ♂, which is strongly transverse; the stipites scarcely strigose, and very short and wide, and the laciniæ very short, narrow, and concave, otherwise in general appearance the ♂ resembles *longulus*, in colour the ♂ is black or piceous-black, and the genitalia dark brown; the narrow 2nd sub-marginal cell is also a character whereby this species may be known from *longulus*.

♀. 2nd sub-marginal cell scarcely contracted towards the apex; face much raised just below the insertion of the antennæ; abdomen with the basal segment entirely red, all the rest more or less clouded with black. Length, 5—5½ mm.

I have only seen a single pair of this species, taken by Rev. E. N. Bloomfield at Guestling, and which he has very kindly presented to me.

8. *pilifrons*, Thoms., Op., 99, 5; Hym. Scand., ii, p. 157. E. Saund., Trans. Ent. Soc., 1882, p. 197, pl. viii, f. 5. v. Hag., Deutsche Ent. Zeit., xxvi, 1882, pl. vi, f. 11.

A large species about the size of *gibbus*. Alar hooks 5—6.

♂ with the antennæ short, reaching to about the scutellum; the 3rd joint of the flagellum about equal to the 1st and 2nd together; the pubescent rings of the joints reaching to one-third of their length, or a little more; thorax rather wide closely punctured, and clothed like the head with grey hairs, face densely clothed with white hairs; wings hyaline, 2nd sub-marginal cell wide; abdomen very shining 1st segment black at the base, 1st and 2nd scarcely punctured, 4th and following black; armature with the lacinia sub-quadrate and sub-membranous thickened in a curved line across the centre, its apical margin fringed with long hairs.

♀ very like *gibbus*, &c., in colour, but with the thorax closely punctured, and clothed with greyish hairs; the apical dorsal valve wide and flat, punctured; spine of the tibiæ pale. Length, 9—10 mm.

Common in some localities. Chobham, Wandsworth, Worthing; Norwich (J. B. Bridgman); Hampstead (T. R. Billups); Penzance (E. D. Marquand); Exeter (E. Parfitt); Gloucestershire (V. R. Perkins); Colchester (W. H. Harwood); Hastings (Rev. E. N. Bloomfield).

). *similis*, Wesm., Bull. Ac. Brux., ii, p. 279, 1835. E. Saund., Trans. Ent. Soc., 1882, p. 198, pl. viii, f. 4. v. Hag., Deutsche Ent. Zeit., xxvi, 1882, pl. vi, f. 12.

♂ readily known from that of *pilifrons* by the shorter abdomen, the more rounded joints of the antennæ, the narrow 2nd sub-marginal cell, and the bifid aciniæ of the armature.

♀ scarcely distinguishable from *pilifrons*, except in size and in the form of the dorsal apical valve, which is rather narrower, and has a distinct impression running parallel to the margin. Length, 6—8 mm.

Common in many localities. Bromley, Chobham, Canterbury, Southwold, Worthing, Littlehampton; Norwich (J. B. Bridgman); Margate (T. R. Billups); Exeter (E. Parfitt); Penzance (E. D. Marquand); Gloucestershire (V. R. Perkins); Colchester (W. H. Harwood); Guestling, near Hastings (Rev. E. N. Bloomfield).

10. *ferruginatus*, Schenck. v. Hag., Deutsche Ent. Zeit., xxvi, 1882, p. 221, pl. vii, f. 13.

♂ easily known by the unspotted red basal segment of the abdomen, and the rather broad form of the abdomen itself, so that but for the length of the antennæ and blunt apex of the abdomen, the ♂ very closely resembles the ♀; alar hooks 5—7; thorax shining, but somewhat closely punctured, pubescence at the base of the antennal joints extending to about one-third of their length; genital armature with the lacinia straight along its external margin, which is slightly thickened at the apex, and with a triangular membrane on its inner margin, extending along and beneath the inner margin of the stipes; stipes widely grooved at the base, the groove extending to about half its entire length; extreme apex of the lacinia with long hairs.

♀ with the mesothorax more sparsely punctured than in the ♂; apical dorsal valve shining, testaceous, its centre narrowly and much raised; alar hooks 6; 3rd abdominal segment without lateral foveæ. Length, 6—7 mm.

Very rare. Scotland, Dumfriesshire (R. Service), ♂ and ♀; Colchester (W. H. Harwood), ♂; Gloucestershire (V. R. Perkins).

11. *hyalinatus*, Schenck. v. Hag., Deutsche Ent. Zeit., xxvi, 1882, p. 222, pl. vii, f. 14.

♂ very like the preceding, but decidedly smaller, with the extreme base of the 1st abdominal segment more or less black or dark; the genital armature is very differently formed; the lacinia being much shorter and wider at the base, so that its thickened portion is more or less triangular, its membrane is shaped much as in *ferruginatus*.

I cannot attach any ♀ for certain to this ♂, which at present I only know from specimens taken by Mr. V. R. Perkins, in Gloucestershire.

12. *variegatus*, v. Hag., Deutsche Ent. Zeit., xxvi, 1882, p. 222, pl. vii, f. 15.

♂. Antennæ entirely black; basal pubescent rings of the joints very narrow; 2nd sub-marginal cell not twice as high as wide; all the segments of the abdomen banded with black; armature with the groove of each stipes extending almost to the apex.

The ♀ assigned to this ♂ by v. Hagens has the vertex of the head somewhat incrassate, the thorax very shining and finely and remotely punctured.

Length, ♂, 6—7 mm.

Chobham; Colchester (W. H. Harwood); Gloucestershire (V. R. Perkins); Norwich (J. B. Bridgman).

13. *divisus*, v. Hag., Deutsche Ent. Zeit., xxvi, 1882, p. 223, pl. vii, f. 16. Kirby ? ?.

I have a single ♂ which seems to agree with this species: it has the antennæ rufescent in front, and the 2nd sub-marginal cell exceedingly narrow, more than twice as high as wide, but otherwise it seems to me identical with *variegatus*. Kirby's description seems to me to agree better with *similis*, ♂; but in his collection several species are mixed under this name.

Chobham.

14. *dimidiatus*, v. Hag., Deutsche Ent. Zeit., xxvi, 1882, p. 224, pl. vii, f. 19.

♂ small and narrow, easily recognised from all but the following by the form of the joints of the antennæ, which have their faces flattened and pubescent, almost up to the apex of each; from the following it may be known at once by the form of the genital armature; the dilated apex of the lacinia produced on its inner margin being an easily observable character.

♀. The female which v. Hagens thinks belongs to this ♂ is a small, brightly coloured insect, with a rather largely punctured thorax. Length, 6—7 mm.

Chobham, ♂ ♀; Gloucestershire (V. R. Perkins), ♀; Norwich (J. B. Bridgman); Penzance (E. D. Marquand), ♀.

15. *affinis*, v. Hag., Deutsche Ent. Zeit., xxvi, 1882, p. 224, pl. vii, f. 21

♂ distinguishable from the preceding, as stated above. The armature has the lacinia a little produced on to its membrane near its middle, and narrowed again to the apex.

The ♀ which v. Hagens suggests for this species is very like that described for *dimidiatus*, but has the thorax exceedingly shining, and the puncturation much finer and more remote.

Chobham, ♂ ♀; Colchester (W. H. Harwood), ♂ ♀; Gloucestershire (V. R. Perkins), ♂ ♀; Norwich (J. B. Bridgman); Penzance (E. D. Marquand), ♀.

St. Ann's, Mason's Hill, Bromley, Kent:
November, 1884.

ON THE AUTHORSHIP OF THE LETTER-PRESS IN VOLUMES I, VI, AND VII OF THE ENTOMOLOGY IN "JARDINE'S NATURALIST'S LIBRARY."

BY H. T. STAINTON, F.R.S.

In our last number (p. 155) Mr. A. G. Butler has some notes on *Scopelodes unicolor*, and he there says: "The genus *Scopelodes* was characterized by Westwood on page 222," &c. I wrote to Mr. Butler taking exception to his words "*characterized by Westwood*," and my remarks ran thus:

"On referring to page 222 of the volume, it would seem to me that the whole of the text is written by the author of the volume, James Duncan—there is no intimation that a syllable was written by Westwood, who had probably supplied a MS. name to the insect in Mr. Hope's collection.

"Your note says 'The genus *Scopelodes* was characterized by Westwood on page 222,' &c. I cannot find any indication of this in the volume myself—there are no inverted commas implying any quotation or extract from the MS. of another writer."

To this Mr. Butler replied as follows:

"The genus *Scopelodes* has always been quoted as Westwood's, and Mr. Moore, who is almost hypercritical (if that be possible) in the authorship and date of publication of genera, quotes it thus—*Scopelodes*, 'Westwood, Nat. Libr.'

"From an examination of the text in the volume it is evident that Duncan was supplied by Westwood with the greater part of his information, and there is every reason to believe that the characters of the new genera and species were also obtained from the same source: at page 209 you will see '*Asthenia podaliriaria*, Westwood. In supplying us with a figure of this new species, Mr. Westwood has suggested the propriety of referring it, along with several others, to a new genus, which he names *Asthenia*.' Then follow the generic characters.

"The style of description corresponds entirely with Westwood's descriptive work. See 'Cabinet of Oriental Entomology,' and other early works by this author. At the same time, perhaps, the question is worth ventilating; Professor Westwood probably will remember whether he wrote the descriptions for Duncan or not."

Acting upon this last suggestion, I next wrote to Professor Westwood, and, after explaining how it happened that such a curiously knotty point had arisen, I remarked:

"Duncan heads the page (222) with '*Scopelodes unicolor*, Westwood,' and the insect is described from Hope's collection, but I cannot see it anywhere mentioned that you furnished the characters, or any portion of the *letter-press*—the advertisement at p. xi says, 'For many of the illustrations we have been indebted, as on former occasions, to Mr. Westwood.'

"Some of the Plates bear 'J. O. Westwood, delt.,' but Plate 28, which figures the *Scopelodes* in question, bears no such indication.

"The question I would put to you is this—whether James Duncan or J. O. Westwood wrote the letter-press relating to *Scopelodes unicolor?*

"As similar questions may some day arise as to other insects treated of in this volume, it would be very desirable (if not taxing your memory too much) to solve such problems once for all, whilst you are still a working Entomologist."

In reply to this appeal, Professor Westwood has very kindly sent me a complete account of his connection with the Entomological volumes of Jardine's Naturalist's Library, which I therefore print *in extenso:*

Walton Manor, Oxford:

December 1*st*, 1884.

Your enquiry concerning my *Scopelodes unicolor* affords me an opportunity, of which I am glad to avail myself, of setting myself right, with my brother Entomologists, as to the extent of my share in the production of the seven volumes on Entomology forming a portion of "The Naturalist's Library by Sir William Jardine," namely:

"Introduction to Entomology, Vol. I, by James Duncan, M.W.S.," 1840.

"Entomology, Vol. II, Beetles, by James Duncan, M.W.S.," 1835

"Entomology, Vol. III, British Butterflies, by James Duncan, M.W.S.," 1835.

"Entomology, Vol. IV, British Moths, Sphinxes, &c., by James Duncan, M.W.S.," 1836.

"Entomology, Vol. V, Foreign Butterflies, by James Duncan, M.W.S.," 1837.

"Entomology, Vol. VI, Bees," 1840.

"Entomology, Vol. VII, Exotic Moths, by James Duncan, M.W.S.," 1841.

I may say, at starting, that of Volumes II, III, IV and V I know no more of their authorship than is given on their respective title pages as above, and that I had no personal acquaintance with Mr

Duncan, never having, to my knowledge, even seen him, and certainly he never saw one of the insects, which were published for the first time in the Naturalist's Library from my drawings. With the view of giving to some portion of the other Entomological Volumes an amount of originality, which was wanting in the majority of the Volumes of the Work, I was applied to in the years 1840 and 1841 to furnish drawings of new and beautiful species of insects for the Introductory Volume, the Volume on Exotic Moths, and some exotic bees for the Volume on "Honey and other Bees."

These additional species were selected by myself from the collection of the Rev. F. W. Hope and my own, and the drawings, with a popular description of each species (not, however, accompanied by a technical Latin character) were forwarded by me to Edinburgh, but, unfortunately, I never saw a proof either of the plates which contained my figures or of the text in which my descriptions were introduced by Mr. Duncan, without any indication of what was mine or what his own comments.

The Introduction to Entomology, Vol. I, commences with an "Advertisement" (as was also the case throughout the work) containing a notice of forthcoming Volumes and notes of others already published. In this Advertisement we read, in reference to the then unpublished Volume on Exotic Moths, that "drawings of new and splendid species of moths are now in preparation by Mr. Westwood, to whose elegant pencil we have likewise, as will be seen, been largely indebted on the present occasion in the Volume which this accompanies."

My share in the 1st Volume was as follows:

Plate VI was occupied by structural outlines of the chief characters of the Order *Orthoptera* including a figure of "*Acheta arachnoides*" described on page 248, where we are informed "Mr. Westwood has given it the specific name of *arachnoides*."

Plate IX contained my figure of "*Deroplatys disiccata*," properly described in the text, p. 234, as "*Mantis* (*Deroplatys*) *desiccata*, West."

Plate XIV contained my figure of "*Anostostoma Australasiæ*," stated (in p. 255) to have been first described by Mr. Grey (George Robert Gray), in Mag. Nat. His., N. Ser., I, 143.

Plate XVIII contained figures of the leading characters of the Heteropterous *Hemiptera* (described on p. 269), and of the *Homoptera* (on p. 270), with a figure of "*Polyneura ducalis*" described in the

text, p. 277, as *Cicada* (*Polyneura*) *ducalis*, "and considered by Mr. Westwood as forming a distinct sub-genus."

Plate XX, Fig. 3, "*Anisosceles hymeniphera*" (unique in my collection), at p. 275 we read "for a figure and the following notice of this new species of *Anisosceles* we are indebted to Mr. Westwood."

Plate XXIV, Fig. 1, "*Aphana submaculata*" noticed on p. 284.

Plate XXV, Figures of *Centrotus globularis* and *C. furcatus* together with a new species, "Mr. Westwood names it *C. biclavatus*," p. 286.

Plate XXVI, Figures 1—14. Details of the leading characters of the *Neuroptera* from *Libellula*, in the description of which, p. 288, the Plate is misquoted XXVII, the word "*trophian*" is a misprint for "*trophi* are," "*Rhenarium*" is a misprint for "*Rhinarium*," and p. 289, "labrum" is a misprint for "labium"; figs. 15—23 give the details of the *Hymenoptera*; and fig. 24 represents *Joppa antennata* (p. 315), Fab. Syst. Piez., 122.

Plate XXVII, Fig. 3. *Nemoptera angulata* (p. 293), "West.; Tran. Ent. Soc., Vol. I, p. 75."

Plate XXVIII, Fig. 2. *Stilbopteryx costalis* (p. 294), Newman; Ent. Mag., No. 24, p. 400, here figured for the first time.

Plate XXXVII, Fig. 1, *Asilus abdominalis*, and described p. 329, as *Asilus* (*Blepharotes*, West.) *abdominalis*; fig. 2, *Acanthomera immanis* (p. 331), Wiedemann.

[This Plate is referred to in the text as Plate XXXV, which it really is in numeral order, following immediately alter Plate XXXIV and being the last in the volume.]

Entomology, Vol. VI, Honey and other Bees, 1840.

No author's name is given on the Title-page, but an anonymous reverend writer is stated in the "Advertisement" to have supplied the literary details respecting the Honey-bee, and Mr. Duncan's name is given, who is said to have "availed himself of the invaluable assistance of Mr. Westwood for drawings *and descriptions* of various figures which now, in some cases, appear before the public for the first time."

Plate XVI, Figs. 1, 2, Orange-tailed bee (*Bombus lapidarius*, Linn. m. and f.), fig. 3, Moss or Carder bee (*Bombus muscorum*, Linn.).

Plate XVII, Fig. 2, Great humble-bee of Valparaiso (*Bombus grandis*, Guérin, Iconogr.), p. 256.

Plate XVIII, Fig. 1 and p. 256, Harris' humble-bee (*Bombus Harrisellus*, Kirby); Fig. 2 and p. 257, *Apathus vestalis*, Kirby; Fig. 3 and p. 259, *Apathus rupestris*, Fabricius.

Plate XIX, Fig. 2 and p. 262, *Euglossa analis*, Fig. 3 and p. 263, *Aglae cærulea*, Enc. Méth.

Plate XX, Fig. 1, *Centris nobilis*, "named by Westwood," p. 264.

Plate XXI, Fig. 1, *Xylocopa teredo*, Lansdowne Guilding, male; Fig. 2, female; Fig. 3 and p. 270, *Xylocopa corniger*, Westw.

Plate XXIII, Fig. 2, *Xylocopa tenuiscapa*, and p. 271, *Xylocopa* (*Platynopoda*, West.) *tenuiscapa*, Westw.

Entomology, Vol. VII, Exotic Moths by James Duncan, M.W.S., 1841.

In the Advertisement, p. xi, we read "For many of the illustrations we have been indebted, as on former occasions, to Mr. Westwood. Two of these have reference to the illustrious subject of the Memoir (Latreille). One exhibits his Cemetery (*sic*) in Père la Chaise, the other is a *fac-simile* of the Notes attached to his dissections of insects. There are many hundreds of these in existence, chiefly of *Coleoptera*."

[This collection of Latreille's Notes was given to me by the late A. Melly, each note containing the actual dissections, chiefly of the mouth organs, of a genus, descriptions of the same in Latreille's small cramped hand-writing and rude sketches of various of the organs dissected. The collection is now preserved in the Hopeian Museum.—J. O. W.]

Of the Plates of Moths contained in this volume—

Plate II, Fig. 1 and p. 83, is an original figure of *Agarista picta*, Leach., Zool. Misc.; Fig. 3 and p. 88, *Eusemia maculatrix* (Westw., *n. sp.*)

Plate III, Fig. 1, *Eterusia tricolor*, Hope, Linn. Trans.; Fig. 2, *Erasmia pulchella*, Hope, Linn. Trans.; Fig. 3, an original figure of *Phalæna sanguiflua* of Drury, formed by me into a new genus *Amesia* (p. 93).

Plate VIII, Fig. 4, *Zeuzera minea*, Cramer.

Plate XIII and p. 138, *Saturnia Isis*, Westwood.

Plate XXIII, Fig. 1, *Hypercompa?* (*Hypercampa* in plate) *Sybaris*, Cramer.

Plate XXIV, Fig. 2 and p. 193, "*Cydosia nobilitella*, Westwood" (*Phalæna nobilitella*, Cramer, pl. 264).

Plate XXVIII, Fig. 1 and p. 220, "*Epidesmia tricolor*, Westwood;" Fig. 2 and p. 222, "*Scopelodes unicolor*, Westwood."

Plate XXIX, Fig. 1 and p. 209, "*Asthenia Podaliriaria*, Westwood;" Fig. 2 and p. 212, "*Macrotes netrix*, Westwood," *Phalæna netrix*, Cramer, pl. 151.

Plate XXX, Fig. 1, *Dichroma equestralis*—in the description, p. 224, line 6, for "reflexed" read "deflexed," and in p. 226, line 10, for "head, wings" read "hind-wings." Fig. 2 and p. 227, *Dichroma histrionalis*; Fig. 3, p. 228, *D. arcualis*.

The above are all the figures, which I contributed to the Naturalist's Library, and in most instances my name is added at the foot of each plate in which my drawings were engraved, even where figures from Cramer or other previous works were engraved on the same plates as mine. Sometimes, however, my name is not added at the foot of a plate which contained my drawings, as in the Volume of Exotic Moths, Plate XXVIII.

I am sorry to trouble you with all these technicalities, but I quite agree with you that it is better they should be given, to avoid other enquiries of a similar nature at a future time, when no such explanation could be given. J. O. Westwood.

ON THE PROBABLE EXTINCTION OF *LYCÆNA ARION* IN ENGLAND.

BY HERBERT W. MARSDEN.

As *Lycæna Arion* has been a species of great interest to me fo many years, and as I have paid much attention to its appearance an distribution in this locality, a few notes from me may be of interes to the readers of the Ent. Mo. Mag.

It was on the 17th June, 1866, that I first saw the species alive when, in the course of a long Sunday ramble, I captured a singl specimen in a narrow valley amongst the Cotswold Hills. A few day later I took another, high up on the open common ground, and mor than a mile from where the first was seen.

From that year until this I have regularly visited the localitie I discovered during 1867—70. Since 1869 I have kept no regula diary, but only in 1870 did I find the insect really plentiful.

The early part of June, 1867, was dark and cold, and I onl secured some twelve or fifteen examples of *L. Arion*, usually not mor than two or three specimens in any one day: the first being seen Jun 20th. These were all taken at what we may call the Stroud end c

the district, described by Mr. Goss on pp. 107—9 of this volume; nor was it until 1869 that I traced it northwards to other and more prolific localities.

The season, May and June, 1868, was hot and brilliant, and I found *Sesia tipuliformis* emerged in my garden as early as June 1st, *L. Arion* appeared June 5th, which is the earliest date I ever heard of the species being out; but although rather more plentiful than the previous year, it was still rather scarce.

In 1869 (another fine or partially fine season) it was more abundant, and I find from my diary that on June 19th I took ten at rest about sunset. Early the following morning I again traversed the ground, but saw none, so spent the day elsewhere; returning about five o'clock in the afternoon. I then saw over a score, of which I boxed about half, letting the others pass.

The year 1870, however, is the one to be marked with a white stone by the lovers of *Lycænidæ*. I have not my notes for this year, but it was about the 11th June that *L. Arion* was first seen, and for the next ten or fourteen days it was fairly common, and it appeared much more widely distributed than in any other year I know of, either before or since. It would, I am sure, have been possible for an active collector, of the greedy school, to have caught over 1000 "large blues" during the season, for in a few visits I secured about 150, not netting half of those seen, and turning many loose again. Nor was it *L. Arion* only that was common; all the "blues" appeared unusually abundant this season, and one memorable evening, just at sunset, I found at rest on the long grass in a disused quarry, no less than seven *L. Agestis*, so close together on *one stalk* of grass, that I easily got six of them into a pill-box at the first attempt. Within a few inches were five beautiful *L. Arion* also at rest. These twelve butterflies were all within a space less in size than the crown of a man's hat. It may be in place here to note that when the weather has been fine and bright, and promises to continue settled, *L. Arion* rests at night high up on coarse stalks of grass, and is then very conspicuous; whereas, in dark unsettled weather, they betake themselves to low thick tufts of grass or nettles.

During the next few years *L. Arion* continued to appear, but very irregularly, as regards numbers. The best seasons since 1870 being those of 1876 and '77, the latter especially, but on no occasion has it been nearly so abundant as in 1870. As the years '76 and '77 have been fully described in Mr. Goss's paper, I need not dwell further upon them.

Now come the dark days. Part of June, 1877, was damp and broken; not at all the bright warm skies *L. Arion* loves (1876 was very hot for part of June). In dark cloudy weather they are always still, and, I believe, they will only deposit their ova when the sun is warm and bright. In 1878 the weather was worse, there being hardly a fine day in the month. 1879 was yet worse than '78, and since then until this season the same class of weather has been prevalent. Now, during all these seasons I have gone or sent many times at the time *L. Arion* should be out. In 1878, not over a dozen were seen, mostly worn and weather-beaten, for there were hardly ever two consecutive fine days. In 1879 they were yet scarcer, while in 1880, if my memory serve me rightly, only two were obtained, and two or three more seen. For the four years, 1881—84, not one has been seen in the Gloucestershire district that I have been able to trace.

I will now say a few words about the distribution of *L. Arion*. Such years as it has been rare, it appeared to be entirely confined to two or three spots of very limited area, whereas when commoner, and especially in 1870, it cropped up here and there nearly all through the country between the two chief "head quarters," which are nearly three miles apart. It also occurs in two or three other localities, one of them being over ten miles away, but everywhere it is limited to small areas.

One point of interest would appear to be this. My friend Mr. Merrin used to take the species about a quarter or half a mile further west than I have ever done, and at that time he knew of no other locality. Since I have been acquainted with the species, not one has been taken in this old locality, although often visited at the right time. So local does it seem, too, that, although I have taken it freely up to a certain point, I could never find a specimen beyond the sides of this one old quarry, in the direction of the old head quarters notwithstanding that the formation of the ground, herbage, &c. appear identical with that where it was common.

Now, what is the probable cause of the diminution or extinction of *L. Arion?* To my mind the greatest, if not the sole, cause has been the continued prevalence of unfavourable weather, which alike caused an immense decrease in the blossoming of the wild thyme, and prevented free oviposition by the parent butterflies. It will be noted that with continued and increasing fine weather, 1866—1870, the species gradually increased also, until in 1870 it was common. Then followed broken seasons, with irregular appearance of the butterfly but still in sufficient number to take advantage of the fine June o

1876. In 1877 they were commoner than in the previous year, but the month of June was partly broken. Many fewer butterflies appeared in '78, and they hardly had a chance of continuing the species; and from then until 1884, there has not been one fair season.

The question now is: have ANY survived this long series of bad years? If only a very few are left, with the finer June of 1884, and should we be favoured with a similarly fine month in 1885, there is hope that *L. Arion* may again become, if not abundant, still not so very rare; but I fear this hope is but a very faint one.

Burning the grass has, I think, become more prevalent over one of the localities noticed, and it must have had some bad effect; but the other has never suffered from this to any appreciable extent; so this cannot be *the* cause, although it may have been an assisting one. As to the "rapacity of collectors," I can say emphatically that it has had no share in the diminution of the species in the district in question. The locality towards Stroud is, I believe, known only to four or five people, including Mr. Goss, to whom I showed the ground in 1876. Only Mr. Merrin and myself have ever systematically visited the ground, and, as will be seen from the record of my experience as given above, no harm can have been done by me in this manner, and Mr. Merrin has never taken nearly so many as myself. In all my wanderings over the Stroud end of the ground I *never* met a stranger collecting, and only on one occasion, at the other end, and this was, I know, only a passing day's visit by an amateur. While, however, I am thus positive that over-collecting has not had anything to do with the disappearance of *L. Arion* here, I am none the less convinced that it would have been easy for one or two active collectors to have made a clean sweep of the species, and exterminated it in a series of two or three years, no matter how favourable the weather might have been. It has been this conviction that prompted me never to publish the exact locality, and also to be careful myself never to take all I saw, and generally to preserve the species as much as possible.

I have said nothing here about the larva of *L. Arion*, because nothing further appears to have been learnt of it since Mr. Merrin and myself supplied ova to Mr. Porritt and others in 1870. We then all saw the newly-hatched larvæ feeding on blossoms of wild thyme, and that was the last of it. At different times I have spent many hours in search for older larvæ without avail.

37, Midland Road, Gloucester:
November 18th, 1884.

Abnormality in Epinephele Hyperanthus.—On July 22nd, 1883, I took two interesting specimens of *E. Hyperanthus*, shewing a want of symmetry on the under-side. The typical form of the species has on the under-side (according to Newman) eight ocelli, three on the upper, and five on the lower wing. These we will call 1, 2, 3, 4, 5, 6, 7, 8,* and thus we should give Newman's type specimen a formula thus—left wings, 1, 2, 3, 4, 5, 6, 7, 8; right wings, ditto. A spotless form would be represented thus—0, 0, 0, 0, 0, 0, 0, 0; and in the same way any other specimen might be readily described by substituting a cypher for an absent spot, and placing a convenient figure, say X, for any extra ocellus; and also when two ocelli become partly united they may be expressed by bracketing them together, for instance, Newman figures a variety which would have a formula thus—1, 2, 3 (4, 5, X,) 6, 7, 8. Having explained my plan, I will now adapt it to my two asymmetrical specimens which I caught near Warlingham, in Surrey. The first, the more remarkable, has a formula 1, 2, 3 (4, 5,) X, 6, 7, 8, for the right under-side, but on the left side it is 1, 2, 0 (4, 5, X,) 6, 7, 8. The second specimen has the right side 1, 2, 3 (4, 5,) X, 6, 7, 8, as before, but the left is 1, 2, 3 (4, 5, X,) 6, 7, 8. Thus we see that in both cases the additional small spot X was united with 5 on the left, but disunited on the right side, while in one specimen the 3rd ocellus on the upper wing was entirely absent on one side, but well marked on the other. I sent the specimens to Mr. Kane, of Dublin, who tells me that such aberrations are rare. Can any reader remember a similar instance?—T. D. A. Cockerell, Bedford Park, W.: *November*, 1884.

Tapinostola Bondii in the Island of Rügen.—In the Stettiner entomologische Zeitung, 1884, p. 432, Major Alex. von Homeyer records the capture by him, on August 2nd, 1879, of a ♂ near Stubenkammer in Rügen. We do not think the insect had hitherto been recorded from other than its old localities, viz., South of England, and Greece.—Eds.

Note on Dichrorhampha tanaceti.—I have long been puzzled as to what this insect really is. Mr. Stainton, in the Manual, includes it in the genus *Dichrorhampha*, the males of which possess a costal fold. In all the specimens which have been sent to me as *tanaceti*, the males have no fold, nor have I been able to detect one in the series of the insect I have observed elsewhere. If these insects are *tanaceti*, Mr. Stainton must have had some other species before him when he wrote his description for the Manual.

On examining the late Mr. Doubleday's collection at the Bethnal Green Museum a short time ago, I found, to my surprise, the species *tanaceti* represented there by only three specimens, all males, with the fold, but most certainly all *D. herbosana*, or, rather, what we have for some years been calling by that name.

D. herbosana I myself bred in Yorkshire from roots of tansy and yarrow, among which plants I also caught them flying in numbers, and I cannot be mistaken about the species.

Again, Mr. Elisha has this season bred from roots of tansy a long series of what he calls *tanaceti*, and which agree exactly with the specimens sent to me under that name. I conclude, therefore, that the name *tanaceti*, which stands in the Doubleday collection, applies to what we now call *herbosana*, a true *Dichrorhampha*, and that

* The system I here propose is taken from that in use for indicating the arrangement of the bands of certain *Helices*. I think it would be found to serve for all the *Satyridæ*.

the species generally known as *tanaceti* should be called *saturnana*, a species, I believe, never yet bred till now, and which the description as given in the Manual exactly suits.

I think I can throw some light, or, rather, darkness, upon the existence of another species—*senectana*. No one exactly knows what this insect is. There is one specimen so named in the Doubleday collection, which, if I mistake not, is a female *herbosana*. This sex of that species would appear to be scarce. I only bred one ♀ to about three dozen ♂. It is smaller and darker than the ♂, and has the triangular paler blotch on the inner margin more irregular, and that at the anal angle more metallic. *D. tanaceti*, probably like *herbosana*, feeds on both tansy and yarrow roots. Mr. Barrett remarks that it occurs on the coast of Pembroke, where no tansy grows. I have written to Mr. Thompson, of Stantonbury, formerly of Crewe, who is named by Mr. Stainton as the original captor of *tanaceti*, to ask him to allow me to see, if he has them, any of the original specimens. He replies that he sent many of his original captures of this species to Messrs. Douglas, Stainton, and other London collectors, and that Mr. Stainton, before naming them, sent them to Prof. Zeller. Mr. Thompson's own specimens being set on old pins, corroded, and all but one were replaced by specimens sent him by Mr. Grigg, of which he remarks, "but these are not exactly like mine." I should think not. He has sent me his single remaining specimen—a ♀—but that is quite enough: it is a true *herbosana*, ♀. —W. Warren, Merton Cottage, Cambridge: *October 12th*, 1884.

[Mr. Douglas has now forwarded me three specimens of *Dichrorhampha tanaceti* from his cabinet, which are *very likely* to be those sent to him by Mr. Thompson, and I find that these are undoubtedly identical with my *herbosana*. It seems, therefore, that the name *herbosana* should drop, but I am not yet satisfied that the species we usually find about tansy in the South is identical with *saturnana*.—C. G. B.]

Ephippiphora tetragonana bred.—By a lucky chance, this summer, I happened to breed three examples of this rather rare Tortrix, which had hitherto eluded all attempts to discover its earlier stage. Being in want of *Spilonota incarnatana*, I went down to the coast for the larvæ. Unthinkingly, I deferred my visit (as the event proved) too long; as all my supposed *incarnatana* larvæ, and they were not many, emerged as *roborana* to my great annoyance. As a beginner, I also wanted *Bergmanniana*, and duly collected the green larvæ as well. These came out all right; but with them three examples of what I took (at the time) to be *Semasia populana*. Lately, when putting away my year's captures, I had a more careful inspection of these examples, and felt rather in doubt about them. Writing to Mr. Barrett about other matters, I had mentioned the breeding of these *populana* from the rose-feeding larvæ. He then desired to see them, and I sent them, with some other things, and the result was that they proved to be very small examples of *E. tetragonana*. They may have been dwarfed from the supply of food failing, for I took no particular care of them, as I took for granted that they were all the common *Bergmanniana*. No doubt, inland, the food plant will be *Rosa canina*, or whichever species is the common one where the insect occurs. Here, most probably *canina*, as it is our common rose. Next year I hope to make the discovery more complete.—J. Sang, 33, Oxford Street, Darlington: *November*, 1884.

Occurrence of Sciaphila abrasana.—In August, I happened to take a *Sciaphila*, which, though rather worn, I thought I recognised as *abrasana*. It proves to be really that species. This is a very welcome addition to our list, as one does not add fresh species every year, after a lifetime's collecting in one place.—Id.

Hemerobius inconspicuus, McLach., bred.—Last spring, while searching some young Scotch firs for larvæ of *Cedestis farinatella*, &c., I noticed an old exudation of resin on one of the small branches. Fancying it looked as if it had been eaten into, I cut it off and kept it. In due course a specimen of *Retinia pinivorana* emerged; and, about the same time, four examples of a small Neuropterous insect, which I sent up to Mr. McLachlan in the autumn, and which were promptly returned with the above name. No doubt, the larvæ, wandering away to pupate, had found the resin easy of entrance—thanks to the efforts of *R. pinivorana*—and availed themselves of it. The species appears not to have been bred before; so that even this casual experience may be of some use to collectors of the Order. It was known to frequent fir trees, but evidently the attachment is intimate, for, no doubt, the larvæ had fed on the *Aphides* of the fir. Mr. McLachlan informs me that it is not yet a common insect.—Id.

Dragon-fly migration.—On September 23rd, 1884, I witnessed a flight of dragon-flies in France on the banks of the Gironde, about seven miles from St. Estèphe. I first noticed it at 5 p.m., and it lasted from $1\frac{1}{2}$ to $1\frac{3}{4}$ hours. The flies were from five to fifteen feet apart, and were taking a steady up-river course, at a height of from ten to fifteen feet above the ground. The width of the flight was about 150 yards. If I may judge from size, there were two species. I managed to catch one of the larger examples, which I have submitted to Mr. McLachlan, who informs me that it is *Æschna mixta* (♂). The weather was fine and warm, but the sky was clouded, and rain had fallen during the day; there was little or no wind.—F. M. Campbell, Rose Hill, Hoddesdon: *December 4th*, 1884.

Amara fusca at Preston.—During a recent visit to the above town I took a male specimen of *Amara fusca* under rejectamenta by the banks of the river Ribble, and also three *Amara rufocincta*.—R. Wilding, 40, Downing Street, Liverpool: *November 20th*, 1884.

Cymindis vaporariorum at Heswell, Cheshire.—In September, 1883, my friend Mr. Smedley took four specimens of this species under heath in the above locality, and a month ago I had the good fortune to find three more. If we knew the best time of the year to search for it, perhaps we should find it in greater numbers.—Id.

Ocypus fuscatus at West Derby.—I have lately taken eight specimens of this uncommon species in the above locality, and also a fair number of *Philonthus fumigatus*. *O. fuscatus* seems to be pretty generally distributed with us, as it has now been taken in three places, on the east, west, and south of Liverpool, but only in small numbers. *Bembidium 5-striatum*, another good insect, has also turned up in abundance at West Derby this autumn.—Id.

Obituary.

Auguste Chevrolat.—We regret to have to announce the decease of this celebrated French Coleopterist on December 16th, in his 86th year. The information came too late for a detailed notice in this No.

PANCALIA LEUWENHOEKELLA AND *LATREILLELLA*; ARE THEY THE SEXES OF ONE SPECIES?

BY H. T. STAINTON, F.R.S.

It is so long since I have met with either of these insects, that I am anxious to hear what are the observations of those who have recently taken either of them in any plenty.

It would be especially desirable to hear from any who may have had the good luck to meet with specimens *in copulâ*.

Thirty years ago, in my volume of the "Insecta Britannica," I assigned to *Latreillella* entirely dark antennæ, without any suggestion of a difference in the sexes; and, in like manner, to *Leuwenhoekella* antennæ with a broad white ring before the apex, again with no allusion to any difference in the sexes.

In the 2nd volume of the "Manual," published five years later (1859), I say of *Latreillella*, "antennæ of the ♂ entirely dark fuscous; of the ♀ with a broad white ring before the tip:" and of *Leuwenhoekella* "the antennæ have a white ring in both sexes."

I have now no recollection whence I obtained the notion that in *Latreillella* the antennæ differed according to the sex.

In Southern Europe a third species occurs, *Pancalia nodosella*, and in that the ♂ has the antennæ entirely dark, but the ♀ shows the white ring before the tip, this white ring being preceded by some long black scales, which cause the antennæ to have a singularly incrassated appearance—as it were knotted—hence *nodosella*.

My excellent friend, Heer P. C. T. Snellen, is of opinion that he meets with this *nodosella* in Holland, always in company with *Latreillella*, of which he thinks it is the female. But, further than this, he thinks that our old friend *Leuwenhoekella*, which we seem to have known from our boyhood, consists only of worn specimens of *nodosella*, of which the thickening scales on the antennæ have vanished whilst the insect was actively on the wing.

Heer Snellen had broached this idea to the late Professor Zeller, who refused to entertain it, saying, "that he had perfect specimens of the ♀, which did not show any traces of the thickening on the antennæ so characteristic of *nodosella*." Heer Snellen, in quoting this to me, appeals to our collections in this country, for he says, "I feel confident that when the English specimens in your cabinets are carefully examined, the justness of my observation will be proved."

My own series of this genus certainly contains no specimens in any way approaching to *nodosella*, though possibly such may lurk

unnoticed in some collections. But I would rather impress upon the attention of our collectors the extreme desirability of hunting about, wherever these insects occur in any plenty, for specimens *in copulâ*, and not only that, but, if possible, to detect a ♀ in the act of ovipositing, so that we may thus obtain some clue to its food plant, of which we are at present quite ignorant.

Whilst not myself prepared to endorse the views which are entertained by Heer Snellen, I think it is only fair to that author to lay them fully before my readers, and I therefore append a translation of his "Note on the European species of the genus *Pancalia*, Stephens," which appeared in the "Tijdschrift voor Entomologie," 1877, pp. 85–89.

"In Herrich-Schäffer's celebrated work on the European *Lepidoptera*, "Systematische Bearbeitung der Schmetterlinge von Europa," V, p. 210, three species of the above-named genus occur. There are no others in the latest Catalogue of Staudinger and Wocke, and in the last part of Heinemann's work on the 'Schmetterlinge Deutschlands und der Schweiz,' brought out in October, 1876, by Dr. Wocke after the death of von Heinemann, only these three species are mentioned as occurring in the countries of which the author treats.

"Herrich-Schäffer distinguishes the two species which had already long been known (according to him *Leuwenhoeckella*, W. V., and *Latreillella*, Steph.), and which both have dark-margined, golden-brown anterior-wings, with a slender fascia near the base and five marginal streaks silvery, by their size, the darkness of the ground-colour of the anterior-wings, the situation of the hindmost dorsal streak and the antennæ, *Latreillella* being the larger and paler species, with the last dorsal streak somewhat sloping and with the antennæ entirely dark, whereas, in *Leuwenhoeckella*, they have a broad white ring before the tip. He then adds to them a third species, *nodosella*, Mann. (Verh. zool.-bot. Vereins Wien, 1854, p. 586), of which he says, 'Very near *Leuwenhoekella*; the ground colour of the anterior-wings much darker brown, the silver spots more raised like drops, the small one on the middle of the inner margin wanting, the antennæ thickened beyond the middle with projecting scales, the portion in front of them white at the base.' From Spain and Northern Italy.

"I have not compared Mann's description with that of Herrich-Schäffer, but it is quoted in Stainton's "Tineina of Southern Europe," pp. 107, 116, and 245, and I cannot remember when reading that book to have noticed any difference from Herrich-Schäffer, so that the *nodosella* of the latter and that of Mann may be considered identical.

"Frey, in his 'Tineen und Pterophoren der Schweiz,' p. 166, says

in reference to the characters of the two older species, that *Leeuwenhoeckella*, with the exception of the white belt on the antennæ, and the rather more stumpy, shorter wings, agrees precisely with the preceding species (*Latreillella*); only, in his diagnosis of *Leeuwenhoeckella*, he mentions that the slender fascia is often interrupted.

"I have not at hand for comparison Stainton's Insecta Britannica and Manual, but Mr. H. W. de Graaf observes, in the "Bouwstoffen voor eene Fauna van Nederland," iii, p. 264, in a note under No. 181, that *Leeuwenhoeckella* is only distinguished by the broad white belt before the tip of the antennæ.

"Von Nolcken, in his 'Lepidopterologische Fauna von Estland, &c.,' p. 602, goes still further, and maintains that the ♀ *Latreillella* has also the antennæ with a white ring. This opinion seems also to have been shared by von Heinemann, for he only assigns 'entirely dark brown' antennæ to the ♂ *Latreillella*, and says that the antennæ of the ♀ before the tip are whitish, as in both the sexes of *Leeuwenhoeckella*.

"It is thus tolerably difficult to distinguish these two species, and as constant characters there remain merely the stumpier form and smaller size of *Leeuwenhoeckella*, both points which remind one too much of the favourite expressions of the French Entomologists, 'un peu plus' and 'un peu moins,' to raise in our bosoms any great feeling of confidence.

"As to *nodosella*, Heinemann maintains the difference in the structure of the antennæ, but he gives no difference in the colour and markings of the anterior-wings, his diagnoses of the wings of all the species being the same, and he says in all of the silver markings 'drop-shaped.' *Nodosella* in size comes between the other two.

"*Leeuwenhoeckella* had already long been known as indigenous in our country, since it is mentioned in the first part of the Bouwstoffen, p. 45. *Latreillella* was added to our lists afterwards, see Bouwstoffen, iii, *l. c.* I had myself only met with this last named species, which occurs in April on the dunes, flying freely by day. Of *Leeuwenhoeckella* I was only acquainted with a very small specimen, brought to me from Switzerland by Dr. Piaget, but had not taken the insect. Never had I expected that the species occurring in Dalmatia, Spain and Italy (see Staudinger and Wocke), *nodosella*, would be met with in this country. I was, therefore, very agreeably surprised to receive from Heer van der Wulp a *Pancalia* with thickened, and, in front of the thickening, broad white antennæ, which I could only refer to *nodosella*, and which, according to the label on the pin, had been taken near the Hague, May 6th, 1865.

"Having no reason to doubt the correctness of the locality indicated by my conscientious and worthy colleague, I had very nearly announced this third species as new for our Fauna, when, by a careful comparison and attentive perusal of the descriptions and notes already mentioned,* a new idea occurred to me, for I began to suspect that in the three species of *Pancalia*, so exactly alike in colour and markings, I had before me merely the two sexes of one species, and that when the loosely-sitting scales which cause the black thickening of the antennæ in *nodosella* get dissipated by the insect being some time on the wing, it sinks into *Leeuwenhoeckella*. The more stumpy form, the protruding ovipositor, and the divided wing-hook showed me that *nodosella* was the ♀, whilst in the specimen of the *somewhat* more slender *Latreillella* the wing-hook is single.

"My suspicion seemed thus approaching certainty, and was still further confirmed by my finding in April, 1875, on the Wassenaar dunes a beautiful specimen of the ♂ and an equally fine ♀ close together. The phrase used by von Heinemann in reference to *nodosella*, 'angeblich in Nordosten Deutschlands' (alluded to as in the North-East of Germany), now becomes intelligible. We have thus in our (at present sole) European species of *Pancalia* the singular instance of a Lepidopteron, of which the ♀ has the antennæ more ornamented than the ♂, whilst otherwise judging from the instances known to me, the reverse is the case.

"The antennæ of the ♂ are very thick, almost naked, filiform, unicolorous dark bronzy-brown, similar to the palpi, head and thorax; those of the ♀ are thinner, and are well described by Herrich-Schäffer (see under *nodosella*); the palpi, head and thorax rather paler than in the ♀.

"The anterior-wings are very dark orange-brown, with the margins and the base to the fascia black-brown; this fascia, which like the other markings, is finely edged with black on the side towards the base and reddish-silvery, is slightly curved, and may be interrupted in the middle (see Treitschke, ix, 2, 167, *Œcophora Schmidtella* and Frey, *l. c.*). I have no such specimen in my series. At two-fifths of the costa is a straight streak that does not reach half across the wing; opposite to this, but not always (it is entirely wanting in two of my ten specimens), is a small spot on the inner margin. In the caudal hook is a streak either perpendicular, oblique or curved; as a con-

* Excepting the last part of von Heinemann's work, with which I have only become acquainted quite lately.

tinuation of it a fifth streak runs out on the costa, and becomes white in the costal cilia; along the lower half of the hind margin one sees a sixth streak.

"Posterior-wings, all the cilia and under-side very dark grey-brown, rather shining. Abdomen, belly and legs iron-black; the hinder tibiæ with two white spots. The head is flat and broad, the thorax compressed, stiffly formed and every thing smooth-scaled; the wings are pointed-lanceolate and have very long cilia.

"In Staudinger and Wocke's Catalogue the species is called *Leuwenhoekella*, and Linnæus is given as the author. According to Werneburg (Schmetterlinge älterer Autore), Linnæus has first described it in the 2nd edition of the Fauna Suecica, No. 1400, under the name of *Loevenhoekella*, but afterwards, in the 12th edition of the Systema Naturæ, as *Leuvenhoekella*. If the earlier reference be correct, then would the insect bear the name of *Pancalia Loevenhoekella*, although Linnæus had notoriously wished to name it in honour of our great Antony van Leeuwenhoeck.

"So far as I know the larva is still undiscovered.

"The genus *Pancalia* is not yet rich in exotic species. None are yet known to me, and as to the *stellaria* from Bogotà figured in the "Novara Reise," II, 2, pl. 140, f. 10, I should doubt, from the query after the generic name, whether it be truly a *Pancalia*.

"Rotterdam: *January 28th*, 1877."

DESCRIPTION OF A NEW SPECIES OF *FODINOIDEA* (A GENUS OF MOTHS) FROM THE BETSILEO COUNTRY, MADAGASCAR.

BY ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

The species here described has long been in the Museum collection; it is allied to *F. Staudingeri*, Saalmüller, and probably also to "*Caryatis*" *rubriceps*, Mabille.

The genus *Fodinoidea* is referred by Saalmüller to the *Arctiidæ*; with which family its colouring and the clothing of the body would incline one to place it: the natural position of the genus is, however, undoubtedly next to *Colbusa euclidica* (a generic form close to *Fodina*) from which it chiefly differs in the greater length of the discoidal cells of the wings, and the more strongly pectinated antennæ of the male; the veins are all similarly emitted from the cells; the palpi, however, are broader, and have a large basal article, the first and second articles being, in fact, of equal size, and the legs are decidedly more slender than in *Colbusa*: the pattern and coloration of the two genera are much the same. *Colbusa* is a West African genus.

FODINOIDEA MACULATA, *sp. n.*

Primaries dark chocolate-brown; a large sub-conical cream-coloured spot near the base of the interno-median area; a rather narrow white band, slightly sinuous towards its anterior extremity, from costa just before apical third to the external angle; secondaries with the basi-abdominal two-thirds bright ochreous, and the externo-apical third dark brown, almost black, the inner edge of this border slightly angular; thorax dark chocolate-brown, the collar carmine-red; abdomen deep rose-red, with a dorsal series of black dots; wings below paler than above; primaries without sub-basal spot, but with the basi-internal area ochreous; palpi carmine, banded with black; pectus rose-red, varied with pale brown; venter pale brown, banded with black and rose-red at the sides. Expanse of wings, 41 mm.

Ankafana (*Cowan*).

British Museum:
November 28th, 1884.

DESCRIPTION OF A NEW BUTTERFLY FROM MADAGASCAR.

BY ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

Whilst re-arranging the Museum series of *Ypthima*, I have come across a Mascarene species, which appears to be undescribed: it may possibly be M. Boisduval's MS. species *Y. corynetes*, with which M. Mabille has compared one of his new forms. A comparative description, when drawn between the species to be indicated and a well-known, or, at least, well-figured species, is in my opinion better than a detailed description; but when, as is the case with M. Mabille's *Y. albivittula*, the comparison is with a mere name, no one can be expected to comprehend it.

Before proceeding to the description of the new species, I may state my conviction that, as the description of *Y. dyscola*, Mab., differs in no particular from typical specimens of *Y. rakoto*, Ward, in our collection, it must surely be the female of that species.

YPTHIMA EXCELLENS, *sp. n.*

Alæ supra fuliginosæ, rufo-tinctæ; linea sub-marginali indistincta obscuriore; anticæ ocello transverse ovali nigro, violaceo bipupillato, fulvo-zonato, sub-apicali; posticæ ocellis duobus rotundatis minoribus, uno sub-costali, altero inter venas primam et secundum medianus posito, unipupillatis; alæ subtus rufo-fuscæ; anticæ ocello quam supra majore; alarum disco dilutiore; posticæ ocellis quam supra majoribus; ocello tertio apud angulum analem minore bipupillato; fascia lata alam pone mediam transiente alba, ocellum secundum fere cingente et pone eum gradatim acuminata. alar. expan., mm. 49.

Ankafana, Betsileo County (*Cowan*).

Nearest to *Y. niveata*, but the white on the under-surface restricted to a tapering band across the secondaries.

British Museum:
January, 1885.

DESCRIPTION OF A NEW SPECIES OF THE GEOMETRID GENUS *OPHTHALMOPHORA*.

BY ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

The following species was in a series of moths from Petropolis (Rio Janeiro), recently presented to the British Museum collection by Lord Walsingham.

OPHTHALMOPHORA BRACTEATA, *sp. n.*

Near to *O. corinnaria, formosante,* and *bella*, of the same drab colour, but differing from all three in the absence of the white internal border and more acutely produced apex of the primaries; these wings have the costal border creamy-white, and the fringe silvery-white; the secondaries are greyish-white towards the base of the costa; the usual ocellus is large, black, with the centre of embossed silver and the iris of creamy-white; the curved line which partly encircles it is like that of *O. corinnaria*, but more slender, and formed of detached dashes of tarnished silver; there is no second ocellus as in that species and *O. bella*, the fringe is white; the body is grey, the thorax slightly brownish, the frons drab, the collar white; the under-surface is of a pale greyish drab colour, the pectus pearly-whitish.

Expanse of wings, 34 mm.

Petropolis, Rio Janeiro (*H. Doer*).

British Museum:
November 25th, 1884.

ON THE RECENT DISCOVERY OF THE WING OF A COCKROACH IN ROCKS BELONGING TO THE SILURIAN PERIOD.

BY HERBERT GOSS, F.L.S.

Up to December last the most ancient fossil insects known were the six fragments of *Neuroptera* obtained by Mr. C. F. Hartt, from the Devonian rocks of New Brunswick, which were described by Mr. Scudder, in vols. iv and v of the Geological Magazine, and referred to by me in my paper "On the Insecta of the Devonian Period," in vol. xv of this Magazine.

In the paper just cited, I observed that the appearance of insects on the earth was probably contemporaneous with that of land plants, and as remains of this division of the vegetable kingdom had been discovered in rocks of the Silurian period, the existence of a land flora ages before the date at which the Devonian insects lived was proved; and consequently that the probability of the first appearance of insects at an earlier period than the Devonian might be assumed.

The recent discovery of the wing of a cockroach in rocks of

Silurian age at Jurques, Calvados, France, no longer leaves the question of the occurrence of insects at an earlier period than the Devonian a matter of uncertainty.

In a note recently communicated by M. Milne-Edwards to the Académie des Sciences of Paris,* M. Charles Brongniart describes the wing of a species of *Blatta* from the Middle Silurian formation of Jurques.

The piece of rock containing this fossil was received from M. Douvillé, Professor in the Paris School of Mines, in whose honour this *the oldest known insect*, has been named *Palæoblattina Douvillei*. M. Brongniart states that the neuration of two species of *Blattidæ* of the Carboniferous period—*Progonoblattina Fritschii* (Heer) and *Geroblattina fascigera* (Scudder)†—recalls, in a slight degree, that of this Silurian wing which he describes as follows:—

"Cette aile, qui mesure 0.035m de long, a appartenu à un *Blattide*; le champ huméral est large; on y voit la veine humérale supérieure, la veine humérale inférieure qui se bifurque à son extrémité; la veine vitrée ou médiane également divisée en deux rameaux; les veines discoïdales supérieure et inférieure et leurs divisions très obliques qui se rejoignent à leur extrémité, ainsi que cela se voit encore chez certaines Blattes de notre époque; on peut suivre la veine anale qui est assez droite, et s'étend presque jusqu' au bout de l'aile, puis les veines axillaires qui lui sont parallèles. Ce qui est fort remarquable et ce qui distingue cette empreinte de toutes les ailes de Blattes vivantes et fossiles, c'est la longueur de la nervure anale, et le peu de largeur du champ axillaire."

Although the fossil-wing above described is the only fragment of an insect as yet obtained from rocks of Silurian age, the recent discovery of an insectivorous animal—a fossil Scorpion—in Silurian rocks furnishes additional evidence of the existence of insects at this period.

This Scorpion,‡ which has been described by Dr. Lindström, and named *Palæophonus nuncius*, was obtained from the *Upper* Silurian of the Island of Gotland, whereas the wing of the *Blatta* was, as before stated, obtained from the *Middle* Silurian. This wing is, therefore, of even greater antiquity than the Scorpion, and consequently represents, not only the oldest known insect, but the oldest known *terrestrial* animal.

Surbiton Hill:
January 19*th*, 1885.

* Comptes Rendus des Séances de l'Académie des Sciences de Paris, No. 26, 29th December 1884.

† These *Blattidæ* are referred to in my papers "On the Insecta of the Carboniferous Period," pp. 169—173 of vol. xv of the Ent. Mo. Mag. (1878), and "The Insect Fauna of the Primary or Palæozoic Period," in Proceedings of the Geologists' Association, vol. vi, No. 6 (1879).

‡ Comptes Rendus de l'Académie des Sciences de Paris, p. 984, 1st December, 1884, and Annals and Magazine of Natural History, January, 1885.

OLIGOBIELLA, NOVUM GENUS *CAPSIDARUM*.

DESCRIPSIT O. M. REUTER.

Corpus feminæ (mas ignotus) rotundatum, convexum; capite magno et lato, cum oculis levissime transverso, sub-triangulari, ante oculos sensim acuminato, a basi versus apicem sensim leviter sed distinctissime declivi, clypeo angusto, depresso, cum fronte confluente, basi infra lineam inter bases antennarum ductam posita, vertice medio longitudinaliter sub-impresso, utrinque ad oculum foveola obliqua notato, margine postico leviter arcuato; oculis oblique positis; rostro coxas posticas attingente, crasso, articulo primo medium oculorum attingente, secundo et tertio longitudine æqualibus, quarto brevi, acuminato; antennis mox infra apicem oculorum nonnihil interne insertis, articulo primo apicem capitis paullulum superante, secundo latitudine capitis interoculari vix longiore, duobus ultimis conjunctis duobus primis simul æque longis; pronoto brevi, late trapeziformi, valde transverso, capite fere $\frac{1}{3}$ breviore et apice capiti latitudine æquali, strictura apicali tenuissima, depressa, lateribus rectis, basi tota truncata, disco sub-plano vel levissime convexiusculo, callo utrinque sat magno sed parum elevato; scutello pronoto sat multo breviore; hemielytris totis coriaceis, abdomen totum tegentibus, lateribus late rotundatis, margine tenuissime reflexo; xypho prosterni transverso triangulari, disco angulato-impresso; abdomine sub-orbiculari, terebra feminæ medium attingente; coxis anterioribus longis, crassis, anticis basin intermediarum sub-superantibus; pedibus brevibus, femoribus crassis, posticis valde dilatatis, margine antico fortiter convexis, saltatoriis, latitudine vix duplo longioribus, tibiis anticis femoribus fere brevioribus, posterioribus nigro-spinulosis, maculatis, tarsis anticis articulo secundo primo breviore; tertio primo æque longo, posticis articulo tertio secundo paullulum longiore; unguiculis apice curvatis, aroliis latis unguiculis paullo brevioribus, cum iis connexis, solum apice libero.

Genus valde insigne, novam divisionem verisimiliter condens, primo aspectu generi *Myrmedobia*, Baer.; sub-familiæ *Microphysina*; familiæ *Anthocoridæ*; nonnihil similis, ocellis nullis, capite antice sensim acuminato, clypeo aliter constructo, rostri quadriarticulati articulo primo longo, elongato (ut in *Capsidis*), coxis anterioribus longis, femoribus posticis saltatoriis, tibiis maculatis, tarsis distincte triarticulatis, unguiculis aroliis magnis instructis, structuraque segmentorum genitalium feminæ (ut in *Capsidis*) longe divergens. Sine dubio species *Capsidarum*, quamvis a D^o. D^re. F. Buchanan White ut generis *Myrmedobia* species descripta.

OLIGOBIELLA FULIGINEA (*Buch. White*).

Picescenti-nigra, nitidula; antennis pallide et sordide albido-flaventibus, articulo secundo basi medioque picescenti, tertio ipsa basi picea, quarto basi excepta ferrugineo; femoribus piceis vel piceo-nigris, apice eorum, tibiis tarsisque albido-flaventibus, tibiis anticis grisescentibus fere unicoloribus, muticis, posterioribus maculis apiceque fuscescentibus, sat tenuiter nigro-spinulosis, tarsis articulo ultimo fuscescente.

Long., ♀, $1\frac{1}{5}$ *mm.*

Myrmedobia fuliginea, Buch. White, Proc. Zool. Soc. of London, 1878, p. 466, 9, sec. spec. typ.

Patria: Insula Sancta Helena.

Abo: *December 18th*, 1884.

On the Synonymy of some Pyralidina.—The three following descriptions of *Pyralidina*, published by Zeller in his "Lepidoptera Microptera Caffrariæ" (1852), seem to have been hitherto unidentified: from a careful consideration of them I believe the subjoined identifications to be almost certainly correct: all are common and wide-ranging insects, occurring (without perceptible local variation) not only in the South African region, but also through Ceylon and the Malay Archipelago to the South Pacific Islands.

1. *Eurrhyparodes bracteolalis*, Z., Micr. Caffr., 30; *accessalis*, Walk., Brit. Mus. Cat., 405; *stibialis*, Snell., Tijd. v. Ent., 1880, 216, ibid., 1883, Pl. viii, 3. In my notes on the Classification of Australian *Pyralidina* (Trans. Ent. Soc. Lond., 1884), I have erroneously referred this description of Zeller's to the following species.

2. *Molybdantha tricoloralis*, Z., Micr. Caffr., 31; *plumbalis*, Gn., 231; *abnegatalis*, Walk., Brit. Mus. Cat., 404, Ld. Pyr., Pl. xi, 17.

3. *Sameodes cancellalis*, Z., Micr. Caffr., 34; *pipleisalis*, Walk,, Brit. Mus. Cat., 420; *lepidalis*, ibid., 465; *sidealis*, ibid., 937; *meridionalis*, ibid., Suppl., 1314; *trithyralis*, Snell., Tijd. v. Ent., 1880, 218, ibid., 1883, Pl. viii, 4; *vespertinalis*, Saalm., Ber. Senck. Ges., 1880, 301. In the case of this species, although Zeller included it in *Botys*, he has accurately pointed out the structural characters on which the genus *Sameodes* is now established.

Lederer refers (conjecturally) to the first two of these descriptions under *Diasemia*, and to the third under *Cacographis*.—E. MEYRICK, Sydney, N.S.W. *Nov. 19th*, 1884.

Reported occurrence of Danais Archippus at Ventnor.—A little time ago a newspaper boy told me that he had caught a butterfly which he did not know as he does not collect. A few days ago I saw it and found it to be a good specimen of *Danais Archippus*. I bought it from him, and showed it to Major Owen who lives here. He thinks it is a genuine English one, for if the boy knew it was rare, he would have asked a higher price. He caught it on September 12th, on the Red Valerian not far from Major Owen's house.—DUDLEY WESTROPP, St. Maur, Ventnor, I. of Wight: *Dec.* 29th, 1884.

Description of the larva of Argyresthia Gœdartella, with notes on the larva of A. Brockeella and another catkin feeder.—On the 2nd of February last, a fine sunny afternoon for the time of year, while strolling across a Norfolk fen, and seeking anything entomological on which I could lay my hands, I turned my eyes to the pendulous catkins of the birch, thinking, as I had several times before thought, that there ought to be something feeding in them, when I saw a larva hanging by its silken thread from a birch twig, and slowly lowering itself to the ground. That larva did not reach the ground, a box intercepted its descent, and soon after it found itself in a glass bottle with some sand in the bottom. It acquiesced in the condition of affairs, and the same evening began forming in the sand a white silken cocoon attached to the side of the bottle. To interrupt the course of my narrative, I may say that at the beginning of June that larva produced a fine specimen of *A. Brockeella*. Having thus discovered "when to look," and "what to look for," and having ascertained from Mr. Barrett that little was known of the catkin feeders, I returned to the search, about a week after I had found the first larva. Half-an-hour passed without my finding anything, and I was beginning to think that my surmise of the creature being a catkin feeder was wrong, when I saw a catkin which had lost its end, thus exposing a hole in the remaining portion, and in the hole I could see a larva move. This gave me the hint where to look, and I quickly gathered several catkins which had lost their ends, or had the end smaller than the rest of the catkin. On examining these at home, there was scarcely one but was or had been tenanted by a larva. Only a few of the larvæ were full-fed, and several of these I killed in attempting to see them. These were like the one I had first found, and I put some aside to write a description from by daylight, but before I had an opportunity of doing so, half had begun to spin up. The smaller larvæ, which were more abundant, I assumed to be the same in a less advanced condition, but my supposition was wrong. The next convenient opportunity I had, I visited some alders, and on examining the male catkins of these, I found them containing a handsome pink larva, in some instances then full grown, and which ultimately produced *A. Gœdartella*. I also examined the nut catkins, and found they contained rather plentifully a small green larva, with the head and 2nd segment black. (These, I regret to say, I have hitherto been unable to rear.) At the middle of February, when first found it, it was not more than a quarter of an inch in length. By about the second week in March, the small larvæ in the birch catkins were so fully grown, that I could see they were the same as those in the alder, that is *Gœdartella*. Throughout March I may safely say that I found this larva on every birch and alder that I examined: it really appeared most abundant. Towards the end of this month, the green larva which I had found in the nut catkins showed itself abundantly in the glasses in which I had put the alder catkins gathered for the larva of *A. Gœdartella*. This green larva, however, grew very slowly, and by the middle of April was scarcely larger than when I first found it. As the nut and alder catkins had by this time almost passed flowering, and the larva did not appear to care for the catkins, when grown so much that the anthers had separated, and there was, therefore, not sufficient substance to conceal itself, I imagined it must have another course on its *menu*. On examining the unopened buds of the alder, I found my suspicion to be correct, for the larva, now nearly full-grown, was clearing out the buds, and leaving empty the unopened sheaths of the bud, which afforded it a hiding place until it moved to

the next it could find. Unfortunately, I was unable to breed this larva, as I could not satisfy its requirement with regard to a suitable pupating place. I had had difficulty with it in keeping it on its food when young, but I circumvented it in this respect by hanging the catkins in bunches by a thread in a glass jar. They remained on and in the catkin so long as it was fresh, and when I found them off, I renewed the catkins and put them on again. Afterwards, when I found them in greater plenty, I let them take their chance rather more. When full-fed, I put about a dozen into a glass with some sand, to be certain that I had one kind of larva only; but on looking at them again, they were in a bleeding condition, and nearly dead. Thinking something injurious had been left in the glass, I selected a lot more larvæ and put them in a box. These suffered the same fate as the others, and I could see that it was from their exertions to get between the lid and side of the box.

The larva of *A. Brockeella* has not the spotted appearance of that of *Gœdartella*, also more attenuate, and has the habit, when still, of contracting itself, which gives it a still more swollen appearance about the centre. It is about the colour of the larva of *Cossus ligniperda*, but rather less bright in appearance, being pinkish-brown on the back, not extending to the 3rd segment, and pale dusky flesh-colour underneath, and in the incisions of the segments. The spiracles are very minute and faintly darker; immediately above them is a rather large brown spot. The spots are all shining brown, unicolorous; and are scarcely distinguishable, especially the sub-dorsal ones, unless examined with a pocket lens. Anterior-legs blackish-brown; head brown, lighter towards the front; plate on 2nd segment blackish-brown on the posterior-edge, and on either side of the very narrow whitish dorsal line, which line is, however, only visible on the 2nd segment. On the anal segment there is no indication of a plate, excepting a few shining spots of the ground colour, which is rather more inclined to greenish than the other part of the larva. The anal segment of the larva projecting from a hole in an alder catkin would this assimilate with the slightly projecting rugosities of the surface of the catkin. When feeding in a catkin, the larva crawls backward to the orifice to eject its frass, on arriving at the opening the frass is partly extruded from the body; the anal segment is then raised and protruded slightly from the catkin, and the frass shot forth like a pellet from a popgun. This I saw done several times, and I particularly noticed it, as it resolved what had been a problem in my mind, for I had noticed that when a catkin with an almost full-grown larva in it was lying in the bottom of the glass with the orifice by which the larva had entered upwards, the frass was, nevertheless, about the bottom of the glass. Common sense told me it would fall out if the catkin were pendulous on a tree, with the hole downwards, but another explanation was needed when the catkin was kept laid so that the hole was uppermost, and this explanation the creature supplied in the manner described. When the larva is eating into a fresh catkin, with, perhaps, only the head or half the body buried, it partially protrudes the frass, then raises about the last five segments into the position of the head and front segments of a sphinx larva in repose, and the frass is shot away. I have seen it shot as much as a foot from the larva, so that the tiny creature must use considerable projective force.

The larva no doubt descends to the earth to pupate. Mine have all formed a white silken cocoon with pointed ends beneath the sand, but attached to the side of the bottle in which they were placed. The pupa, when it first changes, is delicate

pink, with the head and wing-cases amber coloured, and a small black oblique spot in the position of the eye. It afterwards changes to an uniform light brown.

The larva of *A. Gœdartella*, when full-grown, is about five-eighths of an inch long, and of uniform substance throughout (in which respect in differs from *Brockeella*, which is attenuate, especially posteriorly); it is pinkish flesh colour, distinctly pink in incisions of segments, and studded with whitish raised dots, with a minute black centre and short hair. The spiracles are distinct, and almost as large as the spots. The spots and the spiracle appear as a band of four spots on each segment, and give the larva the appearance, when looked at on one side, of being banded with spots parallel with the pink incisions of the segments. When looked at from the top, the sub-dorsal bands of spots give it the appearance of being banded along the length of the larva. Head and posterior margin of plate on second segment brownish. Anal plate also brownish, with a horse-shoe shaped mark on the upper part. The lower portion forms a slight point; the general shape and colour of the anal plate is the shape and colour of one of the scales in a birch catkin. When a larva attacks a fresh catkin, it invariably begins near the bottom of the catkin, and eats in and upward. When, therefore, the larva has almost got into the catkin, the projecting portion, that is, the anal plate, is in the same direction as the scales of the catkin. This assimilation is sometimes of a most remarkable character. The hole which the larva makes being very small externally, the larva has to use considerable exertion to squeeze itself in; this has the result of forcing from the anal segment a portion which appears as a little round pinkish knob, exactly similar in appearance to the little pinkish knobs under—that is, near—the scales of the catkin, when the catkin is in a condition to separate just previously to the anthers showing. The two projecting hind feet of the larva have the appearance of, and are in the relative position of the incipient anthers, and complete a most marvellous piece of assimilation. Seen like this, it would be impossible to detect the departing larva from the surrounding catkin, but having disturbed a larva, I was fortunate in watching it get back into its catkin. It took ten minutes or a quarter of an hour to contort itself into the hole, and I at first thought the projection from its body was due to its having injured itself by its exertions, but I afterwards saw that it was all right. Subsequently, I saw other larvæ crawl into other holes with precisely similar results. The head and anal plate are rather lighter brown after the last moult than previously. The larva when young appears carefully to avoid eating the mid-stalk of the catkin, to which the stamens are attached, so that the catkin, although it decays where eaten, does not fall off, and thus affords a secure hiding place should cold weather intervene, when it is probable the larva stops feeding, as the state of growth of the catkin appears to be arrested. When the larva visits a fresh catkin, the hole by which it has entered may be seen, and also, if it has left, the hole by which it left, which is generally near the footstalk of the catkin. Catkins which have been eaten by full-grown larvæ, especially those of the alder, are not much more than shells, and a good strong wind will blow them away, leaving but a small piece on the footstalk. The larva feeding on alder are generally rather darker and richer coloured than those on birch, and also several weeks earlier in their growth. This is probably due to early hatched moths selecting trees upon which the catkins, then in quite an immature state, had begun to show, and in this respect alder is rather in advance of birch.

When full-fed, the larva leaves the catkin, and makes a white cocoon, in which it changes to pupa. I imagine that naturally the cocoon is placed in a crack on the bark of the tree. I have not been able to supply it with anything which has seemed congenial to it, for when it wants to change it ascends: if in a bottle, it will crawl about the top; if the bottle is corked, it will most likely eat into or up the end of the cork. The plan which I found most successful was when the larvæ were nearly full-fed, to tie the catkins up in a small linen bag, or piece of rag, and hang it up. The larvæ would then spin up in the folds of the rag near the top. It is better to leave them alone until the moths are expected, when the string may be untied, and a small piece of rag cut out with each cocoon attached. These can then be placed in a covered jar, or something convenient to observe when the moths emerge.

These notes are not so complete as I might be able to make them next year, but they may be of use to those who wish to breed the insects. At the time I began writing them out, I thought it would be another year before I could obtain any further information on the subject, but on visiting some alders on the 9th of November, I found the catkins already eaten. In the few catkins I took home, I found I had three full-grown larvæ, which I have scarcely a doubt are *Brockeella*. These all spun up in the course of the next week. A week later I got more larvæ, all were full-fed. This spring I only found *Brockeella* on birch, but if I am correct in remembrance of the larva, it is, therefore, also an alder-feeder, and, like *Gœdartella*, the individuals on alder are earlier than those on birch. From an examination of a number of bunches of catkins, I imagine each larva requires three or four catkins to complete its growth. On the 9th of November, when I first got them, they were very active and eating voraciously. A change to colder weather made them as sluggish as the specimens I found in the birch in February. At present I cannot find anything in the birch catkins, but quite a small larva, which I believe to be quite an early stage of *A. Gœdartella*.—Alfred Balding, Wisbech: *Nov.* 21*st*, 1884.

Coleophora vibicigerella.—During last autumn I collected on the Essex salt-marshes about 30 cases of a *Coleophora*, which I am strongly inclined to believe will produce the above species; it is a long curved black case, rather flattish, about 6 lines in length at present, the upper half of the case thin and narrow, and the lower half very much bellied, in general appearance resembling the small cases of *C. conspicuella*, but rather thinner and longer; they were feeding on *Artemisia maritima*, and are exceedingly local; I only found them in one particular spot, although I searched many other places in the immediate vicinity for them. I found four or five of these same cases in the autumn of 1883, but forgetting all about them the following spring they of course died through wanting the necessary food, but this year I hope to give a more satisfactory account of the larva which I have at present hibernating.

I also found at the same time and place a few cases of a *Coleophora*, in shape like *paripenella*, but of a very light colour and a little larger, they also were feeding on *Artemisia maritima*, what they are, or whether they will prove to be new remains to be seen, they are at present fastened to the gauze-top of the cage, but the long thin black cases are all fixed to the main stems of the food-plant.—Geo. Elisha, Shepherdess Walk, City Road, N.: *January*, 1885.

Additions, &c., to the Lepidoptera of Pembrokeshire.—Having just seen the list of Pembrokeshire *Lepidoptera* in the "Tenby Guide," I have been comparing it with some captures of my own within the past season.

The following species are not mentioned in the list in question.

Spilosoma urticæ.—Larvæ very abundant at Kingsmoor (and very unhealthy). On September 3rd or 4th I was on a part of the Moor of a fenny character, covered with *Iris, Sparganium*, &c., in fact, just like an ordinary fen, when I found two larvæ on a grass stalk. When closely examined they proved to be merely dead flaccid skins. I went on searching and took about three dozen living larvæ, and saw about half that number dead; all were nearly full grown, and were found on *Iris, Pedicularis, Trifolium*, and chiefly on *Mentha aquatica*. The live ones were most commonly found low down on plants overhanging the wet holes and ditches. The next day five died; they were well supplied with *Mentha* from another place. They would crawl to the top of the box, looking apparently well, would then void a little liquid frass, and die in an hour or two. After the first day or two the deaths diminished to about two a day. Subsequently I brought home about four dozen more, with a like result. Altogether about two-thirds died, and the rest spun up. Here fresh deaths occurred, for some died in the cocoon without pupating. The result is that I have only sixteen pupæ.

Ennomos erosaria.—One specimen flew to my sugaring lamp in Road Wood.

Ephyra porata.—Road Wood, scarce.

Thera firmata.—Among fir, not common, Road Wood.

Noctua Dahlii.—At sugar at the same Wood.

Stilbia anomala.—My father first took it flying at dusk in an open copse full of oak bushes and very young larches, near the same Wood. Others I took on a long piece of undercliff in the parish of Amroth, where it is exceedingly rough and rocky, with masses of broom growing. The first *anomala* flew up at my approach, and I beat others out of the grass, but missed most of them from the roughness of the place. *Anaitis plagiata*, which was also there, was confusingly like it. This locality is *almost* impossible by day, quite so at night.

Besides these I have found *Nonagria despecta* abundant on the Kingsmoor. It began to fly at sunset, and then on to 9 or 9.30 p.m. *Phibalapteryx lignata* was also abundant, and *Orthotælia sparganiella* common. *Diasemia literalis* occurred in low pastures near Wiseman's Bridge and Saundersfoot, but never commonly, and I found *Platyptilia isodactylus* close to Saundersfoot. I have found *Dianthœcia* larvæ very common, mainly (if I may trust the description) those of *capsophila*. I believe that some of these must be of a second brood, as I had some unchanged well into October. There are certainly two other species.

In the Woods, besides *Noctua Dahlii, N. neglecta, Agrotis saucia, Triphœna fimbria*, and other species were taken at sugar, and *Emmelesia unifasciata, E. affinitata, Eupithecia virgaureata, E. sulfulvata, Cidaria silaceata*, and *Botys asinalis*, have occurred in greater or less numbers.—W. F. H. Blandford, Trinity College, Cambridge: *November 3rd*, 1884.

Further notes on British Pterophoridæ.—As the habits of several "Plumes" (in addition to *Pterophorus gonodactylus* alluded to in the Ent. Mo. Mag. for December last), in this district evidently differ a little from those of their brethren in other, or at any, rate in southern localities, a few notes on them may not be without interest.

In the first place, the larva of *Pterophorus monodactylus* is supposed, so far as I know, to be solely a convolvulus feeder; but here, though it is common enough, I can only rely on finding it among ling (*Calluna vulgaris*), or bilberry, It occurs freely in September on the high bleak exposed moors, always about ling or bilberry (but where convolvulus certainly does not grow), and there is no doubt it feeds on either or both of these plants. I have sometimes tried to make another species out of it; and as there were, and I suppose still are, two specimens without label, at the foot of the series of *monodactylus* in the Doubleday collection at Bethnal Green, of one of our moorland forms, it is evident the late Henry Doubleday was a little doubtful about them. As, however, the variety occurs with all the ordinary well known forms of the species, they are clearly only *monodactylus*.

Pterophorus acanthodactylus too, though a rare species here, I have never seen except among ling. Its best known food plants are *Ononis arvensis* and *Stachys sylvatica*, on both of which it is common in many places, but although we have a little of the former, and the latter in abundance, I have never seen a specimen of the moth about either plant. It does not, like *monodactylus*, occur on high bleak moors, but in woods having an under-growth of ling, but still quite away from either of the two well known food plants.

A larva which has completely baffled all my attempts to find it, is that of *Pterophorus bipunctidactylus*. The imago abounds among *Scabiosa* in some old rough fields here, and is on the wing continuously from June until October. Mr. W. Warren informs me he finds the larvæ of the early summer moths feeding in the autumn, in the *flowers* of *Scabiosa*, on sunny afternoons some of the larvæ coming outside the flowers, and being exposed should of course then be easily seen. And Mr. C. G. Barrett, if I remember rightly, told me he had found larvæ of the later moths feeding in the *stems* of *Scabiosa*, before the time for the flowers to appear; but although I have searched season after season, at all parts of the year from May to September, and Mr. S. L. Mosley of this town has also worked diligently at different times of the year for it, neither of us has ever been able to detect a trace of the larva in any part of the plant. If any Lepidopterist who knows how to find it will, in the coming season, send me a larva of either or both broods feeding *in situ*, I shall be most grateful.—Geo. T. Porritt, Huddersfield: *January 5th*, 1885.

Insect Migration.—Mr. Cockerell's remarks in reference to this subject (*ante* p. 159) remind me of my experience of *Nomophila noctuella* (*Stenopteryx hybridalis*) in North Devonshire this year. I did not see a specimen of this species anywhere in the neighbourhood of Lynmouth before July 4th. On that date it was found in considerable numbers in a rough field some 800 feet above sea level. I captured many examples but retained very few, as the condition of the specimens was not altogether good. In the course of the next few days *N. noctuella* was to be met with here and there all over the district, but in the field where I first noticed it in abundance, very few were to be found. I had worked in the rough field during the previous week, June 25th, 26th, and 27th, for *Orthotœnia striana*. The weather at that time was fine but cold for the time of year, with easterly or north-easterly winds. If *N. noctuella* had been there and on the move either of those days I must have seen it. I am inclined to think that there were no *N. noctuella* in the field at the

time of my earlier visits, and that the abundance of the insect there on July 4th was due to the fact that it had recently migrated thither. Whence it came I cannot say.

Another conclusion suggests itself, but it is one I cannot adopt. The weather on June 28th, 29th, and 30th was dull but warm, with occasional showers from the south-west. July 1st and 2nd were both beautiful days, with a scorching sun and a balmy westerly breeze. On July 3rd there were some showers and distant thunder in the morning, the afternoon and evening were dull and close. Now *N. noctuella* may have been among the herbage, in the field referred to, at the time of my first visit, but owing to the cold easterly winds, was lethargic and not to be disturbed. The rain and higher temperature between June 28th and July 4th may have rendered them active. As I have just stated, I cannot accept this view of the case, because, for one thing, *N. noctuella* is not usually rendered inactive by a low temperature. I have seen it darting from under my feet, when walking in the New Forest, on a very cold afternoon in September.

I had not intended saying anything further upon migration of insects, but now that I have my pen in hand I feel impelled to add a few other remarks.

A somewhat remarkable occurrence witnessed by me in the Isle of Wight in the year 1879, and briefly recorded in the "Entomologist," 1880, has, I think, some bearing on the subject of insect migration, and for this reason I venture to again present the facts to the notice of Entomologists.

Plusia gamma was more numerous than usual at Ventnor in the early summer months of 1879. Larvæ of the species were also very frequently observed during the summer in many places, especially on the downs, feeding on various plants. In August *P. gamma* was exceedingly abundant everywhere in the district.

The peculiar circumstance, however, to which I would refer, occurred to me on Sunday evening, August 10th, when I was walking over the downs on the west side of the town. The day had been hot, and the evening was calm and sultry, not a breath of wind from any quarter. The condition of the atmosphere indicated a thunderstorm near at hand, and this prediction was verified during the night. As I proceeded along the crest of the down I noticed a moth soaring upwards; whilst watching it I observed others ascending. All were towering upwards in a spiral flight, and as the light was fast declining they were soon lost to view. Looking downwards I perceived numerous other moths around me starting out of the furze, &c.; these also winged their way aloft. As I was without a net I was unable to capture specimens, although I endeavoured to do so without that indispensable article. I cannot, therefore, say positively that the moths were *Plusia gamma*, but the known abundance of this species in the locality, together with the fact that the size and shape of the insects seen were so suggestive of *P. gamma*, induce me to think that they were no other than that species. It is also a noteworthy fact that although *P. gamma* was to be met with not uncommonly after August 10th, it was not again seen in the immense numbers observed during the week immediately preceding that date.

If I had only seen a few moths flying in the manner described I should, probably, have paid but little attention to the matter. But seeing so many around me adopting precisely the same tactics led me to attach some importance to their manœuvres, though I failed at the time to comprehend the object of their concerted movement.

During the past five years, that is, ever since the event came under my observation, I have frequently thought over the matter and endeavoured to analyze the circumstances connected therewith.

The only conclusion that I can arrive at is that the movement I saw among certain moths (presumably *P. gamma*) on the evening of August 10th, was connected with the migration of those insects from their breeding ground in the vicinity of Ventnor. As the air near the earth was at the time perfectly calm, and as the moths rose upwards without apparent inclination toward any particular point during the time they remained within sight, it is not possible to say what course they eventually took. It occurs to me that the direction of their (migratory) flight would probably have been influenced by any current of air they might have reached in their ascension.

The spiral ascension of the moths could not have been due to accidental causes, and, therefore, of an involuntary character. If the air had been in a disturbed condition, I should have supposed that the action of the moths was influenced thereby, but as the air was absolutely still, I cannot but conclude that the peculiar upward movement of the moths was quite voluntary and, in fact, the initial stage of subsequent migration. Again, the movement was evidently a simultaneous one of a large number of moths and not confined to a few individuals only. This fact would seem to imply that the insects were actuated by a common influence, to seek the regions of the upper air.

Plusia gamma is always present in greater or lesser abundance in Britain. Its numerical increase or decrease is without doubt (in common with that of most *Lepidoptera*) regulated, to a very great extent, by meteorological or climatic influences. The wet and almost sunless summer of 1879 may have been favourable to the propagation of *P. gamma*, but unless the normal numbers of the species were largely augmented by immigrants during the early summer months, I cannot think it would have occurred in such swarms as were observed in August of that year in the Isle of Wight and elsewhere.

That several species of *Lepidoptera* do migrate is beyond contradiction, but whether such migration is habitual with those species, or not, there is no evidence to show. It has been suggested that the extensive geographical range of some species is due to their occasional migrating from place to place. I consider this not only possible but most probable, and I should suppose that such species possess inherent migratory instinct. Probably the instinct is either excited into activity or kept in abeyance by meteorological influence.

As far as concerns Britain, I am of opinion that unless there were occasional immigration of such species as *Colias Hyale, Colias Edusa, Vanessa Antiopa, Sphinx convolvuli* and several others, British collectors would not have the felicity of taking those species in any part of this country. I do not go so far as to say that none of the species specially referred to ever breed in Britian; on the contrary, I admit that they often do so (more rarely perhaps in the case of *V. Antiopa*). Still I think that the peculiarities of our insular climate render the permanent establishment of those species, and certain others, improbable.

Suppose that in any year a number of immigrant *Colias Edusa* arrived on the eastern or south-eastern coast of Britain; during the month of June for instance. These immigrants would, most probably, in the course of a few days distribute themselves throughout the length and breadth of the land, and the females would in due

course deposit eggs in suitable places. Now, if the general character of the weather were favourable during the following summer and autumn, descendants of the immigrants would occur, in more or less abundance, in many localities where perhaps the species had not been seen for very many years. I have put this forward as a supposed case, but I am aware that touching the abnormal abundance of certain species of *Lepidoptera* in certain years in Britain, many Entomologists are in favour of the immigration solution of the problem. I cannot see in what other way we can reasonably account for the erratic appearance of such species as I have mentioned, and some others.—Richard South, 12, Abbey Gardens, London, N.W.; *December 9th*, 1884.

Note on Oviposition in Agrion.—The following observation appears worthy of being recorded. In several localities in Savoy, in July last, *Agrion mercuriale* (a very local British species) was the commonest of the smaller *Agrionidæ*. The weather was, and had been, intensely hot, and the breeding places of the *Agrion*, consisting mainly of shallow road-side ditches and streams, were nearly dried up, leaving only, here and there, patches of wet mud with scarcely any surface water. I soon noticed that certain individual *Agrions*, when flying, were conspicuous on account of the whitish colour of the whole, or a portion, of the abdomen. On examination these proved to be always females, and the whitish colour due to an incrustation of dry mud; in some it was only at the tip of the abdomen, in others for its whole length (nearly an inch). The explanation was obvious. These females had been engaged in oviposition, and some instinct had prompted them to sink their eggs as deeply as possible in the mud, so as to afford some chance of escape from the consequences of further evaporation. I am not aware that *A. mercuriale* (or its near allies) has ever been noticed to descend entirely beneath the surface of the water: in this case such a proceeding would have been impossible.—R. McLachlan, Lewisham: *December*, 1884.

Additional notes on Coleoptera in 1884.—In addition to several species already recorded, I have met with a few *Coleoptera* during the past season which may be deemed worthy of mention.

At Dulwich my best captures have been *Callicerus rigidicornis*, *Bolitochara bella* (commonly), *Homalota nigricornis* and *hospita* (from *Cossus* burrows), *Corynphium angusticolle*, *Epuræa melina* (*Cossus*), *Megatoma undata*, *Cis micans* and *vestitus*, and *Balaninus tessellatus*. From powdery fungus on decaying birch stumps I took, one afternoon, nearly 200 specimens of *Lathridius testaceus*. *Phlœotrya Stephensi* was also common in nearly every birch log which I examined, but in every case the insects were dead and decayed. As far as I could judge the beetles had never left the logs, some unknown cause having brought about their death almost immediately upon assuming the perfect form.

From West Wickham and the surrounding district I may record *Bolitochara lucida*, *Leptusa ruficollis* (plentiful in *Boleti*), *Tachinus elongatus*, *Homalium iopterum*, *Prognatha quadricorne* (plentiful, but all ♀ specimens), *Scaphidium 4-maculatum*, *Orthoperus brunnipes* (*Boleti*, common), *Epuræa longula* (*Cossus*), *Meligethes ovatus*, *Cryptophagus badius*, *Megatoma*, *Cis bidentatus* and *nitidus*, *Ennearthron cornutum* (in profusion), *Heledona agaricicola* (50, from white fungus upon oak) and *Sibynes potentillæ*.

From Bognor, where I spent a week early in April, I obtained *Corylophus sublævipennis* (three specimens, named for me by the Rev. A. Matthews), *Achenium depressum* (somewhat commonly), *Cassida nobilis*, and several local aquatic species. A small patch of sand at the base of Selsea Bill produced *Phytosus spinifer* and *Ptenidium punctatum* in abundance. *Bryaxis Helferi* was in thousands upon the sea-wall during almost every hour of sunshine, in company with various *Corticariæ*, &c.

Among some odds and ends, taken principally by desultory collecting, were *Orectochilus*, *Ceuthorrhynchus cochleariæ*, *Phytobius velatus*, and *P. leucogaster*, from Aylsham, Norfolk; and *Platyderus*, *Scaphidium*, and *Geotrupes pyrenæus* from Belvedere, Kent. I suspect that *P. velatus* is often overlooked. I took it by dragging aquatic plants, and found that in every instance it remained motionless in the net for several minutes, its sombre hues rendering it very difficult to distinguish among the *débris*.

I may mention that, since my former note (*cf. ante* p. 129) I have again met with *Cis bilamellatus*, and, on this occasion, at some little distance from West Wickham. The insect appears to be, at any rate locally, abundant.—Theodore Wood, 5, Selwyn Terrace, Upper Norwood: *December* 3*rd*, 1884.

Note on Barypeithes brunnipes, Ol.—I am unable to find any record of this insect as a destructive species, and suppose that it has been overlooked. I have found it very commonly in strawberry beds, and, upon one occasion, in June, 1882, every fourth or fifth berry was more or less destroyed by the insect. In almost every case it seemed to enter the berry from beneath, creeping under it as it rested on the ground, and then tunnelling upwards. In the same way I found a single specimen of *Pterostichus madidus*, which appeared to have eaten away the whole of the interior of a large strawberry, nothing but a thin shell remaining.—Id.

Coleoptera in mid-winter.—On December 20th, I went for my holiday to Culross, on the northern bank of the Forth. The weather report from there the week previous was nothing but rain, therefore, I hoped to be able to collect beetles, and to find some remaining fungi. Great was my disappointment on arrival—hard frost. No use turning stones, moss and bark frozen hard, even haystacks would not yield beetles, the cold driving them too far in. I was determined not to return empty-handed and my only chance was a running stream which separates Fife from the curiously divided county of Perth; it was bitterly cold work pulling stones out of the water and searching them. I could only work about an hour at a time, and had three hours at it, with the following result:—4 *Hydræna gracilis*, 5 *H. nigrita*, 1 *Elmis æneus*, 10 *E. Volkmari*, 1 *E. parallelopipedus*, 1 *Limnius tuberculatus*. The *E. Volkmari* were most difficult to find as they were apparently grown over by a kind of green slime.

On pulling the stones out of the water I placed them on end, and patiently waited for the slightest movement, then I knew I might expect one or other species. The *Hydrænæ* were difficult to get from the stones, they clung most tenaciously and often lost a limb on being captured.

I found most under the stones piled across the stream partially out of the water and where as a consequence the water runs more rapidly.—Alfred Beaumont, 30, Ladywell Park, Lewisham: *Jan.* 3*rd*, 1885.

THE *NITIDULIDÆ* OF GREAT BRITAIN.

BY REV. W. W. FOWLER, M.A., F.L.S.

(*Continued from p.* 147).

MELIGETHES, *Kirby.*

This genus of the *Nitidulidæ* is by far the largest in point of numbers; some of the species are easily separated, but many are very difficult to determine with accuracy, and probably several of our British species will in time be considered as not really distinct; the denticulate anterior tibiæ, taken in conjunction with the produced prosternum, serve to mark the genus. The head is small and triangular; the mentum is composed of two pieces closely joined together; I have dissected it out in many of our species and find considerable variation; it is contracted in front and deeply emarginate, with a larger or smaller tooth in the middle of the emargination, which sometimes is almost, if not totally, absent; the mandibles are short, rather broad, but sharp, furnished with one or two small inconspicuous teeth near the apex; they project slightly beyond the labrum, which is strongly bilobed; the labial palpi are thick and short, with the last joint broadly truncate; the maxillary palpi are longer and more slender in comparison, with the last joint truncate at the extreme apex; the antennæ are short, with the first joint considerably thickened, and end in a compact round three-jointed club; the antennal furrows on the under-side of the head are well marked, straight and parallel; the thorax is always transverse, sometimes very strongly (as in *M. picipes*), at other times slightly (as in *M. nanus*); the body, as a whole, is subquadrate, or more or less ovate; the abdomen has its first free segment as long as the three following, which are of equal length; the fifth segment is longer, and is furnished with two rounded impressions, which approach one another towards the apex of the segment, and occasionally meet; although they differ somewhat in different species, yet they are not very useful as a character; the last segment of the abdomen also often presents depressions, tubercles, or raised keels at its apex, especially in the males, which are very useful marks of distinction, and there are also varying depressions and prominencies on the metasternum. Some of the chief characters lie in the legs, which will presently be noticed more at length. The wings are bilobed, the basal part being cut off from the rest of the wing (*vide* A. Murray, Mon. of the *Nitidulidæ*, p. 221); this is one of the characters that separate the genus from *Pria*, which has the wing entire; the separation, however, is not so marked in *Meligethes* as in *Amphotis* and some

other genera of the *Nitidulidæ*, as it only presents the appearance of rather a small triangular excision on the lower part of the wing.

In size the species range from $\frac{1}{2}$ lin. to $1\frac{3}{4}$ lin.; as a rule, however, they do not exceed 1 lin. The colour is usually black, sometimes very shiny, sometimes dull or leaden; several species have a bluish or greenish (occasionally a bronze or purple) metallic lustre; none, however, of the British species are red or testaceous (like the Continental *M. fuscus*), except a variety of *M. rufipes*, which is of a dark ferruginous colour; a mahogany coloured tinge is sometimes present on the purple varieties of *M. æneus*.

As might be expected from the similarity of form, and in most cases of colour, and also in consequence of the large number of species (in the European catalogue there are over 100, of which we possess more than 30), their identification is often very difficult. Various methods of subdividing them have been proposed, and different characters have been adopted by different authors. Erichson trusts chiefly to the denticulation of the anterior tibiæ; Reitter makes a great point of the straightness or emargination of the anterior margin of the forehead, and also of the presence or absence of network or cross striation between the punctures of the thorax and elytra; while Brisout lays great stress upon the characters of the under-side, particularly of the metasternum and the last abdominal segment of the males. All the differences that can be found in so obscure a genus must be of great use. The species can be, as a rule, roughly separated into groups by size, colour, and contour; but the best determining character appears to be the denticulation of the anterior tibiæ, and the degree of punctuation and of cross-striation between the punctures. The anterior tibiæ present four or five distinct types of serration or denticulation, and the punctuation and cross-striation also varies considerably; sometimes the latter takes the form of very fine alutaceous network covering the whole body, sometimes of coarse transverse scratches; occasionally it is confined to the elytra and is absent on the thorax; and in one of our species (*M. murinus*) it is peculiar to the scutellum; in some cases only very slight traces are visible, which are often so feeble that the interstices are, for purposes of sub-division, conveniently regarded as quite smooth. In all cases a compound microscope with at least a one-inch objective is required for the examination of this character.

The characters of the under-side are, as has been said above, very useful in many cases; but it is a question whether they are always quite constant, and they are, at all events, better regarded as secondary

for, if a species can be determined (as most can be) from the upper-side without having recourse to the lower, it is much more convenient, especially in the smaller genera where the insects have to be mounted on card, and cannot well be pinned. The colour of the legs and the basal joints of the antennæ are sometimes of use, but they must not be depended upon alone, as they are very apt to be misleading, being very different in even slightly immature specimens; useful characters are also to be found in the dilatation of the joints of the anterior tarsi of the males of some species, and also in the shape of the middle and posterior tibiæ, and the arrangements of the bristles or hairs with which they are clothed.

A few words remain to be said with regard to the shape of the anterior margin of the forehead, on which Reitter, in his "Revision der Europäischen Meligethes Arten" (a work indispensable to any student of the genus), founds his principal divisions. This author divides the genus into three sub-genera, as follows: *Meligethes*, containing the bulk of the species, distinguished by having simple claws not toothed at the base; *Odontogethes*, which has the claws broader and strongly toothed at the base, containing the single European species *O. hebes*, Er. (*M. olivaceus*, Sturm); and *Acanthogethes*, which has the claws as in the preceding genus, but has the forehead deeply excised in a semi-circle and the anterior tibiæ strongly toothed, whereas in *O. hebes* the anterior tibiæ are very finely toothed, as in *M. rufipes*, &c., and the anterior margin of the forehead is straight; this sub-genus contains our *M. solidus*, Kug., *M. brevis*, Sturm (*pictus*, Rye), and three other species.

The sub-genus *Meligethes* is divided by Reitter into three divisions according to the shape of the anterior margin of the forehead, which, taking our species alone into consideration, are as follows:

1st.—Forehead with the anterior margin straight or nearly straight. *M. rufipes*, *lumbaris*, *fulvipes*, *coracinus*, *corvinus*, *æneus*, *viridescens*, *symphyti*, *subrugosus*, *serripes*, *nanus* (*marrubii*), *obscurus*, *bidens*, *umbrosus*, *incanus*, *ovatus*, *picipes*, *flavipes*, *memnonius*, *ochropus*, *brunnicornis*.

2nd.—Forehead with the anterior margin excised, with the angles of the emargination round or obtuse. *M. difficilis* and *var. Kunzei*, *morosus*, *viduatus*, *pedicularius*.

3rd.—Forehead with the anterior margin excised in a semi-circle, or more or less deeply emarginate, with the angles of the emargination acute. *M. rotundicollis*, *murinus* (*seniculus* ♀), *lugubris* and *var. gagathinus*, *bidentatus*, *erythropus*, *exilis*.

These divisions have been given at length, because they have been employed by many English entomologists; at the same time, although the emargination of the forehead is in many cases a most useful character, it is hardly one on which to found primary divisions; in the first place, some of the species belonging to the first division have the anterior margin of the forehead emarginate to a certain degree (*vide* Reitter, *l. c.*, p. 31), so that a person working the group from descriptions might not know, in some instances, whether they were to be placed in the first or second division, the phrase "straight or almost straight" used by Reitter being in itself misleading: in the second place, unless the insect is placed with its forehead quite flat under the microscope, the emargination, especially where it is slight, may be passed over altogether; this is, of course, a very minor objection, but it will be found a practical one. In examining *Meligethes* as they are ordinarily set, with the head almost at right angles to the thorax, it is often very hard to see the anterior margin to begin with, and if a species can be placed in a group without reference to it, it is much more convenient; after all the character is not of great importance as far as our fauna is concerned, for the first division contains twenty-one species, the second only four, and the third only six, and the species of the third division, at all events, are easily distinguished without reference to it, so that there are very few species towards the separation of which we are helped by it, if we make it a primary character; it is true that, in some instances, it is exceedingly useful as a help for separating species that are otherwise closely allied, *e. g.*, *difficilis* and *brunnicornis*, *erythropus* and *obscurus*, but in one way this very point forms one of the strongest objections to the use of this character for the formation of divisions, for by it forms that are evidently very closely connected, if not actual races of the same species, are placed not only in different groups, but in different divisions, and separated very widely from one another.

In the following division of the genus all the above characters have been made use of to a greater or less degree; it is, however, almost impossible to divide *Meligethes* satisfactorily, as, whatever arrangements may be made, there will always be some species that will not fit in, and whose position it will be hard to determine.

I may say that I have before me at present the whole of Mr. Rye's almost perfect collection of the genus (kindly lent me by Mr. Mason), and also Dr. Power's (the latter containing about 1000 specimens), besides Mr. Wilkinson's and my own. I must thank Mr. Champion and Mr. C. O. Waterhouse for their kindness in sending

me unique, or almost unique, specimens for examination; I am also much indebted to Mr. Gorham and Mr. Champion, both of whom in former years have made a special study of the genus, for valuable information as to localities, plants, habits, &c.; and to Mr. Newbery, Mr. Chappell, Dr. Capron, and other collectors, who have sent me lists of localities, &c., for various species. I must also thank M. Charles Brisout de Barneville and Herr Reitter for kindly sending me foreign types.

I. Tarsal claws simple.

i. Anterior tibiæ very finely toothed, rather more distinctly towards apex.

1. Colour black, with at most very slight traces of metallic lustre.

A. Legs light.

a. Species large, black, oval, or broad oblong; punctuation and cross striation of elytra forming wavy lines; club of antennæ dark.

α. Sides of thorax considerably contracted towards apex; thorax very finely and indistinctly punctured.

M. rufipes, Gyll.—The largest of our species; easily distinguished from all the others (except *M. lumbaris*) by its size, taken in conjunction with its red legs; smaller specimens closely resemble *M. lumbaris* (which is the *var. b.* of *M. rufipes* of Gyllenhal, Ins. Suec., i, 235), but may be separated by the shape and the punctuation of the thorax; the first joint of the antennæ in *M. rufipes* is light, in *M. lumbaris* more or less dark, and in the former species the margins of the thorax are broader and of a reddish colour, whereas, in the latter, they are narrower and darker; the latter distinctions, however, although as a rule they hold good, are not always constant, and are apt to be misleading. Length, $1\frac{1}{4}$—$1\frac{3}{4}$ lin.

Very common and generally distributed; abundant in hawthorn bloom in spring, and also found on *Ranunculaceæ*, *Rubi*, *Allium*, &c. There is a reddish variety of this species, which is not very common; Dr. Power has taken it in Hainault Forest, and Mr. Newbery at Highgate; in this variety the thorax, except the margins, is rather darker than the elytra, but the whole insect is of a dull reddish tint. One of Dr. Power's specimens has the thorax and one elytron of the normal colour, with a slight greenish metallic tinge, and the other elytron of the colour of the variety.

β. Sides of thorax only slightly contracted towards apex; punctuation of thorax fine but distinct.

M. lumbaris, Sturm.—Considerably smaller than the average specimens of the preceding species, rather shorter, narrower, and more oblong, with thorax more distinctly punctured than elytra, first joint of antennæ usually dark, and legs considerably stronger and of a darker colour than in the preceding species. Length, $1\frac{1}{4}$—$1\frac{1}{2}$ lin.

T

Not common, although rather local, on broom, nettles, hawthorn, and *Umbelliferæ*. Cowley, Darenth, Horsell, Guildford, New Forest; Bearsted, Kent, on roses, particularly garden ones, Mr. Gorham; Southgate, Loughton, Southampton, on *Pulicaria dysenterica*, Mr. Newbery; Mickleham, Amberley, Esher, Repton, &c. In Mr. Rye's collection there is a very small specimen hardly one line in length, with well-marked semi-circular depressions on each side of the thorax, but this is evidently abnormal.

b. Species smaller, rather narrow-oblong; punctuation and cross striation of elytra not forming wavy lines; antennæ entirely light.

M. fulvipes, Bris.—Oblong-ovate, black, with occasionally a leaden reflection, with short grey pubescence; very finely punctured with distinct cross reticulation between the punctures; legs and antennæ light red or reddish-yellow, occasionally rather darker; anterior tibiæ with very fine, almost imperceptible, teeth, which are slightly stronger at apex. Length, 1—1⅛ lin.

Askham Bog, Fairlight, North Devon, Dagenham, Strood, Southend; very local in marshy places on *Umbelliferæ* and *Genistæ*.

This is a very distinct species, and cannot well be confounded with any other; rubbed examples occasionally resemble, at first sight, some specimens of *M. picipes*, but the shape, and the straight, slender and very finely toothed anterior tibiæ will at once mark the difference; the very plain cross reticulation between the punctures is a valuable character for the species.

B. Legs dark; at most anterior tibiæ somewhat lighter.

a. Elytra unevenly and rugosely punctured with strong transverse striation between punctures; length under one line.

M. subrugosus, Gyll.—Ovate, rather convex, shining black; elytra rugosely punctured with strong transverse striation, especially towards base; the front tibiæ are very finely crenulate, as in *M. corvinus*, and are rather lighter than the rest, but all the legs are more or less pitchy. Length, ⅓ lin.

A common continental species, but only one specimen has been found in Britain; it was taken by Dr. Sharp many years ago on the banks of the Water of Ken, Galloway.

The peculiar rugose and wavy sculpture, which is nearest to, but not quite distinct from, the sculpture of *M. rufipes*, is the chief characteristic of this remarkable insect, which in some points resembles at first sight *M. serripes*; this sculpture is very well seen if the insect be placed under a compound microscope in a cross half light. *M. substrigosus*, Er., is a variety of this species of not quite so deep black a colour, less convex, with finer cross striation, and with lighter legs and antennæ, according to Erichson; M. Brisout, however, says that they are darker than in the type form.

b. Elytra evenly punctured with cross reticulation between punctures; length at least one line.

α. Punctuation weak; cross reticulation delicate, present on both thorax and elytra.

M. coracinus, Sturm.—Oblong-oval, black, rather dull, occasionally with a slight greenish or bronze reflection; punctuation of elytra and thorax close and fine, with very fine cross reticulation between punctures; thorax rather variable in shape in the sexes; legs and antennæ pitchy; anterior tibiæ rather lighter, very finely toothed, rather more distinctly towards apex; posterior pairs of tibiæ straight or almost straight for two-thirds from base, and from thence sharply and obliquely cut off to apex. Length, 1 lin.

Not rare on the continent, according to M. Brisout, on flowers of *Galium* and *Prunus spinosa*; very rare in Britain; only three or four authentic examples are known; of these I have two before me, one in Mr. Rye's collection with no locality attached, and another which has been kindly sent me by Mr. Waterhouse, which he tells me was taken at Hampstead; the latter specimen is a little more strongly punctured on the elytra than Mr. Rye's and foreign specimens that I have seen, and shows the greenish reflection, which, as a rule, is almost entirely absent. I at first thought that this example might be referred to *M. subæneus*, Sturm, but, on comparing it with a type sent me by Herr Reitter, I find that *M. subæneus*, although very close to it, is more strongly punctured, and has the thorax more contracted in front; specimens of so-called *M. coracinus* are in many collections, but they are usually rather dark examples of *M. æneus*. I have had several of these sent to me as *coracinus*; the mistake is due to the fact that *M. coracinus* is said to have the greenish reflection: it is, however, as a rule, so very slight, that for all practical purposes the insect may be considered as black. Its very much finer punctuation, and the shape of the posterior pairs of tibiæ, serve at once to distinguish it from *M. æneus*, with which, however, it need hardly be compared by any one who has seen a true example.

β. Punctuation rather strong; cross reticulation between punctures rather coarse and uneven, present on elytra only.

M. corvinus, Er.—Ovate, shining black, convex; punctuation of elytra and thorax rather strong; interstices of elytra filled with rather indistinct and coarse cross reticulation, of thorax nearly smooth; legs and antennæ black, tibiæ somewhat thickened towards apex; anterior tibiæ very finely crenulated, crenulations obtuse and hardly perceptible under a considerable magnifying power. Length, 1¼ lin.

On *Labiatæ*, very rare; Mickleham, Dr. Power; on *Agraphis nutans* and *Melampyrum pratense*, Caterham, Mr. Champion. It is easily separated from the preceding species by its general contour, larger size, deep black shining colour, and stronger punctuation.

(To be continued).

NOTES ON THREE VERY RARE SPECIES OF BRITISH *COLEOPTERA*.

BY C. G. HALL.

HARPALUS LITIGIOSUS, Dej.—This insect is in Messrs. Matthews' and Fowler's Catalogue of British Coleoptera, but is omitted by Dr. Sharp in his Cat. Brit. Col., 2nd edition, 1883; it not even being in the list of doubtful species, where he has placed both *H. sulphuripes* and *H. griseus*. In the Entomologists' Annual, 1858, Rev. J. F. Dawson, in his "Notes on British Geodephaga" (supplementary to the Geodephaga Britannica), p. 53, says: "*Harpalus litigiosus*, Dej., spec. ix., 361, *H. Wollastoni*, Dawson, Geod. Brit., p. 144. A single example has been found by Mr. Adams, near Purfleet; others have been taken by Dr. Power and myself, below the cliffs at Kemp Town, and at Southwick, near Brighton; and on looking over Mr. Curtis's collection recently, I detected therein three examples, which, for almost twenty years, had remained unidentified, having, however, a label attached to each, indicating their respective places and dates of capture. One was taken at Wrentham, Suffolk, in April, 1838; another at Slaughter, Gloucestershire, in June; and the third in the Isle of Wight, in September. To Mr. Curtis, therefore, the credit is due of having first captured it in England."

It was afterwards, however, ascertained that the insects above mentioned were really to be referred to *tenebrosus*, Dej. Referring to the Entomologist's Annual, 1860, p. 124, Dr. H. Schaum, in his "Observation on the Nomenclature of British Carabidæ," as established in the Catalogue of British Coleoptera, by G. R. Waterhouse, says: "*Harp. litigiosus*.—The *H. Wollastoni*, Daws., is erroneously stated to be *litigiosus*, Dej.; it is in reality *tenebrosus*, Dej." So far *litigiosus* dropped as a synonym of *tenebrosus*, and we heard no more of it for nearly twenty-three years, when it has appeared again in the British list.

Feeling curious about the re-instatement of this insect, and not finding it mentioned in Mr. Fowler's "Notes on New British Coleoptera" since 1871, Ent. Mo. Mag., vol. xix, 121. I wrote to Mr. Fowler on the subject, who kindly gave me the following information: "As to *Harpalus litigiosus*, I introduced it on Dr. Power's authority from three or four specimens that he possesses, all taken in the same locality, and certainly not *tenebrosus*, or as far as I can make out any of our other species. It wants more working out, for it may not be *litigiosus* at all. I understood Dr. Power to say that he and Mr. Dawson took it together. I have not come across it in any other

collection." I think some further evidence of the identity of this insect is required, if it is really the *litigiosus* of the continent (which has *no* synonym in the European catalogues) ; it is a most interesting addition to the British list, and it would be very satisfactory to know, if possible, the locality where they were taken, and how many years ago, and whether about the time that Mr. Dawson says of *tenebrosus* "taken by himself and Dr. Power below the cliffs, &c.," and what Mr. Dawson's opinion was of these identical specimens which are so distinct from *tenebrosus*; perhaps Mr. Dawson never saw these specimens of *litigiosus*, hence, his omitting to mention them in his notes in the Entomologist's Annual.

Rhizotrogus ochraceus, Knoch.—I believe this insect was introduced as British by the late J. F. Stephens, in his "Illustrations of British Entomology, Mandibulata," vol. iii, p. 221 (October 31st, 1830), under the name of *Amphimalla Fallenii*, Gyll., and is given by him in his Manual of British Coleoptera, p. 168 (1839), as *Rhizotrogus Fallenii*; in the former of his works he says, "The only example I have seen of this species was taken many years since by Mr. Chant, in whose collection it is preserved, but he forgets the exact locality."

Mr. E. W. Janson very kindly gives me the following information: "On the 2nd September, 1850, Mr. Stephens exhibited at the meeting of the Entomological Society of London, specimens of *Amphimalla verna*, Meg. ? found by Captain Parry at Tenby (*vide* Trans. Ent. Soc., n. s., i, proceedings p. 34, and Zoologist, 1850, p. 2938), which, were I have little or no doubt *Rhizotrogus ochraceus*, as I know that he has given away examples of this species, and still has a goodly series of it in his cabinet; moreover, my son has two specimens from Mr. Dossitor's collection, and this gentleman restricted his collection to specimens actually taken by himself."

I have not heard of any recent captures of this rarity, and if my memory be correct, it is not in the collection of British *Coleoptera* in the National collection.

Trichius abdominalis, Ménétr.—This insect appears to have been announced, with the characters which distinguish it from its nearest ally, *T. fasciatus*, by the late F. Smith, under the name of *T. zonatus*, Schmidt (Zoologist, vol. vi, p. 2216 [September, 1848]), when he says: "All the specimens taken in Scotland are, I believe, the *T. fasciatus*, and all the specimens which I have seen of *T. zonatus* are from old collections. I have not been able to ascertain satisfactorily the locality of any of the specimens, or by whom they were

captured. I send you short descriptive differences, whereby any one can ascertain which species he possesses, and should any one be able to give the locality of *zonatus*, and satisfactory evidence of its capture, the question will be at once decided."

Mr. O. Janson has a specimen from the late Mr. Chant's collection. *Gallicus*, Muls., is a synonym of *abdominalis*, Ménétr., and *zonatus*, Schmidt, apparently another synonym. The continental *zonatus*, Germ., being a separate species.

Like the preceding species, I have heard of no recent captures, and the matter seems to stand as Mr. F. Smith left it in the Zoologist, for September, 1848. However, both *R. ochraceus* and *T. abdominalis* are in all the British catalogues, viz., G. R. Waterhouse, 1858, G. R. Crotch, 1863, E. C. Rye, 1866, David Sharp, 1871, F. P. Pascoe, 1882, and Sharp's 2nd Edition, 1883, besides Matthews' and Fowler's.

Deal: *February 7th*, 1885.

DESCRIPTIONS OF A NEW GENUS AND SOME NEW SPECIES OF PHYTOPHAGOUS *COLEOPTERA*.

BY MARTIN JACOBY.

Cryptocephalus interstitialis, sp. nov.

Robust, oblong, narrowed behind. Below greenish-black, closely pubescent. Thorax, femora, and base of the tibiæ, fulvous. Elytra metallic-green, deeply and closely punctate-striate, the interstices sub-costate, finely punctured and wrinkled. Length, 4 lines.

Hab.: Madagascar (Majunga).

Head greenish-black, the sides strongly punctured, the middle with a longitudinal groove, lower part of face covered with adpressed, whitish, long pubescence. Eyes large, triangularly notched. Palpi, and the two or three basal joints of the antennæ fulvous, the latter extending slightly beyond the base of the elytra, their third and the two following joints slender, sub-equal, the rest shorter, black, slightly thickened. Thorax transverse, greatly narrowed and deflexed in front, the sides nearly straight, posterior margin concave, its median lobe distinctly bidentate; surface extremely finely and closely punctured, the punctures slightly elongate, fulvous, extreme posterior margin piceous, serrate throughout. Scutellum sub-quadrate, black, punctured at the sides. Elytra not wider at the base than the thorax, distinctly narrowed behind, of a metallic greenish-bronze colour, each elytron with ten regular rows of deep and closely placed punctures, which, at the posterior portion, are transversely aciculate or wrinkled, the interstices very closely and finely punctured, obsoletely raised, more distinctly convex at the sides. The apex of each elytron slightly produced in a rounded point. Legs robust, fulvous, the apex of the tibiæ and the tarsi black. Prosternum broad, square-shaped. Last abdominal segment with a deep transverse fovea. Pygidium broadly truncate at its apex.

The single specimen of this large and well-marked species, which is contained in my collection will, I think, have to be placed in Suffrian's first Group of African *Cryptocephali*, near *C. tridentatus*, Klug., from which it differs sufficiently in its larger size, different coloration, and closely and finely punctured thorax.

ÆSERNOIDES, nov. gen., *Chrysomelinæ*.

Sub-quadrate-ovate, convex; third joint of maxillary palpi scarcely shorter than the fourth, the latter transversely shaped; its apex obliquely truncate. Antennæ slender and elongate, the apical joints flattened, the second joint half the length of the third, the fourth shorter than the preceding one. Thorax transverse, about three times as broad as long, its angles acute and produced, surface flattened, the sides thickened and limited interiorly by a deep longitudinal and sinuate fovea. Scutellum triangular. Elytra convex anteriorly, from there to the apex quickly depressed, surface regularly punctate-striate. Prosternum elongate, its surface broadly flattened, not produced in front, its basal margin deeply emarginate. Mesosternum very narrowly transverse, convex. Metasternum longitudinally grooved. Legs long and slender, the tibiæ not channelled. Posterior first tarsal joint as long as the two following united. Claws bifid, the inner division long and pointed.

This rather remarkable genus seems somewhat allied to *Æsernia* in the shape of the thorax and its lateral grooves or foveæ, as well as in the emargination of the base of the prosternum. It differs, however, in its totally different general shape, and the deeply bifid claws. The coloration of the only species known to me is also rather different from most other Australian forms with which I am acquainted, from which the shape of the thorax and the thickened sides, as well as the slender and elongate legs, will distinguish it.

Æsernoides nigrofasciatus, sp. nov.

Below piceous; antennæ black, basal joints testaceous below; head black; thorax piceous, closely punctured; elytra bright flavous, a spot at the shoulder, a transverse, medially widened band before the middle, extending up the suture, a deeply dentate transverse fascia below the middle, and a spot at the apex, black.

Length, 5 lines.

Head very closely and finely punctured, obsoletely longitudinally depressed between the eyes; antennæ extending to one-third the length of the elytra, slender, the first three joints testaceous below, the rest black, rather flattened and somewhat widened; thorax more than twice as broad as long, the sides nearly straight, a little constricted at the middle, all the angles acute and produced, the posterior ones thickened; surface closely covered with small and larger punctures, the sides much and broadly thickened, preceded anteriorly by a deep fovea and posteriorly by a longitudinal depression; scutellum impunctate; elytra wider at the base than the

thorax, slightly constricted before the middle at the sides, convex to the extent of their first third, when viewed sideways, from there to the apex rather abruptly declining; yellow, each elytron with ten rather fine, but regular, rows of punctures, the first sutural one very short; a transverse black band much widened at the suture, and extending upwards to the base, but not to the lateral margin, is placed immediately before the middle, another band below the latter extends from the lateral margins across the elytra, this band is very wide at the sides, and deeply dentate and narrowed near the suture, widening again at the latter place; a transversely shaped spot is placed at the apex, and a smaller one at the shoulder; under-side and legs, as well as the anterior margin of the thorax, are piceous.

Hab.: South Queensland, Australia. (Two specimens are contained in my collection).

Calomela (Australica) capitata, sp. nov.

Sub-quadrate, convex, obscure metallic dark blue. Head, antennæ, and legs, rufous. Thorax closely punctured. Elytra closely geminate punctate-striate. Length, 3 lines.

Hab.: Australia, Rockhampton.

Head closely punctured. Antennæ short, gradually dilated at the terminal joints, the six lower joints rufous, the rest fuscous. Thorax nearly three times as broad as long, the sides closely and strongly, the disc finely, punctured. Scutellum impunctate. Elytra sub-quadrate, not wider at the base than the thorax, each elytron with three double rows of punctures near the suture, the sides more closely and irregularly punctured, distinct to the apex. Under-side purplish, the last abdominal segment, as well as the legs and tarsi, rufous. Claws appendiculate.

Collection Jacoby (two specimens).

Allied in shape to *C. pulchella*, Baly, but differing in general colour and the double rows of punctures at the elytra, which extend upwards to the base, instead of becoming single rows, as in the allied species. The head and legs in the present species are also of a more decided rufous colour, while that of the elytra is a leaden-blue, the thorax being more of a greenish-blue.

Calomela 6-*maculata*, sp. nov.

Fulvous. Tibiæ and tarsi piceous. Thorax with a spot at each side, and a central band, black. Elytra metallic-blue, a spot at the base, a transverse dentate band at the middle, and another spot near the apex of each elytron, yellow.

Var., the thoracic spots very obsolete. Length, 3 lines.

Hab.: New Guinea, Port Moresby.

Head with a few indistinct punctures, fulvous, its sides and the anterior margin edged with black. Antennæ slender, extending beyond the base of the thorax, fulvous, the terminal joints obscure fuscous, third joint distinctly longer than the

fourth. Thorax three times as broad as long, with some deep and scattered punctures, the interstices also very minutely punctate; at the sides a round black spot is placed, and the middle of the disc is occupied by a longitudinal black band, which is divided posteriorly in two branches. Scutellum fulvous. Elytra strongly and very regularly punctate-striate, the apex nearly impunctate; of the spots, the first is very small and placed close to the scutellum, the intermediate one is of transverse shape not extending to either margin, and has its posterior edge dentate in the middle, the third spot is of irregular rounded shape, and much larger than the first; the knees, tibiæ, and tarsi are piceous, rest of the legs and the under-side fulvous. Claws appendiculate.

Two specimens of this distinct species are contained in my collection.

Lamprolina unicolor, sp. nov.

Entirely metallic-green. Head and thorax very closely punctured. Elytra strongly and closely rugose-punctate. Length, 2—3 lines.

Hab.: Australia.

The entire upper surface of this insect is closely and strongly punctured, without any arrangements of rows. The antennæ extend to the first third of the length of the elytra, and have the last seven joints black, the rest metallic-green. The scutellum is much broader than long, and also punctured. All the characters agree with *Lamprolina*, but the species is of smaller size than any of the other described ones, this and the uniform green colour, together with the strong and irregular punctuation, will at once distinguish *L. unicolor*.

I received two specimens of this species from Dr. Pipitz, of Graz.

Chalcolampra rufipes, sp. nov.

Ovate, narrowed behind, æneous. Head, two basal joints of the antennæ, and the legs rufous. Tarsi black. Thorax remotely punctured. Elytra finely punctate-striate. Length, 4 lines.

Hab.: Queensland.

Head with a few fine and scattered punctures; clypeus separated from the face by a deep angular groove, rufous, like the labrum and the rest of the head. Palpi black. Antennæ robust, black, the two basal joints rufous, third and fourth joints equal. Thorax transverse, the sides straight near the base, rounded anteriorly, posterior margin rounded and broadly produced at the middle, surface very remotely but deeply punctured, a little more closely at the sides than at the disc. Elytra finely and regularly punctate-striate, the interstices flat, extremely finely punctured, femora and tibiæ rufous.

A single specimen in my collection.

Easily distinguished from any of the other described species by the colour of the head and legs.

Phyllocharis cyanicornis, var. *confluens*, Jacoby.

Hab.: Torres Strait.

This variety, of which six specimens are contained in my collections, has, to

my knowledge, not been noticed by any author, the species itself, as is well known, being rather subject to variation in regard to colour. In my specimens, the elytra are entirely metallic-blue, with the exception of a narrow, more or less distinct, oblique, fulvous stripe from the shoulder to the suture below the middle, the extreme lateral and sutural margin being of the same colour anteriorly. The central black spot of the thorax is reduced to a small and narrow line. Every other character agrees with the typical form, the only one to which this variety can be referred on account of the indication given by the fulvous stripe, of the original pattern of the elytra, and the central thoracic spot. In one specimen, the elytral stripe also has vanished, and the elytra are uniform blue, with the exception of their lateral edge. Size, colour of the under-side, as well as structure, are absolutely as in the type.

Melasoma nigritarsis, sp. nov.

Testaceous; last six joints of the antennæ and the tarsi, black; tibiæ more or less piceous; thorax very minutely, elytra more strongly punctured, their lateral margin thickened. Length, 3—4 lines.

Hab.: Delagoa Bay, Africa (collected by Mrs. Monteiro).

Head with a deep triangular depression, very finely punctured when seen under a strong lens; antennæ scarcely reaching beyond the base of the thorax, the terminal joints transverse, five basal joints fulvous, the rest black; thorax more than twice as broad as long, anterior margin deeply concave, surface scarcely visibly punctured, a little more distinctly at the sides, where a row of longitudinal, rather deep, punctures is placed close to the lateral margin; elytra with the lateral margin distinctly thickened through their entire length, their surface closely and rather strongly punctured.

This species seems closely allied to *M. livida*, Stål, but differs in the colour of the tibiæ and tarsi, the more transversely shaped thorax, and its fine punctuation.

London: *January*, 1885.

LITTLE KNOWN BRITISH ACULEATE *HYMENOPTERA*.

BY EDWARD SAUNDERS, F.L.S.

Under this heading, in the Magazine for last May (vol. xx, p. 270), I called the attention of Hymenopterists to several rare and doubtful species, about which further information was much needed. Such information has come to hand in a few cases, as the result of last season's collecting, and the questions relating to the following species have been thereby partly cleared up.

1. Pompilus pectinipes, V. d. L., ♂.

I captured at Chobham, in August, two males, which, following the views of Wesmael and Thomson, are clearly referable to this

species. They are quite distinct from any of our other British *Pompili*, and also from the ♂ of *Evagethes*, in the structure of the abdominal segments, and, therefore, there scarcely seems any reason to doubt that *pectinipes* is a distinct species of which we now know both sexes. Still, I must own to having doubts, even now, of the distinctness of *Evagethes bicolor* and *P. pectinipes*, ♀: it scarcely seems possible that the females of two species in two distinct genera should be so alike as these two are. I have again and again most carefully examined them, and can find no character whatever whereby to distinguish them, except the number of sub-marginal cells; and as specimens have occurred with three cells in one wing and two in the other, this is scarcely of itself satisfactory, and it seems to me possible yet that a female may be discovered which may prove to be the real partner of the new ♂. Whether, however, these females are distinct or not, the males are very easily distinguished; that under consideration at present having the 8th ventral segment tricarinate at the base, the lateral carinæ being sharp and polished, and extending for only about a quarter of the length of the entire segment from the base, the central one dull and rounded, and extending to about two-thirds of the length of the segment, the other ventral segments are not impressed longitudinally, as in *chalybeatus*, but the 6th segment is largely emarginate at the apex, the posterior emargination of the prothorax is also more rounded than in any other of our red-bodied species.

. Sphecodes.

I think I have said enough on this genus in preceding numbers to show that the past season has greatly increased our knowledge of its very closely allied and difficult species.

. Andrena angustior, Kirb.

Mr. V. R. Perkins has forwarded to me from Gloucestershire several males and females of what I believe to be *angustior*; the type of the ♀, Kirby says, was in Banks's collection, but I have sought it there in vain; the type of the ♂, F. Smith says, is referable to *triceps*. It is not, therefore, easy to be sure of what Kirby meant, but the insects taken by Mr. Perkins are quite distinct from any other of our species, and appear to me to be identical with *symphyti*, Perez; the females would agree with Kirby's description, but for the colour of the tibiæ, which are not ferruginous, as described by Kirby, but only more or less testaceous at the base and apex, still, this probably is a mere matter of colour variation; both sexes may be known from *Gwynana*, which is the species they most resemble, by the longer

2nd joint of the flagellum, which, in the ♂, is as long as the following two together, and in the ♀ is as long as the next three. Whereas, in *Gwynana* the 2nd joint in the ♂ is only a little longer than the 3rd, and in the ♀ the 2nd is distinctly shorter than the next three. The distance between the eye and the mandible is also longer in *Gwynana*, ♀, than in the present species, and more shining. In colour this species resembles very pale *Gwynana*, the hairs of the face being greyish-brown, and the margins of the segments of the abdomen fringed with pale hairs. I find specimens in my collection agreeing with those sent by Mr. Perkins, from Wandsworth, ♀, and Chobham, ♂ and ♀, and I took two females this year at Bromley, in June. Mr. Perkins' specimens were captured on *Allium ursinum*, which he says is its usual plant.

4. Bombus nivalis, Dhlb. ?.

Through the kindness of Mr. C. A. Briggs, I have been able to obtain from Unst, Shetland, a ♀, which agrees exactly with the specimen of that sex in the British Museum; the ♂, however, is still wanted to decide for certain if the species found in Shetland be identical with *nivalis*, Dahlb.

St. Ann's, Mason's Hill, Bromley, Kent:
January 16*th*, 1885.

NOTES ON BRITISH *TYPHLOCYBIDÆ*, WITH DIAGNOSES OF TWO NEW SPECIES.

BY JAMES EDWARDS.

Dicranoneura.

1 (8) Wing-nerves pale.
2 (3) Front margin of crown angular (more conspicuously in ♀) ..*flavipennis*, Zett
3 (2) „ „ „ „ not angular.
4 (5) Inner margin of genital plates, ♂, concave, distant, enclosing between them a wide oval space...*citrinella*, Zett
5 (4) „ „ „ „ „ „ at least sub-contiguous.
6 (7) Penis simple. Genital plates truncate at apex. Lobes of pygofer without any horn on the inner side .... *similis*, n. sp
7 (6) „ „ exactly resembling the claw-joint of a *Carabus*. Lobes of pygofer each with a large dark coloured horn on the inner side near the apex ... . *mollicula*, Boh
8 (1) Principal wing-nerves fuscous or black.
9 (10) Scutellum with a distinct black spot at apex .....*pygmæa*, Doug
10 (9) „ immaculate.
11 (12) Third sub-apical area of elytra hyaline.....*variata*, Hard
12 (11) Elytra opaque throughout ....*aureola*, Fal

1. FLAVIPENNIS, Zett.

Deep yellow, abdomen above black. Hind margin of pronotum with an arcuate notch of equal width with the base of the scutellum. Elytra deep yellow, membrane, and occasionally a small space at the apex of the 2nd and 3rd sub-apical areas, whitish-hyaline. Hind-tibiæ with a row of distinct black points. Length, $3\frac{3}{4}$ mm.

A marsh species, at least in Norfolk.

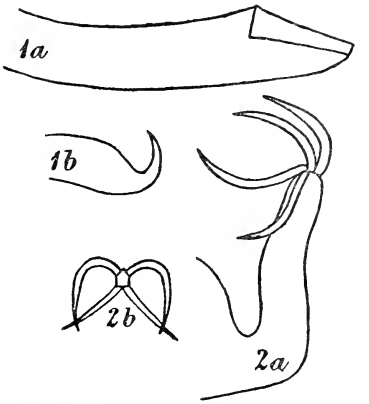
2. CITRINELLA, Zett., J. Sahlb., *nec* Dougl.

Dirty yellow; abdomen above black, paler towards the apex. Corium dirty yellow; 2nd and 3rd sub-apical areas, except the basal 3rd of the former, hyaline. Membrane fusco-hyaline. Hind-tibiæ with a row of distinct black points. ♂ genitalia as above. Length, $3\frac{1}{2}$ mm.

Foxley Wood, Norfolk.

Judging from the ♂ genitalia, my insect is certainly identical with that described by J. Sahlberg as *citrinella*, Zett., and by the same token is clearly the *forcipata* of Flor.

3. SIMILIS, *n. sp.*



1. *Dicranoneura similis*, n. s.
   a. Genital plate.
   b. Penis.
2. *Typhlocyba salicicola*, n. s.
   a. Penis.
   b. Appendages of same, seen from above.

Very similar in colour to the last, but distinguishable by the very different structure of the ♂ genital plates. The latter when mounted in Canada-balsam (with pressure), are seen to be truncate at the apex, the surface of the truncature being narrow-oblong, with concave sides and straight ends, of which one is twice as long as the other. The penis is very similar to that of the last species. Apart, however, from microscopical examination, this species may be readily separated from the last by the straight sub-contiguous inner margins of the genital plates, and from the next by the coloration of the elytra. Length, $3\frac{1}{2}$ mm.

Stratton Strawless, Norfolk.

4. MOLLICULA, Boh., Dougl., *citrinella*, Dougl.

Deep yellow, in some examples inclining to orange; abdomen above black, pale towards the apex. Hind-margin of pronotum at most faintly concave. Elytra deep yellow, membrane and a wedge-shaped spot at the apex of the 2nd and 3rd sub-apical areas hyaline. ♂ genitalia, as above. Length, $3\frac{1}{2}$ mm.

Amongst low plants in dry place.

My good friend, Mr. Douglas, having sent me types of the insects described by him (Ent. Mó. Mag., xii, 27, 28) as *citrinella*, Zett., and

mollicula, Boh., respectively, I am enabled to make the above correction. The types bear out the respective descriptions in all points, except the comparative lengths of crown and pronotum, which, on actual measurement under the microscope, are as follows: *citrinella*, ♂, 2—4, ♀, 2—5; *mollicula*, ♂, 3—6, ♀, 2—4; the pronotum, therefore, proving, in each case, to be at least twice as long as the crown. Seeing that the structure of the ♂ genitalia is identical in both the above forms, the comparative differences in the length of the 2nd and 3rd apical areas can scarcely be allowed to confer specific rank, the more especially when we examine specimens intermediate in this respect, but identical in the ♂ genitalia, of which latter I possess several.

5. PYGMÆA, Dougl.

♂. Orange-yellow; abdomen above black, genitalia yellow. Corium and clavus inwardly paler orange than on their outer sides, nerves deeper orange, inner margin of clavus with a fuscous line. Membrane with a slightly fuscous tinge, nerves pale orange. Legs orange; claws infuscated. Length, $2\frac{1}{3}$ mm.

Darenth Wood, October.

The single ♂ on which this species was founded still remains unique.

6. VARIATA, Hardy, = *aridellus*, J. Sahlb., = *cephalotes*, Fieb.

Pale greenish-yellow, dull; abdomen black. The colour of the elytra varies to dark green, sometimes with a reddish tinge, or occasionally deep orange-red, the latter in Northern examples. Length, $3\frac{1}{4}$ mm.

Damp places; common, but local.

7. AUREOLA, Fall.

Crown, pronotum, and scutellum yellow, elytra light yellowish-green; abdomen above black. Fore-parts and legs, particularly the face and the latter, frequently tinged with red. Easily distinguished from the last, the only British species with which it can be confounded, by its entirely opaque elytra. Length, $2\frac{2}{3}$—$2\frac{3}{4}$ mm.

On *Carices*, Findhorn Marsh, Forres, Morayshire. Said to occur on *Calluna* in August and September.

TYPHLOCYBA SALICICOLA, *n. sp.*

Somewhat larger and decidedly stouter than *T. rosæ*. Very pale creamy-white, scutellum tinged with pink, at least, in fresh examples. Penis surmounted by a tuft of four long sickle-shaped appendages. Length, $3\frac{1}{2}$—$4\frac{1}{2}$ mm.

On sallows; common.

I have long been of opinion that our pale sallow-frequenting *Typhlocyba* was distinct from *rosæ*, but I have only recently had an opportunity of confirming that opinion by a critical examination of the ♂ genitalia.

136, Rupert Street, Norwich:
February 2nd, 1885.

[I am not disposed to question the correctness of the conclusions at which Mr. Edwards has arrived respecting my *Dicr. citrinella* and *D. mollicula*, supported as they are by the identity of structure in the ♂ genitalia; for my identification was founded mainly upon the difference in the apical cells of the elytra, which was very apparent in the examples I then possessed, but in some taken since I have noticed the existence of the intermediate gradation of neuration mentioned.—J. W. D.]

Occurrence of Andrena nigroænea and Nomada alternata in December.—On December 30th, 1884, I made a tour of inspection of the various banks in this neighbourhood where I find *Atypus piceus* in plenty. Many of the "tubes," or nests having been frequently examined and changes noted down since April 13th, 1882, the date when first I turned up this noble spider in Woking.

On touching the loose sand close to one of the tubes, some of it was displaced, and fell down. I was surprised to notice an *Andrena* walk out of it, and after shaking the sand from his wings, he attempted to fly away, but was quickly boxed, and before I had time to pocket it, a gay *Nomada* appeared from the loose sand, and succeeded in flying a few inches before I captured it. The day had been beautifully fine and spring-like, the night following we had a sharp frost, and on examining the pot, into which I had put the bees, found both had disappeared under the sand; the *Nomada* came up again in two or three days, quietly resting on some damp moss until January 21st, when I took it out, and the next day I found the *Andrena* four inches under the sand, it was rather sluggish at first, but soon revived, attempting to fly! I sent both specimens to Mr. E. Saunders, who has kindly named them for me: ♂ *Andrena nigroænea*, and ♀ *Nomada alternata*.—F. Enock, Woking: *Feb.*, 1885.

Spanish insects and stridulating species.—The past summer I collected numerous insects, more especially *Lepidoptera*, in north-western Spain. I had drawn up a list of the latter indeed for publication, but as it appeared a little long, I thought it would be better to incorporate it in an account of my summer rambles I am working at for the press. I might, however, mention that melanism was frequent in Asturian insects, the *Orthoptera* in the mountains being as a rule blackish compared with the same species from the corn fields in the plains of Leon and Castille. The large white *Polyommatus Corydon* from the same limestone plains is also quite a feature in Spanish entomology, it is, it seems to me, even larger and whiter than in the Apennines; when I saw it flying I took it for *L. sinapis*; in the Asturias, however, it has its usual appearance. I gave what attention I could to the stridulation of insects. *Crioceris* 12-*punctata*, L., kindly determined for me by Mr. Waterhouse, I found to stridulate as the rest of the genus, by rubbing the apex of its abdomen against the tips of the elytra. I had no idea that this was a British insect, but it appears to be recognised as such by Stephens, who gives Bath and Bristol as localities. I rather suspect that both it and *C. merdigera* are imported into the country, and not natives so to speak. I do not think that the *C. asparagi*, L. stridulates as these other two which compose the genus *Lema* of Dr. Sharp. Another stridulating insect

I captured Mr. Kirby submitted to Mr. Distant for an opinion, but it is pronounced to be an immature species of *Reduvius*, of which genus there are doubtless many musicians. At Valladolid the sand-wasps and bee-flies *Bombylius* and *Anthrax* were frequent on the sandy plain, and the red striped *Meloë majalis*, L., was conspicuous in the clover, but our white butterflies *Pieris*, seem rarer in Spain than England, *P. Daplidice* being the commonest.—A. H. Swinton, Binfield House, Guildford: *January*, 1885.

Insect migration.—The last paragraph of Mr. Richard South's article (*ante*, p. 210), I entirely agree with, and wish to supplement his remarks by briefly recording my experience in 1877.

Colias Edusa had not been seen in St. Ives before 1877 by myself, or, I believe, any other entomologist.

The first specimen was captured on the 9th June by a friend. The next day (10th) I caught both a ♂ and ♀, which I supposed to be hibernated specimens, but which I now think must have immigrated here. I saw another *Edusa* on the 17th, and two more on the 18th.

In the "Field" newspaper for 16th June, a number of correspondents recorded the occurrence of *C. Edusa* in various localities, and in my note-book I wrote: "I now can hardly believe in hibernated specimens."

I saw no more individuals until the 8th of August, about two months after their first appearance. On this day I caught eight, all males, in extremely fine condition. I think they must have emerged that day. The wind was strong, and they flew low. A few I picked off the flowers as they settled there. During the month of August literally hundreds, even thousands, were seen; indeed, *C. Edusa* was by far the commonest butterfly. In Hemingford Meadow, near St. Ives, they were to be seen by scores. I caught sixty-four, and might have caught as many more.

Since 1877, although I have been out nearly every day, *C. Edusa* has not been seen *once*.

What is to account for this sudden and copious supply but immigration? If the season had been unfavourable, the migrants would have died, or their progeny.

The first specimens seen were *females*, the male not appearing until the middle of August. This fact specially supports the above conclusion. I positively believe the August specimens to have grown on the spot they were captured, but *not* the early females.

The extreme abundance of *Plusia gamma* in my garden in 1877 points to the season being peculiarly favourable to migratory movements.—Herbert E. Norris, St. Ives, Hunts.: *February 6th*, 1885.

Insect Migration.—The observations of Mr. South on insect migration (*ante*, pp. 208—211), are of great interest, and those on *P. gamma*, are doubly interesting to me, because I have observed very nearly the same phenomena myself. At Margate, in 1879 (the same year, it will be observed, as that of Mr. South's observations), *Plusia gamma* was so extremely abundant, as to make it hopeless to hunt for other *Noctuæ*, flying both by day and by night everywhere. But one evening in August on going into the garden, I was struck by the fact, that although the number of moths on the wing was about the same as usual, they were all flying in the same direction—

seaward. I procured a net and captured several, they all proved to be *P. gamma*. The next day on going out it was at once obvious that *Plusia gamma* was not nearly so abundant as it had been on the day before, and all the specimens that could be seen were very poor. I was at first considerably puzzled, but I finally connected the two circumstances together, and concluded that there had been a migration northwards, since that was the direction in which the moths observed on the night before were flying.

I think, with Mr. South, that the extensive geographical range of certain insects is owing to migration. Supposing this be so, we should expect that these species would form a large part of the fauna of islands, distant from the land, and surrounded by a deep sea, and, judging from five months' experience of Madeira, this would seem to be the case. Let us take the butterflies of that island; those I observed were *Colias Edusa*, very common, January to March; I also saw on January 15th a light-coloured *Colias*, but being unable to capture it I could not ascertain the species, it may, very possibly, have been *C. Hyale*; *Vanessa cardui*, *V. Callirhoë*, this may be regarded as the representative of *V. Atalanta* in the island (there is a specimen of *V. Atalanta*, said to come from Madeira, in the British Museum collection, but I doubt whether this species is a native of the island), *Lycæna bætica*, in February, at flowers of *Pelargonium*, and *Satyrus xiphioides*, also in the month of February, flying round loquat trees and in other situations. Now of these *C. Edusa* and *C. Hyale*, probably migrate, and are, at any rate, well distributed; *V. cardui* and *L. bætica*, are notorious examples of extensive range, and the first, undoubtedly, migrates; *V. Callirhoë* is represented even in India by a very nearly allied form (which may be regarded as the typical *Callirhoë*, and the Madeira insect as its variety, *vulcanica*, the red markings being paler in the Indian form), and *S. xiphioides* is very closely allied to the southern form of *S. Ægeria*.

With the moths, again, we find *Sphinx convolvuli* hovering over *Pelargonium* flowers at night; *Acherontia Atropos* is sometimes taken; *Deilephila euphorbiæ* is abundant in the larval stage on the sea-spurge in the month of May; *Deiopeia pulchella* is represented by a specimen taken in a corn-field on May 3rd; *Mamestra brassicæ* destroys the cabbage as it is wont to do in England; *Leucania extranea* is very common; we have three species of *Plusia*; *gamma*, abundant, *aurifera*, one specimen, and *chalcites*, one taken at flowers of white verbena, on the evening of May 21st, and, as a last example *Nomophila noctuella* (*hybridalis*) is very common. Certainly, most of these are widely distributed insects, and it is very probable that many of them migrate.

I fancy it is a mistake to suppose that the migratory insects are those which have large and seemingly powerful wings, for in Madeira the genus *Papilio*, for instance, is wholly unrepresented, and how few, if any, of the *P. Podalirius*, so common on the continent have reached England, and how rarely is *Machaon* accustomed to leave his native fen and wander over the country.

Some *Coleoptera* also seem to migrate; I think the genus *Calosoma* does, but not in numbers; *Coccinella*, on the other hand, sometimes forms vast swarms, which astonish the people of the maritime districts (and this genus is represented by numerous individuals in Madeira, two I brought home proved to be *C. mutabilis*). The water-beetles, too, often fly long distances; I once had one blown against my

hand, and lodge between my fingers, when walking by the sea at Margate, when a strong wind was blowing from the sea.—T. D. A. Cockerell, Bedford Park: *February 2nd*, 1885.

[It has, I think, been incontestably proved that the swarms of *Coccinella* occasionally seen on our coasts are formed not of immigrants, but of would-be emigrants, stopped by, and driven back by, the sea, and accumulating by continuous supplies from inland. The masses of dead *Aphides* that sometimes form tide-refuse on our southern shores result from the same cause. But with regard to Britain generally, immigration is a far stronger factor than emigration, and enables us to include in our lists of British species, especially in *Lepidoptera*, a good many beautiful insects that are not truly natives. Some of these certainly, others probably, never breed here. Others again breed for a time, but would become extinct were it not for fresh immigration. This latter remark especially applies to our two species of *Colias*, and it might even apply to that most notorious migrant, *Vanessa cardui*.—R. McLachlan.]

Further evidence of the existence of insects in the Silurian period.—In the last number of this Magazine I referred to the evidence afforded of the existence of insects in the Silurian period by the discovery of a fossil scorpion in the upper Silurian rocks of the Island of Gothland. Further evidence to the same effect is furnished by the recent discovery, by Dr. Hunter, of Carluke, of a second specimen of a scorpion, in the upper Silurian beds of Dunside, Lesmahagow, Lanarkshire.

The discovery of this second scorpion had been reported to me prior to the date of my paper, but no description of the specimen having been published, nor any authentic information about it having been received, I did not allude to it. As a preliminary description of this scorpion, by Mr. B. N. Peach, has lately appeared in "Nature" (January 29th, 1885), this note may, perhaps, not be out of place, as a supplement to my previous communication.—H. Goss, Surbiton Hill: *February 9th*, 1885.

Destruction of Fish by larvæ of Libellulidæ.—In the Hungarian "Rovartani Lapok" for December last, L. Biró states that the larvæ of *Libellulidæ*, species not determined, have made such ravages in the piscicultural establishment of M. le comte Pálffy, at Szomolány, that in a pond into which in the last spring 50,000 young fishes were put, only 54 could be found in September, but there were then there an immense quantity of the larvæ of *Libellulidæ*.—Eds.

On the sub-aquatic habits of the imago of Stenopsyche, a genus of Trichoptera.—The genus *Stenopsyche*, McLach., was characterized in 1865 (Trans. Ent. Soc., 3rd series, vol. v, p. 264) from a species from North India (*S. griseipennis*). Since then the same species, or one very closely allied thereto, has been found in North China, and in Japan. In the latter country it seems to be abundant, and it comes in nearly all collections. My nephew, Mr. W. J. Wilson, recently made a long tour in Japan on his way home from India, and obtained a few insects. Amongst these are a large number of the *Stenopsyche* in question, and I was induced to question him as to its habits. They were found at the little lake of Yumoto in the main island, at an elevation of about 5000 feet. He says they were abundant before dusk,

settling on the surface of the water, then closing their wings, *diving into the water, and swimming about vigorously beneath the surface.* It seems to me highly desirable to place such an important notice of habits on record. Unfortunately, he is not able to say whether the habit is common to both sexes, or exists only in the ♀. *Stenopsyche* is somewhat allied to *Hydropsyche*, and has the intermediate legs of the ♀ scarcely so much dilated as in that genus. They are large insects (sometimes nearly an inch and a half in length with the wings closed), and with remarkably long and narrow anterior wings (which are also much longer than the posterior), so that the long lanceolate form of the insect with closed wings must prove of decided advantage in swimming beneath the surface; but they also have very long slender antennæ, which must be somewhat in the way if held porrect, as would be the case when at rest in the open air.—R. McLachlan, Lewisham: *Jan. 17th*, 1885.

Notes on Goniodoma Millierella, Ragonot.—It is very true that the generic name of *Goniodoma* does not seem well adapted for an insect, whose case is composed of a flower-calyx, which is not at all angular; besides this, I may observe that the character assigned to *Goniodoma*, that the larva does not change to pupa within its case, "*metamorphosis extra saccum*," does not suit our *Goniodoma Millierella* any better, since I am very certain I have bred the moths from cases gathered singly, one at a time, amongst which I feel convinced I had no particle of dead stem into which they could have bored. I would not speak so positively had this only happened in a solitary instance, but as I bred in this way from 8 to 10 specimens, I am sure there was no room for error as to the conditions. My cases had not been left on the stems, they were gathered with only a small portion of the inflorescent sprig to which they were attached, and were placed in a little bottle of very small dimensions. Whilst writing this I look again at the cases I placed in the bottle as I gathered them, and I am satisfied that there is not amongst them any fragment of stem visible; hence, the creature must have undergone its metamorphoses within its case. Next, as to the question of referring these insects to the genus *Coleophora*, I would observe that they do not carry the antennæ in the true *Coleophora* fashion;* they are never directed in front, nor are they placed close together, but they are always thrown backwards and laid on the back when the insect is at rest. The antennæ, besides, seem to me rather longer, more slender and more flexible than is usual in the genus *Coleophora*. During the winter I will search amongst the stems of *Statice virgata*, to see if I can find some tenanted by *G. Millierella*, for up to the present time I have only obtained it from larvæ, which had not quitted their cases.—A. Constant, Villa Niobe, Golfe Juan (Alpes Maritimes), France: *November 24th*, 1884.

Habits of Ephippiphora tetragonana.—I was much pleased to read that Mr. Sang had bred this species (see *ante*, p. 191). I will now give a little of my experience bearing on his discovery.

In 1878, I was staying at the Waterloo Gardens, Windermere; a rose-tree covered one part of the house next to the lake. It was a very hot afternoon, and I was busy picking *Nepticula* larvæ off the rose-tree, when I spied a fine *E. tetragonana* sitting on a rose-leaf close by, then another, and then another (in all 3),

* Mr. G. Coverdale had also noticed this of *limoniella*.—H. T. S.

came and settled on the tree. I left the place, where, evidently, I ought to have stopped, to search on various plants amongst the undergrowth, and I saw no more of them. Now I come to reflect on my past experience of the insect, I find that wherever I have taken *E. tetragonana*, there have been rose-bushes about; I had expected it to have been a stem or root-feeder.—J. B. Hodgkinson, 15, Spring Bank, Preston: *February 12th*, 1885.

Correction concerning Scoparia cratægalis.—I am very sorry indeed to have to correct a rather serious error on page 101 of the present volume of the Ent. Mo. Mag. The fact is that all the imagos which emerged from the lichen-feeding *Scoparia* larvæ sent me by Mr. W. H. B. Fletcher did so whilst I was away from home in the summer, and on my return were worn to shreds, and dead. Mr. Fletcher had written to me that his lots of larvæ had produced *Scoparia cratægalis*, and on a close examination of the remnant of mine, I was satisfied they were that species, and should, I think, have believed them to be so, even if Mr. Fletcher had not written to me that his larvæ had produced it. My astonishment may be conceived then, when, a few days ago, Mr. Fletcher wrote, asking me to re-examine my specimens, as he feared he had misled me in saying they were *cratægalis*, for, on recently placing them in his cabinet, he became doubtful about them, and, indeed, made them out to be *lineola*. I was then only able to find one specimen, which I was certain had come from those larvæ, and though a very worn one, it still seemed to me more like *cratægalis* than anything else; so I at once wrote to Mr. Fletcher, requesting him to send me a couple of his good specimens for examination. He has just done so, and they are, undoubtedly, *lineola*. It is an unfortunate error, which none can regret more than Mr. Fletcher. In my own copy of the Ent. Mo. Mag. I have crossed out "*cratægalis*" from the heading, and written "*lineolalis*" in its place; and that seems to me to be the best course to adopt.—Geo. T. Porritt, Huddersfield: *February 12th*, 1885.

Entomological Society of London.—*December 3rd*, 1884: J. W. Dunning, Esq., M.A., F.L.S., in the Chair.

Baron C. R. Osten-Sacken, of Heidelberg, was elected an Honorary Member, and J. J. Walker, Esq., R.N. (formerly a Subscriber) an Ordinary Member.

Mr. Stainton exhibited specimens of *Goniodoma Millierella*, Ragonot, bred by M. Constant from *Statice virgata* near Cannes, together with continental *G. auroguttella*, F. v. R., from *Atriplex laciniata*, and British *G. limoniella*, Staint., from *Statice limonium*, for comparison.

Mr. H. Goss exhibited *Bankia argentula* from a new locality; it had been bred by Mr. Brown from a larva feeding on a *Poa*.

Mr. Jenner Weir exhibited (on behalf of Mr. Lovett) a collection of *Micro-Lepidoptera* from the vicinity of Graham's Town in the Cape Colony.

Mr. Billups exhibited 44 species of Aculeate *Hymenoptera* from Chobham, captured in 1884, and also a long series of interesting *Ichneumonidæ*.

Mr. Olliff exhibited the remarkable Cucujid (*Aciphus singularis*) described by him in this Magazine, *ante* p. 152.

The Rev. L. Bloomfield sent a notice respecting the presumed occurrence of

Astynomus ædilis at Bath, but Mr. C. O. Waterhouse pointed out that the insect was in reality a North American species of *Monohammus*, which had no doubt been bred from imported timber.

Mr. McLachlan exhibited the Caddis-fly from Unst, described by him in this Magazine (*ante* p. 153) as *Mesophylax impunctatus*, var. *zetlandicus*, and also *M. aspersus*, and its var. *canariensis*, for comparison.

Mr. H. J. S. Pryer communicated a paper treating casually on Mr. Lewis' views as to the origin of colour in insects, and particularly on two remarkable instances of mimicry in insects from Elopura, North Borneo. In the one case a large Longicorn beetle, *Nothopeus fasciatipennis*, C. O. Waterhouse, with abbreviated elytra, but with broad hind-wings, almost precisely mimicked *Mygnimia aviculus*, Sauss., a species of *Sphegidæ*; in the other case, a large Lepidopterous insect described by Mr. Butler as *Scoliomima insignis* (new genus and species) mimicked *Triscolia patricialis*, Burm., a species of *Scoliadæ*. A long discussion ensued, in which several members joined, Mr. C. O. Waterhouse and Mr. Butler pointing out various other cases of mimicry in insects.

January 21st, 1885 (Annual Meeting).—The President in the Chair.

The following Officers were elected for 1885, viz., R. McLachlan, President, E. Saunders, Treasurer, E. A. Fitch and W. F. Kirby, Secretaries, F. Grut, Librarian; and the following other members of Council, viz., T. R. Billups, J. W. Dunning, H. Druce, H. Goss, R. Meldola, J. W. Slater, S. Stevens, and J. J. Weir.

Mr. Dunning, the outgoing President, read an Address, which was ordered to be printed; thanks were voted to the Officers, who severally replied; and the Meeting terminated.

February 8th, 1885: R. McLachlan, Esq., F.R.S., President, in the Chair.

The President thanked the Society for the honour that had been conferred upon him, and nominated Messrs. Dunning, Stevens, and Weir, as Vice-Presidents for the year.

Messrs. H. P. James, of Valparaiso, and H. C. Sandars, of Cleveland Place, Hyde Park, were elected Members.

Mr. J. W. Slater exhibited a specimen of *Lycæna chryseis*, one of three that he was informed had been taken in July, 1878, by Mr. Mutch, in Culter Marsh, Aberdeenshire. Mr. Stainton said that the former records of this insect as British were of ancient date and uncertain authenticity, and that it was very desirable to see more examples from Aberdeenshire and in better condition. Mr. Elwes stated that the specimen resembled the variety known as *Stieberi*, Gerhard, occurring in Lapland.

The Rev. A. Fuller exhibited insects of various Orders collected by him in America on the occasion of the visit of the British Association to Canada in 1884.

Mr. W. Cole exhibited a remarkably perfect nest of *Vespa norvegica* from Epping Forest, and remarked that a friend had, to the best of his belief, obtained a wasp from the same nest that proved to be *V. sylvestris*.

Mr. de Nicéville sent for exhibition (through Mr. Distant) several Butterflies, mostly *Satyridæ*, from Calcutta, and remarked on the difference in the size of the ocellated spots on the under-side of the hind-wings in the wet or dry seasons brood, which had caused these different broods to have been described as

distinct species. These spots appeared to become fully developed in the dry season only. Mr. Elwes had observed that in Butterflies common to Europe and Japan the latter had the ocellated spots much the larger. The President expressed an opinion to the effect that the present rage for "species making" in *Lepidoptera* could only result in the authors of these so-called species being debited in the long run with having created a host of synonyms to no purpose.

Mr. Stainton exhibited specimens of *Chauliodus insecurellus* from Gascony, bred by M. Constant from *Thesium divaricatum*, and remarked that the localities (Sanderstead, &c.) in this country where the species had been taken were precisely those given for our *Thesium humifusum*. He had no doubt the insect fed on the latter plant in England.

Mr. Billups exhibited a long series of *Hemiptera* and parasitic *Hymenoptera* taken at Headley Lane on January 3rd; also a pair of *Ranatra linearis* from Loughton on January 16th at a spot where no water was then present.

A letter was read asking the opinion of the Society as to what list was to be preferred in arranging and naming collections of British *Lepidoptera*. Several Members addressed the Meeting in support of their own views, but it was generally considered that any recommendation on this point was outside the province of the Society.

Herr Buchecker exhibited a large series of drawings of *Hymenoptera*.

Mr. E. A. Butler exhibited a series of egg-cases of *Mantidæ* from Bechuanaland, of the same type as those exhibited at the Meeting on 1st December, 1883, (*cf.* Ent. Mo. Mag., vol. xx, p. 263), and in one instance apparently identical therewith.

Mr. Lewis communicated a paper on a new genus of *Histeridæ* (*Niphonius*), of which four species occur in Japan, and remarked on the peculiar structure of the prosternum, &c., which showed its affinity with *Hister*, and its differentiation from *Syntelia*.

Mr. G. F. Mathew communicated life-histories of *Papilio Godeffroyi* (Fiji), *P. Schmeltzii* (Samoa), and *Xois Sesara* (Fiji).

Obituary.

Edward Caldwell Rye, F.Z.S.—For the first time in the course of twenty-one years death has claimed one of the editors of this Magazine, one who had been associated with it during the whole of its career: the familiar "E. C. Rye" disappears from its cover. Mr. Rye died at Stockwell on February 7th, after a very short illness, in the 53rd year of his age. He was born at 16, Golden Square, London, on April 10th, 1832, and was the eldest son of a solicitor. He was educated at King's College School, and subsequently was articled to his father, who intended he should follow the legal profession. So strong, however, were his objections to this profession, that he refused to qualify; but he continued in his father's office.

It is no secret that his aspirations lay towards obtaining a position in the Zoological Department of the British Museum, but it was long before a vacancy occurred, and then he was already too old. Subsequently he became managing clerk to a barrister in Lincoln's Inn. In the early part of 1875 the Librarianship

at the Royal Geographical Society became vacant; Mr. Rye applied, and was immediately accepted, and he held the post up to his death, with advantage to the Society and credit to himself. From early youth he showed great artistic talent, and this in part served him to occasionally add to his small salary as a lawyer's clerk; he particularly excelled in drawing entomological subjects on wood, the taste for entomology which he developed at a very early age largely aiding him; his drawings were those of an entomologist as well as an artist. As is often the case, his early entomological notes concerned *Lepidoptera*, and the earliest we can find appeared in the "Entomologist's Weekly Intelligencer," for May 9th, 1857 (vol. ii, p. 44). But his attention soon became concentrated upon British *Coleoptera*, and from the first he displayed not only much success in collecting, but also great acumen, and extensive knowledge of the published literature, and he continued to send notes on new discoveries, &c., to the "Intelligencer," and also to the "Zoologist." In the "Entomologist's Annual" for 1863 he commenced that well-known series of laborious and critical articles on British *Coleoptera* which continued to appear each year down to the close of the "Annual" in 1874, and in the volume for 1872 he also published an annotated List of the additions to the British Fauna from 1840 to 1871, in which he showed that practically 1100 species of beetles (!) had been added during that time: in this list Mr. Rye especially proved his talent for critical compilation, which stood him in such good service afterwards.

In the early part of 1864 a private meeting of friends was held to discuss the advisability or otherwise of starting the "Entomologist's Monthly Magazine:" it was decided to do so, and Mr. Rye was offered a position on the editorial staff, which he accepted; and such was his zeal, that articles and notes on British *Coleoptera* at once formed one of the leading features in our pages. All those who were associated with him at the commencement survive to deplore his loss, and although only two of the original editors continue to act, these readily testify in how great a degree his energy contributed to render a success that which at first was only an experiment. Latterly his multifarious duties caused him to practically abandon entomology, and a few years ago he sold his magnificent collection of British Beetles to Dr. Mason, of Burton-on-Trent, who, with characteristic liberality, places it at the disposal of all workers, both British and foreign. In 1866 a volume on "British Beetles," extending to 280 pages, with 16 coloured plates, was brought out by Mr. Rye, and published in Reeve and Co.'s popular series; it was accompanied by a Catalogue of our indigenous *Coleoptera*, and remains practically the only book on the same subject, treated in a popular as well as in a scientific manner. From 1869, and for several years, he furnished the article *Coleoptera* (and occasionally others) to the invaluable "Zoological Record," in which his talent as a compiler again asserted itself, and from vols. x to xx (the publication of the latter taking place only a few days before his death), he was sole editor, an onerous duty fulfilled with great tact. Apart from his ordinary duties as Librarian, he compiled the bibliographical portion of the Proceedings of the Royal Geographical Society, and aided the Society in many other ways. For many years he acted as one of the Natural History editors, and sole editor for "Travel," on the "Field" newspaper, and latterly his other literary engagements were exceedingly numerous: his power for work seemed to increase with the demands upon it.

For many years he was Recording Secretary for Section E (Geography) at the meetings of the British Association. In 1859 he joined the Entomological Society of London, but subsequently resigned, and was re-elected in 1876. In 1874 he became a Fellow of the Zoological Society.

Mr. Rye's attention to British *Coleoptera* naturally caused an acquaintanceship with Mr. G. R. Waterhouse, formerly of the British Museum, who was then devoting all his spare time to the same subject. This culminated in his becoming engaged to Mr. Waterhouse's second daughter, whom he married in 1867, and who, with four children (the oldest under 17), survives to deplore his loss.

Mr. Rye was a good classical scholar, a good modern linguist, and generally of extremely versatile talent. In society he was known (and sometimes feared) for his ready and often caustic wit. From early youth he was passionately devoted to aquatic sports, and was a frequent prize winner in amateur racing matches on the Thames. On Saturday, July 30th, 1881, he suffered frightful injuries from his boat being crushed by a steamer; these crippled him for many months, yet in time he made a complete recovery, and even resumed his favourite pastime with all the ardour of youth, and at over 50 was still winning prizes. Little more than ten days before his death he complained of feeling unwell, which he attributed to a cold; but almost immediately smallpox of the worst type declared itself. He was removed to hospital. Almost from the beginning the case was desperate, and, although at one time there was a small gleam of hope, it soon subsided, and he passed rapidly away. How he contracted the disease no one knows, but it was believed to be prevalent amongst the floating population on the Thames.

It is pretty generally known that Mr. Rye's eldest sister is the lady whose name is so intimately associated with female emigration to Canada. His father and mother predeceased him, his youngest brother died barely two months ago, and there now remain an only surviving brother (who continues his father's practice) and three sisters.

Major F. J. Sidney Parry, F.L.S., of Onslow Square, died at his daughter's residence, The Warren, Bushey Heath, on February 1st, aged 74. In him the Entomological Society of London has lost one of its oldest members, he having been elected in 1840, and he became a Fellow of the Linnean Society in 1842. He was born October 28th, 1810. In 1831 he joined the 17th Lancers as a cornet, but retired from the army in 1835. His earliest published paper appears to have been on a new genus of *Lucanidæ* from New Zealand, communicated to the Entomological Society in 1843, and although he published on other families of *Coleoptera*, it was with the *Lucanidæ* that he became more especially associated, and on them he published numerous memoirs, the most important (but by no means the last) in the Trans. Ent. Soc. for 1870, to which he appended a revised List, enumerating 357 species. During the whole of his entomological career he had been associated by friendship with Prof. Westwood, who supplemented and illustrated several of his papers. At one time he had a general collection of *Coleoptera*, but latterly it was limited to *Lucanidæ* and *Cetoniidæ*, the former being very valuable, and probably the most complete in existence.

DESCRIPTIONS OF SOME NEW SPECIES OF *LEPIDOPTERA* FROM ALGERIA.

BY GEORGE T. BAKER.

Mr. Wm. Pech, of Budapest, who was collecting in Algeria during the first half of 1884, has recently sent me a very interesting collection of the *Lepidoptera* then taken, among which are several species which have been submitted to Dr. Staudinger, and have been pronounced by him to be new, these Mr. Pech has kindly asked me to describe. From February to the end of April he worked the neighbourhood of Lambessa, and, for the remainder of his sojourn, Guelma (which is a good deal nearer the Mediterranean) was his head quarters. As I hope later on to give a detailed account of his captures, I will now, without further remark, describe the species new to science.

Anthocharis Pechi, *n. sp.*

Alæ anticæ et posticæ albæ, puncto discoidali, et cum apice griseis. Infra, alæ anticæ, apice sulphureo-virescente, alæ posticæ sulphureo-virescentes, nigro fortiter irroratæ, macula centrali parva albida.

In the ♂ the wings are white above, the posterior ones looking slightly greyish on account of the darker under-side showing somewhat through. The base of all the wings is rather greyish. The apex and discoidal spot of the anterior-wings are grey, the latter being the shape of an irregular paralellogram. In the grey apical patch before the tip is a small, indistinct whitish spot. The costa from the base to the discoidal spot is broadly greyish.

Beneath. The apex of the anterior-wings is greenish-yellow, finely irrorated with dark grey, the discoidal spot which appears through, but faintly, is pale grey, with a whitish crescent in it. The posterior-wings are greenish-yellow, more intensely irrorated with blackish, and have a single small whitish spot in the centre. The fore-part of the thorax by the head is very pale yellow. The antennæ are grey, tipped with lemon colour. The fringes are white, greyish by the apex.

This description applies also to the ♀, but the markings are all darker, and the apical patch and discoidal spot are larger, while in the former there is the faintest trace of the usual transverse spotted band. The extreme apex is also slightly greenish. The ♂ measures 32—33 mm.; the ♀ 36 mm.

This species, which I name after its captor, is a near ally to *Charlonia*, Donzl. (*Penia*, Frr.), and will immediately precede it. Only five specimens (three ♂ and two ♀) of this pretty *Anthocharis* were taken, which were caught at Lambessa in April. A ♂ and ♀ are in my collection. *A. Pechi* can be readily distinguished from *Tagis* by its smaller size, and by the apex and discoidal spot being much greyer, also the white spots in the dark apical patch of *Tagis* are wanting in *Pechi*.

Beneath, the apex and hind-wings are yellower and unmottled in the present species, while in *Tagis* both are considerably mottled.

From *Charlonia*, its nearest ally, the ♂ differs in that its colour is quite white, while in the former the wings are very faintly tinged with yellow. The apical patch, which is brownish in *Charlonia*, extending down the posterior margin nearly to the anal angle, and being distinctly spotted, is, in *Pechi*, grey, scarcely reaching more than half way down the posterior margin, and is without the transverse spots. The discoidal spot in *Charlonia* is large and dark brownish, but in our species it is decidedly smaller and pale grey, also the anterior margin is not pink, as in *Charlonia*, and the fringes of the fore-wings, which in the latter insect are tinged with yellow, and intersected with brownish, are in this white.

Beneath, the apical patch and hind-wings are greener in *Pechi*, than in *Charlonia*. The white of the fore-wings in the latter is tinged with yellow, especially by the costa, but in ours it is pure white, also the discoidal spot, which in *Charlonia* shows through very distinctly, and is almost black, appears through in *Pechi* very faintly, and is pale grey with a whitish crescent in it. The fringes of the fore-wings have in the present species a slightly greenish hue beneath, but in *Charlonia* have a good deal of pink in them. Further, the hind-wings of the former have only a single, small, whitish, central spot, whereas in the latter insect there are several whitish spots in the hind-wings.

Bombyx loti, *var.* algeriensis.

I believe this pretty little *Bombyx* to be only a local form of *loti*, and have therefore so named it, as it is certainly worthy of being a named variety. The ♂ is of an uniform reddish-brown; the anterior-wings having a central white spot, and a sharply and continuously toothed white line, starting from beyond the middle of the inner margin, and reaching nearly to the costa, somewhat in front of the apex.

The ♀ is also unicolorous red-brown, but with scarcely even an indication of the central spot, and no transverse line.

Expanse of wings, ♂, 27—28 mm.; ♀, 40 mm.

A fair series of this insect was taken at Guelma in June, two ♂ and one ♀ being now in my cabinet.

The ♂ differs from *loti* in the white transverse line being continuously toothed, while in the latter insect it is not toothed at all. The difference in the ♀ is more marked, as in *loti* the colour is uniform greyish, but in *var. algeriensis* it is entirely reddish-brown.

Bombyx Staudingeri, *n. sp.*

Alæ omnes pallide flavo-ochraceæ, non fasciatæ.

Of this new *Bombyx* several larvæ were found at Lambessa in March, which

were of a grey colour with red markings. The imago is of an uniform and very pale drab-straw colour, without any markings whatever, the posterior-wings are of a slightly warmer hue than the anterior. Expanse of wings, 47 mm.

Only two ♂ of this insect were reared, which came out in September (the fumigation for cholera having killed most of the pupæ), and of which I possess one specimen.

I name this species after the well-known entomologist, Dr. Staudinger; it should, I think, precede *trifolii*, which is its nearest ally. Though *trifolii* has some very pale varieties, I know of none to compare with the paleness of this: its anterior-wings are also narrower than in that species, and the apex and hind-margin are rounder; further, the posterior-wings are not so full as in *trifolii*. Though the expanse of wings is greater than in *trifolii*, ♂, generally, it is a more elegant species, and is not so robust looking as that insect.

Acidalia mauritanica, *n. sp.*

Alæ omnes rubræ, griseo-irroratæ, macula centrali parva nigra in omnibus alis, alæ anticæ macula costali nigra ante apicem.

This species is of a pale pinkish-clay colour, finely irrorated all over with dark grey, with the central dark spots on the anterior and posterior-wings very distinct, there is also a distinct dark spot on the costa in front of the apex. The first dusky line near the base is almost obliterated, though its position is indicated by three indistinct greyish dots, two of which are near the costa, and one on the inner margin, there is scarcely a trace of the central line just beyond the spot, the dusky irrorations form an indistinct curved sub-terminal line, in which are four or five small darker dots, this is followed by a fine waved lighter band of the ground colour. The marginal line is also composed of the dusky irrorations. The hind margin is finely and darkly dotted.

The hind-wings are rather paler, but with similar markings to the fore-wings. The fringes are pink, lighter at the edge. Head, thorax, and abdomen, same colour as the wings. Expanse, 23 mm.

Of this insect, which will, I think, come next to *cervantaria*, only two specimens were taken at Guelma in June, one of these is now in my collection.

All the markings in this species are formed by the dusky irrorations, and are throughout very indistinct. Its general look is pinkish-red, slightly irrorated all over with dark grey.

Acidalia virgularia, *var.* afra.

This insect is so close an ally to *virgularia*, that I cannot look upon it as a new species.

The ♂ is grey, with the central dark spots very indistinct; the darker basal space is edged by the first line which is dark grey, waved, and arises in a dark spot

on the costa, terminating in a similar one on the inner margin. The central line is less distinct, but is more defined than in *virgularia*, the sub-terminal line is not dotted, as in that species, but is a frequently-toothed, well-defined, dark grey stripe, and is followed by a darker shading, which is edged on the outside by a light curved band. Hind-margin dotted with black. Fringes grey.

With the exception of the first line, the markings are all continued through the posterior-wings, but the sub-terminal line is very dark and broad. In the ♀ the colour is paler, and all the markings less distinct, except the central spots, which are more sharply defined, and the sub-terminal line, which is dotted somewhat as in *virgularia*. In this sex, the shape of the posterior-wings differs from that insect, the hind-margin having semicircular dentations, making their outline almost angular, and the marginal black dots form an almost continual line.

The ♂ measures 20 mm., the ♀ 22 mm.

Only two specimens of this insect were taken at Guelma in June, both of which are in my collection.

Acidalia terentius, *n. sp.*

Alæ omnes, ochraceo-brunneæ, lineis medianis et sub-terminalibus parallelis, brunneis. Alæ anticæ apice sinuato.

This species is of an ochre-brown colour, the basal space being darker brown. The median brown line is parallel with the broad sub-terminal line of the same colour, both being almost parallel with the hind-margin, and extending from the costa up to the inner margin; these two lines are also continued through the posterior-wings, but are less distinct. The hind-margins of the anterior and posterior-wings are bordered by a distinct dark line. The fringes, which are exceptionally long, have the basal half darker brown, with paler extremities. There is a slight gloss over all the wings. The thorax and abdomen are brown; antennæ paler brown. The apex of the anterior-wings is rather sinuate.

Only two specimens were taken at Lambessa in April, one is in my collection; it measures about 13 mm.

Lygia Jourdanaria, *var.* obscura.

Anterior-wings umber-brown, with all the white markings of *Jourdanaria* replaced by a paler brown colour. The hind-wings are also of a browner hue.

In the ♀ the ground-colour is paler than in *Jourdanaria*, with the white markings also replaced by paler brown ones.

Jourdanaria was common at Lambessa in April, and existing with it was this almost unicolorous variety which, being constant and not uncommon, is well worthy of a distinctive name. I possess a ♂ and ♀.

Eupithecia artemisiata, Const., *var.* constantina.

Anterior-wings brownish-grey, the first darker band, edged on the outside with white, is sharply angulated near the costa, and is very distinct, in front of this (*i. e.*, near the base) are one or two more or less distinct paler lines. Before the median stripe, which is narrower and edged on the outside by a double white line, is a

whitish, somewhat indistinct, line. The dark sub-marginal line, also edged posteriorly with white, is finely and frequently toothed, and extends from just in front of the apex into the anal angle. The sub-costal, median, and inner marginal veins are reddish, and intersect all the markings.

The grey posterior-wings have the median and sub-marginal lines darker, and a central dark spot, which latter is wanting in the anterior-wings. The hind-margins of both the anterior- and posterior-wings have a white-spotted line edged interiorly by a dark spotted line.

The fringes are grey, tesselated with brown, and sometimes have a pale divisional line. The ♂ measures 19—20½ mm.; the ♀ 20—21 mm.

The ♀ presents no difference from the ♂, except that it is rather stouter, and the white lines are throughout more marked.

This species was common at Lambessa in March. I possess four specimens. Dr. Staudinger tells me that he thinks this may be a local form of *artemisiata*, Const., if so, it will rank as a variety of that species; it may, however, prove to be itself a good species.

(*To be continued.*)

ON THE DISTINCTNESS OF *AULOCERA SCYLLA* FROM *A. BRAHMINUS*.

BY ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

In the fourth volume of this Magazine (p. 122), I described a species of *Aulocera* under the name of *A. Scylla*, the habitat for which was given in our register as near Silhet, and I mentioned that I had seen three specimens of the species.

In the same volume, at p. 247, Colonel Lang described a second species under the name of *Aulocera Werang* from the Werang Pass, Upper Kunawur and from Kashmir.

The species described by Lang turned out subsequently to be the same as that figured by Blanchard as the male of his *A. brahminus*, which name, therefore, superseded it.

In the first volume of their work on the Butterflies of India, Messrs. Marshall and De Nicéville regard *A. weranga* (sic) as a variety of *A. brahminus*, and *A. Scylla* as a second variety scarcely separable from it: they make the following observations regarding the two so-called varieties:—

"Colonel Lang in describing *A. weranga* writes, that, 'it differs from (the description of) *A. Scylla* by its paler colour, larger size, more sinuated margins, and the want of the exterior series of white, black-encircled spots; the whitish dots of *A. weranga* being only two or three in number, very small and indistinct.' Mr. Butler adds,

'the two species are nearly allied, but I think quite distinct;' another point of difference being that 'the veins on the under-side of the hind-wing in *A. Scylla* are powdered with whitish scales.' We are quite unable to separate *A. Scylla* from *A. brahminus*; it is described from 'near Sylhet,' and if that locality could be accepted definitely, there might be some grounds for its separation; but the authority for the habitat rests apparently on a very slender basis, and some specimens of *A. weranga* from the N.W. Himalayas present every feature that is given as distinctive of *A. Scylla*; it is doubtful whether it can even be retained as a distinct variety."

It must be borne in mind that when writing the above neither Major Marshall nor Mr. De Nicéville had examined the type of *A. Scylla*; when the latter gentleman saw it a few months ago, he jumped to another hasty conclusion and decided that it was nothing but an under-fed specimen of *A. Werang*. Few things can be more detrimental to the study of any branch of science than guessing. This has been shown in the present instance, and can be still more easily proved in the case of Mr. De Nicéville's recently ventilated views touching seasonal variability, which a little calm reflection would have convinced their author to be impracticable; first, because some of these so-called seasonal varieties never yet were taken in the same localities, and others, as *Junonia Almana* and *J. Asterie*, are all caught flying together at the same time, also *Melanitis Ismene* and the so-called *M. Leda* (for which I propose the name *M. determinata*; as the true *M. Leda* is a totally dissimilar Amboinese species), come constantly from all collectors who pay any attention to details in their collecting, labelled with the same date of capture; Col. Swinhoe also assures me that in both of these instances the supposed seasonal forms fly together.

In a collection received from Mr. J. F. Duthie early in 1884, there were four examples of *A. brahminus*, three of which were labelled "Phulaldaru, 12,000 feet, August 15th and 16th," the fourth "Ravee Basin, up to 6,000 feet," the latter agrees best with Lang's type of *A. Werang*, as I remember it, the band across the wings being narrower than usual.

Towards the end of 1884 we received a second collection from Mr. Duthie, in which are two examples of *A. Scylla*, labelled "near Kutti, 13–14,000 feet," in the same collection several much worn examples of *A. Swaha*, labelled "Kutti Yangti Valley, 11–12,000 feet." It is therefore clear that the locality "Silhet" was, at any rate, if not quite correct (which remains to be proved), by no means so far out as Messrs. Marshall and De Nicéville imagined, and as the whole of the

differences pointed out, such as size, form, marking, white veining, &c., are constant, there is every evidence that *A. Scylla*, instead of being regarded as even a doubtful variety, is a good and constant local form, or, in fact, a distinct species.

In conclusion, I would recommend all Entomologists to beware of excitement about any new craze: a few years ago every unusual patch on a wing, every tuft on any part of an insect, was at once labelled either as some form of scent-bottle or musical box for the delectation of Madame Papilio; in some cases there was sense in the suggestion, but in nine cases out of ten the most pitiable nonsense: now a new craze has arisen; wheresoever in any genus two species stand a little apart on account of intermediate links not having yet been collected, the Lepidopterist pounces upon them as probable seasonal forms; whereas, when one really knows anything of any genus of *Lepidoptera*, one finds that all the representatives of that genus are reduced to very slightly differentiated local races.

British Museum: *February*, 1885.

DESCRIPTION OF TWO NEW SPECIES OF BUTTERFLIES.

BY H. GROSE SMITH.

Papilio Sycorax.

Upper-side. Anterior-wings olive-brown, the longitudinal rays in the cell, the nervures, and broad bands between the nervures dark olive-brown. Posterior-wings: the inner half somewhat greener than the anterior-wings, the outer half greenish-grey, in the middle of which between the nervures is a row of five large conical black spots, the two upper spots extending to the cell on the inner side; on the outer margin are five, large, black, quadrate spots confluent on the outer margin, the spot nearest the upper angle is also confluent on the inside with the upper spot of the central row. The outer margin ashy-grey, deeply indentated between the nervures.

Under-side. Both wings as above, but much lighter, and the outer row of spots on the margin of the posterior-wings are distinct. Head and collar ashy-grey. Abdomen greenish-grey above, underneath orange, two rows of black spots on either side. Exp. 6 in.

Hab.: Sumatra (Bock).

A grand insect, nearest to *P. Priapus*.

Charaxes Violetta.

Upper-side. ♂. Anterior-wings dark brown, suffused slightly with violet, with a curved row of violet-blue spots across the middle of the wings, and a sub-marginal row of similar spots from near the costa to the inner margin, the lower half of the two rows becoming confluent, the two sub-marginal spots near the apex nearly white. Posterior-wings with a broad central band of violet-blue, suffused with white from the second sub-costal nervule to the abdominal fold near the anal angle; above this band are two pairs of violet-blue spots, a sub-marginal row of seven small spots, and

a row of elongated spots on the margin on each side of the nervules, all violet-blue suffused with white. ♀. Anterior-wings with a broad curved band across the centre of the wings from the costa to the inner margin, and two white transverse spots near the apex. Posterior-wings: the inner half, from near the base, white, suffused with violet, a sub-marginal row of small white spots, and a marginal white line intercepted by the nervures, both suffused with violet.

Under-side. Both wings as in *Ch. Cithæron*, except that the central black line across both wings, which is broadly bordered on the outside with white, is straight and continuous, not irregular and interrupted as in *Cithæron*. This species on the upper-side has a general resemblance to *Cithæron*, it is more violet-blue, and is smaller in size, particularly the female, which is not so large as the male *Cithæron*, while the under-side of both sexes is very distinct from *Cithæron*. Exp. $3\frac{1}{8}$ in.

Hab.: Delagoa Bay.

London: *February*, 1885.

THE LIFE-HISTORY OF *ASOPIA* (*PYRALIS*) *FARINALIS*.

BY THE REV. J. HELLINS, M.A.

In his prefatory remarks on *Pyralis*, Guenée wrote that nothing showed the negligence of entomologists more plainly than their ignorance of the metamorphoses of the species placed by him in that genus; and, to say nothing of the appearance of *farinalis* in one's house, certainly to see the moth, as I have, sitting by hundreds on the walls of a mill, one would think it was easy enough to find the larva: yet the late Mr. Buckler, living in a house with a flour-mill attached to it, met with considerable difficulty in obtaining the larva of this "Mühlgängler," as Dr. E. Hofmann calls it: it was not to be found on the floors, but had to be hunted out very carefully under projecting ledges of portions of the machinery, where it could form its galleries in safety; he obtained a few examples also from a stable, where they were feeding in company with *A. pinguinalis* on mixed rubbish well hidden under an oat-bin.

Farinalis may fairly be called a domestic insect, and, contrary to the more common lot of *Lepidoptera*, it has rather profited than otherwise from human progress: as one can scarcely conceive of any natural collection of seeds or stalks which would nourish it in such numbers as may now be seen.

The moth, I know, begins to appear towards the end of June, and continues its flight through July and August; the larva apparently is hatched in less than a month after the egg has been laid, and, as Mr. Buckler told me he had satisfactorily ascertained, lives through two winters, becoming a pupa in May or June of the second year; and the pupa state lasts about a month.

The egg is rather long oval in outline, somewhat flattened, about ·65 mm. long, and ·35 mm. wide; the shell very thin and soft, finely granulated or wrinkled all over, glistening, in colour dirty white.

The newly-hatched larva is about 1·45 mm. long, with pale brown head, the body dead white, the usual bristles colourless and long.

The full-grown larva is about 25 mm. long when walking, between 22 or 23 mm. when at rest; stout in proportion, and cylindrical in figure; the head small and horny, the second segment, which is rather long, tapering rapidly to it; the thirteenth segment also tapers away rapidly; the segmental divisions well-marked; the folds between the thoracic segments complicated as in *cuprealis*; each of the remaining segments with an intermediate fold at about two-thirds of its length from its front edge; the head in colour chestnut-brown, very shining, with the mouth blackish; the second segment paler brown, rather inclining to yellowish; the anal plate also yellowish-brown; the rest of the skin most delicately shagreened, and in colour bone-white, the belly whiter; there is, however, a blackish tinge over the anterior and posterior segments which, throughout the life of the larva, serves (together with its stouter figure) to distinguish it from *Œcophora pseudospretella* and *Endrosis fenestrella*, which swarm where it is found; the dorsal vessel is also distinguishable by its darker tint; the usual dots are small and indistinct, surrounded by small pits, and furnished each with a short brown hair; the trapezoidals arranged (as in *Aglossa*) almost in squares; near the front edge of each of the middle segments is a transverse row, interrupted in the middle, of tiny shining foveæ, and behind it come short rows set longitudinally near the front pair of trapezoidals, and again near the hinder pair, there are also others below the spiracle; the spiracles are small, round, and margined with black; the thoracic legs are of the ground-colour, but tipped with chestnut-brown; the ventral legs whitish, with the circlet of hooks dark brown.

The larvæ I had were living in long tubes of dusty flour spun together rather toughly, and through which they could travel easily: from one of them I bred an ichneumon, named for me by Mr. Bridgman, *Exochus mansuetor*.

The pupa which I measured was about 10 mm. long, and not quite 3 mm. at its widest, in figure very cylindrical and plump, the wing-cases reaching just half its length; the tail ending in a blunt knob, without a spike, but set with a group of six curled-topped spines, arranged in three pairs of different lengths, the longest pair being straight, and the other two curved; the whole pupa-skin glossy, as if varnished; the wing-cases yellowish-brown, the abdomen redder, and the segmental divisions still darker: the cocoon inside fitted the pupa closely, and was made of tough white silk, well covered outside with rubbish, and not very regular in outline, about ten lines in length, and four in width.

Exeter: *February 7th*, 1885.

A NEW DRAGON-FLY OF THE GENUS *ANAX* FROM MADAGASCAR.

BY ROBERT McLACHLAN, F.R.S., &c.

ANAX TUMORIFER, *n. sp.*

Length of abdomen (*cum appendic.*), ♂, 63 mm., ♀, 60 mm. Length of posterior-wing, ♂ ♀, 53 mm. Expanse, ♂ ♀, 109 mm.

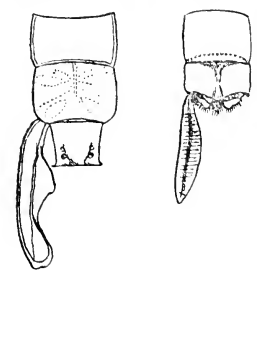
♂. Wings hyaline (not tinted). Neuration black (a few transverse nervules, near the base, brownish); costal nervure yellow externally. Membranule blackish, whitish at base. Pterostigma brown, rather short (5 mm.), very narrow. 18 antecubital and 10 post-cubital nervules in the anterior-wings. Face and mouth-parts yellowish (probably green in life); labrum regularly excised, the excision bordered with very pale brown. Top of front slightly produced, semi-circular anteriorly, where it is slightly margined by a greyish line; a large, nearly circular, black spot, not produced in the middle, but the outer edge with four or five not very distinct denticulations: vesicle black behind, yellow in front (with a crest of black hairs); for a short distance on either side is a narrow black line margining the eyes. Antennæ black. Occiput yellow, flat, triangular, slightly rugulose. Back of head yellow, margined with black above in the middle.

Thorax yellowish (probably green in living insects), with fine cinereous pubescence.

Legs shining black; anterior femora yellowish beneath; length of posterior femora, 10 mm.

Abdomen slender (not depressed), cylindrical, considerably swollen, and afterwards constricted, at base. Colour dark brown (altered), with indications of a black dorsal line, twice expanding on segments 4—7. Lateral impressions extending from segments 3—9 (but only faintly indicated on 3 posteriorly). Segments 9—10 slightly depressed, each slightly broader than long, and sub-equal. Segment 10 with a blunt central longitudinal carina, on either side of which are two foveæ, one posteriorly the other anteriorly, the latter being larger and deeper than the former.

Superior appendages long (8½ mm.), nearly equalling segments 8—10 united, piceous, somewhat castaneous internally; they are slender, and their outer edges



nearly straight up to the incurved apices; a strong raised keel above from the base to near the apex: the inner edge is at first straight, but somewhat before the middle it is enlarged into a very strong obtuse dilatation (the edge of this dilatation is granulose if viewed laterally), after which it is broadly excised, and again slightly dilated to the apex, which is very obtuse, incurved, viewed above it has a rather broad explanate margin beyond the elevated subapical portion: the upper surface is deeply concave between the central keel and the raised outer edge up to the elevated sub-apical portion; the lower surface shallowly concave, with the outer and inner edges much raised; the inner edge beyond the dilatation is double with a concavity between, somewhat resembling the lateral impressions on the abdomen. Inferior appendage

pale yellow, very short, nearly quadrate, scarcely extending to the commencement of the dilatation of the superior, hardly narrowed to the end, which is excised, with the angles upturned and produced into an acute black tooth; the lower surface is flattened with the sides strongly upturned, upper surface deeply concave; within each outer angle is an elevated black blunt tubercle, which, if viewed laterally, conveys the erroneous impression of belonging to the edge and not to the inner surface.

♀ (very adult). Generally similar to the ♂.

Wings very strongly and almost uniformly tinged with bright greenish-yellow (slightly paler at base and at extreme apex), which is sometimes more intense on the nervules, leaving the centre of the cellules paler. 18—19 ante-cubital nervules in the anterior-wings.

Back of head for most part blackish.

Abdomen stouter; the dorsal dark line more distinct: 10th segment transverse, its apical edge with a large transverse impression (or fovea) on either side of a median production, in which are about four short longitudinal impressed striæ.

Appendages very small (about 5½ mm.), black, in the form of small flattened leaflets narrow at the base, with straight outer edge, and a slight central keel; apex acute. Valvules not exceeding the 9th ventral segment, black, provided with small and short reddish appendages, of which the second joint consists of several bristles.

[I think a second ♀ (with equally yellow wings) must belong here. It differs in the black spot of the top of the front being conical instead of nearly orbicular, in the slightly smaller wing dimensions (post.-wing, 50 mm.), and especially in the much shorter abdomen, which (appendages absent) is only 50 mm. long, without appearing to have lost any of its length (excepting the appendages), although it has been broken and mended.]

The figures represent the apex of abdomen of ♂ and ♀ (with appendages), from above, and the inferior appendage of ♂, from side, more enlarged.

Hab.: Madagascar.

The ♂ of this insect is essentially peculiar from the form of the anal appendages, and the ♀ from the uniformly-tinted greenish-yellow wings. The ♂ of *A. dorsalis*, Burm., from the Cape of Good Hope, remains, I think, unknown, but from Hagen's detailed description of the ♀ type (Verh. zool.-bot. Ges. Wien, 1867, p. 37), it cannot belong here, according to the form of the spot on the top of the front, the markings of the abdomen, and especially the colour of the legs.

From the same collection from Madagascar I have a ♂ *Anax* that it would be difficult to separate from *A. formosus*, but as has been already remarked with regard to South African examples, probably of this species, the body is slightly more slender, and the labrum margined with brown instead of black.

Lewisham, London:
March, 1885.

On the generic name Barsine.—Mr. A. G. Butler has called attention (Ent. Mo. Mag., xxi, 133) to the pre-occupation of the generic name *Barsine* by Walker, and suggested a new name for the genus of *Geometrina* which I had characterized under that name. However, I had already, in a paper read before the Philosophical Institute of Canterbury (N. Z.) in August last, and published in abstract in the New Zealand Journal of Science for September, pointed out that the genus named by me *Barsine* was truly synonymous with *Boarmia*, Tr., as defined by Lederer (whose work I had not previously been able to obtain, as explained in my original paper), and the genus which I had called *Boarmia* was therefore left without a title; the latter genus I renamed *Gelonia*. Mr. Butler's new designation for *Boarmia* is thus unnecessary.—E. Meyrick, King's School, Parramatta, N. S. W.: *January 14th*, 1885.

Habits and description of the larva of Tortricodes hyemana.—Early in June last, I was examining an oak-bush in a hedge near here for larvæ, when, on opening a rolled-up leaf, I found a very striking brownish *Tortrix* larva, with a pretty spotted appearance. I did not find the species common, but collected a few from different parts of the bush, took them home, and placed them on a spray of oak in a small bottle of water, covering the whole with a bell-glass.

This is a very convenient method for observing the habits of small larvæ, as the food keeps fresh for a long time, and the larvæ live and make their habitations without being inconvenienced by the contact of the sides of the vessel which contains them. Their habits can also in this way be watched at any time without disturbing them. It is necessary, however, for this purpose to have good sized bell-glasses.

The larva is not of a very lively disposition, though when disturbed it makes some show of retreating, after the usual manner of Tortrices, but does not easily leave its house when touched. It is rather short and stumpy, and tapers somewhat towards each end: its length, when full-fed, is about 6 lines.

The upper portion of the larva is of a rather dull brick-dust colour, inclining to brown, with a dirty greenish tinge between the segments. This tinge, being apparently chiefly due to the presence of food in the intestinal canal, is not constant in its position or intensity, but is seen on different parts of the body at different times. It is more decided, as a rule, towards the head, and on the anal flap is present almost to the exclusion of the brick-dust colour.

The head is of a dull yellowish-brown, with the mandibles and palpi darker. The top of the second segment is of the same colour as the head, edged with whitish in front, and with a blackish margin at the sides. There is a distinct whitish dorsal line, and a less distinct line on each side below the first row of spots. The spots themselves are conspicuous from their prominence and size: they are whitish in colour, and have a small black dot in the middle, from which proceed inconspicuous hairs.

The under-side of the body is of a yellowish-white colour, on which a very slight tinge of brick-dust can be perceived in patches on the first few and last segments, the division between it and the upper surface being sharply defined.

The legs are blackish, as are also the hooks at the base of the claspers. The colour of the head is rather brighter at the sides of the under-part than above.

The larva turns down the tip of an oak-leaf, thereby forming a habitation of an irregular and somewhat conical shape, in which it lives until it has eaten the greater part of the leaf, but during this process it keeps its habitation intact. It then altogether deserts this leaf, and removes to another, and after having made another home for itself in the same way, it eats that leaf also. Thus, when nearly full-fed, a leaf of average size lasts it for board and lodging about two days.

It does not leave any frass in its habitation.

The larva is full-fed about the middle of June, when it quits its habitation and goes down into the earth, where it spins a very tough cocoon composed of earth and brownish silk, in which it shortly turns to a pupa. In this state it remains during the summer, autumn, and winter, emerging about March in the next year.

The pupa is rather dark reddish-brown in colour, with a transverse row of four spikes at the tail, and two rows of smaller ones on the back of each segment.

As the moth emerges shortly before the time when the buds of the oak are beginning to shoot, and as the larva does not seem to be at all gregarious, it may be presumed that the eggs are laid singly on the oak-buds.—Nelson M. Richardson, Llangennech Park, Llangennech, R. S. O., Carmarthenshire: *March 14th*, 1885.

The larva of Phlæodes tetraquetrana.—Probably most of us are familiar with this common larva, living late in the autumn under the turned-down edge of a birch leaf, but it is not, perhaps, so generally known that this is only the latter portion of its history, the manner of its earlier life being very different, and spent within a swelling on the twigs. These swellings are by no means conspicuous, which must account for their having been so commonly overlooked, and my own success in discovering them last spring was, no doubt, largely owing to the experience I had recently gained by the study of a very similar kind of growth, the work of *H. Servillana* in the sallow shoots. At the time of discovery they were empty and deserted and the mine within commencing to be filled up by new growth, but on July 3rd I had the pleasure of finding newly-made swellings containing larvæ about $\frac{1}{10}$ inch long. Fresh mines were opened from time to to time, but their occupants were found to grow so slowly, that no attempt at collecting them was made until September 20th, on which occasion one or two having been found empty, I judged it advisable to delay no longer, and, therefore, brought home a handful of shoots, and placed them in water. Very shortly I found that an individual or so had left its mine, and was feeding upon the leaves; having constructed a small chamber by folding over a portion of the leaf. In time, all adopted the same practice, but in one or two instances where a leaf lay conveniently near, and the larva was able to reach it by spinning a short connection, I noticed that it continued for a little longer to occupy its old quarters. Hitherto, I had been much puzzled as to what they could be, but with their change in habit the mystery ceased, and to my surprise, as well as somewhat to my disappointment also, I recognised in the larva that I had been watching with such care the very common and widely-known *P. tetraquetrana*.

The swellings occur on the young upright shoots in the heads of birch bushes. Like those of *Servillana*, they occupy the region of the buds, and also resemble them very closely in shape and general appearance, but are smaller. It is, I think, worthy of notice that in both the growth takes place rapidly, and appears to reach its full

development whilst the larva is still very young, agreeing in this respect with the usual history of gall-formations. The short internal mine measures half-an-inch in length, and sometimes less. It is quite free from frass, and the mouth, situated at the upper end, is protected by a firm, neatly constructed, tube of frass, that extends for one or two lines along the surface of the growth. It might be supposed from its abundance, that it would prove an injurious insect, but this scarcely seems to be the case. In no instance have I known the shoot killed, though occasionally its growth appears to be checked, and an increased tendency shown to the development of side twigs. The cavity gets filled up in the following season, and the enlargement is also in time outgrown. Neither does it lead to injury by inviting the attacks of insect-feeding birds; similar kind of food is plentiful enough elsewhere at that time of year, and far more get-at-able, and they seem entirely to have passed over this supply, which is quite the opposite to what happens in the case of *Servillana*, where, at least, one half the mines get torn open in the hungry months of winter.

The full-grown larva is rather stout, cylindrical, tapering somewhat behind, pale yellowish-green. Head dark or pale brown. Thoracic plates also dark or pale brown, with a darker edging behind, and a pale line down the middle. Anal flap yellow. Legs brown. Spots distinct, dark brown or black—they are said in the "Manual" to be whitish. The posterior trapezoidals are considerably smaller than the anterior, and are occasionally absent, or, I should rather say, want the usual dark pigment, in which case the anterior pairs are correspondingly small. Whilst a resident in the twigs, the chief points of difference are that the larva is more slender of shape, rather transparent, with a pulsating red dorsal vessel and reddish tinge over the body. Some years ago I found four or five specimens of a variety, having a broad, but rather faint, red line running along the sub-dorsal region from the 2nd to the 13th segments, inclusive. They produced typical *tetraquetrana*. It appears to remain within the stem until after the last moult, growing very slowly all the time, but directly it begins to feed upon the leaves a rapid and great increase of bulk takes place, and in a week, or rather longer, it becomes full-fed. It spins up among rubbish, and changes to a pale red pupa.—John H. Wood, Tarrington, Ledbury: *February 6th*, 1885.

Coleophora potentillæ, Boyd, in lit.—The larvæ of this species I have known for the last two years, but always thought they were those of *C. paripenella*, for knowing what a general feeder *C. paripenella* is, and finding it feeding on birch and bramble, under which bushes this same shaped but lighter coloured *Coleophora* was feeding on *Potentilla tormentilla*, I concluded they were the same species, and that the very light colour of the cases was due to the food-plant; but in September of last year, Mr. Fletcher, of Worthing, wrote to me saying he was taking nearly full-fed the larvæ of an undescribed *Coleophora*, feeding on *Potentilla tormentilla*, and very kindly offered to send me some, and also went on to describe the history as worked out by Mr. Boyd; the description he gave so agreed in every respect with the larvæ I had noticed on the same plant, that I went at once to Wanstead, found some larvæ, and sent them on to Mr. Fletcher, who at once pronounced them to be cases of *C. potentillæ;* I also found these larvæ at Walthamstow and Snaresbrook in most of the sheltered places, under patches of brambles where the food-plant was growing; they seem to be pretty well distributed all over that part of Epping Forest.

The above few facts show how necessary it is to publish the history or any information concerning new species as soon as possible, for had not Mr. Fletcher written to me as he did, I should have been perfectly ignorant there was any such species in existence; and as many of my correspondents have since seeing the name on my list asked me what the species was, it is very probable the above communication may be interesting and useful to many others who collect the Micros.—Geo. Elisha, Shepherdess Walk, City Road, N.: *January*, 1885.

Larva in Nut Catkins, &c.—I now add a description of the larva mentioned at p. 203, which I have hitherto been unable to breed. Larva about half an inch long, dusky pale greenish; head and plate on second segment brownish-black; when the larva is younger the head and plate (which appear united) are unusually large, and suggest the idea of a diving helmet. This disproportion is the more apparent if the larva is at all stinted of food. In the earlier stages of growth the head is the largest part of the larva, which tapers gradually from the third to the last segment; the posteriorly attenuated appearance being still further increased by the anal legs projecting behind almost to a point. Anal plate small, and slightly darker. A dark shining spot at top of anal legs; front feet dark. When full grown the head is not so disproportionately large, nor is it so dark, and the back of the larva is faintly suffused with a smoky tinge.—A. Balding, Wisbech: *January* 14*th*, 1885.

Chauliodus insecurellus and C. pontificellus.—The interesting discovery of the larva of *Chauliodus insecurellus* on *Thesium divaricatum* in Gascony, for the knowledge of which we are indebted to Mons. A. Constant, may not improbably help us to find the larva of its congener, *C. pontificellus*. This conspicuous large *Chauliodus* seems by no means uncommon in many parts of Germany and Switzerland; I have myself seen it in plenty near Ratisbon, but hitherto, strange as it may appear, the larva of so common and striking a species has altogether escaped discovery.

Von Heinemann informs us "Schmetterlinge Deutschlands und der Schweiz, Abth. ii, Band ii, Heft 2," p. 410, that "Frey suspects the larva to be on *Thesium montanum*; Rössler that it is on *Sarothamnus*."

I must say that I think the occurrence of the larva of *C. insecurellus* on a *Thesium* lends great weight to the probable correctness of the conjecture attributed to Professor Frey, which, however, I do not find mentioned in Frey's "Lepidopteren der Schweiz," though the author specially remarks of *C. pontificellus*, p. 401, "larva to this hour unknown (in spite of numerous searches by myself and others)."

I hope, with the new lights we now have, the larva of *C. pontificellus* will not remain much longer concealed.—H. T. Stainton, Mountsfield, Lewisham, S.E.: *March* 14*th*, 1885.

Humble Bees successfully introduced into New Zealand.—The Canterbury (N.Z.) correspondent of the *Anglo-New Zealander and Australian Times*, Mar. 13th, states as follows:—"After several unsuccessful attempts to introduce the Humble Bee, we have at last contrived to land a small number alive. This is owing to the decreased length of the voyage since steamers commenced to run between England and New Zealand. The Humble Bees were brought out in the "Tongariro," and

had not been here many days before they emerged from their dormant condition, when they were at once liberated." No information as to the *sexes* of the *Bombi* that arrived alive is given, but hopes as to the general fertility of red clover in the Colony, resulting from this importation, are expressed, and we trust they may be realized.—Eds.

Anommatus 12-*striatus*, *Müll., and Adelops Wollastoni*, *Jans.*—While digging over a piece of garden ground on the 21st of last month, I turned up a decaying potato, and, seeing that it was tenanted by Coleopterous inhabitants, conveyed it into the house for careful examination. The lodgers proved to be three in number, namely, a specimen of *Anommatus* 12-*striatus*, which I had supposed was invariably found in buried logs, and two examples of *Adelops Wollastoni*. The potato was barely six inches beneath the surface, and it seems rather strange that, after the severe frosts which we have had here, *Anommatus* at any rate should have been found at so slight a depth. A few days later on I took a third specimen of *Adelops*, this time in a rotten parsnip.—Theodore Wood, Freeman Lodge, St. Peter's, Kent: *March* 11*th*, 1885.

Note on Rhizotrogus ochraceus, Knoch (*cf. ante p.* 221).—I have a Welsh specimen of this species, taken by the late Mr. Weaver, which I obtained from him directly afterwards. In the "Zoologist," xiii, p. 4906 (1855), is a note by the late Mr. E. Newman, announcing that this species had then recently been taken by Mr. Weaver in North Wales in some abundance, flying by daylight. But no allusion is made to the previous capture by Capt. Parry in South Wales of the species recorded in the Trans. Ent. Soc., i, N.S., Proceed., p. 24, as *Amphimalla verna*, Meg. ?, and which, according to Mr. Hall, Mr. E. W. Janson has little or no doubt was *Rh. ochraceus*. Assuming this to be correct, the record of Mr. Weaver's captures is of interest, as showing that the habitat extends from North to South Wales; yet the absence of intimation about the particular place where, and the time of year when, the insects were taken is quite in accordance with Weaver's reticence on such matters. Like Mr. Hall, I am not aware of any recent captures, yet it may now be hoped that although the information is not precise, it may be enough to induce residents and tourists in Wales to be on the look-out for these beetles, and to adopt

> "the simple plan,
> That they must take who have the power,
> And they must keep who can;"

that is, keep the captives they may make for those to whom they are desiderata—in other words, all the present generation of collectors of British *Coleoptera*. The distinctive characters of *Rh. ochraceus* were pointed out in Mr. Newman's note, yet it may be useful and sufficient to state here that the species, although generally like the common *Rh. solstitialis* (Midsummer Chafer), is about one-fourth less, and, unlike it, flies by daylight.—J. W. Douglas, 8, Beaufort Gardens, Lewisham: *March* 2*nd*, 1885.

Note on Hypothenemus eruditus, Westw.—This very peculiar little insect, which occurred some fifty years ago in some numbers in the cover of an old book, is sup-

posed by many Entomologists to be peculiar to Britain, and to have only been found on this one occasion. M. Fauvel, however, in the "Revue d'Entomologie," iii, p. 315, proves the identity of the species with *Stephanoderes (Bostrichus) arecæ*, Hornung, from Guinea and Colombia, and also with *S. Boieldieui*, from New Caledonia; he considers, also, that *Bostrichus ruficollis*, Fabr., which is given in the last European catalogue as undoubtedly synonymous with *H. eruditus*, is certainly not identical with it. The European *Stephanoderes Ehlersii*, Eich. (*Homœocryphalus*, Lindemann), according to M. Fauvel, is a veritable *Hypothenemus*, and must therefore be united with *H. eruditus* as a second species of the genus.—W. W. Fowler, Lincoln: *March 10th*, 1885.

Boreus hyemalis, Linn., near Killin.—On the 23rd of October last, while searching a moss-covered wall in Glen Lochay, I took five specimens of an insect which at the time I could not identify; they were left in the test tube until the other day, when it occurred to me that I should again examine them, but through having been neglected for such a length of time, they were in a very mouldy condition. The specimens turned out to be three ♂ and two ♀ of the above species, agreeing perfectly with McLachlan's description in his Monograph of the British Neuroptera-Planipennia. I noticed that some of the specimens jumped upwards of an inch. My friend, Mr. W. R. Baxter, who was searching for spiders along the same wall, also called my attention to its saltatorial habits. No doubt I could have taken many more of the insect, had I recognised it at the time, as a number escaped by either jumping, or dropping into the grass at the foot of the wall.

In the January number of the "Scottish Naturalist," Professor Trail records having captured in the beginning of November two ♂ and one ♀ near Aberdeen; this is the only record of its occurrence in Scotland that I am aware of.—James J. King, 207, Sauchiehall Street, Glasgow: *March*, 1885.

P.S.—Since writing the above, I have learned that Mr. James Hardy has taken *Boreus hyemalis* in Berwickshire, as far back as 1849.—J. J. K.

Occurrence of Hydroptila longispina, McLach., in Scotland.—I have in my collection specimens of this species from Loch Goilhead, Fortingal, and Loch Awe; at the latter locality the species was taken in fair numbers during July of last year. In examining a long series, I find that the long spine-like processes vary to a considerable extent in the amount of exsertion, in some of the specimens approaching *H. femoralis*, but even in these extreme cases the two species could not be well confused.—Id.

Neuroptera-Planipennia in Worcestershire.—The following species have occurred to me here within a ten mile radius. *Panorpa communis*, common; *germanica*, rather common. *Coniopteryx aleyrodiformis*, not common; *tineiformis*, common; *psociformis*, local. *Chrysopa perla*, common; *phyllochroma*, not common; *ventralis*, rather common; *aspersa*, one specimen; *tenella*, one specimen, which was bred in June, from a spruce-fir cone collected on the Christmas day—the larva had, I presume, spun up under one of the bracts; *septempunctata*, very common, especially in gardens; *vulgaris*, not common; *flavifrons*, rather common; *alba*, common; *vittata*, not common; *flava*, not common: light strongly attracts most of these

insects. *Hemerobius nervosus*, one ♂, bred from an old gall of *Cynips Kollari*; *subnebulosus*, very common, frequenting gardens, and coming to light; *limbatus*, common; *humuli*, very common, especially in woods; *micans*, not common; *nitidulus*, not common; *pellucidus*, one specimen; *elegans*, not common. *Micromus paganus*, common; *aphidivorus*, five specimens; *variegatus*, rather common. *Sisyra terminalis*, not common; *fuscata*, rather common. *Raphidia xanthostigma*, one specimen. *Sialis fuliginosa*, rather common; *lutaria*, very common.

In *Chrysopa* the upper basal portion of the third cubital cellule is separated off from the rest of the cellule by a partition veinlet, and forms an elongate gemmiform cellule; in two specimens of *C. alba* this gemmiform cellule is reduced to about half its usual size, and ends at or about the insertion of the transverse veinlet above it. In one specimen of *C. phyllochroma* the third cubital cellule is divided nearly in half, thus rather simulating *Nothochrysa*. The reddish line on the side of the face in *C. flavifrons* is very unstable, being sometimes broken up into three elongate spots, at others into dust-like punctures below a small fuscous dot, and in one instance is replaced by a distinctly black roundish spot.—J. E. Fletcher, Worcester: *March*, 1885.

Entomological Society of London.—*March 4th*, 1885: R. McLachlan, Esq., F.R.S., President, in the Chair.

Messrs. R. W. Lloyd, of 32, Grafton Square, W. E. Poole, of 11, Chandos Street, A. Bliss, of Pendennis, Allenby Road, Forest Hill, and R. South, of Abbey Gardens, St. John's Wood, were elected Members.

The President alluded to the news of the decease of three Members since the last Meeting, viz.:—Major Parry, Mr. E. C. Rye, and the Rev. D. J. French.

Mr. Verrall exhibited prints and negatives of micro-photographic representations of the wings, and other parts, of native *Diptera*. He found an exposure of ten minutes by gas-light to answer more certainly, and with less chance of error, than a second or two by sunlight. The plan seemed admirably adapted for truthful reproduction of the neuration in transparent-winged insects. Mr. Meldola said the photographs could be utilized for scientific purposes by the photo-zincograph, and other analogous processes.

Mr. Billups exhibited *Ceraleptus lividus*, a rare British bug, from Chobham; it had previously only been recorded from Deal and Camber.

The Rev. W. W. Fowler exhibited the unique example of *Cerylon atratulus*, lent to him by Herr Reitter: also specimens of an exotic *Cassida* prepared by a taxidermist at Lincoln, in which the colours were well preserved. Dr. Sharp remarked that the late Mr. Rye used to bring out the colours of *Cassididæ* by forcing glycerine under the elytra; he was of opinion that the colour existed in the elytra, and not in the body, and was to a large extent due to the natural moisture, the colours disappearing when the insects became dry. Mr. Fowler exhibited one of R. and J. Beeks' opaque disc revolvers for the microscope, which they had mounted for him on a universal hinge, so that change of position in every conceivable direction could be effected without touching the insect when under examination. The President said it was the most perfect arrangement he had yet seen.

Mr. Kirby exhibited a remarkably fine variety of *Spilosoma lubricipeda* recently found alive in the Natural History Museum.

Mr. A. G. Butler communicated remarks on Mr. de Nicéville's ideas regarding seasonal dimorphism in certain butterflies brought before the previous meeting, and criticised the details seriatim, deprecating haste in drawing conclusions on such matters without sufficient experience. Mr. Weir fully agreed as to the necessity for patient experiment; he remarked that although the broods of *Pieris napi* were apparently constantly distinct in England, there was an idea that such was not the case in Ireland. Mr. Meldola also took part in the discussion.

Dr. Sharp called attention to a statement in the Compte-Rendu of the Belgian Entomological Society, Meeting of February 7th, 1885, in which the President (M. de Borre) alluded to the discovery of *Helops brevicollis*, Kryn., in Belgium. In the course of anatomical studies on *H. striatus* made at Louvaine it was found that the spermatozoa of certain individuals differed from those of others; examples were submitted to M. Allard, who at once detected *H. brevicollis* amongst what were at first supposed to be all *H. striatus*. The President feared that even in these days of minute investigation for specific characters, attempts to fix characters from the form of the spermatozoa would not often be practicable.

The Rev. W. W. Fowler read a paper on new forms of *Languriidæ*, in which many new generic divisions were established.

The Rev. T. A. Marshall communicated a monograph of the British *Braconidæ*, in which the Family was very critically examined. In remarking on the enormous increase in the number of known British species within a few years, he said it was mainly due to the extent to which he had been aided by British Lepidopterists, who instead of destroying and neglecting the parasites bred, as was formerly the case, now preserved them, and submitted them to specialists for study.

The President read a paper on the species of *Nemopteridæ* from Chili, collected by Mr. J. J. Walker, R.N., exhibited at the Meeting on October 1st, 1884. He proposed to term the insect *Stenotænia Walkeri*. General remarks on the Family were included, and a group of small delicate species, represented by *N. filipennis*, Westw., and allies, was considered of generic rank, and the term *Croce* was applied to it.

Obituary.

L. Rudolf Meyer-Dür died at Zürich on March 2nd, aged 73; for nearly two years previously he had been hopelessly paralysed. At the time of his death he was probably the oldest of Swiss entomologists (Perty died last year). For the greater part of his life he resided at Burgdorf. There are, or have been, few Swiss entomologists who have done more to elucidate the insect-fauna of their country, which is probably the most interesting and suggestive, and at the same time the most difficult for investigation, in Europe. His general knowledge was extensive; but his published works and papers more especially concerned *Hemiptera*, *Neuroptera*, and *Orthoptera*, and in all he made his mark. He was one of the founders of the Swiss Entomological Society, and in its "Mittheilungen" most of his papers were published. More than 20 years ago he made a voyage to Buenos Ayres for entomological purposes. In 1859 he accompanied the late Edouard Pictet on an important entomological excursion in Spain; he also collected in the south of France. With these exceptions all Meyer-Dür's entomological energies were devoted to Switzerland.

THE *NITIDULIDÆ* OF GREAT BRITAIN.

BY REV. W. W. FOWLER, M.A., F.L.S.

(*Continued from p.* 219).

2. Colour greenish or greenish-blue, sometimes purple, with strong metallic lustre.

a. Punctuation close, and comparatively weak.

M. æneus, Fabr.—Oblong or oblong-ovate, shining, greenish or greenish-bronze, with rather thick and fine greyish pubescence; antennæ and legs piceous, anterior tibiæ lighter, very finely serrated; punctuation rather close, with fine reticulation between punctures. Length, $\frac{3}{4}$—$1\frac{1}{4}$ lin.

var. cæruleus (*M. cæruleus*, Steph.).—Colour blue or purple, with elytra sometimes brownish; pubescence very scanty. Length, 1 lin.

Very common and generally distributed on different flowers; abundant on *Ranunculaceæ* in spring; the variety is rather rare, and is often regarded as a different species by collectors.

This species is very variable, and often gives rise to mistakes. M. Brisout says concerning it (Synopse du genre Meligethes, p. 10), "In the south of Europe, in Algeria, and in Syria it usually occurs with greyer and rather longer pubescence; the posterior angles of the thorax are, as a rule, right angles, but it is not uncommon to meet with examples in Algeria and in Spain which have these angles obtuse or even rounded." These remarks are worth quoting, as showing the difficulties that the genus presents, even in its leading characters, and as tending to prove that probably several of the generally received species may be with reason considered varieties or races of some other species.

The life history of this species, with figures of eggs, larvæ, &c., is given by Miss Ormerod in Vol. XI of this Magazine, pp. 46—52.

b. Punctuation more diffuse, and rather strong.

M. viridescens, Fabr.—Rather long, oval, shining, greenish-blue, sometimes entirely green, rarely blackish; legs red; antennæ red, with club darker; anterior tibiæ very finely serrated; punctuation rather strong, with fine reticulation between punctures, plainer on thorax than on elytra. Length, $\frac{4}{5}$—$1\frac{1}{3}$ lin.

Very common and generally distributed; usually found in company with the preceding, from which its rather longer and more oval shape, lighter legs, and stronger punctuation at once distinguish it.

ii. Anterior tibiæ very finely toothed from a little below base to beyond middle, with two or more conspicuously stronger teeth at or close to apex.

1. Upper surface without cross striation or reticulation between punctures.

A. Very shining, black, or with dark brown reflection; punctuation strong, especially on elytra.

a. Anterior margin of forehead emarginate.

α. Body long-oval; punctuation of elytra plainly stronger than that of thorax.

M. difficilis, Heer.—Deep black, shining, usually with a greenish reflection, of rather long-oval shape; antennæ reddish-brown, with first two joints lighter; anterior legs yellow or reddish-yellow, posterior pairs slightly darker, with outside margins of tibiæ usually dark brown, rounded; anterior tibiæ furnished at apex with three or four rather conspicuous sharp teeth; male with metasternum strongly depressed, with a tubercular prominence on each side of the depression about the middle; the female presents the same characters to a less degree.

Length, $\frac{3}{4}$—$1\frac{1}{4}$ lin.

Local, but by no means uncommon on *Labiatæ*, especially *Lamium album* and *Stachys sylvatica*. Manchester, Eastry and Bearsted (Kent), Amberley, Caterham, Esher, Horsell, Thames Ditton, Lincoln, Repton; Putney, on *Symphytum officinale*, Mr. Newbery.

M. Brisout (*l. c.*, p. 30) says that he possesses a male from Naples, which differs from the type in having the last segment of the abdomen thickened into a transverse smooth tubercle; this is interesting, as showing that the male characters may not always be quite constant.

var. Kunzei, Er.—Very like the type, but larger, with the anterior tibiæ less strongly toothed, the punctuation of the elytra more diffuse, and the first three joints of the antennæ lighter red, instead of two only: the colour is black, and never shows a trace of the greenish reflection which is so noticeable in *M. difficilis*; the pubescence, which is very scanty, is whitish instead of blackish, as in the type.

Length, $1\frac{1}{4}$ lin.

Rare; on *Lamium album*, *Stachys sylvatica*, *Agraphis nutans*, and *Melampyrum pratense*; according to M. Brisout it also occurs on *Mercurialis perennis*. Horsell, Eastry, Amberley, Mickleham, Caterham, Reigate, Llangollen, Repton.

Erichson, although with some doubt, considered this insect a separate species; Reitter and many others, however, hold it as a variety. Brisout makes it a good species, because of the male characters, the metasternum of the male being without the two tubercles, which are conspicuous in *M. difficilis*.

β. Body short-oval; punctuation of elytra not much stronger than that of thorax.

M. morosus, Er.—A very difficult species, concerning which there seems to be considerable doubt; it comes very close to *M. memnonius*, from which it is distinguished by having the anterior margin of the forehead emarginate, and the punctuation not quite so strong, and also by having the first and second joints of the antennæ reddish instead of the second only: this character, however, can by no means be depended upon, as is plain from Mr. G. R. Waterhouse's notes (Ent. Ann., 1874, 61), taken at the time he examined Erichson's collection at Berlin, "*Morosus* and *memnonius*

very much alike, and difficult to distinguish ; *morosus*, however, has rather a shorter form, and the antennæ are pale throughout, whilst in *memnonius* they are dusky at base and apex." As regards the emargination of the forehead, Reitter himself says it is slight in this species, and as *M. memnonius* has the anterior margin not always quite straight, a confusion might easily arise ; if they are distinct species, they are certainly very closely related. Brisout does not recognise *M. memnonius* at all, while Reitter places them in different divisions altogether. Length, 1 lin.

I have a specimen from Repton, and there are several in the late Mr. Rye's and Dr. Power's collections which appear to belong to this species, but it would seem advisable to include them under *memnonius*, or, *vice versâ*, to include our *memnonius* under *morosus*.

b. Anterior margin of forehead straight.

♂. Body short oval ; colour shining black.

aa. Punctuation not much stronger on elytra than on thorax.

M. memnonius, Er.—Very like the preceding species, and in all probability not distinct from it ; the second joint of the antennæ only is reddish, and the punctuation, according to Erichson, is more diffuse than in *M. morosus* ; it also resembles *M. ochropus*, from which it may be distinguished by its closer punctuation, smaller size, and darker antennæ and legs ; from *M. difficilis*, to smaller specimens of which it comes rather close, it may be separated by its closer punctuation and general shape. Length, $\frac{5}{6}$—$1\frac{1}{8}$ lin.

On *Caltha palustris*, also on *Labiatæ* ; Worthing, Repton, Bearstead ; London District, common ; on flowers of *Galeopsis unicolor*. Chat Moss, Mr. Chappell ; a widely distributed and not uncommon species.

Since writing the above, I have received from Herr Reitter a type labelled *M. niger*, Bris., *M. memnonius*, Reitter, *non* Erich., and in his letter he says, "I do not know *memnonius* ; the species which I have described is *niger*, Brisout." *M. niger* is very different from *M. memnonius*, Er., being more closely, though strongly, punctured, less shining, more pubescent, and with evidently longer thorax, which is about one-third broader than long ; the species described under *M. memnonius* in Herr Reitter's Monograph is the *M. memnonius* of Erichson, as we understand it, for he mentions the fact that it comes near to *M. ochropus*, and has the thorax almost double as broad as long ; the whole matter has yet to be cleared up, but the explanation seems to be that *M. memnonius*, Er., and *M. morosus*, Er., are not really distinct, and that *M. memnonius*, as it stands in some of the foreign collections, is really *M. niger*, Brisout, which name M. Brisout has altered to *M. parvulus*, as Newman described a species previously as *M. niger*.

bb. Punctuation much stronger on elytra than on thorax.

M. ochropus, Sturm.—Broad and short oval, convex, strongly and diffusely punctured; antennæ of a light reddish colour, first two joints yellow; legs as a rule yellow, occasionally darker; punctuation of elytra very diffuse and strong; male with a smooth shining tubercle on the last abdominal segment; anterior tibiæ with three or four sharp teeth at apex, which are not so strongly developed as in *M. difficilis*; the chief character of this species lies in the outer margin of the posterior tibiæ, which is not rounded, but dilated in almost a straight line until the lower third, where it is suddenly and obliquely contracted (*vide* Ent. Ann., 1873, 28).

Length, $\frac{3}{4}$—1 lin.

Rare; on *Labiatæ*; New Forest; Claygate Lane (Esher); Rusper, near Horsham, and Eastry, on *Stachys sylvatica*, Mr. Gorham; Caterham, Mr. Champion. This species was first recorded as British by Mr. Bold (Ent. Mo. Mag., iii, 47), but his specimen was *M. brunnicornis*; Mr. Crotch's *ochropus* was also *M. brunnicornis*, according to Mr. Rye; M. Brisout named it *morosus* (Ent. Mo. Mag., vi, 282).

a. Body long oval; shining, with dark brown reflection.

M. brunnicornis, Sturm.—About the size and shape of *M. difficilis*, but distinguished by its rather closer punctuation, lighter antennæ and legs, and the brown reflection of both thorax and elytra, the former of which has usually light margins; the anterior margin of the forehead is, for all practical purposes, straight, and is a very useful character by which to separate dark specimens of this species from immature *M. difficilis*, which has it evidently emarginate; it also resembles *M. ochropus*, but is narrower, flatter, and more finely punctured than that species, besides being differently coloured; the plain grey pubescence, also, which is especially noticeable in fresh specimens, is a good distinguishing character; the male has a small shining tubercle at the extremity of the last segment of the abdomen, which is wanting in *M. difficilis*. Length, $\frac{4}{5}$—$1\frac{1}{4}$ lin.

On *Labiatæ*, especially *Lamium album* and *Stachys sylvatica*; widely distributed; Dover, Eastry, Rusper, Mickleham, Lee, Claygate, Leith Hill, Caterham, Highgate, New Forest, &c.

B. Moderately shining, black; punctuation close and fine, almost the same on elytra as on thorax.

M. viduatus, Sturm.—Rather broad oval, with close punctuation, which gives the insect a rather dull appearance as compared with species belonging to the preceding division; pubescence blackish; antennæ dark brown, with the first two joints red; hinder pairs of legs dark brown, with the tibiæ somewhat obliquely cut off towards apex, front legs lighter; anterior tibiæ with two or three conspicuously stronger teeth at apex; thorax somewhat narrowed in front, with the side border slightly raised. Male with the last abdominal segment simple.

Length, 1—$1\frac{1}{4}$ line.

On *Labiatæ*, especially *Salvia pratensis*, *Galeopsis tetrahit*, and

Mentha aquatica, according to M. Brisout; local, and considered rare; Caterham, Wicken Fen, Mablethorpe; on *Galeopsis tetrahit* var. *versicolor*, Chat Moss, Mr. Chappell; it occurs commonly in Langworth Wood, near Lincoln, on *Ajuga reptans*, and by general sweeping, and also on strawberry flowers in my garden.

M. pedicularius, Sturm.—Very like the preceding, but less convex, of somewhat larger and blunter form, with finer punctuation; the thorax has somewhat more parallel sides, and the side border is very slightly raised; the hinder pair of legs have the tibiæ rounded on the outside, and not obliquely cut off as in *M. viduatus*, and the larger teeth at the apex of the anterior tibiæ are weaker. The male has a large smooth tubercle at the extremity of the last abdominal segment, behind which there is an inclined, smooth, shining space. Length, 1—1⅛ lin.

Local; said to be not so common as the preceding. On *Labiatæ*, especially *Lamium album* and *Salvia pratensis*; Caterham, Mickleham, Darenth, Wicken Fen, New Forest; it occurs to me commonly on the same plants and in the same localities in and near Lincoln as *M. viduatus*.

These two species are perhaps the most puzzling of the whole genus; the differences given by Erichson, Sturm, Reitter and Brisout are mostly mentioned in the above descriptions, but they are by no means satisfactory, for, as a matter of fact, they are very slight in themselves, and individual specimens of the species appear to differ *inter se* as regards punctuation, denticulation of anterior tibiæ, shape, &c.; the only distinction that really holds good lies in the characters of the male, the tubercle on the last abdominal segment being very plain in *M. pedicularius*, and wanting in *M. viduatus*; M. Brisout has kindly written to me on the subject, and says that *M. viduatus* is quite distinct by the finer punctuation and the absence of this tubercle, the latter character being always constant; he has also named specimens for me taken together under precisely the same circumstances near Lincoln, part of these being the one species and part the other. When, however, species so very closely related are found mixed together in this way, it is rather a temptation to consider them as races of one species, especially as the male character in some species is not always quite constant; in a long series of the two species the punctuation appears to vary from being nearly as coarse as in *M. memnonius* to very fine, with intermediate grades. I find the males of *M. pedicularius* rather rare, and cannot separate the females of the two species satisfactorily, owing to the occurrence of these intermediate forms as regards punctuation.

Since writing the above I have heard from Herr Reitter, who says, "*M. pedicularius* and *viduatus* are hardly different." I am glad to have my opinion borne out by so high an authority, although there is certainly cause for a difference of opinion on the subject.

2. Upper surface with cross striation or reticulation between punctures; black, as a rule rather dull.

A. Cross striation on elytra only; anterior tibiæ with two stronger teeth at apex, not separated by smaller teeth.

M. bidens, Bris.—Rather like *M. pedicularius*, but smaller; narrower than that species, less convex, less shining, and more finely punctured; antennæ brownish, with the first two joints red; legs dark brown, with the anterior tibiæ ferruginous; elytra with weak cross striation, which is more evident at the base; thorax nearly double as broad as long, with the sides nearly parallel. This species is very easily distinguished by the two conspicuous teeth at the extreme apex of the anterior tibiæ, which are widened towards apex. The male has the anterior tarsi rather strongly dilated, and the metasternum with a rather wide and deep impression.

Length, $\frac{5}{6}$—1 lin.

Local; Mickleham, on *Teucrium scorodonia*; Littlington, Birch Wood, Bearstead, Caterham, Chatham, Amberley; *Scabiosa succisa*, Kingsdown, Mr. Newbery; it occurs near Paris on *Trifolium medium*, according to M. Brisout.

B. Cross striation or reticulation on the whole of the upper side.

a. Thorax at base wider than elytra; anterior tibiæ with two to five stronger teeth at apex, of which two or three are usually larger than the rest; none, however, are very conspicuous, and they are very often almost obsolete.

M. umbrosus, Sturm.—One of our largest species, in size equalling average specimens of *M. lumbaris*; short and broad, convex, with very thick and fine punctuation, which gives it a dull appearance; pubescence close, usually grey, sometimes blackish: anterior tibiæ with several more prominent teeth towards apex; these, however, are not conspicuous, as in some of the allied species, and sometimes are very weak and almost obliterated. The male has a small prominence on the metasternum between the posterior coxæ, and a little transverse keel at the extremity of the last abdominal segment; this character, however, is very variable in different specimens; it also has the anterior tarsi strongly dilated. Length, $1\frac{1}{8}$—$1\frac{1}{4}$ lin.

Not common; on *Genistæ*, wild *Cistus*, and *Helianthemum vulgare*; London district, very local, Dr. Power; Rusper, Bearsted, Darenth, Seven Oaks, Caterham, Chatham, New Forest, Shiere, &c.

(*M. maurus*, Sturm, which is wrongly considered a British species—all its supposed exponents being *M. ovatus*, Sturm—comes very close to *M. umbrosus*, in fact it is very hard to distinguish them, as in punctuation, armature of anterior tibiæ, &c., they are exceedingly alike; *M. maurus*, however, is rather larger than *M. um-*

brosus, with very slightly stronger punctuation and weaker pubescence, and with the posterior margin of the thorax not broader than the base of elytra; the thorax is narrower, with its sides more parallel; the teeth of the anterior tibiæ are rather stronger; the metasternum is impressed, and has two small tubercles on the front edge of the impression, and the last segment of the abdomen is furnished with a small smooth tubercle. Length, 1¼ lin.

Common in France on *Salvia* and *Mentha*.)

b. Thorax at base at most as wide as elytra; anterior tibiæ with three or four conspicuously larger teeth at apex, the last but one being usually the largest.

α. Punctuation closer and weaker; upper surface dull.

M. incanus, Sturm.—About the size of *M. umbrosus*, of exactly oval outline (the shape is well figured by Sturm, Deutschlands Insecten., xvi, plate cccix, F), thickly and very finely punctured, with fine cross striation between punctures, and clothed with fine greyish-brown pubescence; antennæ black or brownish, with the first two joints lighter; anterior tibiæ dilated towards apex, with three or four rather strong irregular teeth near apex, of which the last but one is usually the most prominent. Length, 1¼ lin.

This species comes near *M. ovatus*, but is more closely punctured, and comparatively dull; a single specimen only is known as British, which was taken by Mr. G. R. Waterhouse, in Darenth Wood, in July, 1859, on *Echium vulgare*: this specimen Mr. C. O. Waterhouse has kindly sent me for examination; it is a small example of the species, but otherwise agrees exactly with the description of *M. incanus*, and with a type sent me by Herr Reitter; it is quite distinct from all our other species. M. Brisout has taken this insect on *Solanum dulcamara* and *Nepeta cataria*.

β. Punctuation stronger; upper surface shining.

M. ovatus, Sturm.—Black, shining, oval, convex; something like *M. viduatus*, but more ovate, with the thorax more narrowed behind; antennæ black, with the first three joints red; punctuation much stronger than in either of the three preceding species; anterior tibiæ strongly dilated with three or four large teeth at apex, which are very variable. Male with a strong tubercle at the extremity of the last segment of the abdomen, and with the anterior tarsi conspicuously dilated. According to M. Brisout, this species may easily be distinguished from its allies by the form of the extremity of the elytra, the posterior margin of each being slightly sinuate, with the sutural angle a little prolonged and rounded.

On *Labiatæ*; not uncommon, but local; Ditchingham, Mickleham, Esher, West Wickham, Horsell, Nettlecomb (Somerset), Lee (North Devon); Chat Moss, flowers of *Galeopsis*; Eastry, Seven Oaks, Caterham, Cobham (Kent), Chatham, St. Mary Cray.

iii. Anterior tibiæ without conspicuously stronger teeth at apex; as a rule, evenly and finely, although distinctly, toothed for the greater part of their length, but often presenting irregularities, particularly as regards breadth of teeth.

A. Thorax entirely smooth between punctures; elytra with interstices smooth, or at most showing very faint traces of cross striation; forehead with anterior margin straight.

a. Anterior tarsi of male strongly dilated; thorax only a quarter broader than long, at least as broad as elytra.

M. flavipes, Sturm.—This insect is associated by Sturm with *M. pedicularius* and *M. ovatus*, but is very different from either; Reitter compares it as regards contour with *M. coracinus*, but it is less ovate than that insect; it is black, rather shining, more or less oblong, somewhat thickly and finely punctured, with grey pubescence; antennæ yellow or yellow-red, legs brownish-yellow, anterior pair lighter; anterior tibiæ armed with fine teeth, becoming gradually larger towards apex, rather variable in different specimens; in fact, these teeth are so much stronger in some specimens, that this species might perhaps with more reason be referred to the preceding groups; on the whole, however, it is best placed here; the anterior tarsi of the male are strongly dilated. Length, $\frac{3}{4}$—1 lin.

On *Ballota nigra*, *Melilotum*, and *Cirsium lanceolatum*; local, but not uncommon; Shiere, Horsell, Darenth; on broom near Lancaster; on *Umbelliferæ* generally, Kent; Hammersmith, Deal, Whitstable, Eastbourne, &c.

b. Anterior tarsi of male not or very slightly dilated; thorax twice as broad as long, narrower than the base of the elytra.

M. picipes, Sturm.—Short oval, rather convex, black, with a leaden reflection, clothed with thick grey pubescence, rather deeply and thickly punctured; antennæ yellow-brown, with the first joints lighter; legs reddish, the anterior pair lighter; anterior tibiæ finely but rather unevenly and irregularly toothed, the teeth being in some specimens fine and sharp, in others broader and blunter, the right and left tibiæ being occasionally different, and showing both these characteristics in the same insect; both sexes have a small excavation at the extremity of the last abdominal segment. Length, $\frac{5}{8}$—1 lin.

Common and generally distributed; abundant on all kinds of flowers and blossom; apparently one of the first beetles to appear in the year, and the last to disappear.

(*To be continued.*)

Additions to the Trichoptera of the Worcester district.—Notwithstanding the little collecting I did last year, I, almost accidentally, added two species to my local list of *Trichoptera*, viz., *Œcetis testacea* and *Œ. notata*—one ♂ of each, the former on the Teme, the latter on the Severn. The number of local species now stands at 73.—J. E. Fletcher, Worcester: *March 9th*, 1885.

DESCRIPTIONS OF SOME NEW SPECIES OF *LEPIDOPTERA* FROM ALGERIA.

BY GEORGE T. BAKER.

(*Concluded from page* 245.)

Eurycreon Pechi, *n. sp.*

Alæ anticæ brunneo-olivaceæ; strigis tribus albidis sed non ad costam attingentibus, cum striga centrali acute angulata, et cum striga postica dentata; strigis duabus albidis ante marginem posticum. Alæ posticæ argenteo-cinereæ, striga olivaceo-cinerea ante marginem. Cilia albida olivaceo tesselata.

The anterior-wings are greyish olive-brown. A short white line runs from the base of the wing into an interrupted oblique transverse line very near the base, which (transverse line) extends from the inner margin nearly up to the costa. Just in front of the middle of the wing a very acutely angulated, well-defined, white stripe runs nearly parallel with the first line, and also stops in front of the anterior margin, near which the angulation occurs, this stripe is even more oblique than its predecessor. The white sub-marginal curved line is frequently toothed, and in one specimen rather interrupted; this again does not extend up to the costa, and converges towards the base, as do the other two lines. Directly beneath the apex is a white spot, which is the source of a very fine white line extending to the inner margin. The dark hind margin is bordered interiorly by a white stripe, the anal angle half of which re-ascends, forming a short double line.

The fringes are grey, with a divisional line, finely intersected with white.

The posterior-wings are grey, with the veins darkly dusted, and a broad darker margin, which has a pale line on its inner edge, and is slightly spotted on its outer edge.

The hind-margin is bordered by a fine dark line. The fringes are whitish, with a dark dividing line, finely intersected with white.

Thorax white, with scapulæ and central line same colour as the fore-wings, collar and antennæ also same colour as fore-wings. Abdomen silvery-grey.

I have 2 ♂ specimens of this fine *Eurycreon*, which was taken rather rarely at Lambessa in April. Measurement, 30—31 mm.

Conchylis unicolor, *n. sp.*

Alæ anticæ pallidæ flavo-ochraceæ unicolores. Alæ posticæ cinereæ.

Anterior-wings pale straw colour, without any markings, and with fringes of the same hue. Hind-wings grey with paler fringes, which have a dark dividing line. Head and antennæ straw colour. Abdomen dark grey, with the anal extremity of a golden hue.

On the under-side, the anterior-wings are dark lustrous brownish-grey, and the posterior-wings are rather paler than the upper-side.

Under a good lens, the basal half of the costa is seen to be minutely and darkly dotted.

Only one specimen of this insect was taken at Lambessa in April, which measures 16½ mm., and is in my cabinet.

Tinea mauritanica, *n. sp.*

Alæ anticæ ferrugineæ nitidæ unicolores. Alæ posticæ fusco-cinereæ. Corpus sat robustum, caput ferrugineum.

The anterior-wings are uniform ochreous rust colour, without any markings, and slightly lustrous, with fringes of the same hue. The hind-wings are dark grey with rather paler fringes.

Head and thorax same colour as anterior-wings; abdomen as posterior-wings. The under-side of both anterior- and posterior-wings is dark lustrous brown.

In one specimen the colour is much darker than in the other, the fore-wings being almost of a dark brownish-red hue, with browner posterior-wings.

This species, which comes very near to *chrysopterella*, was taken rarely at Guelma in June, and measures from 12 to nearly 14 mm. Two ♂ are now in my collection.

There should be no difficulty in separating this species from *chrysopterella*, as its colour is uniform dull red, while the latter is of an almost orange hue, some specimens being of a bright orange. It is also a smaller insect than *chrysopterella*, and the fringes of all the wings are much shorter. Yet, it is just possible, it may be only a dark form of *chrysopterella*.

Pleurota ochreostrigella, *n. sp.*

Alæ anticæ aureo-ochraceæ, vitta fusca prope costam obscuriore. Alæ posticæ fusco-cinereæ. Palpi capite et thorace longiores.

Anterior-wings uniform pale golden-ochre, with the longitudinal stripe near the costa of a darker brown, and fairly distinct. The fringes are also of an ochre colour. The apex is very acuminate, almost sinuate. Posterior-wings dark grey with paler fringes.

Head and thorax pale ochre colour. Palpi ochre coloured, irrorated beneath and outside with black, the end joint being very nearly as long as the head, and their total length being rather longer than the head and thorax. Abdomen darkish grey.

The ♀ is rather paler in colour, with a more distinct stripe, and much lighter hind-wings. ♂ measures 21 mm.; ♀, 23 mm.

This species, which will precede *metricella*, was taken at Guelma in June; a ♂ and ♀ being in my collection.

From *metricella* it may be distinguished by its deeper and more golden colour, the former insect being much paler, and with a very slight bronzy hue. In *metricella* also the costa is much paler than the rest of the wing, which is not the case with our species. The palpi are also decidedly longer in the present insect than in *metricella*.

Pleurota algeriella, *n. sp.*

Alæ anticæ flavo-ochraceæ, vittis duabus, costali et centrali, argenteo-albidis, vitta media dentata, cum margine interiore pallidiore. Alæ posticæ cinereæ. Palpi, capite et thorace longiores.

The colour of the anterior-wings varies from chestnut-brown to very pale yellowish-ochre, the inner margin being always paler than the rest of the wing. The longitudinal costal and central stripes are silvery-white, the latter being very broad up to beyond the middle, where it is toothed, and is continued right up to hind margin. The fringes are rather lighter than the ground colour.

The posterior-wings in the darker specimens are darkish grey, but are quite pale in the lighter one.

Head whitish, thorax pale yellow. Palpi white, thickly dusted with dark brown beneath and outside, end joint as long as the head, total length rather longer than the head and thorax. Abdomen in fresh specimens silvery. Apex of anterior-wings very acuminate.

This fine *Pleurota*, which will precede *aristella*, was taken at Guelma in June; 1 ♂, measuring 25½ mm, and 2 ♀, measuring 24 mm., being in my collection.

From *Schlægeriella*, which it follows, it may be distinguished by its larger size, its yellower and generally much paler colour, its broader and silvery-white costal stripe, and by its very broad, silvery-white, and distinctly toothed median stripe. The head and palpi, which in *Schlægeriella* are grey, the latter being densely irrorated with black, are in the present species white, with the dustings of the palpi much less dense. The thorax and abdomen are whitish in the present insect, but are brown in *Schlægeriella*.

From *aristella* it may be at once recognised by its much larger size, being nearly half as large again. It is also of a yellower and paler colour, the median stripe is also broader and toothed, and the head and palpi are whiter in *algeriella* than in *aristella*.

From *macrosella*, which it most nearly approaches in size and general appearance, our species may be recognised by its colour being brighter and redder, also by its costal stripe being silvery, whereas in *macrosella* the costal stripe is very pale ochre colour, and quite lustreless.

In *algeriella* the central stripe is very broad and silvery up to rather beyond the middle, where it is distinctly toothed, and from whence it becomes narrower up to the hind margin, whilst in *macrosella* this stripe is of almost uniform width, and much less silvery. The palpi, head, and thorax are white in *algeriella*, but pale ochre in *macrosella*.

Also in *macrosella*, the females have the anterior-wings almost falcate, but in our present species this important feature is wanting.

The Bracken, Augustus Road,
Edgbaston: *April 7th*, 1885.

INSECTS IN ARCTIC REGIONS.

[Extracted from "Das Insektenleben in arktischen Ländern, von Christopher Aurivillius," forming part of Nordenskiold's "Studien und Forschungen veranlasst durch meine Reisen im hohen Norden:" Leipzig, 1885.]

A special interest attaches to the question of the mode of life in insects in relation to their surroundings in high Northern latitudes. Knowing, as we do, that the time available for the development of an insect in the extreme North is limited to from 4 to 6 weeks in the year, one has felt surprised how it could be possible for certain species to run through all their transformations in so short a time.

R. McLachlan, in his paper on the insects of Grinnell Land (Journ. Linn. Soc., Zoology, vol. xiv), refers to the difficulties which the shortness of the summer interposes to the development of insects, and intimates his suspicion that a development which would with us take place in a single summer would there require several summers.

The correctness of this suspicion has been completely established by the interesting observations on species of *Lepidoptera* in South Waranger, in latitude 69° 40′, made by G. Sandberg. He was successful in watching the development of some extreme Northern species from the egg.

Let us take as an example *Œneis Bore*, Schn., a true hyperborean butterfly, which has never been found outside the Arctic circle, and even there only occurs in places which bear a truly Arctic stamp.

The imago flies from the middle of June onwards, and lays its eggs on various species of grass. The eggs are hatched the same summer; the larva hibernates below the surface of the earth, feeds and grows all through the following summer, but does not succeed in attaining its full size; it then hibernates a second time, and does not assume the pupa state till the spring of the following year.

The pupa, which in the allied forms in more southern localities is freely suspended in the air to a grass-stem or some similar object, here reposes in the earth, which in so inclement a climate must evidently be a great advantage.

The butterfly escapes from the pupa-skin after an interval of from 5—6 weeks, a period of unusual length for a diurnal Lepidopteron. In more southern lands the pupal repose of butterflies in summer rarely exceeds a fortnight. Hence, the entire metamorphosis is more tedious than in more temperate regions.

By these and other observations, Sandberg shows that one Arctic

summer, in latitude 70°, does not suffice for the development of many *Lepidoptera*, but that two or more summers are required for the purpose.

If, therefore, more than one summer is needful for the development of *Lepidoptera*, it appears to me even more certain that Humble-bees must require more than one summer. With us it is only the fully developed females which survive from one year to the next; in spring they form the new nest, lay eggs, and bring up the larvæ which develop into workers, and thus begin to contribute to the support of the family, whence at last towards autumn males and females are developed. It seems hardly credible that all this can happen each summer in a similar way at Grinnell Land, in latitude 82°, especially as there the supply of food must be less than with us. Hence, the development of a colony of Humble-bees must there be something quite different.

Were it not satisfactorily established that Humble-bees do occur in such high latitudes, one might, from our knowledge of their mode of life, be disposed to maintain that under such conditions they could not live.

They seem, however, to have one advantage over their more Southern brethren. In the Arctic regions they do not seem to be troubled with parasites, such as *Conops*, *Mutilla*, which help to diminish their numbers in other countries.

Entomology and Medical Jurisprudence.—Our correspondent, M. Lichtenstein, sends us a paper under the title "Un nouveau cas d'application de l'Entomologie à la Médicine légale," extracted from the "Montpellier Médical" for February, 1885, from which we make the following notes:—

When pulling down an old house at Montpellier, the workmen discovered the mummified remains of a new-born infant concealed under the flooring. An enquiry was held on the remains, which (owing to their condition) mainly resolved itself into a question as to how long a period had elapsed since they were deposited. As insect remains were present, M. Lichtenstein was asked to report as an "expert." He found in the linen in which the body was wrapped numerous empty pupæ of *Diptera*, numerous "runs" of Lepidopterous larvæ, which he considered the work of *Aglossa pinguinalis*, and remains of *Anthrenus*. On the body itself were *débris* of *Ptinus* and the cast skins of *Acari*. But nothing whatever in a living state. In taking into consideration the nature of the insect remains (*Ptinus*, *Anthrenus*, and *Aglossa*, in which latter case reference is made to the late Mr. Buckler's paper in the No. of this Magazine for February, 1884), M. Lichtenstein arrived at the conclusions that four or more years must have elapsed since the body was deposited where it was found, and (from the Dipterous pupæ) that it must have previously been exposed to the air for some time.—Eds.

Notes on Lepidoptera.—The following notes refer to some very common species of *Lepidoptera*, but touch on certain points in their development, which seemed to me worth recording.

Dichonia (*Agriopis*) *aprilina.*—The egg is laid in the autumn, but I cannot describe its appearance at first; early in February I described it as follows: egg of the usual *Noctua* shape, but flattened, being about ·85 mm. in transverse measurement, and only ·5 mm. vertically: it has fourteen or fifteen rather blunt ribs, which extend from the waist to the apex, and which appear somewhat bossed by the crossing of the transverse reticulation; the colouring is very pretty, the ribs being white, and the intermediate spaces black, as is also the central spot on the top; this arrangement makes one think of the licheny look both of the full-grown larva, and also of the imago.

The newly-hatched larva which, with me, appeared during the last week in March, is rather over 2 mm. in length, stoutish, with large jet-black shining head, collar also shining black, the body smooth, in colour dingy drab, with a paler spiracular line, the usual dots inconspicuous, each having a short dark bristle. On supplying my larvæ with unopened oak-buds, I found they soon bored their way into them, eating out the interior, and lodging in the chamber thus made; they presently grew fat, and looked like comfortable *Tortrix* larvæ.

By the middle of April they had moulted, but had not changed their dress very much; a larva of the length of 7 mm. I described as follows: head, collar, and anal plate black; the skin very glossy, in colour pale brown, with an indistinct paler mottling; the usual dots paler, and very small; the spiracles black.

At the end of April, however, another moult produced a decided change; the length now 9 mm., the head black, the body whitish, with a pattern of eight broad dorsal diamonds in black freckles, darkest on the sides, with some dull orange freckles mixed; the dorsal line white, but broken into short streaks; the usual spots small and black; the spiracles black; the larva now appears to feed without concealment on the opening buds; and from this time the adult pattern and colouring become more developed.

As I noticed above, it is interesting to observe that there are three periods in the life-history of this species, at which it exhibits mimicry of lichens, the egg (at least, some time after deposition), the maturing larva, and the imago; while it is not less interesting to mark the great change in habit and appearance exhibited by the growing larva.

Dryobota (*Hadena*) *protea.*—Egg laid in autumn, described in month of February; of depressed *Noctua* form, ·65 mm. in transverse measurement, and ·45 mm. vertically; there are sixteen ribs, of which eight are stout, and come to the central button on the top, and the other eight stop short in the intermediate spaces; the transverse reticulation shallow and fine, and knobbing the ribs in its passage; the ground-colour of the shell is dull brown, on which the glistening white ribs show out distinctly, giving a very pretty effect.

The newly-hatched larva (March 15th, 1884), is about 1·5 mm. in length, with large black shining head, from which the body tapers to the tail, the colour a faint violet-tinged grey all over, the usual dots inconspicuous; the larva makes its way into an oak-bud, and lives and feeds within: in three weeks' time the colour has become brownish, the head and collar still black, the figure slender; after a moult

(? second), when the length is about 6 mm., the head and collar still black, the general colour paler brown than before, with paler indistinct dorsal and sub-dorsal lines, the dots small and black; the larva still living inside oak-buds: afterwards the ground-colour becomes darker brown, the head still black, the dorsal and sub-dorsal lines narrow, and yellow in colour, the spiracular line broader, and of paler yellow, the dots black, the spiracles ringed with black: in May, when the oak-buds are now opening, the larva makes a cave for itself by spinning together the small leaves with a good deal of silk, the length now 16 mm., the head dull brown, contrasting with the greenish second segment, and the collar edged in front with yellow, the general colour of the body ochreous, showing warmer at the folds, mottled with dull greenish, the dorsal line primrose, the sub-dorsal and spiracular threads both yellow; spiracles green, ringed with black, the dots still black. With the last moult the larva becomes all over green, freckled with yellow, the dorsal line of primrose remains distinct, the sub-dorsal thread is gone, the dots also not to be seen, though the place of each is marked by a very small fine hair: the larva now feeds openly, and ceases to make any shelter for itself by drawing together the oak-leaves.

Diloba cæruleocephala.—The egg laid in autumn, large for size of the moth, of depressed *Noctua* form, about ·85 mm. transversely, and ·5 mm. vertically, the whole shell rugose, with fifteen or sixteen coarse ribs, in centre of top a small circular space thimble-pitted; the shell sparsely set with some long (·65 mm.), curled and tangled flat hairs, broad (more than 0·5 mm.) at their bases and tapering upwards; in colour the upper part of the shell dark bronzy-brown, the under-part pale leaden-grey, the hairs white.

The young larva (hatched in beginning of March) not quite 3 mm. in length, the head shining jet-black, the collar large and black, the ground-colour dull greenish, the usual spots prominent, and shining black, each emitting a long, rather waved, black bristle, but also set with a number of tiny short black bristles, as, indeed, is the whole skin, and the number of these bristles makes the little larva look black; but in three or four days' time, when it has grown, the bristles stand more apart, and the ground colour is less hidden, and there appear on the back and sides large pale yellow spots, so that before its first moult the larva has assumed very much of the appearance which it wears when full-grown, in this showing a very different habit from that of the two species described above.

Agrotis (*Triphæna*) *pronuba*.—Few years pass without my having the eggs of this species before me, either through a find of my own, or else through some one sending me a batch to name; the moth, of course, has an extended flight, and it is not at all particular as to the nidus to which it entrusts its eggs; a tall grass stem in the middle of a meadow, a reed blade by the water, an elm-leaf five feet from the ground, a bay-leaf close to the ground, a dry stick lying on the ground—these are a few of the positions I have known chosen, and they, to some extent, account for the puzzle as to the species to which the eggs should be credited; but, subject to the variation necessarily caused by the difference of position, the plan of their deposition is always the same; they are laid in large numbers, amounting to many hundreds (in one instance I counted twelve hundred), evenly in rank and file, very close but flat and never over-lapping one another; and as they are small in individual bulk, a surface of half-an-inch square will accommodate a great many.

The egg is of the usual *Noctua* form, neat and plump in outline, but rather

depressed, measuring about ·55 mm. transversely, and about ·35 mm. vertically; the under-side quite smooth and shiny, the upper-side with about forty very shallow fine ribs, with irregular intermediate reticulation; about half the ribs come up to the central rosette, which measures about ·15 mm. across, and is composed of twelve or thirteen petals round a tiny ring, which, under a strong lens, is seen to be a smaller rosette also; the colour at first is creamy-white, afterwards changing to pale greyish.

The mature pale greenish larva, with the lateral rows of black streaks, as one finds it hiding in the earth at the end of autumn, is a very uninteresting patternless creature; but, by rearing them from the egg, I have had larvæ which, until this last dress, were quite handsome, coloured with rich brown on the back, and with strong pink along the sides.—J. Hellins, Exeter: *February 12th*, 1885.

Notes on Eudorea portlandica, Dale, and E. phæoleuca, Zell.—The probable identity of these two insects was, I believe, first suggested by Curtis in 1850 in the "Annals and Magazine of Natural History," Ser. 2, vol. v, p. 115, and the idea having been thus started, I am not aware that it has ever been seriously questioned. It seems, however, highly probable that there is really no connection between the two insects.

Mr. Eustace R. Bankes, who resides at Corfe Castle Rectory, has lately been so good as to send me a series of *Eudorea portlandica*, with the suggestion that it is not really distinct from *frequentella*, being merely an unusually white local form, peculiar to the Isle of Portland.

Mr. Bankes assures me "that there is every variety, from the light form down to the very dark form, which is apparently indistinguishable from an ordinary *frequentella*; the variation is so gradual and the one species appears to pass so imperceptibly into the other, that in a long series it seems to me impossible to say where the one ends and the other begins."

Mr. Bankes adds that "my friend, the Rev. C. R. Digby, has suggested that the Portland *phæoleuca* may not prove identical with the Continental species of that name, from the difference in the direction of the second line."

The *Eudorea phæoleuca* described by Zeller in the 1st volume of the "Linnæa Entomologica," p. 306, fig. 13, was described from two specimens captured by Herr Kindermann in the Banat (an eastern province of Hungary), and the most essential character given for it is the approximation of the second line to the first on the inner margin, where they are *not half as far apart* as they are on the costa.

This is a character which we certainly do not find in our Isle of Portland insect; the whiteness of the basal portion of the wing, which seems common to both, having probably been the innocent cause of the conjecture that the two insects were the same. Herrich-Schäffer, in his "Schmetterlinge von Europa," iv, p. 49, makes no mention of any other specimens than the two which Zeller had seen from the Banat.

Heinemann had probably seen other specimens, as he says "Alps to Vienna," but he says that it is difficult to distinguish *phæoleuca* from *murana*, and that the form of the wing varies, so that one feels very doubtful whether all that he called *phæoleuca* were really identical with the species described by Zeller under that name.

For the present, therefore, *Eudorea phæoleuca* disappears from our lists, and Dale's *portlandica* is henceforth only a local form of *frequentella*.—H. T. Stainton, Mountsfield, Lewisham: *April 4th*, 1885.

Phlœodes immundana bred from birch and alder catkins.—I have bred two of this species, one from a larva feeding in birch catkins, and the other from a larva in alder catkins. I hasten to make this statement, as unfortunately it is a correction of what was published in the February number (p. 203), inasmuch, as the description there given as the larva of *A. Brockeella* proves instead to apply to that of *Phlœodes immundana*, and therefore to this species. It will be seen at the early part of the announcement that in February, 1884, I obtained larvæ in catkins of birch, from which I bred *A. Brockeella*, but these larvæ pupated before I had an opportunity of describing them. Last November I obtained larvæ which I considered to be the same, and from which the description was written. I may add that the two insects which emerged to-day spun up one about the 17th of November, and the other about the 26th. I have other pupæ not out yet, which changed as early as 10th November, and others not until the end of January.

Since writing the above five more have emerged, two of them devoid of the white blotch. In all the cases the pupa worked itself out of the cocoon some hours before the moth emerged. There are two rows of minute bristles half round each segment (on the back), and pointing backwards. The tail also is studded with fine points. These enable the pupa to work its way out of the cocoon.—A. Balding, Wisbech: *April 17th*, 1885.

Tapinoma gracilescens, Nyl., at Lincoln.—In a cottage in the centre of Lincoln, a short while ago, I noticed a large number of ants belonging to a species that was unknown to me running upon the walls near the fireplace, and over the floor. Mr. E. Saunders tells me that it is *Tapinoma gracilescens*, which has been found at Kew in hothouses, at Exeter, the Crystal Palace, and in the City, but is not really indigenous; they have, however, for a great number of years past thoroughly established themselves in this cottage, for the old woman who inhabits it has never been able to get rid of the plague. She tells me that an old vine used to stand near the cottage or on its site, and considers this to have been the cause of the invasion.—W. W. Fowler, Lincoln: *March 10th*, 1885.

Note on Clinocoris griseus and interstinctus.—In the "Wiener ent. Zeitung" for March, is a notice of an article by Dr. O. M. Reuter on the synonyms of some *Hemiptera* published in No. 5 of the "Revue mensuelle d'Entomologie," par W. Dokhtouroff, at St. Petersburg. Among these it is stated that *Clinocoris griseus*, L., and *Cl. interstinctus*, L., are not, as has long been believed, one and the same, but really distinct species; the synonymy being given thus:—

Clinocoris griseus, L.
Acanthosoma griseum, var., Flor.
Elasmostethus Fieberi, Jakowl.

Clinocoris interstinctus, L.
Cimex betulæ, De Geer.
C. alni, Ström.
C. agathinus, Fab.
Acanthosoma griseum, Flor.
Elasmostethus griseus, Fieb.

This notice has a special interest for us, as the *Clinocoris* known to us in Britain as *Cl. griseus* is one of the commonest, inhabiting birch trees throughout the summer and autumn, and it may well be that we have also *Cl. interstinctus* mixed with it in collections.

In the "Fauna Suecica," Linné described both species consecutively; No. 926, *Cimex griseus*, No. 927, *C. interstinctus*. The characteristics to be specially noted are—of the former species; "griseous, above sprinkled with deep punctures; scutellum more fuscous towards the base; wings *clouded with fuscous*, dorsum beneath the wings *black*, the margins of the abdomen with white indentations:" of the latter species; "Size, aspect and colour agree with the preceding, except that the hue is paler; scutellum at base and exteriorly more fuscous; wings *white, diaphanous*; dorsum *red* (wherein it evidently differs from the preceding), towards the base a large black spot, posteriorly, especially at the sides of the abdomen, with black transverse lines." The slight differences on which Linné founded his two species have probably induced many subsequent authors to regard them as sexual or only colour-variations of one species occurring during the active stages of life, which, in two broods, extend over several months. Flor, who unites the two species, and was an acute observer, gives no hint of any structural difference. Not having before me Dr. Reuter's article, I cannot say if he has detected any such difference, nor do I know how he has arrived at his conclusion of the reality of Linné's two species; I do not, however, in the least mean to impugn the correctness of his determination. —J. W. Douglas, 8, Beaufort Gardens, Lewisham: *April 18th*, 1885.

Ceraleptus lividus, Stein, &c., at Chobham.—On the 23rd of February last, while searching along the railway bank in the above locality, in the hopes of meeting with some of the Hymenopterous egg-parasites, I came across a solitary root of meadow fescue grass (*F. pratensis*), which I at once cut and transferred to a sheet of paper; the result being not only the capture of several good species of *Coleoptera*, but what was to me more pleasing, that out tumbled no less than eight specimens of *Ceraleptus lividus*, Stein. This rare Hemipteron has not, I believe, before been met with so far inland in this country, and, in fact, has been looked upon as a coast insect. Messrs. Douglas and Scott, and also Mr. Saunders in his Synopsis, give the localities of Deal and neighbourhood on the Sandhills, while my friend, Mr. E. P. Collett, met with it in 1882 on the Sandhills at Camber. The extreme rarity of this insect led me to think it might not be uninteresting to record its capture from the above locality; the same tuft of grass produced me no less than seven species of *Pezomachus*, viz., *Pezomachus rufulus*, Först., *tener*, Gr., *timidus*, Först., *Neesii*, Gr., *agilis*, Först., *insolens*, Gr., *geochares*, Först., and one specimen of *Aptesis nigrocincta*, Panz.—T. R. Billups, 20, Swiss Villas, Coplestone Road, Peckham, S.E.: *April*, 1885.

Coleoptera at Llangollen.—On Friday last, April 3rd, I had a pleasant day's collecting among the hills surrounding this charming Welsh village, being accompanied by another entomological enthusiast, Dr. J. W. Ellis. Before ascending the

heights we spent half an hour at one of the little streams which run down the mountains into the Dee, and here, under pebbles, we took *Bembidium decorum*, *B. tibiale*, *B. atrocæruleum*, and *B. prasinum*.

A walk of about an hour brought us to the foot of Moel-y-Gamelin, on the slopes of which we worked for some time. Insects were, however, very scarce, the only species worth noting being *Carabus arvensis*, *C. catenulatus*, *Pterostichus vitreus*, and a single specimen of *Miscodera arctica*, which fell to my lot. As the latter species was among our desiderata, we searched carefully for more, but without success. A critical examination of every *Pterostichus madidus* and *Nebria brevicollis* failed to give us *P. æthiops* or *N. Gyllenhalii*, although I think it is a likely spot for both.

These high moors are frequently mentioned in Dawson's "Geodephaga Britannica," and I think they would well repay systematic working at all times of the year. Many of our rare *Aphodii* no doubt occur there, and, in fact, I know that *A. Zenkeri* was taken there in September, 1883.—R. Wilding, 40, Downing Street, Liverpool: *April 9th*, 1885.

Entomological Society of London.—*April 1st*, 1885: R. McLachlan, Esq., F.R.S., President, in the Chair.

Messrs. Ernest Sable, of Grove Road, Clapham Park, and H. C. Dent, of 20, Thurlow Square, were elected Members.

Mr. R. M. Christy (present as a visitor) exhibited a drawing of the larva of the local form of *Platysamia Columbia*, known as *Nokomis*: he had found the larva in Canada feeding on *Elæagnus argentea*, the peculiar silvery appearance of which was strikingly in accord with the colour of the larva, which latter was probably protected thereby. He also showed faded leaves of *Betula glandulosa*, and said he had observed *Papilio Asterias* settle on similar patches of leaves, apparently mistaking them for flowers on account of the bright colouring. Mr. Weir said he had observed white butterflies settle on patches of variegated leaves in his own garden, and he alluded to the well-known case of bees coming to artificial flowers on a lady's bonnet.

Mr. Billups exhibited two species of *Pezomachus* new to Britain, viz., *P. immaturus* and *vulnerens*, taken at Headley Lane in January, and remarked that on the same day he took thirteen species of the genus.

Mr. E. A. Fitch exhibited a rather large moth, apparently belonging to the *Crambidæ*, found at rest on a wall in Dr. Wallace's garden in Colchester, having probably been imported in plants. It was not contained in the National Collection, and was perhaps undescribed.

Mr. Dunning called attention to a paper by Mr. F. G. Heathcote, published in the Transactions of the Cambridge Philosophical Society, on a curious pouch-like organ at the base of the mandibles in *Scutigera* (*Myriopoda*), the function of which was considered to be auditory.

Reviews.

Histoire naturelle de la France: — Hémiptères: par L. Fairmaire, Ex-President de la Société Entomologique de France. Paris: E. Deyrolle, 1884, 8vo, 206-pp., 9 plates.

Under the general title "Musée scolaire Deyrolle," there is now in course of publication a series of treatises on the Natural History of France, the term "Natural History" being used in its widest sense, so as to include Zoology, Botany, Geology, Palæontology, and Mineralogy. The series will comprise 23 volumes, of which 6 are devoted to Insects, and of these 3 (*Coleoptera*, *Lepidoptera*, *Hemiptera*) have already appeared. The purpose of the series is explained in the prospectus:— "It is not enough to say to founders that they should form a school-museum, instruct pupils to distinguish useful or hurtful animals, or form collections of plants or minerals; they must furnish the learners with works which will enable them to determine with ease and certainty the large quantity of such objects found in France. In order to accomplish this end, acknowledged *Savans* have been very willing each to treat a class or order in such a manner as to render the study of the natural sciences accessible to all, and to diminish the inherent difficulties of the science, which includes the whole of Nature." Without any disparagement to the many excellent works already existing in this country, we should yet like to see a series of treatises on this model in English, not only in general use in schools, as in France, but also for the instruction of children of larger growth, who are, as a rule, sadly in want of such knowledge, of which we had a fine instance lately (*vide* p. 63, *ante*). Then also we might hope to enlist some more capable recruits into the ranks of the volunteers, if not into the regular line of the army of scientific research.

The volume on *Hemiptera* is more than elementary, in conformity with the scope of the design of the series, for it not only sets forth the principles of classification, but also the characters of genera and species in concise yet sufficient form, the typical, and often all the species of a genus being described. As is fitting in such a work as this there is no novelty, except that, instead of two, three primary divisions — Héteroptères, Homoptères, and Sternorhynques are adopted, and the limits of genera are advantageously enlarged; but we are not disposed to favour the total omission of the names of previous workers—even the names of the authors of specific descriptions—for thus, as far as this volume is concerned, the learner would necessarily believe that the whole was the original work of the author. This, perhaps, has been intentional, so as to divest the work in the eyes of the young of the deterrent appearance of great knowledge beyond their reach, and yet, as conveying an untrue impression, it is a mistake. The figures on the plates deserve special commendation for their accuracy and artistic finish. Only a very extensive sale can compensate for the production of such a volume as this at the price.

The Butterflies of North America: by W. H. Edwards. Second series; part xiii. Boston: Houghton, Mifflin, & Co. London: Trübner & Co. 1885.

In the number of this Magazine for August, 1868 (vol. v, p. 79), we criticised

favourably the first part, of the *first* series, of Mr. Edwards' magnificent work. We have now to congratulate him, and entomologists generally, on the completion of the *second* series. Fully seventeen years is a large slice of the working time in a man's life. But with characteristic singleness of purpose, Mr. Edwards announces the commencement of a *third* series in a few months, for which he has in hand abundant materials. Naturally there is much yet to be done. In his list of North American Butterflies (North of Mexico) in the part now before us, 612 species are recognised (irrespective of varieties, &c.), and of only a tithe of these are the life-histories described.

Obituary.

Prof. Carl Theodor Ernst von Siebold died at Munich on April 6th, aged 81 years. He was born at Würzburg on February 16th, 1804, and was cousin to the well-known Japanese traveller and philologist of the same name. Educated for the medical profession, he practised for some time at Königsberg, until he obtained an appointment at Dantzic in 1835. Subsequently he became professor of zoology and comparative anatomy at Erlangen, Friburg, Breslau, and Munich successively, his appointment at the latter place dating from 1853. Von Siebold published a little systematic entomological work; but it was in the comparative anatomy, physiology, and biology of insects (and also of other invertebrates) that he made his great reputation, which was scarcely second to any in Europe, and the results of his lectures and publications largely influenced the studies and thoughts of enquirers into these special branches for many years. It would be impossible here to glance at even a few of his most important memoirs. His text-book on the comparative anatomy of invertebrates, published in 1848, still maintains its reputation. In 1856 appeared what was perhaps his most remarkable work, "Wahre Parthenogenesis bei Schmetterlingen und Bienen", of which an English translation was made the following year by Mr. W. S. Dallas. The statements therein were at first received with much incredulity, and even some derision: but who now doubts their truth? Parthenogenesis continued one of his favourite studies, and only a year or two before his death he published an important memoir on the subject as observed in *Tenthredinidæ*. Von Siebold will equally be remembered, and his memory respected, as an editor. In 1849, he (in conjunction with Kölliker) founded the "Zeitschrift für wissenschaftliche Zoologie," which continues the most prominent natural history periodical in Germany. Almost every leading Academy or Society enrolled his name amongst its Honorary Members. In this country he was elected one of the Foreign Members of the Royal Society and of the Linnean Society so long back as 1858, and one of the Honorary Members of the Entomological Society in 1870. Viewed in connection with the most modern school of naturalists, Von Siebold could scarcely be termed a theorist, yet several of his discoveries from actual patient observation were more startling than the speculations of the present day, which are founded too often on a basis of fact with a huge superstructure of imagination.

END OF VOL. XXI.

THE

ENTOMOLOGIST'S MONTHLY MAGAZINE:

CONDUCTED BY

C. G. BARRETT, F.E.S. R. McLACHLAN, F.R.S.
J. W. DOUGLAS, F.E.S. E. SAUNDERS, F.L.S.
W. W. FOWLER, M.A., F.L.S. H. T. STAINTON, F.R.S.

VOL. XXII.

Nihil ad Historiæ Naturalis incrementum magis proficere posse putarem, quam si plures homines, in qualibet regione, naturalia omnia sedulo describerent.—*Scopoli.*

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THE

Entomologist's Monthly Magazine

VOLUME XXII.

EDITORIAL NOTICE.

The Rev. W. W. Fowler, M.A., F.L.S., of the School House, Lincoln, so well-known in connection with British *Coleoptera*, has kindly consented to fill the vacancy on the editorial staff occasioned by the death of Mr. Rye. His colleagues commend him to the favourable consideration of the supporters of this Magazine.

1, Paternoster Row:
May, 1885.

ON THE VALUE OF THE COSTAL FOLD IN THE CLASSIFICATION OF *TORTRICES*.

BY CHAS. G. BARRETT.

Mr. Warren's recent discovery (Ent. Mo. Mag., xxi, p. 190) of the identity of my *Dichrorampha herbosana* (Ent. Mo. Mag., ix, p. 27) with the original *D. tanaceti*, of Wilkinson, by means of type specimens taken by Mr. Thompson at Crewe, and his suggestion that the species placed in most of our cabinets under the name of *tanaceti* (*-ana*) should be called *saturnana*, has had the effect of again drawing more particular attention to this very difficult group.

In my own collection I have as follows—besides *herbosana* = *tanaceti*, Wlk.:—

(1st.) Under the name of *tanaceti*, 8 ♂ and 2 ♀ from Bristol, 6 ♂ and 2 ♀ from Exeter, 3 ♂ and 3 ♀ reared by Mr. Elisha from larvæ in (I think) tansy roots (*Tanacetum vulgare*), and 16 ♂ and 4 ♀ taken by myself near Pembroke among the same plant. None of these males have the slightest indication of a costal *fold*, though in many of them the anterior margin is slightly turned up.

(2nd.) Also under the name of *tanaceti*, 10 ♂ and 4 ♀ from the Pembrokeshire coast, not among tansy, and 5 ♂ and 1 ♀ from a quarry at Plymouth, so closely resembling No. 1 that the females are absolutely alike, and the males are only distinguishable from their possessing a very strong and well marked costal fold.

(3rd.) Under the name of *saturnana*, 2 ♂ from the Isle of Wight, and 1 ♂ from Hungerford, Wilts, smaller than the last two species with narrower wings, and with smaller scales. These are quite devoid of the costal fold.

(4th.) Also under the name of *saturnana*, 1 ♂ from Teignmouth, and 1 ♂ from Darlington, having the costal fold quite distinctly, very slightly larger than No. 3, and *rather* more brightly clothed with yellowish scales and leaden lines.

(5th.) *Plumbana*.—Very numerous specimens from many localities, all the males destitute of the costal fold. These are of the same size as Nos. 3 and 4, with rather broader wings and fewer yellowish scales.

(6th.) *Plumbagana*.—Many specimens from various places, with narrower wings than any of the preceding, and brighter metallic lines, but variable in size, and in abundance of the yellow scales, all the males having the costal fold, except

(7th.) Under the name of *plumbagana*, 2 ♂ from Galway, quite like the darker *plumbagana* in form and width of wings, but without the costal fold. Twenty-five years ago I took many specimens of this form in the County Galway, but damp, from many journeys and moist climates, injured them, so that the rest were destroyed.

(8th.) Among my continental types, 3 ♂ from Prof. Zeller, labelled *saturnana*, two of them having also *Heinemann's* label on the pins, one of which last has the costal fold *most distinctly*, and the other two are *as distinctly* destitute of it. Otherwise these three are absolutely alike, they cannot be separated by any other character that I am able to see. They resemble Nos. 1 and 2 pretty closely, but are yellower.

In the classification adopted by Wilkinson these species—so closely allied that they can only be separated by a slight structural character, hardly visible to the naked eye, and obtaining only in one sex—would be placed, not only in separate genera, but in distinct families, widely separated from each other. It is desirable, therefore, to examine more closely into the value of this peculiarity of the males of so many species of *Tortrices*—the costal fold—which is entirely ignored in the arrangement of Guenée and Doubleday, but which forms one of the bases of classification in the arrangement followed on the continent, and was regarded by Wilkinson as of such vital importance, that he instituted the family *Plicatæ* solely to receive all the species favoured with this appendage. The value of such a classification as this is best shown by the table below, in which some of the genera and species of the family *Plicatæ* are arranged side by side

with those placed in *other* families widely apart, but obviously closely allied to them in form and habits.

PLICATÆ (with fold).	OTHER FAMILIES (without fold).
	Fam. TORTRICIDÆ.
Lozotænia sorbiana, rosana, xylosteana, Podana, roborana, costana, &c.	*Tortrix dumetana, diversana, heparana, ribeana, corylana, cinnamomeana*, &c.
	Fam. CARPOCAPSIDÆ.
Catoptria cana, fulvana, Scopoliana, cæcimaculana, expallidana.	*Grapholitha conterminana, aspidiscana, tripoliana, æmulana, candidulana.*
Phlœodes tetraquetrana, immundana, crenana.	Fam. ANCHYLOPERIDÆ. *Steganoptycha nœvana, geminana.*
Dichrorampha tanaceti, plumbagana, &c.	Fam. CARPOCAPSIDÆ. *Endopisa saturnana, plumbana*, &c.

Indeed, a *simple enumeration* of the species and genera crowded together in the family *Plicatæ*, of Wilkinson (which would occupy too much space here), would seem sufficient to condemn it.

In the arrangement followed by Wocke, this incongruity is cleverly avoided, since, while the presence, or absence, of the costal fold is relied upon (I think, *always*) as a generic (or sub-generic) character, the genera with, and without, folds are so skilfully alternated that, to a great extent, the actual relationships between the species are fairly maintained. But here there has evidently been a serious difficulty, in the presence of a large number of "folded" species which could not well be distributed in the same manner without the manufacture of a host of new genera. They have, therefore, been massed together under the generic name of *Pœdisca*. Here are *Catoptria cana*, *fulvana*, *Scopoliana*, *expallidana*, and *cæcimaculana*, along with *Coccyx tædella*, *Lithographia nisella*, *subocellana (campoliliana)*, and *Penkleriana*, *Pœdisca ophthalmicana*, *Solandriana*, *semifuscana*, and *sordidana*, with the four little *Phlœodes*, the four larger *Spilonotæ*, and the whole genus *Halonota*, lumped together in one unwieldy genus.

It must be borne in mind that this costal fold is solely an ornament or appendage of the male sex. I am not aware of any case in which a female moth shows any tendency towards assuming it. It consists of a small flap of membrane, usually occupying the basal portion of the costal or anterior margin of the fore-wings, from one-third

to one-half of their length, which flap of membrane is turned back over the wing exactly in the same manner as the breast flap of the collar of a coat. It is usually covered with scales of a rather coarser texture than those of the remainder of the wing, and placed, more or less, in a different direction, so that, though they closely assimilate in colour to the upper-side of the wing, the edge of the fold can generally be seen, by the aid of a lens of slight power, from the *different direction of the scales*, even though the fold may be pressed very closely down to the surface. When, by any accident, this fold is raised, the space beneath is seen to be thinly clothed with shining *white* scales, some of which take the form of long hairs, and lie longitudinally under it, but if the fold is turned forward, these hairs rise up and even form a most delicate fan-like tuft, similar to that on the fore-legs of male *Hypenidæ*. I have a *Penkleriana* showing this very beautifully.

In examining the *Peroneæ*, none of which are furnished with the fold, it will at once be noticed that, in many species, such as *Teras effractana*, the *Leptogrammæ*, *Peronea hastiana*, *abietana*, *umbrana*, *Logiana*, and others, the *shoulder* of the strongly arched costal margin is *rough from projecting scales*. It is exactly this portion with its projecting scales which in so many species is doubled back and forms the "fold."

In what may be regarded as its *typical* state, the fold is, as I have already said, a narrow slip of doubled-down margin, extending from the base one-third or one-half the length of the anterior margin; *Spilonota*, *Lithographia*, *Phlœodes*, *Pœdisca*, *Catoptria*, and *Halonota*, of Wilkinson, for examples; but in *Ptycholoma Lecheana* and *Capua ochraceana* it occupies more than one-half the costal margin, and in *Ditula angustiorana* and *Pardia tripunctana* fully two-thirds, and in these four species it is very neatly folded down throughout its length. Perhaps *Ditula angustiorana* may be regarded as an exponent of the highest exaggeration of this structure, for its fold is also so *broad* as to occupy one-third of the width of the wing near the base.

Lozotænia Podana (*pyrastrana*) and *costana* have the short, narrow, typical fold, but *L. roborana*, *xylosteana*, and *rosana* have, in addition, the middle portion of the costal margin *rolled* back very distinctly to the same extent as it is *folded* down in *D. angustiorana*.

In *L. unifasciana* the fold does not commence at the base, but, at a short distance, begins gradually a long fold, which occupies—folded or rolled—a large portion of the costal margin. In *L. sorbiana* and *Lafauryana* it is placed still further from the base, and is quite desti-

tute of the *typical* structure, being simply a turned down edge of the *shoulder* of the wing, not closely appressed, and without the white scales and long hairs.

In *L. musculana* this divergence is still greater, the fold consisting simply of a tuft of long reflexed scales, which *appears* like a decided fold, but which, when accidently turned forward, shows a strong tuft of coarse scales arising from the *under* surface of the margin, and looking like the singular "prominent" tuft on the wings of the *Notodontidæ*, though in a very different position.

On the other hand, *Tortrix dumetana*, *diversana*, *ribeana*, and *corylana*, which have *no* fold, possess the rolled back margin along the middle portion of the costa, often very strongly developed, and this structure is shown in a less degree by *T. Forsterana* and *heparana*, while in *T. ministrana* nearly the entire anterior margin is slightly raised in the same direction.

This tendency to a reflexed margin is shown by very many species in various groups, such as *Argyrotoza Conwayana*, *Penthina pruniana*, *Calosetia nigromaculana*, *Coccyx nanana*, and *Pamplusia mercuriana*. It is also observable in *Hypermecia cruciana*, and especially in its close ally, *H. augustana*, in which the raised costal edge is very conspicuous. In *Grapholitha candidulana* this structure, towards the base of the wing, amounts almost to a fold, and it is instructive to notice that, while Wilkinson places it (under the name of *Wimmerana*) in his *non-folded* family *Stigmonotidæ*, Wocke includes it in his "*folded*" genus *Pœdisca*, very near to *expallidana* and its allies. On the other hand, *parvulana*, which has a typical fold, is included in the *Plicatæ* by Wilkinson, but by Wocke is placed in the (non-folded) genus *Pelochrista*, with *Albersana*. It is fair, however, to add that he marks the species as unknown to him, and only *quotes it from Wilkinson*.

Œnectra Pilleriana, placed by Wilkinson in his (non-folded) family *Tortricidæ* (and by Wocke between a folded and a non-folded genus), actually has a very slight and narrow fold, starting from the base of the costal margin, and consisting of reflexed scales on a very narrow membrane, and in some individuals a large extent of its costal margin is turned back.

But the most remarkable circumstance that has come under my notice is the totally unexpected discovery of a fold in one of the species of *Eupœcilia*, a genus, and belonging to a family, in which there is usually no indication of anything of the kind. The species is *maculosana*. It has a very narrow, straight fold of membrane and

dark reflexed scales, broadest at the base, and extending one-third of the length of the anterior margin. I have before me eighteen males of this species, in every one of which this structure is distinctly visible. My continental type of *purgatana* also has it, but this, I think, is only a small form of *maculosana*. I think that if Wilkinson had noticed this structure, he would have felt some perplexity about his family *Plicatæ*.

It thus appears to me that the costal fold is clearly proved to be of no value as a *family* characteristic, and when we find the typical fold of *Lozotænia Podana* and *costana* associated with the folded and *rolled* margins of *roborana*, *xylosteana*, and *rosana*, and with the false folds, with or without rolled margins, in *unifasciana*, *Lafauryana*, and *musculana*, and then closely allied to them the non-folded species, such as *dumetana* and *diversana*, which have also the rolled margin, the raised margins in others, and in many other groups, the barely perceptible folds in *Pilleriana*, *candidulana*, and *E. maculosana*, and, finally, the intimately close alliance between folded and non-folded species of *Dichrorampha*, the conclusion seems forced upon us that this costal fold is equally valueless as a generic character.

After studying this last *Dichrorampha-Endopisa* group of species, I was almost inclined to doubt its value even as a *specific* character, but in the course of careful consideration of nearly all our native species, I find its presence or absence, as the case may be, so thoroughly reliable in each species in other groups, and the form which (when present) it takes so true and accurate in the individuals of each species, as to render it highly improbable that a character so reliable in all other species should be variable and uncertain in the single group of the *Dichrorampha*. So that although it is almost impossible to find reliable characters by which to distinguish the different forms which I enumerated at the commencement of this article—Nos. 1, 2, 3, 4, 7, and 8—it will be necessary to search for such characters, and to determine if possible at some future time, the name and description which fit most accurately to each. This task will be all the more difficult from the fact that scarcely any of the published descriptions are minute enough to meet the case, but will generally serve for several of these forms almost equally well.

68, Camberwell Grove, S.E.:
April, 1885.

DESCRIPTIONS OF TWO NEW SPECIES OF *ARADIDÆ*.

BY DR. E. BERGROTH.

Aradus orientalis, *n. sp.*

Elongatus, postice nonnihil latitans, opacus, granulatus, luride testaceus, abdomine præsertim subtus in sanguineum vergente; pronoto quadricarinato; angulis posticis segmentorum abdominalium admodum prominentibus. *Long.*, ♀, 9 *mm.*

Mas ignotus.

Femina: hemelytris abdomine brevioribus et multo angustioribus; segmento quinto ventrali retrorsum acclivi, margine postico medio recto, linea media segmenti lateribus longitudine æquali; segmento sexto retrorsum declivi, sub-quadrato, basi longitudine vix latiore, apicem versus paullo dilatato, angulis posticis paullo productis, præcedenti medio longitudine æquali et segmentis genitalibus simul sumtis æquilongo, lobis lateralibus explanatis angulis posticis apicem segmenti genitalis secundi attingentibus et fere superantibus, a lobis genitalibus sat longe distantibus; segmento genitali primo secundo longiore, margine apicali medio parum angulato-inciso, lobis explanatis marginibus interioribus ab apice segmenti genitalis secundi valde divergentibus, marginibus exterioribus nonnihil ante apicem angulato-prominentibus, parte basali cum lobis segmenti sexti ventralis conjunctis.

Patria: Japan (*D. Donitz*). Mus. Berol.

Species insignis, nullæ huc usque descriptæ propius affinis, a ceteris inprimis structura abdominis coloreque divergens. Caput sub-quadratum, latiusculum, longitudine tamen angustius, pone oculos parum angustatum, inter hos foveis duabus postice in lineolas impressas intus sub-curvatas convergentes et angulariter conjunctas transeuntibus præditum; antennis longiusculis articulis duobus ultimis ceteris latioribus, articulo secundo primo fere triplo longiore, cylindrico, articulo tertio secundo paullo breviore, ab apice basin versus sensim leniter attenuato, quarto tertio perpaullo longiore, apicem versus leniter angustato; spinis lateralibus extus inter se fere parallelis, denticulo nullo distincto armatis; dente ante-oculari, perminuto; rostro coxas anticas vix superante. Pronotum capite circiter triplo latius, lateribus sub-angulariter perquam ampliatis et reflexis, margine antico-laterali leviter rotundato, minute denticulato, prope apicem leviter sinuato, margine postico-laterali subrecto, minus reflexo, haud denticulato, sub-integro; angulis posticis retrorsum obtuse latius lobulato-productis; margine postico ante scutellum lenissime trisinuato; disco quadricarinato, carinis duabus intermediis fere parallelis ante medium admodum approximatis, exterioribus apicem versus convergentibus et ante medium pronoti evanescentibus. Scutellum sub-triangulare, apice obtuso, lateribus elevatis, ad basin sub-parallelis. Abdomen lateribus admodum reflexum, angulis posticis segmentorum præsertim posteriorum valde prominentibus, ut latera abdominis serrato-incisa evadant; ventre convexo, medio sub-plano. Hemelytra basi nonnihil ampliata et reflexa, margine granulato-crenulato; corio costis dense, interstitiis remote, minute granulato; membrana opaca, sub-rugosa, lurido-testacea, concolore. Pedes, præsertim tibiæ, graciliores, femoribus paullo infuscati.

The ground-colour of the abdomen of this species is, especially on the under-side, light sanguineous, this colour is, however, in some degree concealed by the minute pale granules spread over the surface. The greatest convexity of the venter is between the fifth and sixth segment. The last two articles of the antennæ are, at least in the described specimen, compressed.

ARADUS EMARGINATUS, *n. sp.*

Elongato-subovalis, opacus, fusco-niger, rostro pedibusque flavo-annulatis; pronoto quadricarinato; angulis posticis segmentorum abdominalium prominentibus. *Long.* ♂, 6.5 *mm.*

Mas: hemelytris abdomine angustioribus, sed parum brevioribus; segmentis ventralibus quinto et sexto medio cum segmento genitali convexis; segmento genitali ad dimidium apicalem rimæ genitalis anguste luteo, lobis explanatis hujus segmenti admodum reflexis, marginibus interioribus rectis, valde divergentibus, exterioribus sub-angulato-rotundatis, ante apicem denticulis duobus minutissimis armatis; lobis lateralibus segmenti ultimi abdominis a lobis genitalibus distantibus.

Femina ignota.

A. emarginatus, Reut. in sched.

Patria: China (Peking). Coll. Fallou.

Antecedenti abdominis structura similis, sed cetera optime distinctus. Caput pone oculos angustatum, ad basin denticulo minuto lineari utrinque armatum, inter oculos impressione U-formi præditum; antennis nigris, articulo primo brevi, secundo hoc plus quam duplo longiore, sub-cylindrico, apice perpaullo incrassato, tertio secundo paullo longiore, apicem versus parum attenuato (art. quartus deest); processu apicali basin articuli secundi antennarum paullo superante; spinis lateralibus sat validis, acutiusculis, divergentibus, medium articuli primi antennarum superantibus, extus basi obsoletissime unidenticulatis; dente anteoculari distincto; rostro coxas anticas aliquantum superante, nigro, articulo penultimo et antepenultimo apice flavido. Pronotum lateribus admodum rotundato-ampliatum et reflexum, marginibus antico-lateralibus subserrato-denticulatis, ante medium angulariter emarginatis et deinde sub-rectis, convergentibus, haud ampliato-reflexis, denticulis fere destitutis; disco quadricarinato, carinis intermediis sub-parallelis, mox ante medium approximatis, carinis externis brevibus, medium pronoti haud superantibus; angulis posticis retrorsum obtuse productis, deflexis. Scutellum elongatulum, lateribus elevatis, extrorsum levissime rotundatis, basin versus sub-parallelis. Abdomen sub-ovatum, depressum, lateribus ob angulos posticos segmentorum abdominalium præsertim posteriorum admodum prominentes sub-serrato-emarginatis. Hemelytra basi ultra marginem abdominis paullo ampliata ibique macula parva lutea (subtus quoque distincta) ornata; corio area interna lineolis nonnullis luteis prædito; membrana obsolete sub-cinereo-interstincta. Pedes fusconigri, femoribus basi tibiisque prope basin et apicem flavotestaceo-annulatis (annulo sub-basali tibiarum ægrius distinguendo), geniculis anguste tarsisque flavopiceis.

The discovery of these two species is of some interest, as no species of the genus *Aradus* was hitherto known either from Japan or China.

Besides *A. orientalis*, there is another Japanese species amongst the *Aradidæ* of the Berlin Museum, viz., *Mezira scabrosa*, Scott, which belongs to the genus *Brachyrhynchus*, Am. et Serv. Of the genus *Mezira* I shall give more account in another place.

I take this opportunity of mentioning that I am preparing a revision of the genus *Neuroctenus*, Fieb., and shall be glad to receive contributions.

Helsingfors: *April 7th*, 1885.

DESCRIPTION OF *COLEOPHORA PALUDICOLA*—A SPECIES NEW TO SCIENCE.

BY H. T. STAINTON, F.R.S.

COLEOPHORA PALUDICOLA, *n. sp.*

Exp. al. 4 lin.

Fore-wings uniform dark greyish-brown, shining, with the costa narrowly whitish to a little beyond the middle; no other markings are visible.

Antennæ dark grey, faintly annulated with whitish.

Head and thorax shining dark greyish-brown, same as the fore-wings.

This is smaller than *Coleophora obtusella*, and of much darker ground colour, and it wants the pale streaks of that species. In size and colour it comes nearer to the German *C. musculella*, which feeds on *Dianthus superbus*, but that has several neat pale streaks on the fore-wings, which are besides much more acuminate than in *C. paludicola*. Small specimens of *C. badiipennella* come very near to this new species in size, but they have not the pale costa so narrow, nor so sharply defined; moreover, in them the fore-wings are very much browner.

Five specimens were captured by Mr. G. Coverdale in salt-marshes near Shoeburyness in July, 1884, who says:—"It occurs flying with *Coleophora salinella* amongst the mixed herbage of the Salterns. I have taken the insect at rest on *Suæda maritima*, *Artemisia maritima*, *Atriplex*, and should be inclined to regard *Suæda maritima* as the most likely food plant. It is not common, for three days' work produced but five specimens."

Mr. Coverdale thinks the fore-wings have a bronzy-green tinge, but I cannot see the insect in that light myself.

Lewisham, London:
May 19th, 1885.

ON THE GENUS *AULOCERA*, BUTLER.

BY H. J. ELWES, F.L.S.

My attention having been called to Mr. Butler's remarks on this genus in Ent. Mo. Mag., xxi, 245, as well as to his revision of it in the 4th volume of the same journal, p. 121, I wish to clear up the confusion he has brought into it, partly by hasty description based on insufficient material, and partly by carelessness in reference to previous authors. I may say, however, that Messrs. Marshall and De Nicéville have published, in the "Butterflies of India," such a complete and accurate account of the genus, that I need say very little; and as both of these gentlemen know the species in life as well as in the cabinet, and have caught and examined large numbers of specimens, I have little doubt that their arrangement is correct, so far as our present knowledge extends.

My own collection contains about 100 specimens, picked from a much larger number which have passed through my hands, and I find, after arranging it, that my conclusions are identical with those of Messrs. Marshall and De Nicéville.

The question as to whether *Aulocera* is a good genus, is one which cannot be settled without a careful examination of many species of *Satyrus*, for which I have not now time; but it appears to differ from the majority of this group principally, if not entirely, in the form of the antennæ, and agrees in this respect with *S. Circe*, Fab. (*Proserpina*, Schiff.), which, by European entomologists, has not been considered worthy of separation from the other species of *Satyrus*.

Blanchard first began the confusion by describing and figuring, in Jacquemont's voyage, two good species as two sexes of one—*A. brahminus*. Both his figures seem to represent males, the lower one being evidently *Swaha*, Koll. This fact, however, was overlooked by Messrs. Butler and Moore. Kollar, in 1848, which is the date on the title page of vol. iv, pt. 2, of Hügel's Reise (not 1844 as quoted by Butler and Moore), described and figured *Swaha*, *Padma*, and *Saraswati*, all of which stand under these names. In 1857 Moore, in Cat. Lep., E. I. C. Museum, describes the ♂ of *Padma* as *Avatara*, and refers both of Blanchard's figures to *Saraswati*, which is most distinct from either.

In 1857, Butler describes (in Ent. Mo. Mag., iv) from a single example of uncertain origin, *A. Scylla*, which I fully agree with De Nicéville in believing to be a dwarfed specimen of the alpine form of *brahminus*, and in the same volume Lang describes more typical specimens of the same form as *A. Werang*.

Marshall and De Nicéville clear up all these mistakes in the Butterflies of India, and are now attacked by Butler, who does not like his species criticised by others, especially if they are new to the work.

With regard to the locality assigned to *A. Scylla*, Mr. Butler's ideas of geography must be vague, if he does not see the insufficiency of his excuse, that because Mr. Duthie found it in Kumaon at 12—14,000 feet, therefore, it is reasonable to expect it to occur also in the low flooded plains of Sylhet, 700 or 800 miles away; and as no species of the genus has been found even in the Khasia hills, from which most of the specimens in the British Museum labelled Sylhet probably come, it is incredible to any one who knows the nature of the country that the most alpine form of *Aulocera* should be found there.

With regard to the last paragraph of his paper, in which he describes the efforts of those who have tried to discover the uses and meaning of those curious sexual characters in many species of butterflies as "pitiable nonsense," I will say nothing, as I have no doubt it will not be overlooked by entomologists who know far more of the subject than I do. Such an opinion would be, if accepted, more detrimental to science even than guessing (*ante* p. 246).

I here give a short table of the synonymy of the genus, with the dates and localities of my own specimens.

AULOCERA BRAHMINUS, Blanchard.

Sat. brahminus, Blanch. in Jacquemont's Voy., vol. iv, Ins., p. 22, T. ii, fig. 4, male, 1844?.

Specimens in Mus. H. J. Elwes:—

4 ♂ 1 ♀, Ser-ka-joth, North Mandi, N. W. H., 8000 feet, 24/6/83, 24/7/83.

1 ♂, Kulu, June; 8 ♂ 5 ♀, interior of Sikkim, July and August (Native Collector).

var. alpina? orientalis minor subtus pallidior.

8 ♂ 2 ♀, Chumbi Valley, Tibet, July and August, 1883.

var. alpina occidentalis subtus lutescens.

A. Scylla, Butler, Ent. Mo. Mag., vol. iv, p. 122, 1867.

A. Werang, Lang, *l. c.*, p. 247.

1 ♂, Kashmir, Lang; 1 ♂, Kashmir, Johnstone, 9000 feet.

1 ♂, Sanch Pass, 13,000 feet, August, Marshall.

6 ♂ 4 ♀, Lahoul, 5—27/8/84, 10—13,000 feet, Young.

A. SWAHA, Kollar.

Satyrus Swaha, Koll., in Hügel's Kaschmir, vol. iv, pt. ii, p. 444, T. xiv, figs. 1, 2 (1848).

5 ♂ 1 ♀, Ser-ka-joth, 28/7/83, 8000 feet.

2 ♂, Hazara, 9000 feet, Johnstone, 7/83.

1 ♂ 1 ♀, Kangra, Hocking.

4 ♂ 2 ♀, Simla, Marshall, 30/8/83.

var. fascia lutescente.

S. brahminus, Blanch., *l. c.*, figs. 5, 6, ♂.

4 ♂, Gulmurg, Kashmir, 9000 feet, 8/82; 1 ♂, Kashmir, Lang.

A. Padma, Kollar.

Sat. Padma, Koll., in Hügel's Kaschmir, p. 445, T. xv, figs. 1, 2, ♀.

Sat. Avatara, Moore, Cat. Mus. E. I. C., p. 229, ♂ (1857).

3 ♂ 1 ♀, Sikkim (locality doubtful); 1 ♂, Simla, Marshall, May.

1 ♂, Mattiana, 9000 feet, 2/8/83; 6 ♂ 1 ♀, Praser Mt., N. Mandi, 24/6/83; 2 ♀, Kangra, Hocking.

A. Saraswati, Koll., in Hügel's Kaschmir, vol. iv, pt. ii, p. 445, T. xv, 1, 2.

2 ♂ 1 ♀, near Khatmandu, Nipal.

2 ♂ 1 ♀, Sikkim?.

3 ♂ 2 ♀, Ser-ka-joth, N. Mandi, 21/8/83, Young.

1 ♂ 2 ♀, Pangi Valley, N. W. H., 8/82.

I may say that I am not certain as to the Sikkim habitat of *Saraswati*, as though my specimens came from Darjeeling collections, they may have been sent from Kumaon. Mr. Moller, however, has taken specimens of *Padma* at 8000 feet near Darjeeling.

Preston, Cirencester:

April, 1885.

A swarm of Deiopeia pulchella in the Atlantic Ocean.—My friend R. H. Scott, Esq., F.R.S., Secretary to the Council of the Meteorological Office, recently gave me a good specimen of *D. pulchella*, which had been forwarded by Capt. Renaut of the sailing vessel "Pleione," one of those who keep a log book in connection with the office. A memorandum accompanying the moth stated that it was captured on March 27th, 1885, in lat. 0° 47′ N., lat. 32° 50′ W., the vessel at the time being homeward bound from Wellington (N. Z.), and had not touched at any other port. The position lies about 960 miles S.W. of the southernmost of the Cape Verde Islands, about 440 miles N.E. of the nearest point on the South American coast, and about 260 miles W.S.W. of the barren islet known as St. Paul. As the fact was interesting, I obtained, through the courtesy of Capt. Renaut, some additional information, of which the following is a summary:—

"There were a great many about the ship, many hundreds I should say, as parts of the rigging, spars, &c., were covered with them, and apparently two kinds, differently marked, but about the same shape. The wind for four days previously had been very light from various quarters, mostly N.W., N., and N.E., and many hours calm, with very little rain. The N.E. trade wind does occasionally extend to that position at that time of the year, but we did not get it until lat. 1° 0′ N., long. 33° 0′ W. I may say that I have frequently in that part of the ocean had moths and butterflies come on board."

The question now is:—Whence did these insects come? *D. pulchella* has not,

I think, been noticed in South America. St. Paul's rock may almost be left out of consideration. I incline, therefore, to the Cape Verdes. The insects seized by some migratory instinct, or blown out to sea, would get caught in a strong N.E. trade wind, and be carried by it precisely to the position where they were found. It might be asked why, having got so far, are they not carried to South America? The reply is, that in the remaining distance they would get caught by the S.E. trade wind, and be driven back. After this experience in the Mid-Atlantic, is it surprising that stragglers of this pretty moth occasionally visit our islands?

In the collection of the British Museum there is a specimen of *D. pulchella* from the voyage of the "Rattlesnake," indicated as having been taken at sea in lat. 6° N., long. 22½° W. In the British Museum Catalogue by the late F. Walker, it is queried as from Madeira, but the position on the map renders the Cape Verdes (or even the west coast of Africa) more probable. — R. McLachlan, Lewisham, London: *May 9th*, 1885.

Chauliodus insecurellus bred from Thesium humifusum from the Isle of Wight. —The announcements (Ent. Mo. Mag., xxi, 238, 255) that this species had been reared by Mons. A. Constant from larvæ found in Gascony must have prepared the readers of the Ent. Mo. Mag. to expect that Mr. Stainton's surmise that its larva feeds in this country on *Thesium humifusum* would shortly be confirmed. This I am now able to do.

Towards the end of May, 1884, I took a female of this species in the Isle of Wight. On cutting a tuft of the food plant on the 11th inst. in the same locality, I found among its branches two pupæ in the netted cocoons so characteristic of the genus *Chauliodus*, and in the course of the morning took several others. From these pupæ a few specimens of *Ch. insecurellus* have since emerged. I noticed in one of the cocoons a larva whose markings did not seem to have changed much, but hoping to find the feeding larvæ later in the year, did not take a description of it. The imago when at rest looks curiously like that of *Eupœcilia anthemidana*.—W. H. B. Fletcher, Fairlawn, Worthing: *May 17th*, 1885.

[I gather from the above that this species, like its congener *Ch. chærophyllellus*, is double-brooded, but with this great difference in the habit of the two species, that whereas *Ch. chærophyllellus* emerges late in autumn and hibernates in the perfect state, *Ch. insecurellus* would appear to hibernate in the pupa state, or perhaps rather as spun up, but unchanged, larvæ.—H. T. S.]

Dytiscus marginalis found in salt water.—On the 11th of this month I captured a female specimen of *Dytiscus marginalis*, Sturm, swimming in the sea at Glandore. Is it usual for this beetle to frequent the sea? I never found it in salt water, nor do I see any notice of this peculiarity in the books on *Coleoptera* I possess. My insect was quite at home in its salt water element, and was making good its escape when taken. I send the beetle.—C. Donovan, Jun., Westview, Glandore, Leap, Co. Cork: *May 12th*, 1885.

Cassida chloris, Suffrian.—I am able to corroborate this (Suff., Stett. ent.

Zeit., v, p. 188 ; Boh., Mon. Cass., ii, p. 384, Suppl., p. 307 ; Sharp, Ent. Mo. Mag., viii, p. 84 ; Rye, Ent. Ann., 1872, p. 91) as a British species. I have two specimens taken by myself at Shipley, near Horsham, out of flood-rubbish from the Adur, and which I had doubtfully for some time placed with *C. sanguinolenta*, and had afterwards removed from there, doubtful what to do with them. Lately, when revising Mr. Lewis' Japanese *Cassidæ*, I examined my British species again, and then saw that these were quite distinct from any English species known to me. I accordingly showed them to Dr. Sharp, who at once recognised them as *C. chloris*, Suffrian. I have compared them with his specimen, and I have no doubt they are one species, and having also compared them with Boheman's description, I quite think they are the species to which Dr. Sharp has referred the specimens taken by himself and Mr. Lennon in Dumfriesshire.

Cassida chloris cannot well be compared with any species in our list but *C. sanguinolenta* ; from that species its longer, more parallel build, coarser sculpture, and different colour, easily separate it. It is, indeed, only like it in having a reddish base to the elytra ; but this part is not blood-red, but brownish. Its colour in life is green, similar in tint to the common *C. rubiginosa*, but at the base several metallic golden specks upon the red part may be seen, and these at once attracted my attention. The thorax and elytra are rather coarsely punctured, on the latter the punctures are in irregular and somewhat interrupted series, becoming confused towards the apex ; the legs are yellow ; the body, head, coxæ, and thickened part of the antennæ are black. These specimens were taken in October, 1882.

C. chloris has been detected in Germany, Austria, and Hungary, it is also included in Grenier's Catalogue of French *Coleoptera*. For a more full account, *cf.* Kraatz, Berl. ent. Zeits., 1874, p. 92.—H. S. Gorham, The Chestnuts, Shirley Warren, Southampton : *May 14th*, 1885.

Note on Lecanium prunastri?—On the 5th of April I found on some shoots of hawthorn (*Cratægus oxyacantha*) about three years old, growing from the base of a tree in a sheltered and shaded corner of the garden, several hibernated scales of a *Lecanium*, both male and female. The sexes are easily distinguishable ; the scales of the ♂ being white and conspicuous, thin, and of delicate material, those of the ♀ dull brown, assimilating to the colour of the bark of the twigs, therefore not easy to see, and tough. The form in each sex is the same, a long oval ; but while the ♂ is affixed to any part of the bark, the ♀ is always towards the extremity of the twig, in or near the axil of a thorn or lateral shoot.

I cut off about a dozen shoots and put so much of each as had adherent scales into a wide-mouthed white glass bottle. I inspected them daily until April 24th, without detecting any exit ; I omitted to look on the 25th, but on the 26th I saw, at the bottom of the bottle, six males already dead and one alive ; since then no more have appeared. I also found some exuviated skins of the pupæ or nymphs* which had fallen down when the imago emerged from the shell, which had served as a cocoon, and which in some cases was broken ; other scales were left entire on the

* "Pupa" may not be a good term to apply to the penultimate state of an ametabolous insect, but "Nymph" (derived from the classical half-veiled *Nymphæ*, female deities)—Lamarck's name for the pupæ of all insects with an incomplete metamorphosis—is at best not a happy application of the term, and is singularly inappropriate when, as in this case, the form is evident only in the male sex.

shoot. The ♀ scales till now remain unaltered, but I find that some which I left *in situ* in the garden have greatly developed, the hibernated scale being borne up by and still adhering to the new swollen scale growing up beneath it, the increase of bulk being doubtless due to recent impregnation of the ♀ in residence.

The species of the *æsculi*-group of the genus, and to which this belongs, appear to have great general resemblance to each other in all the stages of their life, and yet to possess good distinctive characters, which, however, are not easy to appreciate, by the common want of specimens in the different states for simultaneous examination and comparison—a condition enhanced by the paucity of collectors and the special difficulty of obtaining at all the short-lived imago of most species.

The present examples fairly agree with Dr. Signoret's description of *L. genevense*, Targ.-Tozzetti (Ess. Cochin.), which species feeds on the hawthorn. But Dr. Signoret's remark that the comparison of the scale of the ♂ of *L. genevense* with that of *L. prunastri*, Fonscol., affords the best means of differentiating the species (for although both are waxen, the former is smooth as in most of the species, and the latter is rugose as if surmounted with minute tubercles), and the character of the latter being exactly that of the scales now under notice when viewed with a lens, I am induced to believe that the species is the *L. prunastri*. Of this, however, the ♂ imago is not described, nor is it stated by Dr. Signoret on what plant the species was found by him. Boyer de Fonscolombe (Ann. Soc. Ent. France, iii, 211, 1834) described only the adult ♀ scales which he found in the month of March on the branches of the sloe (*Prunus spinosa*).—J. W. Douglas, 8, Beaufort Gardens, Lewisham: *May 6th*, 1885.

P.S.—Between the 26th April and the 15th May no more males appeared, but on the latter day two more came out of their "scales." Thus the period of emergence ranges over three weeks, even when, as in this case, the conditions of existence remain the same.—J. W. D.

The Sale of the late Major Parry's Collection and Library.—As this sale, which took place at Stevens' Rooms on the 16th May, concerned what may be termed a representative collection, so far as regards certain groups, we give a brief analysis of the results. The noted collection of *Lucanidæ* was remarkable for the number of species and the fine condition of the specimens. It realized nearly £300. A pair of *Rhætus Westwoodii*, Parry, sold for £8; a pair of *Rhætulus crenatus*, Parry, sold for £2 10s. In several other lots over £1 was obtained for each specimen. The *Cetoniidæ* were sold for about £170: the genus *Goliathus*, represented by about 25 examples in all, obtained nearly £30 of the sum already mentioned; a pair of *G. giganteus* realizing £10 10s. 6d., and a pair of *G. albosignatus* £7 10s.; the now common *G. cacicus* cost its purchaser over 5s. per specimen. A small series of 13 specimens of *Euchiridæ* fetched over £12, nearly half of the amount being represented by the cost of a pair of *E. Dupontianus*. A very incomplete set of *Paussidæ*, but including some remarkable species, realized over £20. The whole of the beetles were sold for under £600; but the prices secured for some of the lots in the more obscure groups seemed utterly out of proportion to those obtained for others, and suggested the idea that the value of beetles depends on their size. The principal purchasers of the insects were the British Museum, and Messrs. R. Oberthür, H.

Deyrolle, Armitage, and Janson. The Library sold for a little over £200. It was not extensive from a general point of view, but comprised several complete series, and other scarce books. The "Annales Soc. Ent. France" (complete) were sold for £43; the "Trans. Ent. Soc. Lond." (complete) realized £32; and the single thin vol. of the old Ent. Soc. Lond. (published in 1812) was considered to be worth nearly £2. Nearly £9 was obtained for "Laporte and Gory;" the Guérin-Méneville "Magasin" and "Revue" series obtained £14 (the three series combined). The most remarkable item, so far as regards the books, was that £18 was paid for Donovan's "Epitome of the Natural History of the Insects of New Holland, New Zealand, New Guinea, &c." (a thin volume published in 1805); we believe it now forms part of the new library formed in connection with the British Museum (Natural History) at South Kensington.

Entomological Society of London.—*May 6th*, 1885: R. McLachlan, Esq., F.R.S., President, in the Chair.

The President announced the death of Prof. C. T. E. von Siebold, one of the Honorary Members.

Mr. Pascoe exhibited a species of *Bruchidæ* bred by him many years ago from the seeds of a leguminous plant from South Brazil, and remarkable because the pupa was enclosed in a special firm cocoon.

Mr. C. O. Waterhouse exhibited, on behalf of Mons. Wailly, living larvæ of *Hemileuca maja*, which he believed to have been reared from the egg for the first time in Europe. They fed upon hawthorn, but their natural food was oak.

Mr. Billups exhibited a large quantity of living and dead examples of the oak-root gall-maker, *Aphilothrix radicis*, recently bred, together with its inquiline *Synergus incrassatus*, and its parasite *Callimome nobilis*. He also exhibited two living *Carabus auratus*, found in bunches of French lettuces in the Borough Market.

Mr. E. P. Collett exhibited an oak twig with numerous hard excrescences upon it, and asked if they were possibly due to the agency of insects or *Acari* in the first instance. The President said that excrescences of a similar nature on other trees had been attributed to *Phytoptus*, but in this case they more resembled what was ordinarily termed "canker," and which had been tolerably well proved to be owing to fungi.

Mr. H. Goss, in presenting a series of *brochures* by M. Brongniart on fossil insects, read a sketch of the recent discoveries of gigantic fossil insects in palæozoöic formations in France, and commented upon the various schemes of classification prepared for them, M. Brongniart in particular considering them links between *Orthoptera* and *Neuroptera*, and proposing for them the ordinal term "Neurorthoptères." The President, Mr. Waterhouse, and others took part in the discussion.

Mr. Enock read the first part of a paper on his experiences of the habits, &c., of the English Trap-door Spider, *Atypus piceus*, as observed by him at Hampstead and Woking, entering fully into the life-history of the species. His remarks more especially concerned the ♂, and he promised to refer to the ♀ in the concluding portion of the paper. Mr. Stainton and others took part in the discussion.

REVISION OF THE BRITISH SPECIES OF *PHYCITIDÆ* AND *GALLERIDÆ*.

BY E. L. RAGONOT,

President of the Entomological Society of France.

Whilst preparing the continuation of my "Notes on the larvæ of British *Micro-Lepidoptera*," I was struck with the great differences which exist in the arrangement of the *Phycitidæ*, as given in Mr. Stainton's "Manual of British Butterflies and Moths," and that usually adopted on the continent. I had some thoughts of giving a list of the British species arranged according to Dr. Wocke's catalogue, which is founded on the works of Zeller and von Heinemann, but when I began to study the subject, I noticed that numbers of species were placed in genera irrespective of their structure; such a classification could not stand. I postponed, therefore, my notes on the larvæ, and have since studied nearly exclusively the *Phycitidæ* and *Galleridæ* of the whole world, thanks to the kind help of the late Prof. Zeller, Lord Walsingham, Dr. Staudinger, and many other friends, so that I have had an opportunity of examining nearly all the known species, and a great number of unpublished ones, with the object of writing a monograph of these insects.

The classification of the British species of *Phycitidæ* and *Galleridæ* in the "Manual" was based on those of Zeller and Guenée, but at that time the neuration of the wings was but little studied, the form of the antennæ and the palpi being the only characters taken into consideration. Von Heinemann attended to the neuration, and his classification is a great improvement on the others, but in his work there are numerous blemishes, some of which are quite unaccountable.

The study of the *Phycitidæ* remains very difficult, because only the male possesses the distinguishing characters in the antennæ and the palpi, so that the female might frequently be placed in different genera; hence, if the neuration be not carefully verified mistakes will arise, and species be placed by authors in wrong positions.

As my monograph of these insects is in preparation, I do not intend here to propose a classification of the British species as regards the sequence of the genera. I wish simply to discuss the names actually used, with the view of fixing the proper appellations both of the species and genera.

The early writers mixed the *Phycitidæ* and *Galleridæ* among the *Tineæ*, these, in the Vienna catalogue, being divided into *Tineæ Directipalpes* and *Tineæ Recurvipalpes*, forming thus a very unnatural classification.

Hübner, in his "text," separated the *Crambidæ*, *Phycitidæ*, and *Galleridæ* from the true *Tineæ*, terming them "*Tineæ Pyralidiformes*."

Fabricius was the first who created special genera for these insects; he established the genus *Galleria*, giving *cereana*, L. (*mellonella*, L.), as the type, and the genus *Phycis*, assigning as type his *spissicella*, but adding *Tin. boletella*, F., a true *Tinea*.

Haworth accepted the genus *Phycis* of Fabricius, and placed in it all the Phycids save *cribrella*, Hb., and *carnella*, L., which he put in a different division (*Curvipalpeæ*).

Hübner, in his Catalogue, divided the *Phycitidæ* and *Galleridæ* into fifteen genera. These genera were formed simply on the colouring or markings of the wings, so that the species are mixed without regard to their structure. The genera are too briefly characterized, yet, as they are the base of Zeller's nomenclature, it is necessary to examine them.

Achroia (Cat., p. 163).—This name has been modified by Zeller into *Achræa*. The genus comprises three species, beginning with *cinereola*, Hb. (*griseella*, Fab.). It was characterized by Stephens and Zeller, so that we should quote *Achræa* (Hb.), Steph., Zeller.

Eucarphia (Cat., p. 364) included two species of *Crambus* and *vinetella*, F., which latter becomes the type of the genus.

Hypochalcia (Cat., p. 367) comprising *ahenalis*, *ænealis*, and *ærealis*, which are all synonymous with *ahenella*, S.V. This genus, being composed but of one species, has very properly been retained by Zeller and characterized by him (Isis, 1839, p. 178; 1848, p. 721).

Anerastia (Cat., p. 367).—This genus comprises three true *Hypochalciæ*, and, lastly, *lotella*, Hb.; it would have been proper to retain the name of *Anerastia* for the species of *Hypochalcia*, had not the latter genus been so distinctly indicated as I have explained. The genus has thus rightly been restricted by Zeller to *lotella*, and supersedes *Araxes*, Steph., which was formed of three distinct modern genera.

Gesneria (Cat., p. 368).—This genus contains *canella*, S.V., and three *Scopariæ*, one before, and two after, *canella*, so that, evidently, the genus was intended for *Scoparia*, but as the latter genus was already established by Haworth, Zeller properly created the genus *Gymnancyla* for *canella*, S.V.

Aphomia (Cat., p. 369).—This genus was created by Hübner for *sociella*, L., and is, therefore, good; it has been described by Zeller (Isis, 1848).

Pempelia (Cat., p. 369).—The genus *Pempelia* was composed of four ill-assorted species: *Colocalis* = *anellus*, S.V.; *quercalis* = *quercella*, S.V. (a Pyralid); *palumbella*, S.V.; and *ornatella*, S.V. Zeller divided the genus *Pempelia* into several genera: 1°. *Etiella*, Z. (type, *Zinckenella*, Tr.); 2°. *Eurhodope*, Hb., comprising *euphorbiella*, Z. (which I refer to *Nephopteryx*, the maxillary palpi not being at all developed into a pencil-like brush, as in other *Pempeliæ*), and *carnella*, L.; 3°. *Pempelia*, comprising all the *Pempeliæ* with smooth wings, including *ornatella*,

S.V.; and, lastly, 4°. *Salebria*, Z., composed of species with raised scales before the first line, including *palumbella*, S.V. Von Heinemann adopts the last two genera as indicated by Zeller, but rightly mixes the species having raised scales with those with smooth wings, placing in the genus *Salebria*, Z., all the species with eight veins to the hind-wings, and in the genus *Pempelia* those with seven veins only; thus, *palumbella*, S.V., becomes the type of the genus *Salebria*, Z., and *ornatella*, S.V., that of *Pempelia*, Z.

Nephopteryx (Cat., p. 370).—This is composed of a great variety of genera, so that it is impossible to say which is the type intended. Zeller (Isis, 1846) created the genus *Dioryctria* for the first species (*abietella* [S.V.], Zk.), placing the next species (*rhenella*) in his genus *Nephopteryx* (established in the Isis for 1839), so that *rhenella*, Zk., must be considered as the type of the genus.

Zophodia (Cat., p. 370).—Of the three species included in Hübner's genus (*legatella*, Hb., *tumidella*, S.V., and *convolutella*) *tumidella* is placed by Zeller in his genus *Acrobasis*, *legatella* and *convolutella* are placed separately in the genus *Myelois* (Isis, 1839 and 1848); *Zophodia* forming a sub-genus for *convolutella*. Von Heinemann adopted the genus *Zophodia* for *convolutella*, Hb., and there is no necessity to change the name.

Epischnia (Cat., p. 370).—The genus was composed of *diversalis*, Hb. (*polygonalis*, Hb.), *prodromella*, Hb., and *muscerdalis*, Hb. (*nebulella*, Hb.). The first, belonging to *Botys*, must be excluded; the second becomes the type of the genus which has been characterized by Zeller (Isis, 1839 and 1848).

Myelois (Cat., p. 371).—The only species given by Hübner is *medullalis*, Hb. (= *cribrella*, Hb.). Zeller placed in his genus *Myelois* all the species of which the antennæ, maxillary palpi, and wings in the male have no peculiar character, but he divided the genus into various ill-connected sub-genera. Von Heinemann did the same, including even Zeller's *Acrobasis*, whilst he removed several species to other genera. The genus has thus become the general refuge of all uncertain species, but as there cannot be any doubt as to the species which forms the type, I restrict the genus to those species alone which, like *cribrella*, have simple antennæ in the male, eight veins to the hind-wings, with veins 4 and 5 in the fore-wings forked.

Selagia (Cat., p. 371), comprising two *Crambi*, and *argyralis*, Hb. (*argyrella*, F.). This genus has been described by Zeller (Isis, 1848), and is composed of two species, *argyrella*, F., and *janthinella*, Hb., which have wrongly been placed since in the genus *Nephopteryx*, Z., proper.

Eurhodope (Cat., p. 371), formed for *pudoralis*, S.V. (*rosella*, Sc.), and *carnealis* (*carnella*, L.). The type of the genus is *rosella*, Sc., which has been since placed in *Myelois*, auct., but as the type of *Myelois* is *cribrella*, Hb., the neuration of which is different from that of *rosella*, Sc., I adopt *Eurhodope*, Hb., for *rosella*, *cruentella*, Dup., &c., as well as for *legatella*, Hb., *suavella*, Zk., *advenella*, Zk., &c., as they cannot be distinguished structurally from one another, yet as the *legatella* group appears so different from the *rosella* group, I establish a sub-genus for the former under the name of *Rhodophæa*, Guenée.

Catastia (Cat., p. 372).—This is a good genus, and has been adopted by Zeller (Isis, 1839 and 1848) and Von Heinemann.

To return to other authors who treat on these insects.

Stephens adopted the genus *Phycis* for most of the species, creating only the genus *Oncocera* for *cribrella*, Hb., and *carnella*, L., and that of *Araxes*, comprising *lotella*, Hb., *ocellea*, Hw., and *ahenella*, S.V., all of which species had already been provided with generic appellations.

Treitschke followed Zincken, ignoring Hübner's genera, creating only the genus *Lispe*, changed by him afterwards into *Myelophila*, for *cribrella*, Hb.

Duponchel generally followed Treitschke, but created the genus *Diosia*, which is synonymous with *Catastia*, Hb. He placed the rest of the Phycids in the genus *Phycis*, save *carnella*, L., *argyrella*, F., *pudorella*, S.V., and *vinetella*, F., forming his genus *Ilythia*, and adopted Treitschke's *Myelophila* for *cribrella*.

Guenée, in his "Index Microlepidopterorum," attempted to classify the *Phycitidæ* and *Galleridæ*, partly following Zeller, but he does not seem to have studied the subject very carefully, so that he associates species belonging to very different genera. Some of his genera, however, are good, and must be retained.

Most writers on the subject have retained in their classification the name of "*Phycis*," either for a special genus or for the family in general, but the name had already been employed to designate a genus of fishes, as was properly observed by Curtis and Zeller, so that it cannot stand. As Hübner did not indicate a special name for the Phycids in general, it is right that we should adopt that of *Phycita* imposed by Curtis, and, consequently, I propose calling the family "PHYCITIDÆ."

As the name *Phycita* was evidently given to replace that of the Fabrician genus *Phycis*, the type of the genus *Phycita*, Curtis, would be *spissicella*, F. (*roborella*, S.V.).

Having, I hope, sufficiently justified the modification in the name of the family, I will now consider the genera and species, following the classification given in the "Manual," marking with an * the species discovered in England since the publication of Mr. Stainton's work.

GALLERIDÆ.

Galleria mellonella, L.—This insect and its larva are very well known.

Aphomia sociella, L.—Linnæus described the ♂ first under the name of *sociella*, and afterwards the ♀ under that of *colonella*. The larva does not appear to have been described anew since Treitschke.

Curtis placed the sexes of *sociella* in two different genera, *Melia*, Curtis, and *Ilythia*, Latreille, but neither can be retained, because *Aphomia*, Hüb., had been applied to the genus long previously.

Some confusion has arisen with regard to the genus *Ilithyia*, as the author employed the name for two different genera. Latreille first created the genus *Ilithyia* in 1825 for *Crambus colonum* in his "Familles Naturelles du Règne Animal," but he did not characterize it.

Duponchel, in the "Dictionnaire universel d'Histoire Naturelle" (d'Orbigny), confounded *colonum* with *carnella*, L., for if we refer to Latreille's "Genera Crustaceorum et Insectorum," &c., 1809, vol. iv, p. 231, we find that *Crambus colonum* is synonymous with *Tinea colonella*, L., Fab., Hüb., *Tinea colonum*, Fab., *sociella*, L.

In the edition of 1817 of Cuvier's "Règne Animal," Latreille leaves *colonella* among the *Galleriæ*, and says that "*Crambus carneus* and several other species" (which he does not state) should form a sub-genus of *Crambus*.

In the edition of 1829 of the same work he mentions the genus *Ilithyia*, Latr. (*Crambus*, F.), comprising *Crambus carneus* and several other species having knotted antennæ, but again omits to say *which* species should be placed in the genus.

Ilithyia, Latr., being synonymous with *Aphomia* as regards *colonella*, L., and not having been applied regularly to *carnella*, L. (which belongs to the genus *Salebria*, as already explained), should not be retained as a genus.

Melissoblaptes bipunctanus, Curt.—This insect has been confused to a great extent with *anellus*, S.V., on account of the similarity in colour; it has, however, narrower fore-wings, the costa much less rounded; the wings bear a more uniform colour, *anellus* being more varied and mottled; the safest way to distinguish the two insects is by the neuration. Zeller founded his genus *Melissoblaptes* on *bipunctanus*, for that species has only seven veins to the hind-wings, whilst *anellus* has eight; besides, in the fore-wings of *bipunctanus* vein 9 arises from the common stem of 7 and 8, which are forked, whilst in *anellus* vein 7 originates from the common stem of 8 and 9. As the neuration of both sexes is identical in each species, I consider that *anellus* is generically distinct from *bipunctanus*, and propose for the former the generic appellation of *Hornigia*, in honour of my friend Mr. J. von Hornig of Vienna, a distinguished Entomologist.

The larva of *bipunctanus* has not been satisfactorily identified, as no doubt it has always been confounded with that of *anellus*.

We are still in the dark respecting the habits of the larva of even the latter species; Zincken supposed that it lived in nests of humble-bees, but could not verify the fact. Zeller, in the "Stettiner ent. Zeitung" for 1868, p. 413, wrote that he had discovered, in the month of July, numbers of tubular galleries placed perpendicularly in the soil of a sandy locality, or horizontally on the surface of the ground, which was sparingly covered with patches of *Hieracium pilosella*, *Trifolium repens*, and various grasses. Some of these galleries were tenanted by larvæ, others by pupæ, but he could not discover the food-plant of the larva. He tried the latter with dead flies, and thought that the bodies of some had been nibbled; he also noticed that a larva had devoured one of the pupæ, but he did not feel justified in affirming that the larva at large would live on animal food, and remarked that the silken tubes had no vestiges of insects mixed with them. Zeller bred several of the insects, and although he called them *bipunctanus*, he thought they might have been considered as *anellus*, and that perhaps it was a mistake to consider the latter distinct from *bipunctanus*.

Büttner confirms Zeller's observations, and states that he bred large specimens of *bipunctanus* from larvæ fed on dead insects.

J. von Hornig submitted to me a number of *anellus*, S.V., bred from wasps' nests (*Vespa sylvestris* and *Polistes gallica*), and mentioned that the species was usually bred from these nests in Vienna.

On the other hand, M. Millière states that he has bred *anellus* from larvæ fed on the flowers of *Inula helenium*. M. Chretien, of Boulogne, informs me that he had received in the summer ova of *anellus* from M. Millière, and had reared the larvæ on flowers of various plants; he obtained several large specimens of the imago in the autumn. I also received two batches of eggs from M. Millière, and thinking that the larvæ might feed on sweet substances in the nests of wasps, I gave them some dried figs, but they did not thrive and produce the perfect insect; they are still small, and no doubt I shall not breed the moth before next summer. Mr. Barrett informs me that Mr. Sydney Webb finds *bipunctanus* in England sitting on swampy ground more frequently than elsewhere.

Achræa griseella, F.—The larva was figured by Réaumur, and has frequently been described since. It feeds in bee-hives, and is often injurious. M. Lhotte of Rouen, however, has bred the insect from dried apples, so that it does not affect bee-hives only.

**Melissoblaptes cephalonica*, Stt.—As Mr. Stainton rightly sur-

mised, *cephalonica* is certainly not a true *Melissoblaptes*, Z., for the shape of the wings and the neuration are different. In *Melissoblaptes*, Z., four veins originate from the median nervure, vein 2 from near the middle of the median nervure, 3 from near the angle of the cell, and 4 and 5, on a common stem, arise from the angle of the cell. In *cephalonica*, on the contrary, vein 2 is wanting, 3 arises much before the angle of the cell, 3 and 4 originating separately from the angle of the cell. In the hind-wings we find seven veins, as in *bipunctanus*, but veins 4 and 5 are very short. The basal joint of the antennæ in both sexes of *cephalonica* is densely covered with hair-like scales, whilst in *bipunctanus* it is naked. In the latter species the palpi of the ♀ are porrect and very long; in *cephalonica*, on the contrary, they are short, rounded and drooping. The larva feeds on dried currants, and has no doubt been introduced into England.

To recall the country whence it has most likely been imported, I name the new genus *Corcyra* (ancient name of Corfu).

Phycitidæ.

Anerastia, Hb.—The essential character of *Anerastia* is the absence, or nearly so, of the tongue. The *Anerastiæ* differ so much from the rest of the *Phycitidæ* in this respect, that I have been induced to separate them thus, forming two sub-families:—

1° Phycitinæ.

2° Anerastinæ.

The *Anerastinæ*, represented in England by a single species, are very numerous out of Europe.

The larva of *Anerastia lotella*, Hb., is well known, having been described by Zeller in 1848, and by Mr. Buckler in 1875.

Anerastia Farrella, Curt.—The name of *Farrella* must be dropped and replaced by that of *Boisduvaliella*, under which name it was very recognisably described in 1845 by Guenée in his "Index Microlepidopterorum," p. 81. His description runs as follows:—

"Affinis videtur colore *divisellæ*; at alia. Alæ anticæ angustæ, cervinæ, vitta costali albocinerea, marginibus interno terminalique cinereo adspersis, puncto minimo cellulari nigro, fimbria concolore, trilineata, alæ posticæ albido-subhyalinæ. Antennæ minime nodosæ. Palpi capite duplo longiores, conici, basi adscendentes, denique porrecti. Ex Helvetia accepta ab amicissimo Boisduval cujus nomine gaudet."

Guenée places the insect in the genus *Epischnia*, Hb., to which it certainly belongs. I have seen the type in his collection at Rennes. It would appear that *Farrella* is rare in collections in England, and that it is replaced by varieties of *lotella*, which may account for its having been placed in the genus *Anerastia*.

Ephestia, Z., *elutella*, Hb.—The larva is well known, and the insect very widely distributed.

Ephestia semirufa, Hw.—All the specimens I have seen are in rather poor condition. *Semirufa* can be distinguished from *elutella* by its larger size, its brownish-ochreous colour, the narrowness of the median space. In the ♂ the tuft of scales below the fore-wings on the costa at the base is very small and indistinct; in the two specimens before me I cannot find any trace of the yellow hairs on the hind-wings at the base, as mentioned by Mr. Barrett, nor the yellowish patch at the base of the fore-wings above on the inner margin, all so conspicuous in *elutella*, and other *Ephestiæ*.

The larva has not yet been discovered, nor does the insect appear to have been found out of England.

Ephestia ficella, Dgl.—This insect is widely distributed, and has received several names. It was first described by Guenée (*l. c.*, p. 82) under the name of *calidella*, afterwards by Mr. Douglas under the name of *ficella*, and by Dr. Staudinger as *Ephestia xanthotricha*; it has wrongly been placed in the genus *Myelois* by Dr. Wocke, as it is a true *Ephestia*.

Guenée described the insect as follows:—

"Statura *ceratoniellæ*, cui affinis, at alia videtur, alæ anticæ cinereæ, atomis nigris conspersæ, strigis duabus albidioribus vix conspicuis, media bi-angulata, non vero obliqua, atomis densioribus nigris extus adumbrata, ante-terminali undata, nigro angustius marginata; puncto medio nigro vix ab atomis distincto, punctulis marginalibus aliquot nigris, fimbria cinerea. Alæ posticæ albidæ, sub-hyalinæ, lineola gemina terminali fusca. Palpi capite longiores, graciles, protensi, articulo tertio secundum æquante, cylindrico-obtuso. Antennæ omnino filiformes, articulo basali vix incrassato. D. Donzel cepit in insul. Hyères."

I have seen the types in Guenée's collection now at Rennes. The larva is well known.

**Ephestia passulella*, Barrett.—This insect occurs nearly all over the world; I have it from England, Cannes, Vienna, Egypt, Siberia, Japan, and Chili. It was first described by Zeller in the "Stettiner ent. Zeitung" of 1867, p. 384, as *Ephestia cahiritella*. I have seen the original types. The larva has been described by Mr. Buckler, Ent. Mo. Mag., vol. xix, p. 104. I received ova of this species from M. Millière, and reared the larvæ, the moth coming out at the end of October; but, as in other species of *Ephestia*, a part of the larvæ hibernate and change to pupæ towards the end of May, the imago appearing at the beginning of June.

**Ephestia figulilella*, Gregson.—I am informed by my friend Mr. Gregson that the name was mis-spelt as it was being printed, and he had no opportunity of correcting it. This being so, and as it was intended to recall the food of the larva, we may adopt that of *ficulella*, proposed by Mr. Barrett. The larva has been described by Mr. Porritt in the Ent. Mo. Mag., vol. xvii, p. 14.

Ephestia interpunctella, Hb.—The larva of this species has frequently been described; it appears to be injurious to Indian corn in the United States, where the moth is known under the name of *E. zeæ*, Fitch.

The palpi of *interpunctella* being porrect instead of ascending, I consider it right to retain for the insect the generic appellation of *Plodia*, Guenée (Index Micro., p. 80).

**Ephestia Roxburghii*, Gregson.—This appears to be a good species, and should be placed near to *elutella*; it has considerable resemblance to *Cryptoblabes bistriga*, and might be confounded with it, but, besides the difference in the colour, the neuration is very distinct.

As the insect is so little known, I append a description of it:—

Al. ex., 20 mm. Fore-wings broad, costa rounded, colour pale brownish-grey, median space entirely suffused with blackish-brown, in which the discal spots are hardly perceptible. First line oblique, greyish, hardly paler than the ground colour. Second line slender, pale grey, parallel to the hind margin, slightly sinuous, followed on the costa by a dark streak. Cilia pale brownish-grey, preceded by an indistinct dark line. Hind-wings brownish-grey, cilia paler. Head, thorax and palpi brownish-grey; antennæ pale brown, not annulated. Palpi recurved, ascending.

The specimen (a ♀) from which I have drawn up the above description is the original type of *Roxburghii*, Greg., kindly submitted to me by him. The specimen is not in a good state, but it differs from every other species of *Ephestia* with which I am acquainted. It belongs to the puzzling group of which *elutella* and *semirufa* are the types, the discal cell of the hind-wings being comparatively long, and veins 3 and 5 (4 wanting) appearing somewhat stalked. It very much resembles *tenebrosa*, Z., but in the latter species, which differs from the true *Ephestiæ* because vein 8 is present on the fore-wings, the upper wings are entirely blackish, except the base and inner margin, and the hind-wings are nearly white.

Dr. Staudinger has sent me a species from Zaragoza (Spain), which is very close to *Roxburghii*, but the wings are entirely blackish with a rust-coloured streak along the inner margin, and the lines distinctly whitish. *Roxburghii* has not yet been bred.

Homœosoma, Curt.—In the Isis of 1839 Zeller proposed for this genus the name of *Phycidea*, but in the Isis of 1848 he adopted that of *Homœosoma* of Curtis, this name having priority.

Homœosoma nebulella, S.V.—The larva has been described as feeding in the heads of thistles. Wood figures a *binævella* (fig. 1451) instead of a *nebulella*.

Homœosoma nimbella, Z.—The larva is well known, and feeds in the heads of a great number of composite plants. The insect varies very much in size and markings.

**Homœosoma saxicola*, Vaugh.—This appears to be the most frequent form of *nimbella* in England. I have a number of British *nimbella* from Yarmouth, Yorkshire, Cheshire, Pembroke, and Dublin, and none are like continental specimens of that species; *saxicola* is generally larger, the fore-wings are more distinctly white on the costa, and the rest of the wing is of a pure ochre, not at all powdered with black scales as in the type of *nimbella*. The name of *saxicola* should be retained to distinguish the English variety of *nimbella*.

**Homœosoma senecionis*, Vaugh.—This is a distinct species, but it had already been described by Dr. Rössler in 1866 as *H. cretacella*. The larva has been described by Mr. Buckler (Ent. Mo. Mag., vol. vii, p. 131). It feeds in a tubular gallery among the flowers of *Senecio jacobæa*. I have seen Dr. Rössler's original types from Wiesbaden, and specimens from Metz and Siberia.

Homœosoma binævella, Hb.—The larva feeds in the heads of thistles, and has been described by J. von Hornig in 1853, and Barrett (Ent. Mo. Mag., vol. xv, p. 181).

Homœosoma sinuella, Fab.—The larva feeds in the root stalks of *Plantago lanceolata*, and its life history has been given in this Magazine, vol. xv, p. 180, by Mr. Barrett. The perfect insect varies somewhat in the neuration.

Acrobasis consociella, Hb.—The larva lives in long, narrow, tubular, silken galleries (covered with its excrements) between voluminous bundles of oak leaves drawn together, and has frequently been described.

**Acrobasis sodalella*, Z.—Mr. Barrett notices this species in the Ent. Mo. Mag., vol. xix, p. 111, and concurs in the opinion of Zeller that *sodalella* is only a variety of *consociella*. I am not sure he is right, for besides the differences which Mr. Barrett finds in the perfect insect, there is a considerable dissimilarity in the larvæ. That of

sodalella is olivaceous greyish-brown, with six longitudinal interrupted whitish lines; head yellowish, covered with numerous irregular black lines and bordered with blackish. Second segment with a shining black plate, divided in the middle by a pale line and twice notched in front, a small black spot on each side beneath. Third segment with a small black raised spot. The ordinary spots are very small, black, surrounded with white; a small blackish plate on the anal segment. Fore-legs black. This description is taken from a well-preserved larva submitted to me by Herr Eppelsheim with one of *consociella*. The ground colour of the latter is very pale greenish-grey, with five longitudinal dark lines, the feet concolorous; second segment with an indistinct concolorous plate, spotted with black; the head entirely yellowish. Until we can obtain more positive information about *sodalella*, Z., I must consider it distinct from *consociella*, Hb.

Acrobasis tumidella, Zk., and *rubrotibiella*, F. v. R.—The synonymy of these two species is very perplexing.

In the Wiener Verzeichniss we find, page 130:—"19. Lichtgrauer W. (Wickler) mit zwei röthlichen Schwulsten. *T. Tumidana.*"

Hübner figured under the name of *verrucella* (fig. 73) an insect which has certainly more the appearance of *tumidella*, Zk., than of *rubrotibiella*, but in his "Text," page 35, describing the insect under the name of "Warzentragende Schabe; *Tin. verrucella*," he says most distinctly that the first line has a reddish wart-like elevation, "die innere (Streif) welcher den ockergelben Raum schliesst, ist schwarz, hat an sich röthliche warzenförmige Erhöhungen." . . .

When figuring and describing the insect, he was under the impression that it was the *verrucella* of the Vienna Catalogue, but having learnt that the latter was not the Phycid, and that his *verrucella* was the *tumidana*, S.V., in his Catalogue he changed the name of *tumidana* into *tumidalis*, quoting his *verrucella* as a synonym.

Zincken, who wrote two years later, was not certain that the species he described under the name of *tumidella* was the *tumidana* of the Vienna Catalogue, though he quotes Hübner's *verrucella* as a synonym; he imposed the name of *tumidella* not for the sake of the termination in "*ella*," but as a "new name to prevent confusion with *tumidana*, S.V.;" and as he does not speak of the warty band on the the first line, his insect is clearly different from that of the Vienna Catalogue, as well as from Hübner's *verrucella*.

Treitschke describes *tumidella*, Zk., following Zincken for the synonymy and description of the larva, so that, as he does not mention the raised scales, the description can only apply to *tumidella*, Zk.

Lastly, Fischer von Röslerstamm, who discovered that there were two closely allied species, and after declaring that in Schiffermüller's Collection in Vienna, under the name of *tumidana*, S.V., there were two good specimens of a species which agrees well with the description in the Catalogue, instead of calling *this* species *tumidana*, S.V., he gives it a new name—*rubrotibiella*. As he says that *verrucella*, Hb., is *tumidella*, Zk. and Treitschke, it proves that he had not read Hübner's description, and only considered the figure which, it is true, more resembles *tumidella*, Zk., than *rubrotibiella*, F. R., but the latter species varies very much, and I have specimens which agree very well with fig. 73 of Hübner.

Zeller was also of opinion that *tumidana*, S.V., is *rubrotibiella*, F. R.; it is, therefore, strange that both he and Fischer von Röslerstamm should have retained the name of *rubrotibiella* under the circumstances.

As we must restore the name of *tumidana*, S.V., since it is certainly Hübner's *verrucella* and *rubrotibiella*, F. R., we cannot retain Zincken's *tumidella*, which would naturally produce confusion; in consequence I propose to name the latter *Zelleri*, in honour of the great Lepidopterist who worked out the *Phycitidæ* in so masterly a manner.

The larvæ of *tumidana*, S.V., and *Zelleri*, Rag., are very similar, and may be described as follows:—

Greenish-yellow, with a purple tint, more intense on the dorssl region than on the sides, body beneath paler; the five dorsal stripes blackish-brown; ordinary spots black, indistinct. Head pale yellow, marbled and spotted with black, mouth brownish. Second segment also pale yellow, with the plate above spotted with black, the dorsal line visible beneath.

Tumidana, S.V., has the markings very distinct, dark, and the larva has frequently a strong reddish tinge.

In *Zelleri*, Rag., on the contrary, the ground colour is yellower and greener, the longitudinal lines are also nearly obliterated anteriorly.

Acrobasis angustella, Hb.—Zeller, in the Isis of 1848, created the genus *Alispa* for this species, which agrees with no other Phycid either in the structure of the perfect insect, or in the habits of the larva. Hübner, thinking that the name *angustella* might lead to confusion with *angustalis*, S.V., changed it in his Catalogue into *gracilalis*, which, however, has never been employed, as *angustalis*, S.V., is a Pyralid. The larva feeds in the berries of *Euonymus europæus*, and is well known.

Cryptoblabes bistriga, Hw.—The larva of this species has been described by J. von Hornig and Anton Gartner as feeding on *Alnus glutinosa*, but Buckler described it as feeding on oak.

M. Millière has re-described *bistriga* under the name of *Ephestia lugdunella*.

Nyctegretis achatinella, Hb.—The larva was discovered by Herr Sorhagen, who describes it in the Berliner ent. Zeitung, vol. xxvi, p. 156. It feeds on *Sedum sexangulare*, forming a thick white gallery which extends from the lower part of the flowering stems to the roots; is full-fed towards the middle of June.

Myelois cribrum, S.V.—This common species has borne several names, and that of *cribrum* is wrongly applied, for in the Catalogue of Schiffermüller and Denis the insect bearing that name is placed among the "*Noctuæ*," between *Setina roscida* and *Deiopeia pulchella*, proving that the authors had only in mind *Emydia cribrum*, Lin., and not a Phycid (or *Tinea*, according to the early writers). Thus we find in the Vienna Catalogue, page 68:—"8. Weisse schwarzpunktirte Eule, *N. cribrum*, Linn.;" the quotation of the Linnæan name and the place assigned to the insect showing that the authors intended the well-known *Bombyx*, and not a new species, so that even if in the collection there were specimens of the Phycid the name could not stand. The species was afterwards figured and described by Hübner, in his Beyträge, vol. i (pl. 3, fig. ss. 24), under the name of *Tinea cribrumella*, but as this is evidently the same as *cribrum*, with the ending of "*ella*," I consider it must be put aside for the same reason.

The insect was next published and described as *Tinea cribrella* by Hübner, fig. 67, page 36, and this name should be retained; subsequently, in his Catalogue, Hübner changed the name to *medullalis*, in order to avoid confusion with *Emydia cribrum*, but this alteration was not needed. The larva feeds in the heads of thistles, and hibernates in the dried stems, but sometimes (in the south of France), it changes to a pupa in July, and the moth appears towards the end of the same month and beginning of August. Treitschke originated the error in the life-history of the insect that the ova are deposited on the stems, and that the larvæ feed only in the interior of the latter.

Myelois suavella, Zk.—The larva is well-known, feeding on sloe and hawthorn.

Myelois advenella, Zk.—The larva, feeding on hawthorn and *Sorbus aucuparia*, has been described several times.

Myelois marmorea, Hw.—This is called *epelydella*, Z., in continental collections, but as it appears that the insect had been described under the name of *marmorea* by Haworth long before Zeller published it under that of *epelydella*, the latter name cannot be retained. The larva feeds on sloe and hawthorn; it has been described by Mr. Buckler.

Myelois ceratoniæ, Z.—This insect is a true *Myelois*. It has been re-described by Vaughan as *Trachonitis Pryerella*. Thanks to the kindness of Mr. Stainton, I have had an opportunity of seeing one of the original types, which I find is only a bleached example of *ceratoniæ*, Z. This type is quite abnormal in structure, for it has nine veins to the hind-wings, the sub-costal vein throwing out two branches to the costa.

Ceratoniæ has lately been described by Sorhagen in the Berliner ent. Zeit., xxvi, p. 154, as *Euzophera Zellerella*, but having seen the original and unique type which exists in the Berlin Zoological Museum, I find it is also a light-coloured mottled specimen of *ceratoniæ*; the hind-wings have eight veins, so that it is surely not a *Euzophera*, but a *Myelois*. The insect has also been distributed in a few collections under the name of *Ragonoti* by my friend Baron von Nolcken, but happily the publication has been arrested in time.

The larva has frequently been described; it feeds on dried fruit, such as *Ceratonia siliqua*, dates, *Pyrus japonica*, &c. I have bred it from a larva found feeding in a blood-orange in January.

**Myelois cirrigerella*, Zk.—The larva of this species is still unknown.

Myelois pinguis, Hw.—The larva was discovered by Mr. Helstrip, of York, and it has been described by Mr. Buckler; it feeds under the bark of ash trees. This species and the following are not true *Myelois*, the hind-wings bearing only seven veins; they belong to the genus *Euzophera*, Z.

Myelois artemisiella, Stt.—*Artemisiella* had already been described in 1839 by Zeller, under the name of *cinerosella*, and afterwards by Eversmann under that of *incanella*. The larva has been published several times; it feeds in the roots of *Artemisia absynthium* and *A. campestris*.

Euzophera oblitella, Z.—Von Heinemann places this insect in his genus *Stenoptycha*,† but the neuration is very different from that of

† Finding that the name was already used for a genus of *Lepidoptera*, von Heinemann afterwards changed the name into *Melia*, but this also being employed, Zeller proposed instead that of *Euzophera*.

true *Euzopheræ*, such as *cinerosella*, Z., *pinguis*, Hw., &c., and resembles very much that of *Ancylosis*, so that as I find a good number of species hitherto mixed up in the genera *Myelois*, *Euzophera*, *Acrobasis*, *Nyctegretis*, and *Ancylosis*, such as *sabulosella*, Stgr., *terstrigella*, Chr., *rhodochrella*, H.-S., *pyrethrella*, H.-S., *candidatella*, Ld., *ochracea*, Stgr., *samaritanella*, Z., among which I include *oblitella*, Z., provisionally, all agreeing with each other in neuration, form of palpi, and antennæ. I place them in a special genus to be called *Heterographis*. *Oblitella* differs somewhat from the other species. As in the species of the genus *Ancylosis*, *Heterographis* can easily be recognised by the position of veins 4 and 5 of the fore-wings, these veins originating from nearly the angle of the cell, so that they are *in a line* with *the median nervure*. The hind-wings have only seven veins, vein 2 arising from just before the angle of the cell, whilst 3 and 5 (4 wanting) are on a long stem. The antennæ are generally simple, sometimes sinuous near the base, pubescent, rarely ciliated. The labial palpi ascending, more or less curved; the maxillary palpi filiform, very small, indistinct.

Oblitella, Z., has a very wide range; it occurs in southern Europe, Germany, Hungary, southern Russia, Asia (Kouldja), and it is also common in North America, where it has been described by Clemens as *Nephopteryx undulatella*. Walker has also described it as *Neph. propriella*.

A specimen from the Isle of Wight is recorded in Ent. Mo. Mag., xv, p. 187.

It is a very variable insect, generally pale grey, but sometimes so suffused with fuscous scales, especially the female, that the wings become of quite a uniform blackish-brown colour. The hind-wings of the American specimens are somewhat darker, and the dark spot before the first line on the inner margin is extended into a broad dark band.

Oblitella, Z., does not seem to be well known, it is mixed with allied species, and even Zeller was not well acquainted with the insect, for he sent me under the name of *oblitella*, several *Ancylosis neglectella*, Hein., which is a very different species, easily distinguished by the neuration, veins 4 and 5 of the fore-wings arising from a common point, or very shortly stemmed, whilst in *oblitella* the stem is very long; moreover, *neglectella* and *ephedrella*, H.-S., are of a yellowish-brown colour, and the lines are not so white and distinct as in *oblitella*.

The larva of *oblitella*, Z., is unknown; but Clemens found a num-

ber of larvæ which were ascending a trunk of elm to undergo pupation, and describes one of them as well as the cocoon, ascribing them to his *Neph. undulatella*, but he did not succeed in rearing them to the perfect state.

Hypochalcia ahenella, S.V.—The larva is still unknown. As Dr. Rössler states that it forms tubular galleries on the lower leaves of *Helianthemum vulgare*, according to Anton Schmid, I wrote to the latter, who informed me that the larva mentioned above as feeding on *Helianthemum* was that of *Brephia compositella*, and not that of *ahenella*, with which he was unacquainted.

The species is indicated in the Vienna Catalogue simply by the words :—"32. Glänzender schwarzgrauer Schabe. *T. ahenella*," which diagnosis might suit many other *Phycitidæ*, and, unfortunately, when Zincken wrote his monograph of the genus *Phycis*, no specimens existed in the collection of Schiffermüller and Denis. Fischer v. Röslerstamm, it is true, stated that he had seen under the name of *æneella* in the Vienna collection a good male specimen of *ahenella* ; von Charpentier and Treitschke did not find it when they examined the collection, so that the species stands not so much on the original description as on those of all subsequent authors who have seen in what we now call *ahenella* the true *ahenella*, S.V.

Hübner's fig. 41 is not very bad, but his fig. 58 seems to represent a large *melanella*. It appears that *obscuratus*, Hw., and *tetrix*, Hw., are referable to *ahenella*, and so are *bistrigella*, Dup., and *fuliginella*, Dup., the latter being *var. b.* of Zeller.

Gymnancycla canella, S.V.—Simply described in the Vienna Catalogue, p. 135, as :—"31. Grauröthlicher Schabe ohne Ringe. *T. canella*." Fischer v. Röslerstamm saw a type in the Vienna collection. Zincken was not acquainted with *canella*, which he describes from Hübner's fig. 289 under the name of *depositella*.

The larva has been described by von Hornig and others feeding on *Salsola Kali*, *Atriplex hortensis*, and *Salicornia herbacea*. Millière, in his Iconographie, vol. iii, page 158, describes *canella* as *Ancylosis cinnamomella*, Dup., but on plate 115, fig. 15 to 19, he has *Epischnia* (?) *cinerella*, Dup., and he corrects these mistakes, page 171, saying that the description applies to *Gymnancycla cinerella*, Dup., quoting *cinerella*, Dup., because it is given as a synonym by Wocke ; but *cinerella*, Dup., is quite a different insect belonging to the genus *Bradyrrhoa*, of Zeller.

(*To be continued*).

THE *NITIDULIDÆ* OF GREAT BRITAIN.

BY REV. W. W. FOWLER, M.A., F.L.S.

(*Continued from Vol.* xxi, *p.* 267).

B. Thorax and elytra with fine but very distinct cross reticulation between punctures; anterior margin of forehead emarginate.

M. rotundicollis, Bris.—Short oval, rather convex, leaden-black; thorax about half as broad again as long, broadest about the middle; antennæ light; legs reddish-yellow; punctuation very close; anterior tibiæ finely denticulate. Very closely resembling *M. picipes* at first sight, and often confounded with that species; it is, however, readily distinguished from it by the rounder and somewhat dilated sides of thorax, emarginate forehead, closer punctuation, and also by the plain cross reticulation between the punctures of the thorax and elytra, and the finer denticulation of the anterior tibiæ. Length, $\frac{5}{6}$ lin.

On *Genistæ* and *Trifolium medium*; rare; Littlington, Horsell, Mickleham, Caterham, Highgate, Brighton.

C. Thorax quite smooth between punctures; elytra with fine though distinct cross reticulation; body with strong purple-metallic reflection; anterior margin of forehead straight.

M. symphyti, Heer.—Oval, convex, short in comparison with its breadth; colour violet or greenish-blue; body smooth and shining; legs yellowish; antennæ light, except club, which is somewhat darker; elytra rather strongly and somewhat diffusely punctured, with plain cross reticulation between punctures; thorax more strongly and closely punctured, with interstices quite smooth; anterior tibiæ finely, sharply, and evenly toothed. Male with a deep longitudinal impression on the hinder half of the metasternum, with a tubercle on each side and a smaller one in the middle of the posterior margin. Length, $1\frac{1}{3}$ lin.

Rare; on *Symphytum officinale*, but by no means confined to this plant; in fact, more of our English specimens have been taken on *Agraphis nutans*, and it has occurred on *Taraxacum*. Henley, Dr. Power; Shiere, Dr. Capron; on *Galeobdolon luteum*, near Bowdon, Manchester, Mr. Chappell; Caterham, Mickleham, Amberley, St. Mary Cray, Mr. Champion and Mr. J. J. Walker; Studley Royal, Ripon, Mr. Waterhouse.

iv. Anterior tibiæ strongly serrate or pectinate for at least two-thirds from apex; teeth often irregular, but always distinct and more or less strong.

A. Upper surface very scantily pubescent, entirely smooth between punctures; legs lighter or darker brown; anterior tibiæ serrate.

a. Anterior tibiæ dilated from above middle; thorax nearly as long as broad.

M. nanus, Er. (*marrubii*, Bris.).—Oblong ovate, not very convex, deep black, shining, with scanty pubescence; thorax not much broader than long; punctuation

rather strong, especially of elytra; antennæ and legs varying in colour from dark brown to yellow; anterior tibiæ strongly dilated for at least two-thirds from apex, and with strong irregular teeth, of which four or five at base, apex, and in the middle, are especially conspicuous. Length, $\frac{3}{4}$—1 line.

On *Marrubium vulgare*, *Erysimum alliaria*, and *Salix aurita*; very rare in Britain. Mr. Rye took a specimen at Putney with dark legs and antennæ, and Dr. Power another at Horsell with yellow antennæ and light legs; it has also occurred at Mickleham. This species is closely allied to *M. serripes*, but may be distinguished from it by its much longer thorax, stronger and less close punctuation, and the stronger and more irregular denticulation of the anterior tibiæ, which are more dilated than in *M. serripes*.

b. Anterior tibiæ not dilated from above middle; thorax short, much broader than long.

M. serripes, Gyll.—Oblong oval, rather flat, shining black, occasionally with a leaden reflection, which is chiefly seen in fresh specimens, and is caused by the fine ashy-grey pubescence with which the insect is clothed; antennæ and legs pitchy or reddish-brown; thorax transverse, sinuate at base; punctuation distinct, about the same on thorax and elytra; anterior tibiæ armed with a row of short, strong, usually regular, sharp teeth from a little below base to apex; metasternum of male with a distinct channel behind. Length, $\frac{2}{3}$—$\frac{7}{8}$ lin.

Rather rare; Shiere, Mickleham, Hampstead, Caterham, Chaldon (Surrey), Eastbourne, &c. On *Salvia pratensis* and *Saponaria officinalis*, &c.

Although, as a rule, the teeth on the anterior tibiæ of *M. serripes* are variable in number, they are usually regular as regards length and breadth in individual specimens, some having them broader and blunter, some narrower and sharper; occasionally, however, the same individual has the right and left tibiæ differently toothed; in the late Mr. Rye's collection one specimen has six or seven regular fine teeth on one side and three or four strong blunt ones on the other: this is not unusual, and may be noticed in examples of *M. picipes*, *ovatus*, &c. *M. serripes* is rather a variable species, and may sometimes be confused with small rubbed *M. flavipes* or *M. picipes*; from both, however, it may be distinguished by its narrower form, and the invariably stronger denticulation of its anterior tibiæ.

B. Upper surface very thickly pubescent, thorax and elytra smooth between punctures, scutellum only with strong cross striation; legs black; anterior tibiæ more or less pectinate.

M. murinus, Er. (*seniculus*, ♀, Er.).—Oblong, not very convex, black, clothed with thick greyish or whitish pubescence; thorax one-third broader than long;

punctuation close and fine; legs black, with tarsi somewhat lighter; antennæ black, with the second joint and sometimes the next one or two reddish; anterior tibiæ armed with a row of regular comblike teeth from a little below base to apex; male with the last abdominal segment furnished with a very small and narrow triangular indentation. Length, $\frac{5}{6}$—$1\frac{1}{6}$ lin.

Common on the coast on *Echium vulgare*. Dr. Capron tells me that he has taken it on a small composite plant at Eastbourne; it also occurs inland at Caterham, Mickleham, &c.

M. seniculus, Er., is a variety of this species, according to Brisout; according to Reitter it is the female.

var. planiusculus, Er.—This variety of *M. murinus*, which is considered a separate species by Erichson, is characterized by having the anterior tibiæ more regularly and less sharply toothed, and the entire base of the antennæ red; some of the teeth in *M. seniculus* almost invariably point downwards towards apex, while in *M. planiusculus* they stand out at right angles to the tibiæ, and are smaller and blunter; the colour of the base of the antennæ is not a very reliable character.

There is a specimen in Dr. Power's collection taken at Birch Wood in 1865, that agrees well with types of this species sent me by Herr Reitter.

There can be no doubt that this species of Erichson's must be regarded as a variety of *M. murinus*; in almost all points they are exactly similar; as regards the denticulation of the anterior tibiæ, individual specimens of *M. murinus* differ very much, and, as in *M. serripes*, &c., the teeth occasionally vary on the different tibiæ of the same specimens, being sometimes very strong on one side and almost obsolete on the other; the same peculiarity may be noticed in the *Saprini*, and is probably often the result of accident, or wear and tear, rather than a structural difference.

v. Anterior tibiæ very finely toothed, but with two or three distinct, though small, outstanding teeth, situated at some distance from one another, and separated by two or more smaller teeth.

A. Upper surface shining black, with slight traces of cross striation between punctures; anterior tibiæ with two outstanding teeth; legs black, anterior tibiæ pitchy.

M. lugubris, Sturm.—Oval, rather convex, deep shining black, closely and finely punctured; punctuation on elytra somewhat plainer; pubescence scanty, greyish; thorax about one-third broader than long, somewhat contracted in front; interstices with slight traces of cross striation, which are plainer on the sides of the thorax; anterior tibiæ with two short outstanding teeth, separated by two or more small teeth; forehead excised with a small sharp projection in the centre of the emargination; metasternum of male depressed behind with a strong

longitudinal cariniform projection on the front of the depression; last abdominal segment of male with a little raised keel before its extremity, and behind this a smooth depressed surface; anterior tarsi of male strongly dilated.

There is a smaller variety of this species which, according to M. Brisout, has less strong and deep punctuation; the keel on the last abdominal segment of the male is often deeply divided so as to present the appearance of two sharp tubercles placed side by side. Length, $\frac{5}{8}$—1 lin.

var. gagathinus, Er.—This species of Erichson's is evidently nothing more than a variety of *M. lugubris*; it is larger and more convex, with darker pubescence, and finer denticulation on the anterior tibiæ, but it presents no really satisfactory points of distinction. Length, $1\frac{1}{4}$ line.

By general sweeping. Buckland Hill (Reigate), Esher, Bearstead, Shirley, Mickleham, Caterham, Amberley, Kingsdown, &c. It is a very local species. According to M. Brisout it occurs on species of *Mentha*.

B. Upper surface dull black, with plain cross reticulation; anterior tibiæ with two outstanding teeth; legs dark, anterior pair dark red.

a. Forehead straight; anterior tarsi of male very strongly dilated.

M. obscurus, Er. (*palmatus*, Er., ♂).—Rather broader and more oblong than *M. erythropus*, which it much resembles; dull, leaden, with distinct cross reticulation between punctures; punctuation thick and close; pubescence thick, greyish or brownish; thorax one-third broader than long; antennæ black, with the first or the first two joints brown-red; anterior tibiæ armed with two short prominent teeth, separated by two or more smaller teeth. The male has the anterior tarsi extraordinarily developed, and often lighter in colour; it is the *M. palmatus* of Erichson, and for a long time stood under that name in British collections.
Length, $\frac{3}{4}$—$\frac{7}{8}$ lin.

Local; on *Mentha aquatica*, *Cynoglossum officinale*, and *Helianthemum vulgare*; Esher, Mickleham, Darenth, Amberley, Seven Oaks, Southsea; Bearstead (Kent) on *Teucrium scorodonia*, Mr. Gorham; Llangollen, on *Linaria vulgaris*, Mr. Chappell.

The *M. distinctus* of Waterhouse's catalogue must be referred to this species; the true *M. distinctus*, Sturm., is not a British species; for some reason M. Brisout omits it altogether from his Synopsis: it would appear, however, to be readily separable from *M. obscurus* (according to Herr Reitter, who places it in a group by itself), by having the interstices smooth and the anterior margin of the forehead emarginate: as regards shape, colour and denticulation of anterior tibiæ, it is closely allied to our species, and hence probably arose the mistake.

(*To be continued*).

THE EUROPEAN SPECIES OF THE GENUS *CLINOCORIS*, HAHN, STÅL.

BY PROF. O. M. REUTER.

In the Ent. Mo. Mag., xxi, p. 276, Mr. Douglas has a note concerning *Clinocoris griseus* and *interstinctus*, in which the short report in the "Wiener ent. Zeitung" is accounted to be my exposition of the synonymy of these species in the "Revue mensuelle d'Entomol." Mr. Douglas, however, leaves it to be inferred that he is not aware of any structural differences between the two species, and says, he does not know how I have arrived at my conclusion of the reality of Linné's two species. But the differences between *Cl. interstinctus*, L., and *griseus*, L. (= *Fieberi*, Jak.), are already well pointed out in Puton's well-known "Synopsis d' Hémiptères de France" (ii, p. 76);* yet in copying the descriptions by Linné, Mr. Douglas has left out just the most essential character of *griseus*, which also undoubtedly shows that this species is identical with Jakowleff's *Cl. Fieberi*. Linné says of this species: "*Antennæ fusco-nigricantes*," which character always belongs to the male of this species, but never to *Cl. interstinctus*, of which it is said, "*omnibus partibus pallidior.*" The different colour of the dorsum, assigned by Linné, Mr. Douglas has observed, but this character distinguishes properly the females only, while the male also of *interstinctus* has the dorsum black as far as the apex.

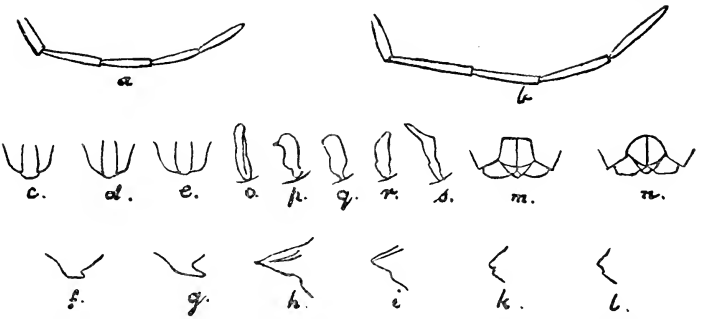
As, however, it may not be unwelcome for British Hemipterists to know the essential differences between these species, I give a Synopsis of all the European (and Siberian) species of *Clinocoris* known by me, one of these hitherto undescribed. To this genus I also join the *Cimex ferrugatus*, Fabr., which differs chiefly by the long-produced lateral angles of the pronotum; Stål was also of the same opinion. Many exotic species, and also *Cl. dorsalis*, Jak., make an evident transition to the genus formed for *ferrugatus*, and which, quite erroneously, has been named *Sastragala*. (The true genus *Sastragala* was created by Amyot and Serville for a species from India, *S. uniguttata*, Don., which forms a genus quite distinct from the European, for which latter the name has been wrongly employed by recent authors).

SYNOPSIS SPECIERUM EUROPÆARUM GENERIS *Clinocoris*, Hahn, Stål.

1 (4) Dorsum abdominis testaceum vel interdum piceum, utrinque testaceo-maculatum. Connexivum solum angulis apicalibus segmentorum nigris. Pronotum angulis lateralibus fortiter productis (figs. *h* et *i*), apicalibus denticulo parvo transversali instructis.

* From the descriptions given by Puton, Mr Douglas might have found that it is *interstinctus* and not *griseus*, which is one of the commonest *Hemiptera* in England, and that it is *griseus* (= *Fieberi*), which here and there might possibly be mixed with the former in collections.

2 (3) Caput medio nigro-piceum ; crebre punctatum, clypeo lobis lateralibus dis-



Explicatio figurarum : *a*, antenna *interstincti* ; *b*, id *antennati* ; *c*, apex capitis *grisei* ; *d*, id. *interstincti* ; *e*, id. *antennati* ; *f*, angulus apicalis pronoti *interstincti* ; *g*, id. *grisei* ♂ et *g* magis auctæ); *h*, angul. lateralis pronoti *ferrugati* ; *i*, id. *dorsalis* ; *k*, id. *antennati* ; *l*, id *interstincti*; *m*, segmenta genitalia feminæ *grisei* ; *n*, id. *interstincti* ; *o*, stylus genitalis maris *grisei* ; *p*, id. *interstincti* ; *q*, id. *antennati* (interdum etiam *interstincti*) ; *r*, id. *dorsalis* ; *s*, id. *ferrugati*.

tinctissime longiore (ut in fig. *e*). Pronotum angulis lateralibus longe spinoso-productis (fig. *h*), piceis. Scutellum macula nigro-picea. Antennæ articulo quinto secundo longiore. Styli genitales maris ut in fig. *s*. Segmenta genitalia feminæ fere ut in fig. *n* ..... 1. FERRUGATUS, Fabr. (1).

3 (2) Caput virescenti-testaceum, remotius nigro-punctatum, clypeo lobis lateralibus nonnihil longiore (ut in fig. *d*). Pronotum angulis lateralibus brevius et obtusius productis (fig. *i*), nigris. Scutellum macula destitutum. (Antennæ in exemplis desunt). Styli genitales maris ut in fig. *r*. Segmenta genitalia feminæ fere ut in fig. *n* ..... 2. DORSALIS, Jak. (2).

4 (1) Dorsum abdominis nigrum. Connexivum nigro-fasciatum. Pronotum angulis lateralibus breviter dentiformiter prominentibus. Antennæ articulo quinto secundo æque longo vel hoc breviore.

5 (8) Pronotum angulis anticis denticulo brevi transversali instructis (fig. *f*). Venter haud nigro-punctatus. Antennæ utriusque sexus testaceæ, solum versus apicem fuscæ. Styli genitales maris in figs. *p* et *q* delineati (structura nonnihil variantes).

6 (7) Caput clypeo lobisque lateralibus æque longis (fig. *e*). Antennæ longiores (fig. *b*), articulo secundo latitudini capitis ad apicem oculorum longitudine æquali vel sub-æquali. Rostrum apicem coxarum sat longe superans. Pronotum angulis lateralibus paullo fortius prominentibus (fig. *k*). Pronotum, scutellum et hemielytra irregulariter rugulosa, interstitiis inter puncta convexis. Scutellum immaculatum. Venter lateribus sat obsolete concoloriter punctatus. ♂, Long. $8\frac{3}{4}$ mm., ♀, ignota. Sequenti similis, sed major et superne fere unicoloriter isabellino-testaceus, inferne magis lividescens..

3. ANTENNATUS, *n. sp.* (3).

7 (6) Caput clypeo lobis lateralibus nonnihil longiore (fig. *d*). Antennæ breviores (fig. *a*), articulo secundo latitudine capitis ad apicem oculorum fere $\frac{1}{4}$ breviore. Rostrum apicem coxarum intermediarum paullo superans vel basin coxarum posticarum sub-attingens. Pronotum angulis lateralibus obtusius prominulis (fig. *l*). Superne quam præcedens distincte lævius, magis nitidum. Scutellum

macula picea. Venter sub-lævis. Femina apice abdominis sanguineo ; segmenta genitalia in fig. *n* delineata .... 4. INTERSTINCTUS, Linn. (4).

8 (5) Pronotum angulis anticis spinula transversali armatis (fig. *g*). Venter lateribus sat dense nigro-punctatis. Antennæ nigro-piceæ totæ (♂) vel articulis secundo et tertio obscure testaceis (♀). Rostrum apicem coxarum posticarum paullo superans. Caput clypeo lobis lateralibus distinctissime longiore (fig. *c*). Pronotum angulis lateralibus ut in præcedente, sed nigris. Color obscurus, fumatus. Fasciæ connexivi nigræ quam in præcedente multo latiores. Apex abdominis etiam feminæ superne nigro-piceus, inferne sordide testaceus. Styli genitales maris ut in fig. *o* delineatur. Segmenta genitalia feminæ in fig. *m* delineata... 5. GRISEUS, Linn. (5).

Åbo: *May 30th*, 1885.

[I confess that I omitted to consult the "Synopsis" of Dr. Puton, but I now see that, under the generic name *Elasmostethus*, *Cimex griseus*, Linn., is there given as a synonym of *Cimex interstinctus*, Linn. ; and *Acanthosoma griseum*, *var.*, Flor, is cited as distinct, under the name of *E. Fieberi*, Jakowl., without reference to Linné. The points of difference noted are admittedly very small, except as to the coloration of the antennæ, and without an example before me I might not have seen the validity of a species established mostly, as it appeared to Flor, Fieber, and almost all other authors, on sexual or colour variation ; still, as I said, *l.c.*, I did not impugn the correctness of Professor Reuter's conclusion, or his determination of the species, and we are all now greatly obliged by his present differential diagnoses and figures. I said "the *Clinocoris known to us* in Britain *as Cl. griseus* is one of the commonest ;" of course if this is *Cl. interstinctus*, it is the true *griseus* that is rare—*mutatis mutandis*. We have certainly the *C. griseus* of De Geer, of which he records the remarkable care of the female for her young, which was independently confirmed by Mr. E. Parfitt (Brit. Hem., p. 103) ; Kolenati, however (Mel. Ent., iv, 61), in referring De Geer's *C. betulæ* to *Acanthosoma interstinctum*, Linn., adds "excluso citato Linnei *griseum* ;" yet while he (p. 57) refers Linné's *C. griseus* to the genus *Raphigaster*, Lap., he still quotes for it De Geer's fig. 9, t. 14—the same that he does (p. 61) for *interstinctus !*—J. W. D.]

(1) Syn. : *ferrugatus*, Fabr., 1787 ; *ictericus*, Pet. non Linn., 1787 ; *adustus*, Gmel., 1789 ; *ferrugator*, Fabr., 1794 ; *bispinus*, Wolff, 1800. Patria : Europa. In arboribus et arbustus variis, etiam in coniferis.

(2) Syn. : *dorsalis*, Jak., 1876 : *Stâli*, J. Sahlb., 1878. Patria : Sibiria

(3) Patria : Græcia (Attica !), 2 ♂, communicavit Clar. D. E. Reitter.

(4) Syn. : *interstinctus*, L., 1758 ; *betulæ*, De Geer, 1773 ; *alni*, Ström, 1783 ; *agathinus*, Fabr., 1794 ; *griseus*, Flor, 1860 ; Fieb., 1861. Patria : Europa, Sibiria, in Betula et Alno, tempore vernali, etiam in Pino.

(5) Syn. : *griseus*, L., 1758 ; *griseus var.*, Flor, 1860 ; *Fieberi*, Jak., 1864. Patria : Europa, Sibiria, in Betula alba, sec. J. Sahlberg etiam in Pino.

DESCRIPTION OF A NEW SPECIES OF *LITHOCOLLETIS* BRED FROM BIRCH.

BY W. H. B. FLETCHER.

LITHOCOLLETIS ANDERIDÆ, *sp. n.*

Antennæ greyish; palpi grey externally, white internally; face white; head saffron; thorax with white and saffron scales, but owing to the damage done in pinning, I cannot give their arrangement. Anterior-wings deep bright saffron, with pearly-white markings, consisting of:—a short straight basal streak, dark-margined on the costal side, at the apex, and one-third of the distance back towards the base on the inner side; a short streak from the base on the inner margin dark-margined towards the costa, a fascia angulated on the side nearest the base, but less so on the outer side, dark-margined on both sides; three streaks on the costa, and two on the inner margin, dark-margined on the side nearest the base, the last costal streak being just over the dark apical patch; cilia dark grey, shaded off to white opposite the streaks. Posterior-wings grey, cilia grey, those on the costal side darker than those on the hind-margin. Body saffron, with many pearly-white scales.

Alar. exp., 2½—3 lines.

Allied to *Lith. Bremiella*, *lautella*, and *irradiella*, from which it may be distinguished by its smaller size and white face, from *Lith. ulmifoliella* it may be separated by the brightness of the pearly-white markings.

The larva feeds in *birch leaves* in October.

I bred this species in the spring of 1880, of 1883, and of 1885, but each time only a very few specimens. No doubt I have overlooked its small mine among those of young *Ornix* larvæ.

The species is named after the vast forest formerly surrounding Pevensey ("Anderida"), of which Abbott's Wood may be regarded as the heir-at-law.

I have to thank Mr. Stainton for his kindness in examining specimens.

Fairlawn, Worthing:
June 1*st*, 1885.

[I think I may add that the ground-colour of this new *Lithocolletis* is paler than in *L. Bremiella*, and the markings are white, not silvery.—H. T. S.]

A male Locust devoured by a female.—In Dr. Horváth's "Rovartani Lapok" for January, p. 18, E. Vángel relates that he reared to the imago-form two larvæ of the rare Locust, *Onconotus Servillei*, Fisch.; that he fed them with a common grass; that one proved to be a male, and the other a female, which soon coupled; and that immediately after coupling, the female ate up the male.—EDS.

NOTE ON THE LEPIDOPTEROUS GENUS *DOLESCHALLIA*.

BY W. L. DISTANT.

Considerable difficulty is, and has been, experienced in properly identifying some of the allied species of this genus. I have already been enabled to publish some explanatory remarks on three species, viz., *D. Bisaltide*, Cram., *D. Pratipa*, Feld., and *D. Polibite*, Cram. (Rhop. Malayana, p. 89); but as I find the question is still a complicated one to some students, a few further remarks may not prove supererogatory.

D. Bisaltide, Cram., is a rare species. The sexes—one of which agrees perfectly with Cramer's figure—are in the British Museum, and were Javan specimens in Horsfield's collection. Cramer gives Surinam for the habitat, which is probably a clerical mistake for Sumatra.

D. Pratipa, Feld., is closely allied to *D. Bisaltide*, and is recorded from Tenasserim, the Malay Peninsula and Java. It is probably common to the Indo-Malayan region.

D. Polibete, Cram., is the species that has caused the greatest perplexity, and this is owing to Cramer having figured two distinct species as the sexes of one. We must take his first figure (Pap. Ex., iii, t. 234, D.E.) as having priority, and fixing the type. This, as I have pointed out, is quite distinct from the other two species, and is very similar in appearance in both sexes. The British Museum contains examples from Silhet, Moulmein, Java, Borneo, and the Philippine Islands; my own collection contains specimens from the Andaman Islands and Java. But Cramer's second figure (Pap. Ex., iii, t. 235, C.D.) represents the male of a very distinct Amboinese species, the sexes of which, collected by Mr. Forbes, I have recently acquired.

This has caused the puzzle to Lepidopterists, and as the species from Amboina is thus shown to be without a specific name, I propose that it shall be termed *Doleschallia Crameri*.

1, Russell Hill Road, Purley, Surrey:
June, 1885.

Note on a strange food of the larva of Ephestia elutella.—In the same journal above mentioned, p. 59, J. Frivaldszky states that since 1879 he has had a bottle containing red pepper (*Capsicum annuum*) in powder, well closed with stout paper; that having opened it in the summer of 1884, he was very surprised to find a small caterpillar partly immersed in the red powder, and covered with a fine network of slight filaments. The larva soon transformed, and from the pupa emerged *Ephestia elutella*, Hüb.—Eds.

Variety of Melanippe fluctuata.—While looking round for *Biston hirtaria* in London this spring, my eldest boy picked up a very interesting aberration of this species. The usually dark central fascia of its fore-wings is white, with the contained central spot black, and the usually whitish broad spaces before and after the fascia are of a dark smoky-grey, thus showing a striking inversion of the natural colouring.—Chas. G. Barrett, London: *May 11th*, 1885.

Eudorea angustea locally double-brooded.—This species, the latest of the group to appear in the autumn, is said to hibernate, on the ground, I suppose, of the occasional occurrence of specimens in the spring. Last May, at Plymouth, when searching on the old walls round the harbour and on Drake's Island for larvæ of *Bryophila glandifera*, I found several larvæ of this species full fed, and also pupæ. From these the moths emerged after a few days. It, therefore, seems that this species produces a spring brood on the south coast when the winters are so mild as to allow the larva to feed through them, and this habit probably obtains, to some extent, throughout the south of England. I cannot remember, however, that I ever saw a spring specimen at Pembroke, where the moth was abundant in the late autumn.—Id.

Glyphipteryx oculatella bred.—The imago of this species abounds in some woods in this neighbourhood, but so locally as to have given me a strong hope of finding its larva. This hope was fulfilled last September, when, after a hunt in the tops of several *Junceæ* and *Glumaceæ*, the larvæ were found commonly in the spikelets of *Carex vulpina*, there being often two or three in a spike. They also feed on the fruits of smaller *Carices*, but, owing to the herbage having been much entangled and beaten down by the rain, I could only find one spike of the latter infested, and this I destroyed in examining it. My larvæ remained unchanged until April, and the imagines came out freely during May.—W. H. B. Fletcher, Fairlawn, Worthing: *June 1st*, 1885.

The Entomology of Turkistan.—The Rev. Henry Lansdell, D.D., F.R.G.S., &c., has recently published two bulky volumes of experiences of travel in "Russian Central Asia, including Kuldja, Bokhara, Khiva, and Merv" (London: Sampson, Low, & Co., 1885), of extreme interest generally, and, at the present time specially, viewed in connection with the rather uncertain political conditions. They will be of lasting interest scientifically, because the author, in a very extensive appendix to the second volume, has gone to the trouble of having translated all the introductory remarks, and of adding the lists of species, in the very numerous already published parts on the Botany and Zoology of Turkistan in Fedchenko's great work on the subject. As this latter work is wholly in the Russian language (excepting the Latin diagnoses of new species), it has remained very much as a sealed book to the vast majority of students; therefore, we cordially welcome this opportunity of being able to read the generalizations of the various authors, and of recognising the enterprise of Dr. Lansdell, who, by going out of his way to add what some may think a dry appendix to a book of travel, has contrived to give the general scientific public an insight into the natural productions of the country, and to show (so far as he is able) the amount of work done by the enterprising traveller Fedchenko, and his devoted wife who accompanied him, and who since his premature death on the European Alps, has continued to edit the series of memoirs commenced under his auspices.—Eds.

Beræa pullata and Crunœcia irrorata bred.—It may be well to record the breeding of *Beræa pullata*, Curt., from a larva possessing the same Leptoceridous characters as have been indicated as present in that of *Beræodes minuta*—another confirmation of the true position of the *Beræa* group. The case is very like that of *Beræodes*, not much longer, but thicker, and the larva is remarkable for its reddish head and prothorax. Both larva and case agree with the descriptions given by Pictet under *Mystacides* (*Adicella*) *filicornis*, to such an extent that I consider it desirable the *Adicella* should be reared in order to make sure the author of the "Recherches" had not *Beræa* before him, as the two insects frequent similar localities.

I have also bred *Crunœcia irrorata*, Curt. This proves to be the maker of the small quadrangular cases found about rock springs, and as to the origin of which there has been much speculation. Pictet's account is at variance with my observations. I hope hereafter to give more extended notes on the life-histories of this insect and *Beræa pullata*.—Kenneth J. Morton, Carluke, N.B.: *June 15th*, 1885.

Tachys parvulus, Dej., a species new to Britain.—Among some beetles sent to me for names by Dr. J. W. Ellis I found a small Carabid very like *Tachys bistriatus* at first sight, but evidently not that species; when I was at Southampton a few weeks ago Dr. Sharp and I determined it to be *T. parvulus*, Dej. As, however, there seemed to be a slight doubt, I applied to Herr Reitter for a specimen, and he kindly lent me one from his collection; this exactly agrees with the one I received through Dr. Ellis, except that, being more mature, it is rather darker. *T. parvulus* belongs to the third section of the genus *Tachys*, as given in the "Naturgeschichte der Insect. Deutsch.," vol. i, p. 250; the other two species comprised in the section are *T. quadrisignatus* and *T. sextriatus*. The characteristics of this section are as follows: body more or less convex; antennæ only a little longer than the head and prothorax; prothorax with acute posterior angles; elytra with two, three or four deep striæ next suture; anterior tarsi simple in both sexes.

The following is the description of *T. parvulus*:—Long. $\frac{2}{3}$ lin. Dark brown or reddish-brown, with a slight metallic lustre; antennæ rather short, brownish, or brownish-yellow, with the base yellow; legs entirely yellow; forehead with two fine longitudinal lines on each side; prothorax sub-quadrate, slightly narrowed behind, strongly depressed at base, with posterior angles acute; elytra rather convex, with the sutural and three following striæ strong, finely but distinctly punctured, reaching almost to base, evanescent before apex; a fifth stria is obscurely indicated, and the eighth is deep from base to apex.

From *T. quadrisignatus* this species is distinguished by its unicolorous elytra, and from *T. bistriatus* by its more convex form, and the very different sculpture of the elytra, as well as by the posterior angles of the prothorax, which are blunt in *T. bistriatus*, but acute in *T. parvulus*; the antennæ of the latter species are shorter and stouter, and have the last joint rather stout, rounded at apex, and unicolorous, whereas in *T. bistriatus* the last joint is rather elongate and acuminate, and its apical half is of a much lighter colour.

The specimen now recorded was taken by Mr. J. H. Smedley, of Everton, Liverpool, who has asked me to describe it; he sends me the following account of its capture: "I went to the Wallasey Sandhills last September for *Parnassia palus-*

tris; I brought three or four large roots home, and when I opened the paper, I found the insect in question among the wet roots." This is the third rare or unique species of *Tachys* that has been found in the North of England; there is no doubt that these small coast *Carabidæ* are very liable to be introduced with ballast, and that they may occasionally establish themselves in small colonies, but there is no evidence to show that this is so in the case before us.

T. parvulus is recorded from Germany, Spain, South France, Piedmont, Switzerland, and Syria, so that it is an insect that we should hardly expect to meet with so far north.—W. W. Fowler, Lincoln: *June 10th*, 1885.

Note on Synchita juglandis and S. mediolanensis.—On the 9th inst., the Rev. H. S. Gorham and myself met with a colony of a species of *Synchita* in an old blown-down beech near Lyndhurst; the insect was found in larval, pupal and imago states, and the specimens varied extremely in size. On attempting to determine the species, I found some difficulty in deciding to which of the two species in our British Catalogue our examples should be referred. *S. juglandis* has been long recognised as an inhabitant of our country, though of extreme rarity in collections; and in the Entomologist's Annual for 1868, p. 65, Mr. Rye introduced with considerable hesitation a second species (*S. mediolanensis*) to our list, from examples found by Charles Turner in the New Forest. The series of specimens found by Mr. Gorham and myself show much variation in size and colour; the paler examples agreeing well with the supposed *S. mediolanensis* in my collection, and fully matured ones with *S. juglandis*. Neither Mr. Gorham nor myself entertains any doubt, however, as to all being the same species, so that I feel pretty certain we at present possess in Britain only one species of *Synchita*, viz., *S. juglandis*, auct. Since the time when Mr. Rye's note above referred to was written, an important memoir on the European *Colydidæ* has been given us by Reitter, and this enables us, I think, to decide with certainty that our British species really is the old *S. juglandis*. Reitter gives three European species of the genus, viz., *S. juglandis*, *S. separanda*, Reitt., and *S. mediolanensis*. Of *S. separanda* I possess specimens from South-Western Europe, and think it probably not distinct from *S. juglandis*. *S. mediolanensis* I have not seen; but it is clear our supposed examples of that species are not it. I may here mention that Reitter calls this genus *Ditoma*, not *Synchita*, our genus *Bitoma*, or *Ditoma* as purists prefer to call it, taking with him the name of *Synchitodes*, Crotch, the name *Synchita* being dropped altogether. This course causes extreme confusion, and, so far as I can see, does not even pretend to be of any advantage, so I think should be abandoned.—D. Sharp, Southampton: *May 21st*, 1885.

Hydradephaga in salt water.—Mr. Donovan's note (*cf. ante* p. 13) reminds me that some months ago I kept several species of *Hydradephaga* and *Palpicornia* in a vessel of sea water, in order to ascertain whether they would be in any way affected. As I had anticipated, they lived in perfect health for some little time, and died at last only owing to the unnoticed decease of one of the large *Mollusca* which was inhabiting the same vessel, and whose dead body tainted the water to such a degree as to kill all the other inmates. The species experimented upon were *Haliplus ruficollis*, *Hydroporus planus*, *Agabus bipustulatus*, and *Helophorus aquaticus*. The

three latter seemed perfectly at their ease throughout; the former, however, evidently found great difficulty in diving, owing to the buoyancy of the water, and remained almost entirely at the surface.

Whether these insects would be found at large in salt water is another matter. I have taken numbers of *Helophori* (four species) beneath seaweed upon the shore, and it is possible that these may have inhabited, at any rate for a time, the permanent pools which lie just below high water mark. On the other hand, however, I have never been able to capture water-beetles in ditches directly connected with the sea, although I have frequently endeavoured to do so, and have generally found that water sufficiently saline to support seaweed is consistently avoided by insects. The question of food has probably much to do with this fact, for as very few of the aquatic insects take the water into their systems for purposes of respiration, the presence of certain salts in the surrounding fluid can scarcely exercise any particular influence upon them. But it may very well be that these insects, finding their food in fresh water only, avoid salt water for that very reason, and that those which may be occasionally found in saline pools, or even in the sea itself, have found their way into so unusual a habitation owing to "circumstances over which they had no control."—Theodore Wood, Freeman Lodge, St. Peter's, Kent: *June 4th*, 1885.

Coleoptera found in salt water.—Mr. C. Donovan's note in the June number of this Magazine (p. 13), relative to the capture of *Dytiscus marginalis* in the sea, recalls to my mind the circumstances under which I took the only *Cybister Roeselii* I have ever seen alive. About an hour before sunset one very warm evening in August, 1876, while I was waiting for the ship's boat on the pier at Besika Bay, I saw a large beetle on the wing, which at first sight I thought was one of the larger *Buprestidæ*. To my surprise, it deliberately flew into the sea, close enough to the pier to be caught by hand, and proved to be a ♂ specimen of the fine water-beetle *Cybister Roeselii*. There was no fresh water stream within a mile of the spot.

At Kavala, Turkey, a large specimen of *Hydrophilus piceus* was caught in the sea at a "seining party" (if I remember rightly, it was actually in the net among the fish), and was given to me alive.—James J. Walker, H.M.S. "Cherub," Portland: *June 15th*, 1885.

[Seeing Mr. Donovan's note above referred to, I remembered that Mr. Walker had told me about his capture of *Cybister Roeselii*, and I therefore wrote and asked him for further particulars, which he kindly sent me. Although the fact of the three beetles having been taken in salt water is curious, yet nothing is proved by it; the *Dytiscidæ* have strong wings, and can fly a considerable distance, and that they cannot instinctively tell their right element is proved by the fact that they so often mistake glass for water. Every Coleopterist who possesses a greenhouse or hotbed in the country must be aware of this; much less then can they be expected to tell the difference between salt water and fresh. They are, too, very tenacious of life, and can live for some time in a medium that would be far more injurious to them than salt water. The occurrences related are evidently purely accidental; although taking into consideration the curious Hemipteron *Halobates*, there is no reason why we might not expect to find *Coleoptera* also inhabiting the sea as their native element.—W. W. Fowler.]

Coleoptera on Snowdon.—During a few hours spent on Snowdon on Whit Monday (May 25th) with Mr. Alfred O. Walker, of Chester, I took *Nebria Gyllenhalii* in abundance, at elevations from 2000 feet to the summit (3570 feet), at which latter place it was not uncommon to find three or four under one stone, and that lying among unmelted snow. This seems to be the time of emergence from the pupa of this species, as many of the specimens were soft and devoid of the deep blue-black colour seen during life when mature. *Pterostichus æthiops* was represented by a single specimen, while *Cryptohypnus riparius* and *Patrobus excavatus* were common from 1500 feet to the summit.—John W. Ellis, 101, Everton Road, Liverpool: *June*, 1885.

Obituary.

Joseph Sidebotham, F.L.S., F.R.A.S., died at Bowdon, Cheshire, on May 30th, aged 62. He was born near Hyde, and after having completed his education, was placed with a firm of calico printers in Manchester. Subsequently he became a partner in the Strines Printing Company, from which he retired a few years ago, and settled at Bowdon. Mr. Sidebotham was a born naturalist, and obtained much proficiency in Botany and Entomology, making important discoveries in the latter branch, especially in *Coleoptera*. Latterly he attended to other departments of science, and he published several important papers on Astronomy, Microscopy, and Photography. About ten years ago his health broke down under an attack of pneumonia, and frequent visits to the South of France became necessary in consequence. Although for many years a Fellow of the Linnean and Royal Astronomical Societies, and a Member of the Entomological Society of London, he was little known personally in the metropolis. But his zeal in connection with the various scientific institutions of the district with which he was more intimately associated was unbounded, as also was his munificence; the Manchester naturalists have reason to feel that they have in him lost a friend and fellow-worker whose place it will be difficult to fill. In addition to his scientific attainments, he was known and respected in his magisterial capacity as a J.P.

Nicholas Cooke, of Liscard, Cheshire, died suddenly, under very distressing circumstances, from heart disease, on the 19th May, at the house of Mr. Briggs, at Leatherhead, whither he had gone to spend the evening. He was born at Liverpool on January 14th, 1818, and was educated (with his brother Benjamin and other naturalists, *cf.* Ent. Mo. Mag., xix, p. 238) at the Friends' School at York. When quite young he appears to have entered the service of Messrs. W. H. Smith & Son, the booksellers, for our first personal acquaintance with him was made at one of their bookstalls at a northern station. But for many years subsequently he was in the service of a firm of wool-brokers in Liverpool. As an entomologist, Nicholas Cooke's scientific attainments were scarcely on a level with those of his brother Benjamin, but as an observant and successful collector of British *Lepidoptera* he was almost without an equal. For many years he collected almost annually in the Highlands of Scotland, and made important discoveries. He will be greatly missed by the Lancashire and Cheshire entomologists. It is said that his magnificent collection has been bequeathed to the Corporation of Liverpool.

A SYNOPSIS OF THE BRITISH SPECIES OF *CIMBICIDINA*, *HYLOTOMINA*, *LOPHYRINA*, AND *LYDINA*.

BY P. CAMERON.

As, owing to other engagements, it will be impossible for the Ray Society to publish the 3rd volume of my "Monograph of the British Phytophagous Hymenoptera" for at least three years, it has been suggested to me that a Synopsis of the remaining sub-families of the *Tenthredinidæ* would be of use to the students of saw-flies in this country, pending the publication of the work itself. I have accordingly drawn up tables of the genera and species not described in the two volumes which have already appeared. Besides the tables I have added critical remarks on the more difficult species, and have given references to such of the species as have been figured in the first or second volume of my work.

CIMBICIDÆ.

CIMBICIDES.

Body large, hairy or pilose; lanceolate cellule divided by a straight cross nervure; 1st cubital cellule receiving both recurrent nervures; mandibles large; head swollen at the sides, projecting beyond the eyes, which are small, parallel, and situated well in front.

1 (2) Blotch large, labrum small, clypeus longer than it, incised.....CIMBEX.

2 (1) Blotch absent; labrum larger than clypeus.

3 (4) Hind coxæ widely separated; antennæ with 5 joints before the club; hind femora toothed; labrum and clypeus black .....TRICHIOSOMA.

4 (3) Hind coxæ continuous; antennæ with four joints before the club; hind femora simple; labrum and clypeus white .....CLAVELLARIA.

CIMBEX, Oliv.

Blotch large, wide; clypeus shortly incised, labrum small; antennæ 6-jointed; hind coxæ widely separated, simple, anterior more oval, closely continuous.

1 (2) Clypeus and pronotum clear yellow; wings yellowish, the fore-half fuscous throughout; mesonotum and base of abdomen punctured.....*humeralis.*

2 (1) Clypeus and pronotum reddish-yellow or black; wings not fuscous throughout in front; mesonotum impunctate.

3 (4) Thorax, femora, the base, sides in part and lower side of abdomen violaceous; ♂ apex of abdomen black or dull brownish, and with a violet iridescence... *connata.*

4 (3) Thorax, femora, and base of abdomen not violet.

5 (6) Pubescence on head, thorax, and base of abdomen longish, black, or dark fuscous; wings with a fuscous fascia in the basal cellule, and a fuscous border at apex; head and thorax rarely yellow .....*sylvarum.*
(pl. 5, fig. 1, vol. ii, ♀).

6 (5) Pubescence on head, thorax, and base of abdomen woolly, close, thick, griseous, pale or yellowish; wings not marked with fuscous; head, thorax, and abdomen for the greater part yellow ..... *lutea.*

1. Cimbex sylvarum, Fab.
= *betulæ*, Br. & Zad., = *lutea*, Thoms.

Black, antennæ and tarsi luteous; body covered with a black or fuscous longish pubescence; wings hyaline; a fascia along the transverse basal nervure and the outer margin, fuscous. Length, 7—13½ lin.

The abdomen may be red in the middle in both sexes (= *var. sylvarum*), entirely red in the ♂; the tibiæ and tarsi luteous; the middle segments of abdomen pale testaceous (= *varians*, Lep.), and the fore part of mesopleuræ, the middle lobes of mesonotum laterally, scutellum, legs and abdomen reddish-yellow, and the wings yellowish.

Common and very variable.

2. Cimbex connata, Schr.
= *C. violascens*, Thoms.

Fuscous-violaceous, the head, pronotum, pleuræ, tibiæ, and tarsi brownish-testaceous; coxæ and femora violaceous; abdomen bright luteous, the two basal segments entirely, the third broadly in the middle, apical segments laterally, and the greater part of the ventral surface, violaceous; antennæ luteous; head, thorax, and base of abdomen covered with a griseous pubescence, which is darkest on the metathorax; wings hyaline, more or less spotted with fuscous at base.

The ♂ is violet-black, the apex of abdomen dull fuscous; antennæ and tarsi luteous; tibiæ brownish; head, pronotum, and pleuræ dull brown. The wings are coloured as in the ♀, but have a much more clearly defined steel-bluish-violet iridescence. Length, 10—12 lin.

The distinctions between *connata* and *lutea* lie in the darker coloured thorax and base of the abdomen in the former, these parts being always, for the greater part, fuscous for the ground colour and most distinctly violaceous, this being also the case with the coxæ, trochanters and femora; the wings are darker at the median cellule and apex, while they have also a more distinctly marked violet iridescence; the pubescence on thorax and abdomen is shorter and thinner, the spurs are longer and thinner, and generally it is a larger insect than *lutea.*

Rare.

3. Cimbex lutea, L.
= *brevispina*, Thoms., = *saliceti*, Br. & Zad.

Luteous; head and thorax darker coloured than the abdomen and legs; covered with close silky white or yellowish pubescence; wings pellucid, sometimes with a yellowish tint.

The ♂ is covered with longer pubescence, and is fuscous or blackish in colour. Length, 7—15 lin.

The luteous forms of *lutea* are readily separated from the normal forms of *sylvarum*, which have always the head, thorax, and the greater part of the legs bluish-black; but the lighter coloured forms of the latter come very near the darker coloured examples of *lutea*; these, however, may always be separated from *sylvarum* by the pubescence, which, in the former, is thick, moderately long, and always griseous, pale or yellowish, never fuscous as in *sylvarum*, which has it somewhat longer, but not so close; the hairs on the abdomen are also longer, more scattered, and not so silky as in *lutea*; the wings in *lutea* are more yellowish, and there is no fuscous cloud in the median cellule, nor has the apex a fuscous border.

The reddish-banded males of *sylvarum* are easily separated from those of *lutea*, which have always the abdomen black, except in one aberration; that again has sufficient distinctive characters in the colour of the head, thorax, and wings; but the only characters that I can find to separate the black males of *sylvarum* from *lutea* are that the median cellule of the former has a fuscous cloud, and the apex is always fuscous; and that the club of the antennæ is shorter and thicker, being not much longer than the two preceding joints together; in *lutea* they are not so distinctly pyriform, and are considerably longer than the two preceding joints together. The wings in *lutea* ♂ have a well-marked steel-blue iridescence, but I cannot say if this is a constant character.

Rare.

4. Cimbex humeralis, Fourc.

A species easily known by the characters given in the table.

TRICHIOSOMA, Leach.

Blotch absent; labrum large, clypeus distinctly incised; hind femora large, long, toothed beneath; hind coxæ widely separated; body covered with long hair.

1 (2) Tibiæ fuscous ..... *betuleti*, Kl.

2 (1) Tibiæ testaceous or yellowish.

3 (4) Femora clothed with black hairs, distinctly violaceous; abdomen clothed at base with yellowish hairs, with short fuscous hairs in middle, and with long greyish or yellowish hairs at apex ..... *Scalesii*, Leach. pl 5, fig. 2, vol. ii, ♂.

4 (3) Femora clothed with pale hairs.

5 (6) Abdomen dull black, covered uniformly with long grey hairs; the apex and sides of abdomen sometimes reddish; the tibiæ not darker than tarsi .. *lucorum*, L.

6 (5) Abdomen bronzy-black, the hairs on base longer than on middle or apex; the apex, sides, and belly usually ferruginous, sometimes black; tarsi paler than tibiæ ..... *vitellinæ*, L.

1. Trichiosoma vitellinæ, L.

The amount of reddish colour on the abdomen varies considerably; sometimes the apical third above, the sides and the belly from base to apex are reddish, sometimes only the sides and apex, and more rarely the reddish colour is entirely absent. The latter is the case with all the specimens bred from the larvæ figured on pl. x, figs. 14 and 15, vol. i; these also being much smaller (7 lines only) and more shining than usual. In the ♂ the hairs on the thorax and abdomen are usually more reddish or yellowish in tint compared with the female; the middle of the antennæ is generally testaceous, seldom is it entirely black.

This is the largest species in the genus, although very small specimens are also found. As a rule the reddish colour of the sides, apex, and lower side of the abdomen readily separates it from *lucorum*, but as this is not a constant character, and as the same colour also occurs in *lucorum*, the most reliable point of distinction lies in the abdomen of *vitellinæ* being much more shining and bronzy than in *lucorum*, besides which, the hairs on the middle and apex are much shorter, the colour of the hairs on the thorax and abdomen having also a reddish tinge.

2. Trichiosoma Scalesii, Leach.

= *sorbi*, Htg.

The black hairs on the violet coloured femora easily separate this rare species from *vitellinæ*; it is also much smaller, and the hairs on the abdomen are differently distributed and coloured, being long and reddish at the base, short and fuscous on the middle, and longer and yellowish at the apex, while in *vitellinæ* the colour is uniform and they are scarcely longer at apex than in the middle.

3. Trichiosoma lucorum, L.

= *laterale*, Voll.

The long grey hairs, nearly uniformly spread over the thorax and abdomen, readily distinguish this common species. The abdomen is often reddish beneath, at the sides and apex.

4. Trichiosoma betuleti, Kl.

Apart from the fuscous coloured tibiæ, which separate it readily from the other British species, *betuleti* differs from *lucorum* (of which it is considered a var. by Thomson) by the reddish hairs on the thorax and abdomen, and by the latter not being uniformly covered with hairs of the same length.

CLAVELLARIA, Oliv.

Posterior coxæ placed closed together; labrum large, apex rounded,

antennæ with four joints preceding the club; claws simple; labrum and clypeus white.

This contains only one species, the well-known *C. americnæ* (pl. 5, fig. 3, vol. ii, ♀).

ABIIDES.

Body of moderate size (3—4 lines); lanceolate cellule constricted in the middle; 1st cubital cellule receiving both recurrent nervures or only one.

1 (2) First cubital cellule receiving both recurrent nervures; eyes diverging on inner side, confluent on top in ♂; antennæ 6—7-jointed; sutures on head and thorax distinct ..... ABIA.

2 (1) First cubital cellule receiving only one recurrent nervure; eyes converging on inner side, not confluent at top in ♂; antennæ 5-jointed; sutures on thorax and head obsolete..... AMASIS.

ABIA, Leach.

1 (2) Antennæ yellowish, the club 3-jointed; base of abdomen closely punctured; a keel in centre of the basal two segments; body metallic-green. = ABIA, (*sensu str.*) ..... *sericea*, L.
(pl. 5, fig. 5, vol. ii).

2 (1) Antennæ black, the club 2-jointed, or more rarely the last joint indistinctly biarticulate; abdomen finely punctured, the base not more deeply punctured than the rest; an indistinct keel on the basal segment. = ZAREA, Leach.

3 (4) Fourth joint of the antennæ dilated; carina at base of abdomen distinct; base of abdomen black in ♂; fascia in wings irregular, not extending across ..... *nigricornis*, Leach.

4 (3) Fourth joint of antennæ not dilated; the carina at base of abdomen indistinct; base of abdomen white in ♀; the fascia in wings broad, extending right across ..... *fasciata*, L.
(pl. 5, fig. 4 ♀ and 4*a* ♂, vol. ii).

AMASIS, Leach.

1 (2) Body and legs entirely black ..... *obscura*, Fab.

2 (1) Abdomen more or less saffron-yellow; legs more or less white... *crassicornis*, Rossi.
(pl. 5, fig. 6, vol. ii, ♀).

The only record I have of the occurrence of *A. obscura* is that mentioned by Stephens in his "Illustrations." "Said to have been found in Lincolnshire; the only specimens I have seen are in the British Museum." Stephens is also the recorder of *crassicornis* as a British insect. "The only examples I have seen of this pretty species are in the British Museum; they were taken near Bristol." These references are distinct enough; but I may remark that the late Mr. Frederick Smith was very sceptical of either of the species being British. Certainly further evidence of the distribution of the species in this country is very desirable.

(*To be continued*).

REVISION OF THE BRITISH SPECIES OF *PHYCITIDÆ* AND *GALLERIDÆ*.

BY E. L. RAGONOT,
President of the Entomological Society of France.

(*Concluded from page* 32.)

Nephopteryx abietella, S.V.—This insect has long, but wrongly, been called *abietella*, for in the Vienna Catalogue it is simply mentioned as the pine moth, "Tannen Schabe, *T. abietella*," which cannot constitute a description, so that we must retain the name of *decuriella*, given to the insect by Hübner.

Under the name of *abietella*, two species are confounded; the true *decuriella*, Hb. (*abietella*, S.V.), Zincken, and the *sylvestrella* of Ratzeburg, which are quite different insects, though they resemble one another very much. *Decuriella* is always of a uniform grey colour, and the larva is reddish-brown, with a double paler dorsal line and three fine yellowish lines on each side; head and second segment reddish-brown; it feeds in the cones and decayed wood of pines.

Sylvestrella, on the contrary, is a larger insect, with a large patch of reddish-brown before the first line. The larva is pinkish-white, changing to greenish, without any lines; the head is reddish-brown, the second segment brown-black, ordinary spots very distinct. It lives in the trunks of old firs, under the bark, causing abundant exudations of resin.

Sylvestrella is well figured by Herrich-Schäffer as *splendidella*, fig. 43, not fig. 44, which is *Euzophera pinguis*. It does not appear to have been noticed as occurring in England.

The genus *Dioryctria* has been created by Zeller on account of the peculiar form of the antennæ. The species of the genus appear to feed only on *Coniferæ*, and have great a family likeness.

Nephopteryx roborella, Fab.—This insect was first noticed by Schiffermüller and Denis in their Catalogue, as follows:—"14. Hageïchen-Schabe. *T. roborella*," so that, like *abietella*, the name of *roborella* must be left aside and re-placed by that of *spissicella*, given to the insect in 1777 by Fabricius. It was subsequently named by Haworth *legatea*, and by Stephens *legatella* and *cristella*.

As already observed, *spissicella* is the type of the family *Phycitidæ*, and of the genus *Phycita*. The narrowness of the fore-wings, the length of the veins, the shortness of the cell of the hind-wings, the large size of the "knot" of the antennæ, distinguish the genus *Phycita* from *Nephopteryx*, and the species of *Phycita* have very similar markings.

The larva of *spissicella* feeds on oak, and is well known.

Nephopteryx genistella, Dup.—This appears to be a coast insect. I have found it in several places on the Channel, such as Granville and St. Malo, &c. The larva feeds on *Ulex europæus*, and has been described by Mr. Buckler. The perfect insect has been described several times as follows: *Phycis genistella*, Dup., *Neph. ulicella*, H.-S., *Neph. albilineella*, Stgr., *Davisellus*, Newman, and *Pempelia albariella*, Knaggs.

Pempelia carnella, L.—This insect was first described by Scopoli as *semirubella*. Of this species, as happened with *Teras Logiana*, the variety chanced to be published as the type, and *vice versâ*. *Semirubella* has the costal half of the fore-wings red and the inner margin yellow; sometimes the yellow is nearly absent. The commonest form of the species is the variety *sanguinella*, Hb., in which the costa is distinctly whitish.

The perfect insect differs very little structurally from the other *Salebria* (*Pempelia*, auct.), so that there is no reason at present to separate it from its congeners.

The larva has been described by Mr. Buckler, who bred it from ova. Anton Schmid found an adult larva in a light web on the ground under a plant of *Lotus corniculatus*, the flowers of which were eaten. A life-history of the larva found at large is a desideratum.

Pempelia ornatella, S.V.—The description in the Vienna Catalogue is very brief, but applies well to the insect; it says: "pale brown bluish-white striated moth. *T. ornatella*."

It is certainly the species figured by Hübner under the name of *dilutella*, no other species agrees so well with the figure and description. The latter is as follows:—"It is of a pale violet-brown colour, its narrow fore-wings are, however, mixed with grey, the hind margin whitish, and have two whitish, dark-shadowed, sinuous lines, between which, in the median space, there is a whitish patch, in which are placed two black spots; fringes brown-grey. Hind-wings and abdomen ash-grey."

Zincken quotes *dilutella*, Hb., as a synonym of *Gymnancyla canella*, saying that he is acquainted with *canella* only by the figure of *dilutella*, Hb., without stating why he refers *dilutella*, Hb., to *canella*, S.V.

Treitschke mistook *Ancylosis cinnamomella*, Dup., for *dilutella*, Hb., with which it agrees in hardly any respect. Duponchel supposed that Hübner's *dilutella* might be *obductella*, F. v. R.

Zeller could not make anything of Hübner's figure; he says,

however, that the palpi appear too long and too horizontal for *adornatella*, not noticing that the same mistake of the engraver occurs frequently in Hübner's work.

Ornatella, S.V., has also been described as *criptella*, Hb., *criptea*, Hw., and *perornatella*, Gn.

The larva is not yet described; it is stated by E. Hofmann to feed on *Thymus serpyllum* in May.

Pempelia dilutella, Stt.—This is *adornatella*, Tr.; the larva has been described by Mr. Porritt in the "Entomologist" of 1883, p. 212, and feeds on wild thyme, but Mr. Porritt does not state how.

Pempelia subornatella, Dup. (*serpylletorum*, Z.).—The larva has been described several times. It feeds on *Thymus serpyllum*, but Mann says that he has bred the insect from *Globularia vulgaris*.

Pempelia obductella, F. R.—The larva feeds on *Origanum*, *Clinopodium*, *Calamintha*, and *Mentha*; it has frequently been described.

Pempelia fusca, Hw.—Zincken was under the impression that this species was Hübner's *spadicella* (figs. 225, 226), and described it under that name, as is proved by an original drawing of Zincken's *spadicella*, which was seen by Zeller, but on examining the figures 225 and 226, only the latter can be referred to *fusca*. 225 is most likely the same as *janthinella*, Hb., fig. 374, 375, for only of that species, with long narrow wings and knotted antennæ, can the colour of the fore-wings be described as "coppery-brown." *Fusca*, Hw., is figured and described by Duponchel as *janthinella*, vol. x, pl. 281, fig. 2, page 235, not pl. 283, fig. 8, p. 351 (as erroneously stated in Dr. Wocke's Catalogue), which is the true *janthinella*, Hb.

Very little is known of the larva of *fusca*, Hw. Mr. Porritt, it is true, has obtained it from the egg, but did not succeed in rearing it to the perfect state, nor could he learn its natural food-plant. Dr. Wocke indicates *Vaccinium myrtillus* as the food-plant.

Pempelia formosa, Hw.—This was described by Duponchel (vol. x, pl. 280, fig. 2, p. 213) as *Phy. dubiella*; but in Duponchel's collection under that name there was one *formosa* and one *spissicella*, which accounts for his observation that he had received a specimen (of *dubiella*) bred from a larva feeding on oak. The larva has been described by Newman, Buckler, Stainton, and Stange.

Pempelia hostilis, Steph.—This moth was described by Stephens, but being quite unknown then on the continent, Zeller, in 1846, quoted it as a synonym of *P. adelphella*, F. v. R., without giving himself the trouble (as he wrote me) to verify whether it was the same insect or

not. All the authors since 1846 have followed Zeller, and Mr. Stainton, who probably had no opportunity of seeing a real *hostilis*, Steph., described under this name an *adelphella*, F. v. R., received from Zeller. In this he was followed by von Heinemann.

Considerable confusion has existed with regard to this species and its nearest ally, *rhenella*, Zk., in Germany. Both belong to the genus *Nephopteryx* (Hb.), Z., the maxillary palpi of the male being filiform; whilst those of *adelphella*, like all the species of *Pempelia*, Z., have a long yellow pencil-like tuft enclosed in a groove in the labial palpi.

Rhenella, Zk., was first described by Hübner (fig. 70, text page 35) under the name of *palumbella*, but as this name had already been employed by Schiffermüller and Denis for a Phycid, Zincken was obliged to change the name, giving that of *rhenella*, which name was accepted by Hübner, who quotes it as *rhenalis* in his catalogue.

Treitschke followed Zincken, but the description which he gives of the larva applies to that of *adelphella*.

Duponchel (pl. 280, fig. 1*a*) figures and describes *rhenella*, Zk., but he figures (fig. 1*b*) as a variety another Phycid, to which I have given the name of *Acrobasis Fallouella* in the "Petites Nouvelles Entomologiques" of 1871, p. 147.

Fischer von Röslerstamm describes and figures the true *rhenella*, but says nothing of the larva, only remarking that the description given by Treitschke belongs to *adelphella*.

Zeller, in 1846, describes also *rhenella*, Zk.

Herrich-Schäffer, after describing *rhenella*, figures and describes as a variety the narrow-winged species which is *hostilis*, Steph.

Von Heinemann, taking Herrich-Schäffer's figure of *rhenella* as the type, describes *hostilis*, Steph., under the name of *rhenella*, adding that the larva feeds on *Populus tremula*. Mr. Snellen follows von Heinemann for this insect.

Stephens published a *rhenella*, but, according to Doubleday, the species is referable to *advenella*; the figure in "Wood" is not recognisable.

Rhenella, Zk., very much resembles *hostilis*, but it is always broader-winged; the ground colour is of a much purer and paler grey, and the band before the first line much broader and blacker, thus forming a greater contrast than in the sombre looking *hostilis*. The differences between the larvæ are striking; that of *rhenella* being apple-green, tinted with sulphur, especially behind the incisions, and bears three irregular pale yellow lines on each side of the dorsal vessel. Head pale amber marbled with yellow, second segment with a con-

colorous plate, having a few brown spots on each side; fore-legs green. It feeds on *Populus nigra*, *P. canadensis*, &c.

The larva of *hostilis*, Steph., on the contrary, is chocolate-brown with a rosy tint, and with three interrupted yellowish lines, that on the side so narrow that the ground colour seems to form a broad dark band. The spiracular line broad, rosy, bordered above and below by a yellow line. Head shining black, with two pale streaks; second segment black on the sides, yellowish in the middle. Fore-legs black. The larva might also be described as greenish-yellow, with a dorsal and two fine chocolate-brown sub-dorsal lines, below which is a very broad band of the same colour, which extends to the head, spiracular line . . . . It feeds only on *Populus tremula*.

True *rhenella*, Zk., and *adelphella*, F. v. R., do not appear to have been found in England. I find both *rhenella* and *hostilis* near Paris.

Pempelia betulæ, Göze.—The synonymy given in Dr. Wocke's Catalogue appears correct, and *tristrigella*, Steph., is certainly this insect. The larva feeds on birch, and has been described several times.

Pempelia palumbella, S.V.—In Dr. Wocke's Catalogue, *albariella*, H.-S., fig. 37, is quoted as a synonym, but in error, for the figure very well represents Zeller's *albariella*. The larva has been described by von Hornig as feeding on *Polygala chamæbuxus*, and in England it might feed on *P. vulgaris*, but the true food plant of *palumbella* is *Erica cinerea*. M. de Joannis found it plentifully on this heath in Jersey last spring.

SYNONYMIC LIST OF THE BRITISH SPECIES OF *PHYCITIDÆ* AND *GALLERIDÆ*.

PHYCITIDÆ, Rag.

PHYCITINÆ, Rag.

PHYCITA, Curt., Rag.

1 SPISSICELLA, F.
spissicornis, F.
roborella, S.V., Zk.
legatea, Hw.
legatella, Stph.
cristella, Stph.

DIORYCTRIA, Z.

2 DECURIELLA, Hb.
abietella (S.V.), Zk.

NEPHOPTERYX, Hb., Z.

3 HOSTILIS, Stph.
rhenella, var., H.-S.
rhenella, Hein.

4 GENISTELLA, Dup.
ulicella, H.-S.
albilinella, Stgr.
Davisella, Newm.
albariella, Knaggs.

SALEBRIA, Z., Hein.

5 PALUMBELLA, S.V.
contubernella, Hb.
contubernea, Hw.
v. cinerea, Westw.

6 BETULÆ, Göze
obtusella, Zk.
christella, Frr.
holosericella, F. R.
tristrigella, Stph.

7 FORMOSA, Hw.
perfluella, Zk.
dibaphiella, Hb.
dubiella, Dup.

8 OBDUCTELLA, F. R.
dilutella, Dup.
origanella, Schl.

9 FUSCA, Hw.
carbonariella, F. R.
posticella, Zett.
janthinella, Dup., pl. 281, fig. 2

10 SEMIRUBELLA, Sc.
carnella, L., Dup., 276, fig. 3*b*
var. sanguinella, Hb.
carnella, Dup., 276, 3*a*

EPISCHNIA, Hb., Z.

11 BOISDUVALIELLA, Guenée
Farrella, Curt.
Lafauryella, Const.

HYPOCHALCIA, Hb., Z.

12 AHENELLA, S.V.
aeneella, Hb.
ahenella, Hb.
obscuratus, Hw.
tetrix, Hw.
luridella, Schl.
fuliginella, Dup.
bistrigella, Dup.

CRYPTOBLABES, Z.

13 BISTRIGA, Hw.
rutilella, Z.
lugdunella, Mill.

ACROBASIS, Z.

14 ZELLERI, Rag.
tumidella, Zk., Tr., Z., Stt.

15 TUMIDANA, S.V.
verrucella, Hb., non S.V.
tumidalis, Hb. Cat.
rubrotibiella, F.R., Z., &c.

16 CONSOCIELLA, Hb.
tumidella, Dup., 280, 3*b*

17 SODALELLA, Z.

EURHODOPE, Hb.

RHODOPHÆA, Gn., sub-gen.

18 SUAVELLA, Zk.
porphyrea, Curt.

19 ADVENELLA, Zk.
palumbea, Hw.
rhenella, Steph.
recurvella, Gn.

20 MARMOREA, Hw.
epelydella, Z.

MYELOIS, Hb., Rag.

21 CRIBRELLA, Hb.
cribrumella, Hb.
medullalis, Hb.
cardui, Hw., Steph.

22 CIRRIGERELLA, Zk.

23 CERATONIÆ, Z.
ceratoniella, F. R.
Pryerella, Vaugh.
Zellerella, Sorhag.

NYCTEGRETIS, Z.

24 ACHATINELLA, Hb.

EUZOPHERA, Z.

25 CINEROSELLA, Z.
incanella, Ev.
artemisiella, Stt.

26 PINGUIS, Hw.
Fischeri, Z.
splendidella, H.-S., fig. 44

PEMPELIA, Z., Hein.

27 ORNATELLA, S.V.
dilutella, Hb.
criptella, Hb.
criptea, Hw.
perornatella, Gn.

28 SUBORNATELLA, Dup.
scrpylletorum, Z.

29 ADORNATELLA, Er.
inscriptella, Dup.
dilutella, Stt.
♀ *obscura*, Stph.

GYMNANCYLA, Z.

30 CANELLA, S.V.
depositella, Zk.
cinnamomella, Mill.

HETEROGRAPHIS, Rag.

31 OBLITELLA, Z.
undulatella, Clems.
propriella, Walk.

ALISPA, Z.

32 ANGUSTELLA, Hb.
gracilalis, Hb. Cat.

HOMŒOSOMA, Curt.

33 NEBULELLA, S.V.
muscerdalis, Hb. Cat.
v. maritima, Tgstr.

34 NIMBELLA, Z.
nebulella, Dup.
v. saxicola, Vaugh.
v. carlinella, Hein.

35 BINÆVELLA, Hb.
eluviella, Steph.
nebulella, Wood, fig. 1451
petrella, H.-S.

36 CRETACELLA, Rössler
senecionis, Vaugh.

37 SINUELLA, F.
sinuatus, F.
gemina, Hw.
elongella, Hb.
flavella, Dup.

EPHESTIA, Z.

38 CALIDELLA, Guenée
ficella, Dougl.
xanthotricha, Stgr.

39 FICULELLA (Gregson), Barrett

40 CAHIRITELLA, Z.
passulella, Barrett

41 ELUTELLA, Hb.
elutea, Hw.
v. rufa, Hw.
v. angusta, Hw.

42 ROXBURGHII, Gregson

43 SEMIRUFA, Hw.

PLODIA, Guenée

44 INTERPUNCTELLA, Hb.
zeæ, Fitch.

ANERASTINÆ, Rag.

ANERASTIA, Hb., Z.

47 LOTELLA, Hb.
miniosella, Zk.
pulverella, Hb.

GALLERIDÆ.

47 GALLERIA, F.
mellonella, L.
cereana, L.

MELISSOBLAPTES, Z.

48 BIPUNCTANUS, Curt.
anella, Zk.

APHOMIA, Hb., Z.

49 SOCIELLA L.
colonella, L.
tribunella, Hb.

CORCYRA, Rag.

50 CEPHALONICA, Stt.

ACHROEA, Hb., Z.

51 GRISEELLA, F.
alvearіella, F.
cinereola, Hb.
alvea, Hw.

I beg to call the attention of Entomologists to the Monograph that I am preparing on the *Phycitidæ* and *Galleridæ* of the whole world. In this Monograph I propose describing about 900 species, of which more than a third are new to science. The work will contain eighteen 8vo plates, including structural details in outline; fourteen plates, giving coloured figures of upwards of 300 mostly new species, are already prepared.

As the publication of this work is very expensive on account of the plates, I shall be glad to hear (by letter or post card) from intending subscribers, and will later on fix the subscription price, reducing it as much as possible to cover at least a part of the expense. I shall form a definite subscription list, when it will be possible for me to mention the price of the work.

I shall be glad to examine and determine any species of *Phycitidæ* and *Galleridæ*, European or exotic.

Paris: *April* 16*th*, 1885.

ON THE TRUE TYPE OF THE LYCÆNID GENUS *PENTILA*.

BY ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

In the "Voyage de Delagorgue," M. Boisduval named a genus *Tingra*, with one species, *T. tropicalis*.

In Doubleday's List of *Lepidoptera*, a MS. name of Boisduval's, *Pentila*, was first published with a MS. species, *P. undularis*.

In the genera of Diurnal *Lepidoptera*, Westwood figured a species under the name of *Pentila Zymna*; but in the text he distinctly stated that *P. undularis* (still undescribed, though well known in collections) was the true type, that he had lettered the plate in error.

Although Hewitson subsequently states that Westwood's description was taken from *Tingra tropicalis*, Westwood himself states in his enumeration of the species of *Pentila*, that it is "an insect which I have not had an opportunity of examining," and although Hewitson may have regarded *T. tropicalis* as "only a variety" of *T. abraxas*, we have no evidence that Westwood made use of the latter alone in the preparation of his diagnosis; indeed, he states (though erroneously) that it is "congenerous with Boisduval's type, *Pentila undularis*," showing that in the preparation of his description both forms were under his eye.

Furthermore, the species figured as *L. Zymna* is referred by Westwood to *Miletus*, and is, in my opinion, a species of Felder's genus *Allotinus*, which (by the way) I cannot separate from *Paragerydus* by means of the characters given in Mr. Distant's "Rhopalocera Malayana," which strike me as merely the same thing in Latin and English.

PARAGERYDUS.

"Its position is readily defined as allied to *Gerydus* and *Logania* by having the third sub-costal nervule of the anterior wings emitted beyond the end of the cell" (Distant).

ALLOTINUS.

"Ramo tertio sat longe pone cellulam emisso." Felder (Distant).

Mr. Distant, however, in his Synopsis of Genera takes upon himself the responsibility of altering this character, because in the only species which he possesses (*vide* p. 208, note) the third nervule is emitted at end of cell; the only species we possess (*A. fallax*) emits the third and fourth sub-costal branches from a long footstalk beyond the cell, and is therefore more likely to be Felder's type than *A. subviolaceus*.

Now, as it would create considerable confusion to accept *Allotinus*

Zymna as type of *Pentila* in opposition to the express declaration of the describer of the genus, as also it would necessitate the description of a new genus to contain *Pentila undularis*, which differs considerably both in neuration and palpi from the other species associated with it, and which belong to the genus *Tingra*, I propose that the suggestion of Mr. Scudder be adhered to, and that *P. undularis*, though not described until some time after the genus founded for its reception, shall be retained as the true type of *Pentila*.

British Museum:
June, 1885.

DESCRIPTION OF A NEW SPECIES OF *CICADIDÆ* FROM BUENOS AYRES.

BY W. L. DISTANT.

PROARNA CAPISTRATA, *n. sp.*

Body above ochraceous; head with two large and contiguous oblique black spots on disc, and with a broad and broken black fascia on vertex between the eyes; eyes dull luteous, spotted with black; pronotum with two small central black spots on anterior margin, and two minute rounded black spots on centre of the anterior border of posterior margin. Mesonotum with two obconical black spots on anterior margin, followed by a central narrow cruciform spot, and with a small black spot in front of each anterior angle of the cruciform elevation, and a large broken and indistinct sub-marginal oblique fascia on each side. Scutellum with a central, transverse, linear black spot. Abdomen above with a central dark fuscous spot on basal segment. Body beneath ochraceous; the face with a central longitudinal black line and the intermediate femora also spotted with black (anterior and posterior legs mutilated). Tegmina pale, hyaline, the costal area and venation ochraceous, excepting the veins dividing the apical areas which are fuscous; a dark fuscous spot at the bases of the three upper apical areas, two small black spots near base of third ulnar area, and the transverse vein at apex of fifth ulnar area also black. Wings pale hyaline, with the venation ochraceous.

Face tumidly convex and with strong transverse striations; rostrum reaching posterior coxæ, and with its apex fuscous; opercula short and broad, inwardly attenuated and obtusely angulated, not quite meeting at centre, and not passing the base of first abdominal segment. Long., 20 mm.; exp. tegm., 50 mm.

Hab.: Buenos Ayres.

Prof. C. Berg, of the Museo Publico at Buenos Ayres, having recently submitted the types of his described species, and also some others, unnamed, for my comparison and identification, I found amongst them the above distinct and apparently undescribed species. Prof. Berg having asked me to describe it, I now accordingly do so, and a coloured figure of the insect will appear in a forthcoming part of Mr. Waterhouse's "Aid," which will also be accompanied with the figures of some of Prof. Berg's recently described species.

Purley: *June 28th*, 1885.

Coleoptera in the Isle of Wight.—During a stay in the Isle of Wight from April 13th to April 27th, I found a few good beetles, which I have not recorded before from the locality. At Ventnor, besides other beetles that have been before mentioned, I took a fair series of *Micralymma brevipenne* crawling in the sun over wet rocks below high-water mark; *Tachyusa sulcata* was more plentiful than I have before seen it at this place, and on one warm evening I took about a hundred specimens of *Ptenidium punctatum*, and might have taken as many more.

On April 20th, which was a warm sunny day, Dr. Sharp and Mr. Gorham came over from Southampton, and we had an afternoon's collecting at Luccombe Chine; our object was to get *Chlænius Schrankii*, but although it seemed likely weather for it, we found that the exact locality had been ruined by cultivation. We obtained, however, several good insects from cut reeds and rubbish and the damp ground beneath; the best, perhaps, were *Drypta* and *Stenolophus flavicollis*, of each of which we took about nine specimens; we also found *Chlænius vestitus*, a rather dark variety of *Leistus fulvibarbis*, *Pœderus fuscipes*, *Tachyporus formosus*, *Lathrobium angustatum*, *Philonthus umbratilis*, *Bythinus Curtisii*, *Corylophus sublævipennis*, *Agathidium lævigatum*, *Atomaria berolinensis*, *Myllæna brevicornis*, and another species of *Myllæna* not yet determined. On the side of the cliff and in sandy places below, three species of *Bledius* occurred, *B. opacus*, *B. longulus*, and *B. atricapillus*. In and near the mud and sand in some damp places we found *Heterocerus lævigatus* and *fusculus*, *Philonthus signaticornis*, *Platystethus nodifrons*, *Mycetoporus splendidus*, *Sunius intermedius*, *Dyschirius æneus*, *Tachys bistriatus*, and a small variety of *Bembidium quadriguttatum*, which we at first hoped might be *B. quadripustulatum*, as it seemed to resemble that insect in size; on some damp ground near the side of a drain I found a single specimen of *Limnichus pygmæus*. At the top of the Chine, by putting grass into a nest of *Formica fuliginosa* and examining it two or three days afterwards, I secured a fair series of *Myrmedonia laticollis*.

On April 21st we tried Black Gang Chine, but found nothing. Dr. Sharp and Mr. Gorham then went on to Freshwater and Yarmouth, while I returned to Ventnor; on the way they took *Badister peltatus*, which has not before, I believe, been recorded from the Island, *Drypta* (one specimen), *Stenolophus Skrimshiranus*, *Bembidium assimile*, *Limnichus pygmæus*, and a variety of *Lathrobium terminatum*, with the usual yellowish spots at the apex of the elytra wanting. Near Ventnor, Dr. Sharp took a single specimen of *Adelosia* (*Pterostichus*) *picimana*.

Bees were fairly plentiful, but appeared to belong to but few species; *Andrena fulvicrus* was very abundant on the sides of the cliffs near Sandown. I found a few *Hemiptera*, the only one that I have not observed before being *Piesma quadrata*, which was abundant at the roots of plants near the shore.—W. W. Fowler, Lincoln: *May 16th*, 1885.

Agapanthia lineatocollis, *Don.*, *near Lincoln.*—On the afternoon of Thursday, June 11th, I found *Agapanthia lineatocollis* in some numbers at Langworth Wood, near Lincoln, on a small bed of *Heracleum sphondylium* (cow parsnip) at the side of a drive; the plants showed no sign of flower, but the beetles were basking in the sun on the leaves. There were a few thistles among the plants, but from these I

only took two or three specimens. *Agapanthia lineatocollis* stridulates very distinctly ; the peduncle of the elytra is quite smooth in the centre, but is marked with striæ on each side ; these rub against corresponding striæ on the interior base of the prothorax, and so the noise is produced. I thought, at first, that the head might have something to do with the sound, as in some species of *Languria* ; but, on removing the head from a dead specimen, I found that I could produce the noise by moving the thorax up and down. This beetle, when handled, gives out a rather strong smell, which I can only compare to the suffocating smell produced by certain kind of candles when blown out and allowed to smoulder.—Id. : *July 15th*, 1885.

Acidota cruentata, Mann., at Chiswick.—I took, some little time ago, at Bedford Park, Chiswick, a little beetle which was unknown to me. I sent it to Mr. E. Saunders, and he informs me that it is the above. Has this species been found elsewhere in the west Metropolitan district ?—T. D. A. Cockerell, 51, Woodstock Road, Bedford Park : *July 7th*, 1885.

Ægialia rufa, Fab.—I had the good fortune to capture four specimens of this scarce beetle yesterday (June 2nd) on the Wallasey Sandhills. This species was first recorded as British from the same locality by Mr. Frank Archer, of Liverpool, in 1862, since which time only two specimens have been taken that I am aware of, and those by Mr. Wilding last June. One of the specimens taken yesterday I caught flying (it looked like a *Coccinella*), and the remaining three I found dead, killed by the intensely hot sun.—J. W. Ellis, 101, Everton Road, Liverpool : *June 3rd*, 1885.

Note on Scolytus pruni, Ratz., and some attendants.—The old apple-tree which I mentioned on a former occasion (Ent. Mo. Mag., xix, p. 118) as being afflicted by *Schizoneura lanigera* and *Mytilaspis pomorum* maintained its vitality against the annually renewed attacks of its insect-foes, yet with decreasing energy, until last year ; then the one side that remained alive put forth leaves, but this was the expiring effort ; misfortunes had reached a climax, and now the tree is dead. The chief cause of decease, I do not doubt, was a radical malady which had induced in the structure of the tree conditions favourable to the existence of its insect enemies. And there were more than I have yet mentioned, for on the 21st ult., on stripping off the bark still covered with the scales of *Mytilaspis* and all hanging loose on the trunk, but containing nothing alive, I found the tree, on the side that was living last year, transversely scored with long, frass-filled, characteristic galleries of larvæ of a *Scolytus*, which may be taken as their hieroglyphic memorial of the accumulated ills of the tree, inscribed as an epitaph—*De mortuis nil nisi malum.* I secured some six or seven of the beetles just perfected, which were still each in the frass-closed *cul-de-sac* its larva had formed in the hard wood at the end of its gallery. The beetles were in every case in a reverse position to that of the engineering larva, being head forwards ready to come out, but not being willing to emerge for my pleasure, I had to cut them out ; one flew away immediately, and I lost one or two others. Each cell was horizontal, and just a little longer and wider than the beetle, and the orifice was perfectly circular. The *Scolytus* proved to be *S. pruni*, Ratz., a

species first recorded as British by E. W. Janson (Ent. Ann., 1862, p. 116), who found it under the bark of a dead apple-tree, near Highgate; and it is still scarce with us, probably not really rare, only it is not every beetle-hunter that gets access to a dead apple-tree in June. The species is common in Germany in plum-trees. In some of the cells the original beetle-tenant lay dead, others were empty, and one was occupied by a living sub-tenant, which, on being turned out of possession, was proved by its known predilections to have been boarded and lodged, if not at the expense of the founder of the dwelling, yet to have appropriated the residence of another: it was identified as *Chrysis cyanea*, Linn., certified to be a parasite of *Chelostoma florisomne* and other bees, also of *Trypoxylon figulus*. Two other *asciti* were detected in the act of prying suspiciously into the neighbouring cells, and having been apprehended and brought up for judgment, have been recognised as *Trypoxylon figulus*, Linn., and *Crabro dimidiatus*, Fab., old offenders in carnivorous rapine, and they have been condemned to death and executed accordingly. *T. figulus* stores up spiders for its young; in the present case this had been done in *Scolytus*-cells, and by the action of *Nemesis*, it would in its turn be the prey of *Chrysis*. *Crabro*, I presume, was seeking what he might devour. On the 3rd inst., I dug out of closed *Scolytus*-cells another example of the *Chrysis*, two of *Trypoxylon figulus*, two of *T. clavicerum*, and one of *Prosopis communis*, all immersed, and only now for the first time at liberty. F. Smith states (Trans. Ent. Soc., N. S., iv, proceed., p. 77) that *Trypoxylon* adopts the burrows of other insects, or other ready-formed receptacles suitable to its purpose, that is, storing up spiders as nutriment for its young. The *Prosopis* usually burrows in bramble-stems, but in this abnormal case probably a ready-made excavation was adopted and adapted by the parent. On the 6th inst., I cut out of its cell another *Trypoxylon clavicerum*, and I saw several others of the species, and one of *T. figulus* going in and out of the vacated holes: one *Chrysis cyanea* was also similarly engaged. I could, however, find no more *Scolytus pruni*; and although I expected to get *S. rugulosus* in its usual habitat in the branches of the tree, I was disappointed.—J. W. Douglas, 8, Beaufort Gardens, Lewisham: *July 7th*, 1885.

Description of the larva of Hadena satura.—Head, face and true legs corneous, brown; spiracle line dull yellow-green, as well as all the parts beneath it, the line itself very dimly marked below by being slightly yellower than the rest; back and sides pink, rather darker at the centre of the back, growing almost into a brown-pink along the centre of the dorsal region; this pink portion of the body is indistinctly dusted with brown, the last segment with the anal prolegs is faintly green, and the last spiracle is blackish; the dorsal line is faintly indicated by a row of very indistinct spots, one at the commencement of each segment of a dusky pink, and the sub-dorsal by a row of sloping lines, from above backwards and downwards, so that in a strong light there is a faint lozenge-shaped pattern along the back. The shape is very clumsy and cylindrical, with very little difference from the head to the tail, except at the last segment.

Having had eggs of this species sent me from Germany, I have penned the above description from a full-fed larva; one of my forwardest larvæ has to-day

buried itself in the earth. I fed them on hop.—R. C. R. Jordan, 105, Harborne Road, Edgbaston: *August 13th*, 1884.

P.S.—I am now able to announce that a fine *Hadena satura* appeared to-day from the larva above described. I never before saw the insect alive, save on one occasion, on a poplar tree at Heidelberg.—R. C. R. J.: *June 5th*, 1885.

What is the true Chrysophanus Hippothoë of Linneus?—In the Fauna Suecica, p. 274, Linneus first described a *Chrysophanus* under this name; concerning which (as with other *Lycænidæ*) an unnecessary amount of fuss and confusion has been made. Both in Staudinger's and in Kirby's Catalogues the Linnean species is identified with *C. Chryseis*, a brilliantly purple-shot species with the under-surface of its wings almost wholly of a dust-brown colour, a species which no more fits the Linnean description than does the male of *C. Hippothoë*, or any other purple-shot species.

The following is the Linnean description:—

"Statura P. virgaureæ. *Alæ supra* omnino fulvæ immaculatæ: *Subtus* luteo cinerascentes. *Primores subtus:* punctis nigris iride alba: tribus majoribus intra marginem exteriorem; septem minoribus fere transversim positis; sex minutissimis ad marginem posticum. *Secundariæ subtus* cinerascentes punctis ocellaribus circiter septemdecim præter fasciam ad marginem posticum fulvam, antice nigro-punctatam."

Now in the above description there are certain sentences which prove it to be intended for the *C. rutilus* of Werneburg, and not for *C. Chryseis;* these are the following:—

1. "Wings above entirely fulvous;" the next word, "unspotted," will not strictly apply to anything but *C. virgaureæ*, which is certainly not the Linnean *C. Hippothoë*.

2. "Front wings below with black spots with white iris" applies well to *C. dispar*, and its smaller variety, *C. rutilus*, but not at all well to *C. Chryseis*, in which the irides are by no means white.

3. "Hind-wings below ash-coloured," applies only to *C. dispar*, and its small variety.

4. "Spots ocelloid, except the fulvous band at hind-margin, which is spotted with black in front;" this applies only to *C. dispar* and its small variety, for in *C. Chryseis* there is no band, only a series of orange spots with semi-ocelloid spots both in front and behind, a character not so noticeable in *C. dispar*.

I conclude, therefore, that Messrs. Staudinger, Kirby, and others are entirely wrong in their identification of the Linnean species, and that our old British identification, corresponding with that of Hübner and Godart, is correct.—A. G. Butler, British Museum: *July 1st*, 1885.

On the occurrence in Britain of Ornix fagivora and Nepticula Nylandriella, two species probably new to our Fauna.—While collecting larvæ of *S. Weirana* on beech-trees near Cambridge last autumn, I came across three *Ornix* larvæ, all of which duly emerged this spring. Mr. Stainton informs me that they are the above species, which is recognisable by the fuscous colour of the hind-margin. *O.*

devoniella, which appears to be still unique, differs from this species in having the whole fore-wing fuscous; but the German Entomologists doubt whether it is truly distinct.

While fishing in Sutherlandshire this year in May, I came across a *Nepticula*, which Mr. Warren pronounces to be the *Nylandriella* of Tengström. It occurred in some numbers on the trunks of mountain ash trees in one wood, and may probably turn out to be more generally distributed. It is a very minute species, measuring from $1\frac{1}{2}'''$ to $2\frac{1}{2}'''$ across. The following description from Heinemann, given me by Mr. Warren, is so good that I cannot do better than copy it.

"Fore-wing narrow, ashy-bronze, shining: head yellowish: frontal tuft of ♂ brown, of ♀ pale ochreous: antennæ short, whitish-grey: eye-caps silvery-white: fore-wing *very smooth* as though polished, pale silvery-grey, with a faint yellowish tinge: apex scarcely darker, with a faint violet gloss: cilia whitish-grey, rather darker towards their base."

The only point which seems to need correction is that the head appears to be only sometimes yellowish, and that more frequently in the females. The males usually have heads the same colour as the fore-wings.—A. F. Griffith, Sandridge, St. Albans: *June 29th*, 1885.

P.S.—Since writing the above, Mr. Warren has informed me that *Nylandriella* (Tng.) and *aucupariæ* (Frey) may possibly prove to be identical. If so, Frey's description ("very like *viscariella*") would appear to be entirely misleading, unless the species (with me very uniform) in other localities shows considerable variation.

On the occurrence of Trifurcula pallidella near St. Albans, Herts.—While collecting *Dichrorampha acuminatana* near here in 1883, I took two specimens of this species running up grass-stems in a piece of waste ground covered with mixed herbage. I was unable to identify it until the day of Mr. Harper's sale, when Mr. Warren, on seeing one of them, immediately guessed the species; and Mr. Hodgkinson, who happened also to be in the sale-room, confirmed his surmise. He informs me that with the exception of the one specimen he took near Preston, the insect has hitherto only been met with near Vienna. One of my specimens is a very fine one, the other but poor. The species, which measures about 4''' across, is unicolorous, nearly white; and may be immediately recognised by its very rough head. I have twice been to the same spot since, but have been unable to find any other specimens.—Id.

On the larvæ of Coccyx tædana and Euchromia flammeana and arbutana.—I met with the larva of *tædana* somewhat commonly on *Arctostaphylos uva-ursi* this May in Sutherlandshire. It mines the leaves, and as soon as it has finished one it eats a round hole through the skin, fixes another leaf to it, eats its way into it and clears that out, passing on to another when necessary. It turns to a pale yellow pupa in one of the hollowed-out leaves. The larva is pale yellowish, very transparent, with dark head, and appears to be very subject to ichneumons. I have also bred a *flammeana* and several *arbutana* from the same food-plant; the larva of the latter is slightly hairy, blackish, and spins together the terminal leaves of the shoots much in the same way as *dimidiana* does on *Myrica gale*.—Id.

Note on a new food plant of Coleophora lineolea.—This species now swarms here on *Stachys lanata*, flying at dusk. In former years I have seen one now and then; this year there are many hundreds, the colony, after the manner of migrants, having increased and multiplied exceedingly. I had not observed the larva-cases in the spring, and now the radical leaves of the plant, on which the larvæ would have fed, having decayed, I cannot find any. There is no *Ballota nigra* nor *Stachys sylvatica* near, so I cannot track their course from their usual food. Like other pilgrims their beginning, after leaving their natural camping ground, was probably small; like other restless Britons they have acquired a change and something foreign; and, unlike some of the said Britons, they have prospered. *S. lanata* was imported from Siberia and naturalized in gardens here a century ago.—J. W. Douglas, 8, Beaufort Gardens, Lewisham: *July 10th*, 1885.

Coleophora vibicigerella bred.—The cases mentioned in my former note (vol. xxi, p. 206, Ent. Mo. Mag.) I am pleased to say produced the above-named species; the first specimen emerged June 27th, two more on the 30th, and one in about every three or four days since, so that up to the present time I have bred seven; and as their emergence seems to take place at such long intervals, I still hope to breed more. It is very satisfactory even so far, that I have been able to get them through the winter, for most of the hibernating *Coleophoræ* are very difficult to rear, especially in London, which I think must be in consequence of the impurities of the atmosphere during the winter, particularly if we get a few of the real London fogs.

I am sorry to say the other cases mentioned in my former note have quite disappeared, owing to the destructive propensities of the cats hereabouts, in tearing the gauze off the top of the cage, and which, by its appearance, must have been off some days before I observed the loss, so that all my larvæ had crawled away; but I hope next year, with a little more care, to be able to give some account of this species also.—Geo. Elisha, Shepherdess Walk, City Road: *July 14th*, 1885.

Lepidostoma hirtum bred.—*L. hirtum* has come out of a *quadrangular* case to-day, so there appear to be three makers of such cases, viz., *Brachycentrus*, *Crunœcia irrorata*, and *L. hirtum*.—Kenneth J. Morton, Carluke, N. B.: *July 11th*, 1885.

Note on the genus Achorotile, Fieb.—The genus *Achorotile*, which is characterized (*inter alia*) by having two sub-parallel middle keels on the face, and the channels between them and the side keels tuberculate, comprises, according to the 2nd Edition of Dr. Puton's Catalogue of European *Hemiptera*, three species, which may be tabulated as follows:—

1 (2). Dirty yellowish-white, with a dark brown stripe reaching the entire length of each side, and a broad dark brown band across the face between the eyes. *bivittata*, Boh.

2 (1). Face without a dark band.

3 (4). Black or blackish, a wide stripe down the crown; pronotum and scutellum, and the hind margins of the first two dorsal segments of the abdomen,

widely whitish-yellow. Frons one-half longer than wide, its central keels equidistant from the side keels and each other. Central keel of the clypeus abbreviated at the base ..... *albosignata*, Dahl.

4 (3). Lurid-fuscous, a wide stripe down the crown; pronotum and scutellum paler, the first three dorsal segments of the abdomen widely whitish-yellow in the middle; antennæ black, clypeus and legs blackish. Frons two-thirds longer than wide, its central keels much approximated. Clypeus without any central keel (brachypterous, ♀) ..... *longicornis*, Sahlb.

A. albosignata, which appears to be a species well-known on the continent, is (Ent. Mo. Mag., vii, 196) recorded as British on the strength of six pupæ, presumably because they presented the facial characters assigned to this genus. In order, however, to substantiate the claim of this species to a place in our British list, it is desirable that some evidence should be adduced to show that the nymphs (or pupæ) in question really pertain to the genus *Achorotile* at all, for it is certain that the nymphs of *Liburnia unicolor*, *L. forcipata*, and *Stiroma pteridis* display the facial characters of adult *Achorotile*. Amongst some hundreds of *Delphacid* nymphs from widely different localities, which I have collected continuously since last August, not one has occurred which does not present the *Achorotile*-face, but in most instances I am unable to refer the nymph to its adult form.

Under these circumstances, the question arises, what is *A. bivittata*, Boh.? for, notwithstanding the contrary opinion of Boheman and Stål, recent authors seem agreed that it is some *Delphacid* in the nymph state, although there is some diversity of opinion as to which of the known species it should be attached. It is pretty clearly the insect which the Rev. T. A. Marshall had in view when writing of the larva of *Liburnia neglecta* (Ent. Mo. Mag., i, 274), and Dr. J. Sahlberg (Not. Fenn., xii, 413) considers that it is the larva of *Liburnia notula*, while Fieber, who writes (Les Cicadines d'Europe, part iv, 89) as if he had examined the original, thought it was the ♀ nymph of *A. albosignata*. It is probable, however, that the opinion of the Rev. T. A. Marshall is very near the truth, for, according to my local experience, *A. bivittata* occurs in company with *Liburnia brevipennis*, Boh., = *hyalinipennis*, Stål (a species not recognised by him, and very closely allied to *neglecta*). Just at the time the latter is reaching maturity, in a woodland locality far too dry for *Lib. notula*, I have taken both *A. bivittata* and *L. brevipennis* at roots of coarse grass, in one locality near here from the 20th August to 14th October, after which date they had apparently almost all gone down for hibernation, for although I have since taken one or two stragglers of *Lib. brevipennis*, my repeated efforts to meet with *A. bivittata* also have hitherto been unavailing.

It would seem from the premises that it is premature to regard the genus *Achorotile* as British until we are in possession of native examples in the adult state.—J. Edwards, 131, Rupert Street, Norwich: *June 29th*, 1885.

Plusia chrysitis with supposed fungoid growths on the head.—I send you a specimen of *Plusia chrysitis* with its eyes injured by a fungus; kindly inform me,

through the Ent. Mo. Mag., of the name of the fungus.—C. Donovan, Jun., Westview, Glandore, Leap, Co. Cork: *July 3rd*, 1885.

[We have communicated privately with our correspondent, but as the error into which he has fallen is one of frequent occurrence, we reproduce the substance of our remarks. The objects attached to the head of the *Plusia* are not fungi, but are the pollen-masses (*Pollinia*) of some wild Orchid, and it is by means such as this that these plants are cross-fertilized. In this particular instance there are two pollen-masses, one attached to one of the eyes (and "growing out of it," as it were), the other grasped in the coiled-up hanstellum.—Eds.]

Entomological Society of London.—*June 3rd*, 1885: R. McLachlan, Esq., F.R.S., President, in the Chair.

Messrs. R. A. Adkin, of Lingards Road, Lewisham, and G. T. Baker, of Edgbaston, Birmingham, were elected Members.

Mr. Pascoe exhibited coloured drawings of curious elongate swellings on the roots of an exotic Orchidaceous plant, showing remarkable resemblance to caterpillars; also a new genus and species of *Colydiidæ*, remarkable for having erect scales on the eyes, he proposed to name it *Optus bicarinatus*.

Mr. Douglas sent for exhibition a small piece of bark of an old apple tree, crowded with scales of *Mytilaspis pomorum*, lying on and over each other. He remarked that the tree had been healthy until about five years ago, but had since gradually faded, and was now dead; the unhealthy condition was coincident with the appearance of the *Mytilaspis* and of *Schizoneura lanigera*. The President remarked that this was one of those cases in which it was difficult to decide whether the insects were there because the tree was unhealthy, and or were the cause of the latter condition. It was difficult to imagine what nutriment the *Mytilaspis* could obtain from the outer layer of bark, which, even in healthy old apple trees, was practically dead.

Mr. Porritt exhibited living larvæ of *Phycis betulæ*, and a series of *Coleophora currucipennella* bred from birch.

Mr. Coverdale exhibited specimens of *Coleophora paludicola*, Stainton, described in this Magazine, *ante* p. 9, and remarked that it appeared to him very similar to *C. adjunctella*, Hodgkinson, Ent. Mo. Mag., xviii, p. 189.

The President exhibited the example of *Deiopeia pulchella*, caught in the Atlantic Ocean, noticed at *ante*, p. 12.

Mr. Enock read the concluding portion of his paper on *Atypus piceus*, and exhibited specimens and drawings. In this he specially detailed the habits of the ♀ spider. A noticeable feature appeared to be that in order to obtain food a rent was made in the aerial portion of the tube when an insect was felt to be outside, by means of the spider's falces, the insect was then drawn into the tube through the rent, which was instantly repaired. The paper gave rise to considerable discussion, in which several Members joined.

THE *NITIDULIDÆ* OF GREAT BRITAIN.

BY REV. W. W. FOWLER, M.A., F.L.S.

(*Continued from p.* 36).

b. Forehead emarginate; male with anterior tarsi not strongly dilated.

α. Male with a small transverse keel on the last abdominal segment.

M. erythropus, Gyll. (*carinulatus*, Forster).—A small species, variable in size; rather long oval, leaden-black; punctuation thick and fine; pubescence grey, fine and rather dense; antennæ brown-red, sometimes rather dark, sometimes quite light; upper surface with distinct cross reticulation between punctures; forehead emarginate; anterior tibiæ armed with two short prominent teeth separated by smaller teeth. Length, $\frac{1}{2}$—$\frac{1}{5}$ lin.

Local; according to M. Brisout it occurs on *Papilionaceæ*. I have taken it in abundance in Langworth Wood, near Lincoln, on *Potentilla Tormentilla*, and sparingly on strawberry flowers in my garden; Repton, St. Leonard's, Hastings, Shiere, Guildford, Highgate, Darenth, Chatham, Shirley, Mickleham, Chat Moss; Eastry and Bearstead (Kent) on *Helianthemum vulgare*, Mr. Gorham; Castle Mill, near Manchester, on *Galeobdolon luteum*, Mr. Chappell; Instow (N. Devon), &c.

This species is very often confused with the preceding, but may be easily distinguished by its smaller and more oval form, emarginate forehead, lighter antennæ, and the keel on the abdominal segment of male; it is variable both as regards size and shape. Among the late Mr. Rye's and Dr. Power's series are some remarkably small specimens, the smallest examples of the genus that I have yet seen; the shape of the thorax also varies, the sides in some specimens being much more dilated and rounded than in others.

β. Male with a very strong transverse keel on the last abdominal segment, divided by a broad semicircular excision into two divisions, each ending in a strong sharp tooth.

M. bidentatus, Bris.—Oval, rather broad and convex; leaden-black, with ashy pubescence; legs blackish, with anterior tibiæ ferruginous; anterior tibiæ with two short prominent teeth separated by two or more smaller teeth; very like *M. erythropus*, but separated by its broader and more convex form, rather closer punctuation, thicker tibiæ, and the denticulation of the last abdominal segment of male. Length, $\frac{5}{6}$—1 lin.

This species was introduced as British on two specimens in Mr. Crotch's collection; these I have not seen, and cannot say whether either of them was a male: the other two British specimens I have before me, one taken by the late Mr. Rye, and the other at Caterham by Mr. Champion; both of these are females, and there is exceedingly

little difference, if any, to be seen between them and larger specimens of *M. erythropus*, the punctuation, &c., being almost identical. For some time, in common with other Entomologists who had not seen a male specimen, I felt some doubt as to the specific value of *M. bidentatus*, as the keel on the last abdominal segment of the male seems occasionally to be divided in some species in which it is usually whole (*e. g.* in *M. lugubris*) ; a short while ago, however, M. Brisout, with his usual kindness, sent me a pair, and a cursory examination of the extraordinary male characters at once proved it to be a very distinct species. These are best described in M. Brisout's own words (*l. c.*, p. 27) : "Mâle—dernier segment abdominal, à son extrémité, avec une carène lisse, énorme, dirigée un peu obliquement en dessous, et profondément échancré en arc à son sommet, de manière à faire deux énormes dents triangulaires." The species occurs on *Lotus*.

It would appear, on the whole, that, although this insect is probably British, yet more confirmation is required before it is added finally to our lists ; if collectors of the group would carefully examine all their supposed specimens of *M. erythropus*, it might soon be authenticated beyond doubt.

C. Upper surface shining black, with very slight traces of cross striation ; anterior tibiæ with three short outstanding teeth, separated from one another by one or two smaller teeth ; legs dark, anterior tibiæ occasionally lighter.

M. exilis, Sturm.—Ovate, rather convex, shining black ; punctuation close ; pubescence very fine ; antennæ dark brown with black club ; forehead emarginate, with a very small tooth in the centre of the emargination ; legs very dark, black or almost black ; anterior tibiæ with three short outstanding teeth, one above and one below the middle, and a third at apex, separated by smaller teeth. Male with a small curved keel on the apex of the last abdominal segment. Length, $\frac{2}{3}$—$\frac{3}{4}$ lin.

Rare. Mr. Waterhouse once took a specimen in the courtyard of the British Museum ; Galloway, Dr. Sharp ; Isle of Man, Rev. R. P. Murray ; Barmouth on *Thrincia hirta* (Lesser Hawkbit), Mr. Wollaston ; Whitsand Bay, Cornwall, Mr. J. J. Walker : the largest number of specimens, however, that has occurred to any one collector was taken by Mr. Mason two or three years ago on *Echium vulgare* on Braunton Burrows, near Instow, N. Devon. According to M. Brisout it is found on *Papilionaceæ*. It is one of our smallest and most distinct species.

II. Tarsal claws toothed at base.

i. Thorax and elytra rather coarsely punctured ; upper surface shining, usually with a red spot on each elytron ; anterior tarsi of male not dilated ; interstices smooth.

M. brevis, Sturm.—Short, rather broad; antennæ red, club sometimes rather darker; legs red, sometimes quite light, sometimes darker; forehead strongly emarginate; thorax transverse, strongly rounded in front, broader at base than base of elytra, with strong punctuation; elytra unicolorous, not so strongly punctured as thorax; anterior tibiæ armed with regular distinct teeth for at least two-thirds from apex, the centre ones being usually the most prominent. Length, $\frac{5}{6}$—1 lin.

var. mutabilis, Rosenh.—Rather larger; elytra with a red spot on each, variable in extent; this is the *M. pictus* of Rye. Length, 1—$1\frac{1}{8}$ lin.

On *Helianthemum vulgare*, Scarborough. The type form is rare; out of a series of nearly forty examples that I have before me, only one or two show no trace of a spot; one of these, a small specimen in Dr. Power's collection, is a good example of the type form. The species is said also to be found on flowers of *Centaurea calcitrapa* (the Star Thistle), a plant which is found occasionally in some of the southern counties of England, but is uncommon.

ii. Thorax and elytra finely punctured; body dull unicolorous; anterior tarsi of male strongly dilated; interstices with plain cross striation.

M. solidus, Kugel.—In size and shape very like *M. umbrosus*, but of a deeper black colour, and more convex; antennæ black, with basal joints reddish; legs brownish, anterior tibiæ with three or four strong serrate or pectinate teeth at apex; forehead strongly emarginate.

Local, but not uncommon. On *Genista* and *Lotus*, according to M. Brisout; it seems usually to occur in Britain on *Helianthemum vulgare*; Darenth, Birch Wood, Esher, Mickleham, Chatham, Bearsted, Shiere, &c.

CYCHRAMINA.

The species of this tribe are chiefly distinguished from the preceding by the fact that the thorax covers the base of the elytra instead of simply fitting closely to it; the elytra cover nearly the whole of the abdomen, only part of the pygdium being exposed; the prosternum is more or less prolonged at the apex; all the species are round or oval and convex. The tribe comprises several genera, but only one is British.

Cychramus, *Kugelann.*

This genus contains two species, which may easily be distinguished by the wide thorax (which overlaps but does not fit the base of the elytra), prominent eyes, loose dark three-jointed club of antennæ, simple tibiæ, and almost semicircular mentum.

C. luteus, Fab.—Of a uniform testaceous colour, clothed with thick and fine pubescence; punctuation close and fine. Length, 1½—2 lin.

In abundance in spring in hawthorn blossom.

C. fungicola, Heer.—Of a somewhat light ferruginous colour, with a darker shade on each side of the elytra, which is more or less ill defined, and sometimes disappears altogether; pubescence longer and more scanty and punctuation more diffuse and stronger than in *C. luteus*; it is also slightly longer in form, and rather more convex and shining than the latter species. Length, 1½—2 lin.

Common in fungi, especially in autumn.

These species are sometimes rather confusing; but, apart from other distinctions, the difference of habitat will allow of their determination.

IPINA.

As we approach the end of the *Nitidulidæ* we come upon certain tribes whose position seems somewhat doubtful, but which afford an easy means of transition from one family to the next; such tribes are the *Ipina* and *Rhizophagina*, which lead into the *Trogositidæ*. Of the *Ipina* we possess three genera—*Cryptarcha*, *Ips*, and *Pityophagus*; the latter of these has usually been classed with *Ips*, but is now rightly separated from it. Some authors insert the *Cybocephalina* between the *Cychramina* and *Ipina*, but the four-jointed tarsi and contractile body of *Cybocephalus* point to a very different position.

The *Ipina* are characterized by having the labrum hidden, instead of free and visible, as in the preceding families; the antennæ are eleven-jointed, with a somewhat loose three-jointed club; the prosternum is strongly produced, more so in *Cryptarcha* than in *Ips*; the mentum is very narrow, usually oblong or trapezoidal; the mandibles in *Ips*, especially in some exotic species (*e. g.*, *Ips Japonica*), are very large and strong; in *Cryptarcha* they are slender and sickle shaped; the labial palpi are short in *Cryptarcha*, longer and less stout in *Ips*; the maxillary palpi are somewhat slender; the membranous paraglossæ in *Ips* are very conspicuous.

The British genera may be thus divided:—

I. Anterior coxal cavities open behind.

1. Thorax overlapping base of elytra; elytra entirely covering abdomen; body oval, upper surface pubescent ....CRYPTARCHA.

2. Thorax not overlapping base of elytra; pygidium exposed; body elongate, upper surface glabrous .....IPS.

II. Anterior coxal cavities narrowly closed behind; other characters as in *Ips*... PITYOPHAGUS.

CRYPTARCHA, *Shuckard.*

Our British species of *Cryptarcha* are very distinct; this is not, however, the case with some of the exotic species (*e. g.*, *C. camptodoides* and *C. thalycroides*), which, as their names imply, bear a very close superficial resemblance to other divisions of the *Nitidulidæ*.

1. Length, $2\frac{3}{4}$—3 lin. Broad oval; thorax dark, except extreme margins of sides; club of antennæ dark.

C. strigata, Fabr.—Rather convex; prevailing colour dark; mouth, side margins of thorax, and two irregularly formed but constant bands on elytra, yellow or red-yellow; antennæ (except club) and legs reddish.

At sap and under bark, very often in connection with the burrows of *Cossus ligniperda*. Dunham Park, Manchester, Westerham, Richmond Park, Coombe Wood, New Forest, Southampton; Barmouth in fungi. I have taken it by sweeping in Bretby Wood, near Repton.

2. Length, 1—$1\frac{1}{2}$ lin. Long oval; thorax with margins broadly testaceous; antennæ entirely red-brown.

C. imperialis, Fabr.—Of a longer form, and not so convex as the preceding species; prevailing colour reddish-testaceous; disc of thorax, and two or three very irregular bands on elytra, dark; antennæ and legs red-brown; it also differs from *C. strigata* in having the free outstanding bristles on the sides of the elytra more prominent.

Taken under the same conditions as the preceding, but much rarer. Dunham Park, New Forest, Southampton, &c.

IPS, *Fabricius.*

1. Body oblong, more or less convex; forehead smooth between antennæ.

a. Each elytron with two yellow spots, the one at base formed of three confluent spots, the other behind middle formed of two confluent spots, which are occasionally separated.

I. quadriguttata, Fabr.—Black, except spots on elytra; rather finely and somewhat diffusely punctured; antennæ reddish or pitchy, club black; apex of elytra entirely rounded in males, pointed at suture in females; the elytra show very weak traces of longitudinal striæ; occasionally the spots on the elytra are all divided. This variety is the *Nitidula* 10-*guttata*, Oliv. Length, $1\frac{1}{2}$—$2\frac{1}{2}$ lin.

Not uncommon under bark, and at sap, especially of oak trees. Ripon, Manchester, New Forest, Dean Forest, and many other localities.

b. Each elytron with two simple round or oval reddish spots.

I. quadripunctata, Herbst.—Larger, more convex, and considerably more strongly punctured than the preceding; the apex of the elytra is entirely rounded in both sexes; in the males, as a rule, the head is large, and the thorax somewhat

broader than the elytra, and so the whole body appears to be gradually narrowed from the front to the apex of the elytra; the shape and colour of the spots alone serve to at once distinguish the species. Length, 2—3 lin.

Under bark, and at sap of fir, oak, birch, &c.; under oak chips where the trees have been recently cut down, near Manchester; Weybridge, Caterham, Walton-on-Thames, Mickleham, New Forest; Chat Moss in fungi.

2. Body elongate, flat, parallel-sided; forehead with furrows between antennæ.

I. quadripustulata, Linn.—Black; each elytron with two orange-red spots, the one at apex irregular, the other behind middle simple, round or nearly round; punctuation diffuse, finer on thorax than on elytra; elytra with traces of striæ; apex of elytra rounded in males, produced in females. Length, 1½—3¼ lin.

Under bark of various trees; taken commonly in Scotland at sap of firs at Aviemore, Rannoch, Braemar, Falkirk, Alvie, Forres, &c., by Charles Turner, Mr. Champion, Dr. Sharp, and others; it is, however, not confined to Scotland, as it has been recorded from Leicester, Windsor, Hertford, and other places in England. It is a very variable species as regards size.

PITYOPHAGUS, *Shuckard.*

P. ferrugineus, Fabr.—Body long, cylindrical, entirely ferruginous, head rather darker; thorax longer than broad, thickly and strongly punctured; elytra rather thickly punctured, with punctures almost arranged in rows, apices truncate; apical portion of elytra occasionally dark pitchy. Length, 2—2½ lin.

Under bark of firs, and at sap of freshly cut fir; often found in saw pits; not uncommon where it occurs, but very local. New Forest, Shirley, Esher, Braemar, Aviemore, Rannoch, Mr. Champion; Bournemouth, plentiful, Mr. Kemp Welch; Weybridge, Woking, Northumberland, Dr. Power; on fir logs, Forres.

RHIZOPHAGINA.

The position of this tribe is one of considerable difficulty, and the best way to deal with it would be to raise it to the position of a Family. At present it does not agree with the *Nitidulidæ*, by reason of the heteromerous tarsi of the male, nor with the *Trogositidæ*, because its members have the fourth joint of the tarsi the smallest, whereas the *Trogositidæ* have the first joint the smallest. The club of the antennæ presents a great point of difference; the antennæ of *Rhizophagus* are usually spoken of as ten-jointed, with a solid club; the club, however, to all appearance, is not solid, but at its extremity appear one or two ridges, which are considered by Erichson and others

to represent, in part at all events, the obsolete eleventh joint. Thomson says with regard to this (Skandinaviens Coleoptera, i, 66)—"*Antennæ clavâ haud compressâ, ad speciem* 2-*articulatâ, articulo ultimo ovato.*" Dr. Horn (Classification of the Coleoptera of North America, p. 149) says—"Antennæ *ten*-jointed, club two-jointed;" in this point, however, he cannot be right, for the nine joints of the antennæ before the club are very plain. Since drawing up the table in vol. xxi, p. 56, in which I said of the *Rhizophagina*—"Antennæ 11-jointed, club 2-jointed, the 11th joint wholly or partially enclosed within the 10th," I have soaked a specimen for a long time in caustic potash, and then mounted it in Canada balsam; the sutures of all the other joints came out very plainly, but there is no real suture visible in the club, which is evidently formed of a single joint, however far we may regard the ridges as representing the obsolete eleventh joint of the antennæ, and the second of the club.

Rhizophagus, *Herbst.*

The species of *Rhizophagus* in many instances bear a very close resemblance to one another, and there is considerable difficulty in distinguishing them from descriptions; there are seventeen species in the European list, of which we possess ten; they are found under bark of decaying or dead trees at all times of the year, but especially in the spring.

I. Antennæ with club truncate.

R. cribratus, Gyll.—Dark rust-red, depressed; thorax about as long as broad, very strongly and coarsely punctured; elytra rather widened in the middle, with rows of strong punctures; under-side of head and sides of body strongly punctured. Length, $1\frac{2}{3}$ lin.

The truncate club of the antennæ and sub-quadrate thorax at once separate this very distinct species; it is very local. Stretford, Mr. Reston; on decayed roots of lime trees, Withington Common, near Manchester, Mr. Chappell; Weybridge, Esher, Richmond Park, New Forest, Reigate, Tilgate Forest, Birch Wood; Ireland (Galway), Mr. J. J. Walker; Studley Park, Ripon, in fungus, Mr. G. R. Waterhouse.

II. Antennæ with club rounded at apex.

i. Colour testaceous or ferruginous, sometimes with indications of a darker shade on disc of thorax and elytra.

1. Punctuation of thorax close and very fine.

R. depressus, Fabr.—Light rust-red, suture of elytra darker; body depressed; head of male large, about as broad as thorax, of female narrower; thorax longer

than broad, widest in front, thickly and very finely punctured; elytra with very finely punctured striæ, first interstice with a row of fine punctures, second interstice widened and irregularly punctured. Length, 1—2 lin.

Not uncommon under bark of pine and Scotch fir; widely distributed.

2. Punctuation of thorax more or less coarse, but varying in degree.

A. Elytra depressed.

a. Average length, 1½ lin.; striæ on elytra finely punctured.

R. perforatus, Er.—Light rust-red or testaceous; thorax longer than broad, widest in front, very slightly contracted behind, with anterior angles plainly marked, rather coarsely punctured; club of antennæ oval; elytra depressed, parallel to middle and thence gradually narrowed, with rather weak finely punctured striæ.

Local; under bark and at sap; Chatham, Sheerness, Darenth, Mickleham, Shirley, Farnham, Esher, Buddon Wood (Leicestershire). This species is very liable to be confused with others, but its small size, depressed form, and the finely punctured striæ of the elytra, will serve to distinguish it.

b. Average length, 2 lin.; striæ on elytra coarsely punctured.

R. parallelocollis, Er.—Ferruginous, with disc of thorax and hinder half of elytra often clouded with a darker colour; head nearly as broad as thorax; thorax longer than broad, widest in front, very slightly narrowed behind, coarsely punctured; elytra depressed, especially in the middle, with rather strong plainly punctured striæ.

Not common under bark and at sap, although found in some numbers where it occurs; the late Archdeacon Hey once took it in numbers near York in fungus in company with *Atomaria fimetarii*; Darenth, Mickleham, Forest Hill, Esher, Shirley, &c.

This species is very variable as to colour; the prevailing colour is as given in the above descriptions, but many individuals are unicolorous rust-red, and some species are nearly as dark as *R. dispar*, from which they may be distinguished by their depressed form and broader and squarer thorax; from *R. ferrugineus*, which it most closely resembles, it may be separated by its depressed form and larger head.

B. Elytra convex, cylindrical.

R. ferrugineus, Payk.—Rather dark rust-red, unicolorous; head small, considerably narrower than thorax; thorax longer than broad, scarcely narrowed behind, very strongly punctured; elytra convex, with strongly punctured striæ; under-side deeply punctured, especially on the sides. Length, 1¾—2 lin.

Found under bark of pine; also under bark of oak near the burrows of *Cossus ligniperda*; local, but widely distributed.

ii. Prevailing colour pitchy or blackish; base and apex of elytra to a greater or less extent light.

1. Last segment of abdomen in both sexes with a plain impression, terminated on each side by a small prominence.

R. nitidulus, Fabr.—Rather elongate, slightly convex; head large, especially in the male; eyes prominent; thorax considerably longer than broad, more so in the male than in the female, plainly punctured on disc, finely punctured on sides; elytra with extreme side margins, apex and basal fourth part light red, with rather strongly punctured striæ. Length, $1\frac{1}{3}$—$2\frac{1}{3}$ lin.

Rare; under bark and at sap; Rannoch, Sherwood Forest, Dr. Power; Rannoch, Mr. Champion.

The only real distinguishing mark for this species is the impression on the last abdominal segment, which never varies; large specimens of *R. dispar* do duty for it in many collections: as a rule it is larger than that species, and there are certain differences in colour, but neither colour nor size are really reliable characters.

2. Last segment of the abdomen simple.

R. dispar, Gyll.—Elongate, slightly flatter than the preceding species; head large, especially in the male; eyes prominent; thorax evidently longer than broad, more so in the male than in the female, sides slightly rounded, finely punctured at sides, more plainly on disc; elytra plainly punctate-striate, apex broadly and shoulders narrowly light red, the colour, however, badly defined and variable. Length, $1\frac{1}{2}$—2 lin.

Not uncommon at sappy bark in the North of England, Scotland, and Ireland. Newcastle, Braemar, Aviemore, Rannoch, Co. Down, Mr. Champion; under bark of pines and in fungus growing on decayed trees, Chat Moss, Dunham, &c., Mr. Chappell; under poplar bark, Stretford, Mr. Reston; Rannoch, and in profusion at Balmuto (Fife), Dr. Power.

iii. Elytra black or brownish-black, with a plainly defined yellow spot on each a little before apex.

R. bipustulatus, Fabr.—Rather flat, shining; thorax not much longer than broad, with sides and anterior and posterior angles slightly rounded, thickly and rather finely punctured; elytra with plainly punctured striæ, with a very badly defined yellowish spot at the shoulder, and a plain one before apex. Length, 1—$1\frac{1}{3}$ lin.

Under bark; the commonest species of the genus.

This species varies very much in colour, some specimens being piceous, and others light testaceous; the former are easily distinguished, as the two spots on the elytra are always plain, if the ground colour is at all darker; pale examples, however, may be confused with *R. perforatus*, which is about the same size, but the rounded sides of the thorax, and much more plainly punctured striæ of the elytra, will distinguish them.

iv. Colour unicolorous black.

R. politus, Hellw.—Oblong, rather broad and flat; head rather large, strongly impressed, thorax as long as broad, with sides and angles rounded, diffusely and somewhat finely punctured, with a space between centre and base smooth; elytra with plainly punctured striæ, which are evanescent towards sides and apex. Length, 1½—2 lin.

This very distinct species is decidedly rare; it occurs under pine bark; Lee (Kent), by sweeping, Mr. Douglas; Tintern, Manchester, Aviemore; under bark of black poplar that had been partially submerged; Stretford, Mr. Reston; Rooke, Monmouthshire.

v. Elytra blue or bluish-green; head, thorax, and scutellum shining black.

R. cæruleipennis, Sahl.—Rather short and broad; antennæ brown-red with black club; thorax not longer than broad, narrower than elytra, with anterior and posterior angles rounded, rather thickly and finely punctured; elytra finely punctate-striate; legs ferruginous, with femora brownish. Length, 1½ lin.

One of the rarest of the British beetles. I know of no locality for it except the Lover's Walk at Matlock, where Mr. Matthews, Mr. Crotch, and, I believe, the late Mr. Garneys, have taken single specimens. I have taken many good beetles in the place, but have never been fortunate enough to secure a specimen.

[*R. parvulus*, Payk., is a species that might very likely be found in Britain; it is a small, flat, fuscous insect, with the head small, the thorax only as long as broad, with rounded sides, extremely finely punctured; the elytra are furnished with finely punctured striæ. Length, 1—1⅓ lin.

It appears to be found under bark of aspens.]

Lincoln.

AN ASCENT OF MOUNT KOSCIUSKO.

BY E. MEYRICK, B.A., F.E.S.

Mount Kosciusko is the highest point of Australia; I say this advisedly, because an unreasonable Austrian zoologist has recently endeavoured to fix a new name on the mountain, on the ground that the highest point is not exactly where it was supposed to be; but the name of Mr. Kosciusko is attached to the whole mountain, which consists of a series of ridges or undulations rising one behind the other to the centre, where there are several points of nearly the same height; the highest of all, which I ascended, being 7200 feet.

I was indebted to the kindness and hospitality of Mr. A. Body, whose station (Jindabyne) is situated on the skirts of the mountain beside the Snowy River, at an elevation of 2700 feet, for the means of making the ascent in January last, in the interests of entomology.

Our party consisted of my host, a guide, and myself, with four horses. We started with fair weather, a warm wind blowing, and the thermometer at 94°, and made our way up a dry sandstone spur, clothed with the ordinary Australian forest of *Eucalyptus* and thin scrubby undergrowth, the insects being much the same as on the Blue Mountains. The ground was encumbered with fallen trees, and the travelling very rough, there being no track. At 5000 feet we emerged upon a swampy flat, bare of trees, but well grassed, and the boggier ground supporting a dense vegetation of heath-like shrubs (*Myrtaceæ*, *Leguminosæ*, and a *Veronica*); skirting this were low forest-clad ridges. Here the alpine fauna began suddenly, and consisted almost wholly of species quite new to me; principally *Geometræ* of the family *Larentiadæ*, which were in great profusion, and remarkable for their gay colouring.

Whilst collecting here rain began to fall, and we remounted and pushed on. The rain, however, increased to a steady downpour, and the wind rose and blew in fierce gusts right in our faces; we continued to ascend, but it became difficult to make our way along the exposed sides of the ranges, and impossible to collect; my companions complained of the cold. We had intended to camp out, but under these circumstances, we made for a deserted wooden hut, the only building on the whole mountain, which we reached about dusk. It was a small roughly constructed shed, in a very disorderly condition, and my companions were inclined to despise it; but I, who had anticipated nothing better than wet grass for my bed, was disposed to be thankful. Whilst the rest of the party made a fire and prepared tea, I employed the little remaining daylight in collecting. I found that the *Lepidoptera* appeared to like the rain, and flew freely, but my net and boxes became so wet, that operations were difficult. I took two species of *Simaëthis*, both of which I had found previously in Tasmania; *Mimeseoptilus celidotus*, which extends to New Zealand; and several species of *Tortricina* and *Œcophoridæ*, principally of Tasmanian types; our elevation being about 6000 feet. The thermometer fell at night to 40°.

The next morning was bright and fine; mists hung about the valleys, but soon cleared away, and the day proved eminently favourable. We started soon after sunrise; our way lay over undulating ridges, separated by boggy creeks, and luxuriantly clothed with long grass and many coloured *Compositæ*, over which the new *Xenica* described below was flying in abundance; the only other butterfly was an occasional specimen of *Pyrameis cardui*. The country now became

very boggy, and demanded constant attention; these bogs constitute the chief difficulty of the ascent. I and my horse came down heavily once, owing to a concealed hole; but this was our only misadventure. The swampy ground was invariably overgrown with dense heathy scrub, and haunted by numerous *Geometræ*; also, as I was assured, by snakes, but we saw none.

A large herbaceous *Veronica*, with spikes of purplish-white blossom, grew in masses, from amongst which we disturbed numerous specimens of *Platyptilia emissalis*. I obtained also two examples of a very large new Crambid, of the genus which in Australia replaces *Crambus*. At 6500 feet I took a single worn specimen of the cosmopolitan, *Mecyna polygonalis*. Above this height the trees, which had become very stunted, ceased entirely. The granite hills which form the crest of the mountain, though sometimes broken and rocky, are mostly covered with a perfect smooth sward of short grass and silvery-leaved *Compositæ*, grazed over by troops of wild horses.

The shrubby vegetation of the lower plateaux is unable to maintain itself towards the summit, which is covered with snow nine months in the year. At the time of our visit the snow was confined to large patches, in positions where it lies scores of feet deep in winter. The day was clear, and from the summit we had an uninterrupted view of over 100 miles in every direction; northward up the valley of the Murray, which rises from a deep ravine of the mountain; southward over the tractless ranges of Gippsland, across the Victoria border; eastward to the distant Pacific. Several specimens of a large *Pieris*, which I could not capture, passed us on the summit, but I think they were the common *P. Aganippe*. I had half hoped to discover some form allied to *Erebia*, such as occurs in the New Zealand mountains, but saw no trace of anything of the kind; though I believe a month later there would be a better chance. Diligent search on the highest ground only procured two specimens of *Lepidoptera*, both of new species; one a *Conœca* (a genus allied to *Talæporia*), of which the larva is doubtless a case-bearer and lichen-feeder; the other a small *Cœsyra* (*Œcophoridæ*); both these being of familiar Australian types. A species of *Curculionidæ* was common on the blossoms of the peculiar Alpine umbellifer, *Aciphylla glacialis*, whose leaves resemble those of a fan-palm in miniature. This was the only beetle which I observed commonly on the mountain, though I could not spare time to search specially for them; my other captures consisted only of a few very small *Geodephaga* and *Curculionidæ*. Of *Hymenoptera* I saw none.

I expected *Trichoptera* to be abundant, as they are in Tasmania, but this was not the case ; I took very few species, and these were identical with those found on the Snowy River at lower levels.

We started on our descent at 3 p.m., and pitched our camp at sunset at about 6000 feet, beside a swamp. Insects were flying in abundance, principally of the species which I had already met with ; a large mosquito was common within the precincts of the swamp, but curiously, would not venture a yard outside it, which was fortunate.

Amongst the *Tineina* represented were *Stathmopoda* (two species, both Tasmanian), *Elachista*, *Pleurota*, and *Zelleria*, with several endemic Australian genera of *Œcophoridæ*. During the night the wind increased almost to a gale, and a part of our tent broke loose and could not be secured, so that our rest was troubled. In the morning more rain was evidently impending, and we made the best of our way back, stopping occasionally for a few minutes' collecting, my best capture being a beautiful green *Iodis* ; the Station being reached after a pretty rough scramble without mishap. The distance from the Station to the summit is about 35 miles ; during the three days occupied we were almost constantly in the saddle, the travelling being necessarily slow, and the ground sometimes so rough that only horses born to the work would face it.

I remained ten days at Jindabyne, and made several shorter excursions to various parts of the same range, ascending to 5000 feet. It was in one of these that I took the single specimen of the new *Telesto* described below. Butterflies were very scarce, but *Xenica Klugii* abounded on the lower slopes. My best day's collecting was on a peak 4700 feet high ; it was quite fine when I started with the guide, but came on to rain as we approached the ground, and poured in torrents for the rest of the day. The peak was capped by huge granite boulders, amongst which grew a thin shrubby undergrowth ; and, unpromising as the day appeared, insects were very plentiful, but my net and boxes suffered considerably. A singular and beautiful undescribed *Geometer*, allied to *Aspilates*, but superficially recalling a *Glyphodes*, occurred sitting on the rocks. I took also a new nearly white *Mimeseoptilus*, and many *Tortricina* and *Œcophoridæ*.

During the various excursions on the mountains I obtained over 60 new species of *Lepidoptera*, besides much information as to distribution. The most important general result arrived at was that in this Alpine fauna there was nothing of an extra-Australian character ; the species were in great part new, but belonged to the same genera as are everywhere prevalent in the lowlands of Australia and Tasmania ;

and it may therefore be inferred with probability that Australia has had no connection with the Alpine fauna characteristic of other main mountain ranges.

Subjoined are descriptions of the two new species of butterflies referred to above:

XENICA ORICHORA, *n. sp.*

♂. 30—33 mm. Form of *X. hobartia*. Wings above orange-fulvous, with dark fuscous markings, much as in *X. hobartia*, but more extended along veins; fore-wings with an entire* from middle of lower median vein to inner margin, only interrupted sometimes between veins 2 and 3, and with bar in middle of cell not oblique. Fore-wings, beneath, marked as above, but markings much lighter and becoming obsolete towards disc. Hind-wings, beneath, fuscous, with a black white-centred ocellus, surrounded by an ochreous ring, beneath costa beyond middle, and a similar one near hind-margin above anal angle; veins towards base of wing marked by ochreous-whitish streaks; inner margin narrowly ochreous-whitish; four ante-median ochreous-whitish spots, first sub-quadrate, on costa at $\frac{1}{4}$, second smaller, triangular, beneath first, third larger, trapezoidal, beyond second, fourth sub-quadrate, below third; a curved ochreous-whitish bar from middle of costa to base of vein 5; a somewhat inwards-curved row of five ochreous-whitish silvery-tinged sub-triangular spots from beneath upper ocellus to above anal angle; three small indistinct pale ochreous spots in a curved row between ocelli; a sub-marginal series of six semi-oval silvery-white spots, beyond which the dark hind-margin is divided by a pale ochreous line.

Allied to *X. hobartia* and *X. Kershawi*, but the markings on the under-side of the hind-wings are very different from either.

Mount Kosciusko, about 6000 feet, in January; common in flowery valleys.

TELESTO DRACHMOPHORA, *n. sp.*

♂. 30 mm. Form of *T. Ismene*, Newm. Wings, above, quite as in *T. Ismene*, but hairs towards base more fulvous-tinged. Fore-wings, beneath, dark fuscous, towards costa suffusedly fulvous; an ochreous-white dot in disc beyond middle, and short transverse bar from costa at $\frac{3}{4}$. Hind-wings, beneath, ochreous-brown, hairs more ochreous; six moderate, tolerably equal, sub-oval, silvery-white spots; first in disc at $\frac{1}{3}$, second near inner margin above middle, the other four connected and forming a transverse irregular series beyond middle, terminating at each extremity in a larger suffused, irregular, whitish-ochreous spot; a cloudy whitish-ochreous spot near hind-margin above middle, and two small, indistinct marks beneath it; cilia obscurely spotted with grey and whitish-ochreous.

The under-surface of the hind-wings is quite different from any other species known to me.

Mount Kosciusko, at 3000 feet, in January; one specimen.

Parramatta, N. S. Wales:
June 24th, 1885.

* Band? [omitted in the M S. EDS.]

A SYNOPSIS OF THE BRITISH SPECIES OF *CIMBICIDINA*, *HYLOTOMINA*, *LOPHYRINA*, AND *LYDINA*.

BY P. CAMERON.

(*Continued from p.* 51).

HYLOTOMINA (i, p. 65).

Thomson divides the *Hylotomina* into two sub-tribes: the *Hylotomides* with the hind tibiæ spined and the radial cellule appendiculate; and the *Schizocerides* with no spines on tibiæ, and the radial cellule not appendiculate; the latter, having the antennæ furcate in the males. Of the first group we have only one genus, the well-known

HYLOTOMA, Latr.

SYNOPSIS OF THE SPECIES.

1 (10) Abdomen luteous.

2 (3) Legs and thorax entirely bluish-black ....*pagana*, Pz.

3 (2) Legs more or less luteous.

4 (7) Pleuræ marked with yellow.

5 (6) Legs for the greater part bluish-black, hind tarsi not annulated with black... *pagana*, Pz., *var. Stephensi*, Lch.

6 (5) Legs for the greater part yellow; hind tarsi annulated with black... *rosæ*, L.

7 (4) Pleuræ not marked with yellow.

8 (9) Femora black only at apex, anterior-wings with a fascia below the stigma... *cyaneo-crocea*, Fourc.

9 (8) Femora quite black, wings without a fascia below the stigma...*melanochra* L.

10 (1) Abdomen black or blue.

11 (17) Tibiæ more or less white, wings mostly hyaline.

12 (13) Wings hyaline, without a fascia; four anterior legs black, posterior tibiæ white ....*ciliaris*, L.

13 (16) Wings with only a fascia below the stigma.

14 (15) 3rd cubital cellule on lower side shorter than 2nd; 6th joint of maxillary palpi not double the length of 4th; wings yellowish, tibiæ and tarsi usually yellowish-white ....*ustulata*, L.

15 (14) 3rd cubital cellule on lower side as long as, if not longer than, 2nd; 6th joint of maxillary palpi double the length of 4th; wings hyaline, nervures black, hind tibiæ pale in front, black behind .....*fuscipes*, Fall.

16 (12) Wings with a fascia and also a violet-fuscous blotch in radial cellule; tibiæ and tarsi yellowish-white, abdomen with testaceous stripes on back... *atrata*, Forst.

17 (11) Tibiæ entirely black, wings blackish-violaceous.

18 (19) 3rd transverse cubital nervure almost straight; 3rd cubital cellule not much longer than broad .....*violacea*, Fab.

19 (18) 3rd transverse cubital nervure bent, 3rd cubital cellule longer than broad.

20 (23) 3rd transverse cubital nervure bent outwardly, head dilated behind; antennæ stout, short.

21 (22) 3rd cubital cellule not wider on lower than on upper side; accessory nervure received a very little beyond the middle of cellule. Sheaths of ovipositor normal ..... *enodis*, L.

22 (21) 3rd cubital cellule wider above than below the recurrent nervure, forming an elbow above; accessory nervure received considerably beyond the middle. Sheath of ovipositor produced into hooked-shaped processes .. *berberidis*, Schr.
(See Vol. ii, fig. 8).

23 (20) 3rd cubital nervure obliquely curved, the 3rd cubital cellule much wider above than below; head not dilated behind; antennæ long and slender .. *gracilicornis*, Kl.

Violacea, = *enodis*, Kl.; *vulgaris*, Br. and Zad.; *cæruleipennis*, Thoms., André.

Enodis, L. *non* Kl., = *atrata*, Kl.; *nigripes*, Br. and Zad.—The wings in this species are lighter coloured than in *violacea*, the dark violaceous tint, as a rule, only extending to the middle, while the hinder pair want it entirely. Easily known from it otherwise by the form of the 3rd transverse cubital nervure; longer 3rd cubital cellule; by the recurrent nervure in the hind-wings being received nearer the middle of the cellule, and by the accessory nervure being appendiculated further from the middle. If anything, the head is more strongly dilated behind the eyes, and the front is more projecting.

Berberidis.—The peculiar structure of the sheath of the ovipositor in the ♀ renders that sex easily recognisable, but the ♂ is not at all readily separated from the same sex in *enodis*. The antennæ apparently are a little longer; the antennal tubercle is deeper, so that the carinæ are sharper, the 3rd cubital cellule is longer, the recurrent nervure in hind-wings is received nearer the end of the cellule; usually, the wings are darker. I am not quite satisfied that the specimen (a ♂) representing *berberidis* in Stephens' collection is actually that species; so that further evidence of the British nativity is very desirable.

Gracilicornis, ♂, = *cyanella*, Kl., = *pilicornis*, Leach.—This species has a more slender body than any of the other species of the same coloration, and is easily known from them by the head not being dilated behind the eyes, by the more oblique 3rd transverse cubital nervure, by the 3rd cellule being more dilated on upper-side, and by the longer and more slender antennæ.

Fuscipes, = *violacea*, Klug, *non* Fab.—Compared with *ciliaris*, *fuscipes* is a larger and broader insect; its head is, if anything, more swollen, the incision in the clypeus is deeper, and otherwise it is

readily known from it by the fascia under the stigma, as well as by the longer 3rd cubital cellule, and by the maxillary palpi.

Ustulata (pl. v, fig. 7, vol. ii).—No author describes this species as a variable one, yet in Scotland it varies considerably, especially in the coloration of the legs and wings. Thus Thomson separates it from *H. fuscipes* and *ciliaris* by the wings being yellowish, and the tibiæ and tarsi pale yellow, while he characterises the two species I have named by the terms "Alæ hyalinæ," but neither the colour of the legs, nor of the wings, can be relied upon as marks of distinction between *ustulata* and *fuscipes*. With the darker specimens of *ustulata* the best marks of distinction are that *fuscipes* has the 3rd cubital cellule a little longer than the 2nd, while in *ustulata* it is shorter; and in *fuscipes* the 6th joint of the maxillary palpus is double the length of the 4th; in *ustulata* not more than half the length.

Atrata is a species easily recognised by the fascia in the radial cellule, by the wide blotch, and by the transverse marks on the dorsum of abdomen.

SCHIZOCERA, Latr.

Thomson splits up *Schizocera* of the older authors into two: *Schizocera* having, according to him, the lanceolate cellule petiolate, and the antennæ inserted over the clypeus; and *Cyphona* with the antennæ well up above the clpyeus, and the lanceolate cellule contracted. In some species of *Schizocera* (*sensu st.*) the lanceolate cellule is certainly contracted, and, I believe, this is the case with most of them, but the basal part of the nervure is very short and not always easy to see. The form of the cellule, therefore, cannot serve to separate generically the two divisions; while I find so many gradations in the mode of insertion of the antennæ that I am unable to look upon this as a generic character. Further, the same species formed the type of *Schizocera* and *Cyphona*, so that the latter name is scarcely admissible. If, then, *S. geminata* is to be separated from *Schizocera*, the name of *Sericocera*, Brullé, should be used, as it does not seem to differ from *Cyphona*, Thoms., except in having the antennæ longer, and with longer and more silky pubescence. Our two British species of this group belong to *Cyphona*.

1 (2) Body entirely black, legs black, tibiæ and tarsi white ..... *geminata*, L.

2 (1) Abdomen and thorax in part luteous; femora in part, or wholly, and tibiæ and tarsi, yellow ..... *furcata*, Vill. (Vol. ii, pl. 5, fig. 9.)

(*To be continued.*)

NOTES ON *COLEOPTERA* AT BRANDON, SUFFOLK.

BY J. J. WALKER, R.N., F.E.S.

As the *Coleoptera* of Brandon do not appear to have received as much attention as the *Lepidoptera*, which have made this famous locality a "household word" among collectors, a few notes on some species which have lately fallen to my lot there, may induce other entomologists to further investigate the beetle-fauna of the district, which is certainly one of the most promising I have ever seen.

My visit was on July 9th and 10th, and the weather being in every respect favourable, *Coleoptera* were very abundant; and, except for the almost tropical heat of the sun's rays, reflected from the light sandy soil, and the swarms of most pertinacious flies which followed one everywhere, collecting was very pleasant and remunerative. Mr. C. G. Barrett's interesting notes on coast *Lepidoptera* occurring here (Ent. Mo. Mag., vol. vii, pp. 197—200) may, perhaps, be supplemented by the mention of some familiar sea-side beetles, such as *Broscus*, *Crypticus*, *Cteniopus*, *Sitones griseus*, *Cneorhinus geminatus*, &c., which turned up in more or less abundance, with others to be presently mentioned. Indeed, from the general aspect of the locality, as well as of the plants and insects, it was not difficult to imagine oneself at Deal or some other favoured spot on the coast, instead of being some forty miles inland.

Among many others taken, the following species seem most noteworthy:—*Harpalus discoideus*: this rare species was, oddly enough, the only one of its genus observed, and it occurred sparingly by grubbing at roots of various plants, in company with swarms of *Amara fulva*; *Amara consularis* and *Calathus fuscus*, with the preceding; *Olibrus millefolii*, in profusion, on *Achillea millefolium*; *Malthinus frontalis*, by sweeping; *Malachius ruficollis*, locally abundant on short grass just outside the town; *Dryophilus pusillus*, swept up commonly under fir trees; *Cassida sanguinolenta*, by sweeping; *Cteniopus sulphureus*, abundant on all sorts of flowers; *Apion rubens*, in plenty by sweeping; *Hypera fasciculata*, one only (afterwards lost), under *Erodium*, as usual; *Gymnetron noctis*, swarming in flowers of *Linaria vulgaris*, along with *Brachypterus gravidus*; on the roots of the same plant I found many round whitish galls, probably those produced by the larva of *G. linariæ*, but all, without exception, were too immature to do anything with; *Ceuthorhynchus setosus*, by sweeping; *C. asperifoliarum*, a few specimens on *Cynoglossum officinale*, but I could find none on the much more

abundant *Echium vulgare* and *Lycopsis arvensis*, on which plants I have always hitherto taken it; *C. vicinus*, sparingly, by sweeping *Achillea millefolium*; *Baris abrotani* (*picicornis*), common at roots of *Reseda lutea*, growing in clean loose sand, the specimens mostly very large and brightly coloured.

By promiscuous sweeping on the banks of the Little Ouse, *Haliplus fluviatilis*, *Pœderus riparius*, *Phalacrus caricis*, *Cercus pedicularius* (common on *Spiræa*), and *Silis ruficollis*, were the best things obtained.

The *Lepidoptera* were a complete failure, the only one of the Brandon specialities which I saw being a miserably worn *Lithostege griseata*, and even the commonest species were very poorly represented. The sole exception was *Callimorpha jacobææ*, the larvæ of which were in the utmost profusion, having nearly everywhere eaten their food-plant, the ragwort, down to the bare stalks.

Among the *Hemiptera* I may mention *Pseudophlœus Falleni*, which occurred sparingly, along with *Nysius thymi*, at the roots of *Erodium*.

H.M.S. "Cherub," Portland:
August 6th, 1885.

Abdera 4-fasciata, and other Coleoptera in Kent.—Two or three excursions, in the early part of July, to Cobham Park, one of my favourite old hunting-grounds in the Chatham district, were, as regards *Coleoptera*, fairly successful, although insects of all orders were by no means as abundant as in past years.

The best capture was perhaps *Abdera 4-fasciata*, of which species Mr. G. C. Champion and I were fortunate enough to stumble on a small colony, in a large, partly decayed hornbeam tree. It occurred chiefly under the dry, loose bark, and in some very dry fungoid growth on the rotten wood, in company with *Cis festivus*; but a few were taken, running very actively on the tree-trunk. Altogether, we bottled about 30 specimens, varying greatly in size, like most wood-feeders: it is one of the most fragile insects with which I am acquainted.

Cryptophagus ruficornis occurred very sparingly under the loose bark of some large ash logs, as before in company with *Diphyllus lunatus*: these logs also produced *Euplectus bicolor*, *Bythinus Curtisii*, *Cerylon ferrugineum* (common), *Paromalus flavicornis*, *Abræus globosus*, *Lathridius testaceus* (a few), *Hylesinus crenatus*, &c.

Cryptarcha strigata and *imperialis* turned up at the exuding sap of a *Cossus*-infected oak, and the showy and active *Oxyporus rufus* in toadstools: and by sweeping, the best things obtained were *Homalota hepatica* (1), *Anisotoma parvula*, *Cyrtusa pauxilla*, *Hydnobius strigosus*, *Tillus elongatus*, *Liosomus oblongulus* (2), and a few *Ceuthorhynchideus versicolor*.—J. J. Walker, H.M.S. "Cherub," Portland: *August 6th*, 1885.

Ceuthorhynchus resedæ, &c., at Cromer.—This somewhat scarce weevil (for which I had vainly searched every plant of *Reseda luteola* I met with for many years past), turned up in great profusion at Cromer, at the end of June, on the "Weld," growing abundantly in some fields on the cliffs. In the same locality I met with *Olibrus pygmæus, Otiorhynchus raucus, Baris abrotani,* and *Hylesinus oleiperda,* among others, and *Bledius subterraneus* was found in great numbers burrowing in the perpendicular sides of a sand-pit.

I shall be glad to give a few unset *C. resedæ* to any Coleopterist in want of the species.—Id.

Coleoptera at Tonbridge.—In the winter months, from December to the beginning of April, 1885, I occasionally collected within two or three miles of Tonbridge. By sifting dead leaves, *Metabletus truncatellus* and *Habrocerus capillaricornis.* In moss, *Bembidium Mannerheimi.* In nests of water-rat, *Oxypoda vittata* and *Homalota triangulum;* of grass mice, *Ocalea badia* and *Oxypoda nigrina.* In grass tufts, *Metabletus obscuroguttatus, Bradycellus harpalinus, Conurus immaculatus, Plinthus caliginosus* (1), *Tropiphorus carinatus* (1). In swampy places in grass tufts or reeds, *Lebia chlorocephala, Anchomenus gracilis, Oxypoda lentula* (5), *Calodera riparia* (1), *C. æthiops, Homalota ignobilis* (1), *H. exilis* (1), *Stilicus orbiculatus.* In flood refuse, *Anchomenus livens, Callicerus obscurus, Homalota languida* ♂ (4), *H. pavens, H. luteipes, H. debilis, H. aquatica, H. pygmæa, H. clientula, Achenium humile.*

Sweeping at the end of April procured for me *Coryphium angusticolle* (1), *Homalota atricolor, Epuræa melina* (1), and *Adimonia suturalis* on heather.

Sweeping and beating from the end of May to middle of July, I got, within a radius of five miles of Tonbridge; *Homæusa acuminata* (1), *Oxypoda exoleta* (1), *O. nigrina* (several), *Homalota splendens*(1), a wonderfully long wiry creature, *H. indubia, H. intermedia, Colon Zebei* ♂ (2), *C. brunneum,* and two other species of *Colon* besides, which I cannot make out, *Thalycra sericea* (4), *Ips* 4-*punctata* (1 flying), *Antherophagus pallens* (1 dark specimen), *Throscus carinifrons,* several in flower blossom, as well as odd ones by sweeping, and one in a faggot. The late Mr. Wollaston found a single specimen crawling on a fence in Tonbridge town. Imagine, therefore, my joy at having found it again. One day I bottled about forty *dermestoides,* but, alas, only one *carinifrons* was amongst them. *Corymbites bipustulatus* (1 with nearly red elytra) from a fir tree, *Limonius minutus* (1), *Dolopius marginatus, Cœnocara bovistæ* (1), *Sitones cambricus, Balaninus tessellatus, Bruchus loti* (in plenty), *Lamprosoma concolor, Lema cyanella,* and *Strangalia nigra* turned up in my net. I found *Ips ferrugineus* in a house, and a *Deleaster dichrous* flew to light at dark.

In marshy places I found *Oodes helopioides, Anchomenus gracilis, Ocyusa picina, Homalota pilosiventris* (1), *Philonthus micans.*

In carrion *Microglossa pulla* and *Aleochara lygæa* (1).

In dung *Homalota lævana* (1) and *H. cinnamoptera.*

Under bark of elm log, *Calodera umbrosa* (1). Last year I found several in excrement. Oak log produced *Scolytus intricatus.*

Sap of oak stumps produced *Microglossa pulla* (1), *Heterothops* 4-*punctula* (1), *Homalium planum, Homalota villosula* (2), and *H. pilosiventris* (1) of which I found several in excrement last year.

In faggots, *Epuræa parvula* in plenty, *Anthribus albinus* (1), and *Plinthus caliginosus* (1).

In or on decaying trunks of horse-chestnut, *Melasis buprestoides* (24), *Cis pygmæus*, *Abdera 4-fasciata*, feeding on fungoid growth, *Homalium pygmæum* (1); of elm, *Asclera cærulea*; of oak, *Conopalpus testaceus*; of willow, *Melandrya caraboides*, *Tillus elongatus*, *Xyletinus ater* (1).

A Cossus-infected oak yielded *Placusa pumilio* and *Epuræa diffusa* (2).—A. C. Horner, Tonbridge: *July*, 1885.

Coleoptera on Snowdon.—On August 2nd and 3rd, I spent a short but very pleasant holiday at Llanberis along with Dr. J. W. Ellis, and made two ascents of Snowdon, from Llanberis and Pen-y-pas. *Coleoptera* were not nearly so plentiful as when Dr. Ellis was there in May, but we succeeded in taking *Carabus arvensis*, *C. catenulatus*, *Nebria Gyllenhali*, *Patrobus assimilis*, *Pterostichus vitreus*, *P. æthiops*, *Calathus micropterus*, *Bradycellus placidus*, *Aphodius lapponum*, &c. We made a long and careful search for the beautiful *Chrysomela cerealis*, but only succeeded in taking two, which fell to my lot. Although August is rather too late to look for this species, I do not think it is ever really abundant, otherwise we should have found traces of it in the webs of the immense spiders which occur under almost every large stone. Elytra of *P. æthiops*, *N. Gyllenhali*, and many other species were in plenty. *Thymus serpyllum*, which is said to be the food-plant of *C. cerealis*, was almost as scarce as the beetle.—R. Wilding, 40, Downing Street, Liverpool: *August*, 1885.

Coleoptera in Thanet.—From the 7th to 15th of July, I was staying at St. Peter's with my friend Mr. Wood, and through his guidance to various localities, I was able to obtain some good series of local insects, among others the following: *Tychius lineatulus* at Kingsgate; at Pegwell Bay, *Donacia nigra* in abundance, *Heterocerus arenarius*, *obsoletus*, *fusculus*, *Cocidula scutellata*, *Olibrus oblongus*; at Deal, *Melanotus punctolineatus*, *Aphodius sus* and *nitidus*, *Donacia thalassina*, and a single *Odontoscelis fuliginosus*; at Birchington, *Malachius viridis*, *Antherophagus pallens*, *Apion malvæ* and *livescerum*, *Amara convexiuscula*, *Psylliodes affinis*, *Gymnetron noctis*. I shall be glad to supply Coleopterists with *Donacia nigra* or *Aphodius sus*.—H. Bedford Pim, Leaside, Kingswood Road, Upper Norwood, S.E.: *August 17th*, 1885.

Stenolophus Skrimshiranus at Lewisham.—In July I found three specimens of *Stenolophus Skrimshiranus* at Lewisham in a bundle of half-dried grass which I had thrown into a small pond. This insect used to occur commonly in Hammersmith Marshes, but has not, apparently, been found in any numbers for a long time.—A. Beaumont, 30, Ladywell Park, Lewisham: *August 8th*, 1885.

Chærocampa nerii at Hartlepool.—Yesterday morning I had the great pleasure of capturing a specimen of *Chærocampa nerii* here, it was at rest on the railing surrounding the timber-yard of my firm. The specimen is in fair condition, though evidently hibernated, the colours being somewhat faded. It seems very strange to see this species so far North.—J. Gardner, 8, Friar Terrace, Hartlepool: *July 24th*, 1885.

Tinea picarella bred.—I have been fortunate in breeding half-a-dozen specimens of this insect from fungi this summer.—Id.

Prolongation of Life in the Pupæ of Lycæna Iolas.—In June, 1883, a correspondent sent me a number of larvæ of *Lycæna Iolas* from Budapest, where this insect is very abundant; these pupated during the month of July in the same year, and the majority came out in July, 1884, though of course some few of the pupæ died.

Last winter, when clearing out my cage, I noticed one or two of the pupæ looking plump and healthy, so I kept them, but did not give them another thought until July 23rd last, when I saw a nice specimen resting on the glass of the cage, this, on examination, turned out to be a ♂ of the form usually taken in North Africa, *i. e.*, with the ocelli on the under-side of the wings greatly reduced and obscured; then, to my surprise, about four days later another appeared, this, however, was a nice ♀ of the ordinary type.

If we had had a cold summer these pupæ would, probably, have died, but that they should have lived through two winters is very interesting, and points to a possible cause of the abundance of some butterflies in certain seasons.—G. T. Baker, Augustus Road, Edgbaston, Birmingham: *August 8th*, 1885.

What is the true Chrysophanus Hippothoë of Linneus?—In No. 255, p. 64, of this Magazine, Mr. Butler considers that the Linnean species should be *Ch. dispar*, Haw. (*rutilans*, Wernbg.). In my "Lepidoptera Scandinaviæ, Rhopalocera" (1853), I have already said, "*P. Hippothoë* auct., non in *Suecia*, est repertus, quare synonymiam Linnei citatam, F. S., No. 1046, ad hanc speciem—*P. Chryseis*, W. V.—pertinere credo. Descriptio a illustr. viro, *l. c.*, data nullam differentiam præbet:—Statura *P. virgaureæ* ut in descriptione Linnei dicitur cum *P. Chryseis* etiam magis cum *P. Hippothoë* congruit."

When I wrote these words, the Scandinavian peninsula had been by no means so fully explored as it now is, and at that time I thought it not impossible that *Ch. dispar* might be found. I then did not give *Ch. Chryseis* its Linnean name. During the twenty-two years that have since elapsed, our country has been thoroughly searched, and in no place has *Ch. dispar* been found. It is, therefore, impossible that such a butterfly can have escaped the observation of the numerous collectors who have since investigated the peninsula. The species that Linneus described in his "Fauna Suecica," should be one that occurs in Sweden:—"Habitat apud nos rarissime" are the words of Linneus. No species other than *Ch. chryseis* has been found in Sweden to which the Linnean description is applicable. Messrs. Staudinger and Kirby are thus right in giving to *Ch. Chryseis* the name *Hippothoë* of Linneus. *Ch. dispar* does not occur in Denmark, nor in Finland, but *Ch. Chryseis* is found in both. In Sweden and Norway *Ch. Chryseis* is nowhere common, but occurs here and there in the southern and middle provinces, and I am sure it is the *P. Hippothoë* of Linneus. Dalman, in his "Uppställning af Sveriges Fjärilar" (1816), also says, concerning *P. Hippothoë* (= *dispar*):—"anne unquam in Suecia inventa hæc species?, mihi numquam obvia, quare fere crediderim synon. Linnei forte ad sequentem (= *Chryseis*) pertinere."—H. D. J. Wallengren, Farhult, near Mjöhult, Sweden: *August 7th*, 1885.

The home of Cidaria reticulata.—I have often been asked to give the life-history of this beautiful insect; by this time I ought to know something of it, after thirty years continuous attention. I first met with it in 1856, on the borders of Windermere Lake in Lancashire, then the late T. H. Allis and I met with some five or six specimens; at the time we both thought it to be a second brood of *C. silaceata*; but the year following, T. H. Allis was visiting H. Doubleday at Epping, and as they were looking over the European collection of the latter, he, pointing to *reticulata*, said, "Thomas, thou oughtest to get this in thy north journey;" Allis at once said, "I have taken it, both Hodgkinson and I took it last year." H. Doubleday was rather sceptical until specimens were sent to him to enable him to verify the species. In the meantime I had sold mine for one shilling each as *silaceata*; year after year we looked for more, but to no purpose; we had left some pieces of paper on bushes to show which way either of us had gone through the woods, and Allis told Butler, of Kendal, to go and look where the papers were left; he went, and took five in one day, some two miles apart; there have never been as many taken since. I once got three, and during thirty years I have only captured nine specimens. The insect is, like *C. silaceata*, of a retiring disposition. After that, the Rev. J. Hellins, of Exeter, wrote me, saying, that the supposed food-plant was the English balsam, *Impatiens noli-me-tangere*. I had never seen the plant; I told Gregson, and he told me where he had seen the plant, but I could not find the place, it was so overgrown with bushes, &c., until 1877 or 1878, when I got into a fix in a swamp, and was carefully looking where to step next, when I saw a strange plant, I hastily picked it up, got on to a dry place, and was sure it was the long sought-for *Impatiens*; a few days after I went with working boots on, I looked carefully at all the plants, but saw only the leaves of one plant eaten, I found the larva, sent it on to Mr. Buckler, he pronounced it to be *Hadena rectilinea*, about one-third grown; he asked me if any bilberry was near: there was some a hundred yards off; no doubt it was a stray egg laid on the balsam.

I went again in September, took a few plants home with me, got my glass and spent several hours in trying to see if I could find any eggs; I found some, they duly hatched; the larva, when young, being transparent, looked like a faint white streak; I paid great attention to them, gave them leaves, flowers, and seeds; the latter is the favourite pabulum; the great difficulty is to keep the plant, it shrivels and dries up if injured in the least, or if air gets to it becomes mouldy directly; I found the best way to keep it fresh was in a tin canister with blotting paper. I got a fair number of the larvæ in 1878, but the mortality was great. The Rev. G. Smart, of Lytham, called one day, and I brought him ten dead larvæ in my hand. I suppose the want of the bracing air made them succumb. I sent two larvæ to Mr. Buckler, from which he bred one imago. The place got destroyed, I have been several times since, but not found one larva; the plant still exists, but I have not found any larva since 1878. During October, 1883, I went to a place where I had seen the plant some years ago, and I found two larvæ only, one each on the 30th and 31st October; one emerged in July, 1884. Had I not known the exact spot for the little clump of the plant, my long journey at this time of the year would have been fruitless. Last year I re-visited the same place, but six weeks too early; the larvæ were young; I got fresh supplies of food, and kept them singly, they did not seem

to thrive, till at last I put plenty of the plant in a large box, without any covering, before the greenhouse window, open night and day, I never disturbed them, and did not know whether I should breed any or not; however, seven gorgeous specimens have emerged. On the 24th of July, I was on a pleasure excursion, and having four hours to spare, I took a splendid large specimen quite unexpectedly, in fact I could not realize what I had in my net, it was such a great surprise. I paid other visits, but to no purpose. One extraordinary thing about the larvæ of *reticulata* is that I never had any ichneumons come from them; last year I sent J. E. Fletcher two ichneumons with very long antennæ that I found among the plant. My own series being already full (16), I shall have some for my friends.—J. B. Hodgkinson, 6, Fishergate Hill, Preston: *August 12th*, 1885.

Ochsenheimeria vacculella.—How does the larva live?—Lately, I had sent to me for determination by Dr. W. H. Lowe some specimens of this insect, with the following note on them:—

"Last year, whilst walking in Richmond Park, I came across a rotten crab-tree, and by breaking up the wood, I found between the lamina a lazy grey moth; it would not fly, but would only creep from one crevice to another. To-day (July 17th, 1885), in company with Robert Logan, I visited the rotten crab-tree, and found the same species of moth in good condition, but, as before, unwilling to leave its domicile."

Mr. Logan being here about three weeks afterwards, I asked him to send me a note, embodying his own observations as to this insect. They are as follows:—

On the 17th July, I saw Dr. Lowe take several fine specimens of *Ochsenheimeria vacculella* from under the bark of an old crab-tree in Richmond Park. They did not seem to be anxious to get away, but sidled into the corners of the box, so that several could be put in at once. There was no long vegetation of any kind near, nothing but the shortest of turf; and the presumption seems to be, that the larvæ had fed in the decayed wood, like those of *Œcophora sulphurella*.—R. F. Logan: *August 13th*, 1885.

I also asked Mr. Beaumont, who had lately taken the insect for a note of his capture:

On the third of August, when searching for beetles, I found two *Ochsenheimeria vacculella under the bark* of a large willow at Lewisham.—Alfred Beaumont, 30, Ladywell Park, Lewisham: *August 6th*, 1885.

I may add, that since the above note was written, Mr. Beaumont has handed me several other specimens from *under the bark* of the willow tree.

I have collated the following published notices of this insect:—

During the past season I took three specimens of this scarce species. The first beneath the bark of a willow tree, the last on the trunk of an oak tree, at Leatherhead.—J. Scott: *January 9th*, 1861. Intelligencer IX, p. 123, 1861.

Sometimes found early in July on windows in houses. The suspicion formerly entertained that it fed on rotten wood, seems, now that the larval habits of *O. taurella* are known, improbable.—A. Rössler. Schmett. v. Nassau, p. 214, No. 1286, 1866.

Sometimes early in July on windows in houses. Probably the larva or pupa has been brought in with hay.—A. Rössler. Schmett. v. Wiesbaden, p. 222, No. 1150, 1881.

Rare; observed at Louvain and at Brussels in houses. The larva feeds in rotten wood.—C. De Fré. Ann. Ent. Soc. Belge, II, p. 114, 1858.

I found this abundantly the first half of July, 1870, on the trunks of plum trees, between corn fields, close to the town of Altenburg.—Krause. Stett. Ent. Zeit, p. 296, 1871.

Of late years not met with. In August, 1865, the moths were so plentiful at the Hydropathic establishment at Frauendorf, near Stettin, that the white-washed walls of the buildings were covered with them. Numbers of them might be seen swimming in the pieces of water.—F. O. Büttner. Stett. Ent. Zeit., p. 428, 1880.

P. C. T. Snellen in "De Vlinders van Nederland"—*Micro-Lepidoptera*, pp. 502–4, refers the rye-feeding larva, which had hitherto been supposed to belong to *O. taurella* to *O. vacculella*. The rye-feeder had been bred by Dr. Gallus (Stettin. Ent. Zeit, p. 352, 1865), and by Dr. J. Wttewaall (Tijdschr. v. Entom., X, p. 23, 1867), but neither author seems to have given any definition of the perfect insect which they bred; we have only the authority of the two writers, Dr. Gallus saying he bred *taurella*, and Dr. Wttewaall pronouncing his insect *urella?* Had they only described *the moths that they bred*, others would have had an opportunity of satisfying themselves of the correctness of their determinations.

Now, my friend Heer P. C. T. Snellen upsets all one's previous notions, by saying of *O. taurella*, "the larva is, I believe, still unknown, for that which lives in the stems of rye is that of *O. vacculella*;" and of *O. vacculella* he says, "it lives as larva in the stems of rye, and its mode of life has been very fully described by Gallus and Wttewaall."

I must say, that to me, the balance of probability still appears to be that the species, with perfectly simple antennæ, *O. vacculella*, is in the larva state a rotten-wood-feeder.—H. T. Stainton, Mountsfield, Lewisham, S.E.: *August 18th*, 1885.

Assembling of Butalis senescens.—On the 10th inst., happening to notice on the downs here several males of *Butalis senescens* buzzing round a female which was sitting on a grass stem, I tied up the fair lady in the end of my net which I then laid down upon the ground; very soon the males began to appear coming up by short flights from stem to stem, and in about half-an-hour I had captured 30 males by simply boxing them as they sat on the net. So far as I could judge they seemed to come about equally from all directions, and not only up against the wind. I am not aware that this mode of attraction has been successfully tried before with any of the genus *Butalis*.—Eustace R. Bankes, The Rectory, Corfe Castle: *July 20th*, 1885.

Cordulia arctica, Zett., in the Schwarzwald (Baden).—The following note adds to our knowledge of the distribution of this arctic and alpine dragon-fly. During a short visit (of which I hope to give a more detailed account hereafter) to the Schwarzwald in the latter part of July and beginning of August, I captured two examples (♂ ♀) of *C. arctica*; one on a peat moss behind the "Wasserfall" Inn

above Triberg, the other on the Feldberg (about 4500 ft.); more were seen. Its congener, *C. metallica*, was in extreme abundance at every pond and small lake.—R. McLachlan, Lewisham: *August 15th*, 1885.

A great swarm of Hydropsyche instabilis, Curt., in Inverness-shire.—On the evening of July 27th, when driving down Glen Tromie, I passed through a cloud of *Hydropsyche instabilis*, which extended for upwards of five miles. With one sweep of my big net 50 or 60 might be taken, which will give you some idea of the density of the cloud; I never saw anything to equal it before. I drove down the same glen on the 31st, but did not then see a single specimen.—J. J. King, Village of Insh, by Kingussie: *August 3rd*, 1885.

Dead Humble-bees under Lime trees.—Dead Humble-bees, more or less mutilated, have often been observed in large numbers under lime trees, and various suggestions have been offered to account for their presence in such a position. Some observations which I was able to make the other day suggest the probable reason for the death and evisceration of such bees, and, therefore, may be worth recording. While walking on Hayes Common, Kent, on the 3rd of this month, I noticed, under a large spreading lime tree, in full flower, that the ground was strewn with bodies of Humble-bees of several species; I and one of my children picked up a number of them, and found several still moving their legs, and evidently only quite recently mutilated; nearly every specimen appearing to have been killed in the same manner, having a large hole in the upper surface of the thorax, and another at the apex of the abdomen, the apical segments being removed; thinking that it would be a good opportunity to try and find out who or what was the cause of their death, I sat down close to the tree and watched. The tree was covered with bloom, and Hive-bees and Humble-bees abounded, but I could not see any wasps, so I at once abandoned the idea that they were the culprits, as some have thought probable; everything seemed peaceable, and for some time I could see no possible enemy to suspect. At last, I saw among the higher branches a bird, and from the exact spot where it was fidgetting about, down dropped a carcase of a bee: I at once picked it up, and found the legs still twitching convulsively; although I did not actually see the bird drop the bee, I think there can be little doubt that it did. I went back again, and sat down to try and discover what bird it was, and after a little time a bird, which was in all probability the same, although I had lost sight of it while examining the bee, came out into a less leafy part of the tree, and I was able to identify it as a great Tom-tit; and although I have no positive evidence whereby to convict *Parus major*, I think the probabilities of his being the culprit are so strong, that it is hardly necessary to seek further for the murderer of these humble innocents.—Edward Saunders, St. Ann's, Mason's Hill, Bromley: *August 6th*, 1885.

Entomological Society of London, 1*st July*, 1885: R. McLachlan, Esq., F.R.S., President, in the Chair.

Messrs. Thomas Edmunds, of Totnes, and F. M. Campbell, F.L.S., of Rose Hill, Hoddesdon, were elected Members.

Mr. S. Stevens exhibited a species of *Coccidæ* that was causing damage to an India-rubber plant, by spotting the leaves.

Mr. Slater read some notes on the effect of magnetism upon insects, and detailed the process he adopted for his experiments.

Mr. C. O. Waterhouse said that a new collection of British insects for public exhibition was being formed at the Natural History Museum at South Kensington. For some of the more popular Orders there was no difficulty in procuring materials, but for others, such as *Diptera*, *Hymenoptera*, &c., this was not so easy, and he solicited donations of specimens, so as to enable the collection to be made the more complete and representative.

August 5th, 1885.—J. Jenner Weir, Esq., F.L.S., Vice-President, in the Chair.

Mr. T. W. Hall, of 3, New Inn, Strand, was elected a Fellow.

Mr. Dunning announced that Her Majesty in Council had been pleased to grant a Royal Charter of Incorporation to the Society, which Charter was read by the Secretary. Cordial votes of thanks were unanimously passed to Messrs. Dunning and F. Crisp for their gratuitous services in connection with the acquisition of the Charter. [The Editors of this Magazine consider this auspicious event a subject for congratulation to British Entomologists generally, and hope it will materially tend to further the interests and usefulness of the Society, which now, for the first time in the course of the 52 years it has existed, acquires a legal standpoint.]

Mr. Billups exhibited an example of *Inostemma Boscii*, Jurine, a curious little Proctotrypid, especially remarkable for having a horn projecting from the base of the abdomen over the thorax and head. He also exhibited the egg-case of a Mantid on a tobacco-leaf; and four species of *Chrysis* (*bidentata*, *ignita*, *fulgida*, and *neglecta*) from the burrows of *Odynerus spinipes*.

Dr. Capron exhibited *Phytodietus rufipictus*, a species of *Ichneumonidæ* new to Britain.

Mr. Winston (present as a visitor) exhibited a variety of *Arctia caja*.

Mr. Horner exhibited several rare species of British *Coleoptera*, including *Throscus carinifrons*, *Homalota splendens* and *humeralis*, *Aleochara lygæa*; and a curious variety of *Elater bipustulatus*.

Mr. Coverdale exhibited stems of *Onobrychis sativa*, illustrating the manner in which the larva of *Grapholitha cæcana* feeds.

Mr. Dunning alluded to the death of Prof. H. Milne-Edwards, one of the Honorary Members of the Society.

The following papers were read, viz.:—"On the Columbian species of *Diabrotica*," by J. S. Baly; and "On the Classification of the Australian *Pyralidæ* and *Pterophoridæ*," by E. Meyrick.

Obituary.

Henry Milne-Edwards was born, of English parents, on October 23rd, 1800, at Bruges, then under French rule, from whence his family removed to Paris in 1814, where he studied medicine, attended lectures, took his diploma in 1823, and for a short time practised as a physician in that city. He soon, however, abandoned his profession, and devoted himself to the study of zoology, and especially to that of the lower forms of animal life. In the year 1826, in conjunction with his friend and fellow-labourer, Victor Audouin, then the assistant of Lamarck and Latreille, at

the Jardin des Plantes, he commenced an extensive investigation of the anatomy, physiology, and zoology of the invertebrated animals of the Northern and Western Coast of France; the results of which were chiefly published in the "Annales des Sciences Naturelles," and were subsequently collected together in fascicules, in the first of which were introduced two Reports on the "Mémoires presented to the Académie Royale des Sciences," one by Geoffroy St. Hilaire, and a second by Messrs. G. Cuvier and Dumeril.

In 1827, the prize for experimental physiology was awarded to H. Milne-Edwards, by the French Académie des Sciences, where he succeeded F. Cuvier as a Member of the Academy in 1838, in the section of Anatomy and Zoology.

In 1841, on the death of his friend Audouin, he was appointed Professor of Entomology at the Jardin des Plantes, where he took up his residence in the house then recently occupied by Cuvier; and in 1862 he succeeded Isidore Geoffroy St. Hilaire as Professor of Zoology at the Jardin des Plantes, and in a year or two afterwards he was made Assistant Director of the Museum there.

In 1834—1840 appeared a valuable general work by our author on the *Crustacea*, under the title, "Histoire Naturelle des Crustacés," forming three volumes 8vo, as part of the "Suites à Buffon." This still remains the best zoological text book on the class. In 1857—1860, the "Histoire Naturelle des Corallieres" appeared, being the result of a zoological excursion to the coast of Algeria; and, subsequently, the "Recherches anatomiques et zoologiques faites pendant un voyage sur les Côtes de la Sicile," a fine quarto volume, with nearly 100 coloured plates.

Besides these works, and a vast number of detached memoirs, of which the list in the Royal Society's summary extends to more than a hundred items, and which were published, for the most part, in the "Annales des Sciences Naturelles" (the chief zoological periodical in France, commenced in 1824, and which still maintains its rank in French scientific literature), Milne-Edwards prepared several elementary works, which had an enormous circulation; his "Eléments de Zoologie" appeared in 1834, and his "Cours élémentaire de Zoologie," in 1851, these being the precursors of his *opus magnum*, "Leçons sur la Physiologie et l'Anatomie comparée de l'homme et des animaux," commenced in 1851, and only completed in fourteen volumes in 1881.

On the 7th May, 1839, Professor H. Milne-Edwards, was elected one of the Foreign Members of the Linnean Society of London. In 1852 he was also elected one of the ten Honorary Members of the Entomological Society of London; and in 1868 one of the few Honorary Members of the Entomological Society of France.

In 1847, Milne-Edwards was made an Officer of the Legion of Honour, and a Commander of this Order in 1861. In 1856, the "Copley" Medal of the Royal Society of London was awarded to him, on which occasion he came to London to receive it, when the President of that Society observed that "it would be difficult to name any existing naturalist who has prosecuted his researches with success over so very wide a range of investigation."

He died on the 29th June last, leaving a daughter (married to a son of M. Dumas) and a son, Alphonse Milne-Edwards, who has, for some years past, been successfully engaged in the study of *Crustacea*, upon which he has published a number of excellent illustrated memoirs.—J. O. W., Oxford: *August 8th*, 1885.

THE METALLIC GREEN SPECIES OF THE GENUS *COLEOPHORA* (*METALLOSETIA* OF STEPHENS, *DAMOPHILA* OF CURTIS).

BY H. T. STAINTON, F.R.S.

From time to time I am asked by correspondents questions as to some of these species; I will, therefore, note a few details respecting them, treating of them in the following order:—1, *Frischella*, L.; 2, *melilotella*, Scott; 3, *deauratella*, Z.; 4, *Fabriciella*, Vill.; and 5, *alcyonipennella*, Kollar.

1. *Frischella*, Lin., Z., Sta., *trifolii*, Curtis, B. E., fo. 391.—This is the largest and brightest of the group, but I imagine it is in very few collections. I believe there are specimens of the case in Mr. Bond's collection: "long, curved, and black, being formed of silk; it most resembles the case of the larva of *C. conspicuella*" (Ent. Ann., 1861, p. 88).

2. *melilotella*, Scott, Trans. Ent. Soc., London, n. s., V, p. 408, pl. 17, f. 1.—This is rather smaller than the preceding, and though a brilliant insect, is scarcely as glossy as *Frischella*, but I think it extremely probable that captured specimens of this insect may have been recorded as *Frischella*.

The larva of *melilotella* feeds in the seeds of *Melilotus officinalis*, and was first detected by Mr. John Scott in August, 1859, at Stockton-on-Tees.

I received this larva from Mr. Scott on the 11th August, 1859, and nine days afterwards I received the same larva from Frankfort-on-the-Main, where it had been independently observed by my friend Herr G. G. Mühlig—this is a most curious instance of synchronous discovery. The larva feeds in the seeds of the *Melilotus*, using the husk of the emptied seed as a case; at first only a single seed is used, then two are clumsily attached together, ultimately they are so blended as to form a symmetrical cylindrical case.

The larvæ require to be kept out of doors during the winter, as they do not assume the pupa state till the following season is well advanced—some even pass two winters in the larva state, thus sadly retarding the appearance of the imago.

After the perfect insects had been bred towards the end of *June*, 1860, from the Stockton larvæ, Mr. T. H. Allis visited the locality and succeeded in taking a fine series of the insect.

Mr. Farn has since met with the insect at Charmouth, and has very kindly supplied me with specimens from that locality.

3. *deauratella*, Z., Sta., H.-S., Frey.—Much smaller than *melilotella*, and much less glossy; the basal portion of the antennæ more thickened with scales, and the hinder portion of the abdomen of the female more acuminate, reminding one of a *Nemotois scabiosellus*, ♀; is this because she has to deposit her eggs in the seed-heads of clover?

No precise information seems yet to have been published as to the mode of feeding of the larva of this species. Early in August, 1869, I received from Herr Anton Schmid, then at Frankfort, *Coleophora* larvæ in the heads of *Trifolium arvense*, which I believe should be referred to this species. Their cases were cylindrical, rather short, with the mouth slightly turned downwards, and were of a reddish-ochreous colour. When *in situ* they are scarcely to be perceived by the keenest observer.

4. *Fabriciella*, Villers; *spissicornis*, Haw., St., C.; *Mayrella*, Z.—A small, but pretty, species, well distinguished by the antennæ, which are thickly clothed with coppery scales to the middle, and then are sharply annulated black and white.

At one time this insect used to fly in great numbers to my attracting light, and 20 or 30 specimens in various stages of scorched-mutilation might be found each morning on the carpet beneath the gas-burner. At that time I grew a little patch of purple-clover very near the house. Now, I have no such patch of purple-clover, and I never see my little friend *Fabriciella*—may we not here have an instance of cause and effect, and should not the cases of *Fabriciella* be sought in the seed-heads of purple-clover? Very possibly the dealers in clover-seed know more about the larva of this insect than all the entomologists in Europe put together!

5. *alcyonipennella*, Kollar, Dup., Z., Dgl., Sta., H.-S., Frey.—The dullest of the group, with the nearly simple antennæ dark for two-thirds of their length, and then white.

The simple blackish case is common enough on, or rather under, the leaves of *Centaurea nigra* in April and May, and the young larvæ may be noticed in September. It makes glassy blotches on the leaves, which readily catch the eye of the observant entomologist.

From its feeding up in the spring, and producing the imago after so short an interval, it is very easily reared.

Mountsfield, Lewisham:
September 12th, 1885.

DESCRIPTION OF A NEW *GELECHIA* FROM OUR SALT-MARSHES: *G. TETRAGONELLA*.

BY H. T. STAINTON, F.R.S.

Exp. al. 5 lines. Head, face, and palpi pale whitish-grey. Anterior-wings pale grey, more or less suffused with dark grey, sometimes entirely dark grey, with four black dots placed in a lozenge form thus: two on the fold, the first of which is not far from the base, and the second about the middle of the fold; nearly vertically over this last, but slightly anterior to it, is the third dot situated on the sub-costal nervure; the fourth dot is placed on the disc in the middle of the wing; this last dot is frequently followed by a second on the disc, half-way between the last named and the hind-margin of the wing; at the hind-margin itself are some small dark dots round the apex of the wing; cilia grey. Posterior-wings grey, with the cilia rather darker.

This insect differs from *G. senectella* in the total absence of any ochreous or brownish tinge, and is rather neater. *Senectella*, though it frequently shows one or two dark spots *along the costa*, scarcely ever shows us any dark marking on the sub-costal nervure.

Taken by Mr. Sang amongst *Artemisia maritima* in salt-marshes near Redcar, in the month of July.

Mr. Sang has noticed that these insects sit with the wings closely appressed to the body, and the head well up. It varies very much in shade of colour, and in one specimen there was an indication of a pale hinder fascia, of which most specimens show no trace.

Mr. Sang writes to me that:—"This species appears to be very sluggish, as I have not seen it on the wing. All I have taken have been by searching among the tufts of *Artemisia maritima*, which are very short and poor, where the insect only seems to occur—nearest to the sea in the estuary of the Tees. I hardly suspect that the larva will feed on that plant, as most likely the moths only frequent it for shelter. It is the only plant above the very short grass. The moth is sluggish in the net, even at dusk, and looks—when alive—exceedingly narrow at the head end, from the very narrow thorax, and from the wings being so closely appressed for two-thirds of their length. The wings have the appearance of being greasy along the dorsal margin when closed, owing to that part being without any lighter scales. This is the first occurrence of the insect since 1881, when I took three examples."

Mountsfield, Lewisham, S.E.:
September 15*th*, 1885.

Chœrocampa celerio in Staffordshire.—On the 12th inst. I caught at Colton, Staffordshire, a fine specimen of *C. celerio*.—W. Buckley, 27, Wheeler's Road, Edgbaston: *September* 20*th*, 1885.

ON THE *HYPONOMEUTA* OF THE APPLE.

BY CHAS. G. BARRETT, F.E.S.

The apple trees on this side of London have been terribly infested this year with the larva of a *Hyponomeuta*, which ought to be the continental *malinellus*, but is here held to be merely a form of the common *padellus*. I obtained some larvæ and a large number of pupæ from apple trees at the end of June. The larvæ were about the size of those of *cognatellus*, dark greenish, with the usual conspicuous black spots, spinning webs in the usual loose fashion of the genus among the apple leaves. The pupæ were spun up in little clusters of cocoons, laid closely side by side in the hollows of curled-down apple leaves, and were, therefore, very easily collected from the trees.

A few days later, I found ordinary larvæ and pupæ of *padellus* in a hawthorn hedge, the larvæ smaller and darker than those on apple, and the pupæ in cocoons suspended *upright*, and singly, in the loose silken web.

The moths from apple began to appear on July 8th, and came out rapidly, most of them having emerged by the 15th, on which day the first of those from hawthorn appeared.

Nearly all the moths from the apple-pupæ were larger than those from hawthorn, and their tendency is decidedly to a lighter colouring, but while some of them are of as clear a silvery white as *cognatellus*, the great majority are clouded more or less with grey, and some are entirely grey, being of the precise shade of colour of the normal form from hawthorn, which varies in the opposite direction; the majority being unicolorous grey, but many specimens clouded with silvery-white, and occasionally a specimen is entirely of the latter colour.

The dots in the two forms are identical in position, both on the thorax and the fore-wings, and vary in number in the same manner, except that in the apple-form the majority have a cluster of small dots, composed of two irregular lines, towards the apex of the fore-wings, and the minority have but a single row, while in the hawthorn feeder the majority have but the single row and the minority the cluster. Both agree in the white colour of the head and the unicolorous dark hind-wings.

Thus it appears that the two forms differ in the larva, the mode of pupating, the time of appearance, and to some extent in the colouring of the imagines. Yet there seems to be no reliable character by which the latter can be separated—indeed, I am very sure that when mixed together it would be impossible to separate

them all—and it seems probable that the differences are all rather in the nature of variations than of specific distinctions. Yet *malinellus* is described as a distinct species by Zeller, Freyer, Herrich-Schäffer, Frey, and Heinemann.

Types received some years ago from the late Professor Zeller are not larger than ordinary *padellus* from hawthorn, but are all of a pure silvery-white, without any grey clouding [and this is always the character of any continental *malinellus* I have seen.—H. T. S.]. Otherwise, they agree exactly with our apple-feeding form.

68, Camberwell Grove, S.E.:
September 14th, 1885.

REPLY TO MR. BUTLER'S PAPER "ON THE DISTINCTNESS OF *AULOCERA SCYLLA* FROM *A. BRAHMINUS*."

BY LIONEL DE NICÉVILLE, F.E.S.

In vol. xxi, p. 245, of this Magazine, appears a paper bearing the above heading, in which Mr. Butler comments on the opinion expressed by Major Marshall and myself in "The Butterflies of India," to the effect that *Aulocera Scylla*, Butler, is not specifically separable from *A. weranga*, Lang, = *A. brahminus*, Blanchard.

After quoting our remarks, Mr. Butler writes:—"It must be borne in mind that when writing the above, neither Major Marshall nor Mr. De Nicéville had examined the type of *A. Scylla*; when the latter gentleman saw it a few months ago, he jumped to another hasty conclusion and decided that it was nothing but an under-fed specimen of *A. Werang* (*sic*)." But this second conclusion, even if hasty, is identical with the first; my note made in writing at the time was that "*A. Scylla* is nothing whatever but *A. brahminus*," or, in other words, a subsequent examination of the type confirmed the conclusion I had formed from the description. And I can find nothing whatever in Mr. Butler's recent paper to disprove it; he merely attempts to discredit my judgment by unsupported assertions about my jumping to hasty conclusions.

I should not have noticed this paper, however, solely on account of the extremely objectionable tone of it, but the lamentable ignorance displayed in the latter part of it, and the extraordinary assertion that because *A. Scylla* has been found in the Kutti Tangti Valley, 11—12,000 feet, "It is, therefore, clear that the locality 'Silhet' was, at any rate, if not quite correct (which remains to be proved), by no means so far out as Messrs. Marshall and De Nicéville imagined," ought not to remain on record uncorrected.

The Kutti Tangti Valley is in N.E. Kumaon, in the centre of the Himalayan range, at a great elevation, in the neighbourhood of the eternal snows, with sparse vegetation and a dry bracing climate, and zoologically within the Palæarctic region.

Silhet is a sub-tropical plain, lying about 600 miles further east and to the south, and bounded on the north and south-east with low hills, on which snow never falls, but on which the heaviest rainfall in the world descends; it is little raised above the level of the sea, the vegetation is luxuriant and dense, the climate oppressively hot, and the fauna that of the Indo-Malayan region. And to argue that because a butterfly belonging to a Palæarctic genus is found in the central Himalayan Alps, there is a probability of its also being found in Silhet, is scarcely scientific.

There is nothing new in the fact that the butterfly which Mr. Butler calls *A. Scylla* is found in the mountains of N.E. Kumaon; it occurs at suitable elevations throughout the Himalayas, certainly from Kashmir to Sikkim, possibly further; but there is no authentic record, so far as I am aware, of any species of the genus being found beyond the limits of the Himalayan range, and, as a matter of fact, a zoologist acquainted with the geography of the Indian region would as soon expect to find a giraffe on a Scotch moor as to find an *Aulocera* in Silhet; it *might* occur, but it is not likely.

The question whether *A. Scylla* is or is not distinct from *A. brahminus* is a matter of opinion, and must remain so until the life-history of the insect is fully known; Major Marshall and I formed one opinion on the spot, after careful study of large numbers of the perfect insects, and of their habits and haunts; Mr. Butler has formed his thousands of miles away, with a scanty supply of specimens, and misled by a label, the untrustworthiness of which he must have perceived if he had had any acquaintance with the region he was dealing with, and the verdict between the two I must leave to the readers of this Magazine.

Mr. Butler says that "few things can be more detrimental to the study of any branch of science than guessing;" but querying will do little harm if confined to matters of opinion, and not allowed to degenerate into dogmatism; far worse than guessing are attempts to meet honest queries by sneers, and if, as Mr. Butler asserts, *A. Scylla* is a good and constant local form, he will earn the gratitude of all entomologists in this country at any rate, if he will define the locality to which it is confined.

As regards the name given by Colonel Lang, I need only remark

that the type specimen is labelled "*weranga*" by Colonel Lang himself, and is so quoted by him in vol. v, p. 35, of this Magazine, and also by Mr. Moore at p. 266, n. 14, of the Proc. Zool. Soc. of London for 1874, and elsewhere, and that we adhered to this form by Colonel Lang's advice.

I propose to comment on Mr. Butler's remarks on seasonal variation at a future date; the remarks in his concluding paragraph scarcely need notice from me.

In conclusion, I would remark that more confusion in Indian entomology has been caused by the publication of erroneous localities without due investigation by men whose names carry weight among entomologists throughout the world, than by any other form of carelessness; the localities are accepted by entomologists of other countries who have no means of checking them, and not only are the true facts obscured, but the false theories based on the blunders obtain a wide circulation.

Indian Museum, Calcutta:
August 19th, 1885.

DESCRIPTION OF THE LARVA OF *PTEROPHORUS BERTRAMI*.

BY GEO. T. PORRITT, F.L.S.

About the middle of July in last year, Mr. James Hinchliffe, then of Alva, now of Tillicoultry, sent me a few eggs of this species. They hatched out directly, and I at once placed them on a potted plant of Yarrow. Unfortunately, the plant died, and I could find no trace of the larvæ; but, on writing Mr. Hinchcliffe of the misfortune, this summer he very kindly made a search for the larvæ, was at once successful in finding them, and I had the pleasure of receiving a supply from him on the 25th of June. They were in three stages of growth, though most were in the middle stage, or apparently about half grown.

They were of the usual form of larvæ of this genus, though perhaps a little more slender than some species; body cylindrical, stoutest in the middle, tapering towards the extremities; head small and polished, considerably narrower than the second segment; segmental divisions well defined, the skin rather glossy.

When about a quarter of an inch long, the ground colour is pale greyish-olive, but this is almost hidden by dark purplish-brown dorsal and sub-dorsal stripes, which give the larva a very dark appearance;

head very pale straw-colour, marked with smoky-brown, the ocelli black, and the mandibles reddish-brown; frontal plate and anterior legs polished black.

In the next stage, that is, when about three-eighths of an inch long, it has become considerably lighter in colour; the ground is glaucous-green, the dorsal and sub-dorsal stripes purple, but more interrupted, and not so wide as in the earlier stage; head of the same pale straw-colour, but not so clouded with darker, though the ocelli are still black, and the mandibles reddish-brown; the frontal plate is gradually becoming pale like the head, the black being confined to the front in some specimens, in others to a black edging, more or less broken all round. Ground of the ventral area and the prolegs uniformly glaucous-green, the anterior legs now ringed with black only.

In the adult stage, about half to five-eighths of an inch, the larva has a still paler appearance. Ground-colour bright pea-green; head very pale straw-colour, faintly tinged with green, the large ocelli intensely black, and consequently very conspicuous, the mandibles reddish-brown, frontal and small anal plate of the same bright green as the ground-colour; the dark green (slightly brownish anteriorly) pulsating dorsal vessel forms the dorsal stripe; between it and the spiracular region are two greyish-white stripes, on which the small black tubercular spots may be seen; below the spiracles is a still clearer and more conspicuous white stripe; spiracles black.

Ventral surface uniformly of the same bright green of the dorsal area; at the front, and at the base of each anterior leg, is an intensely black spot; and the prolegs are finely margined with black.

Feeds in the shoots of yarrow, apparently preferring the central shoot, and eating downwards towards the root.

It will be noticed from Mr. Buckler's description of the larva of *P. dichrodactylus* (Ent. Mo. Mag., xii, 233), that both species correspond in having three forms of colouring in the different stages of growth, and the resemblance of the adult larvæ particularly, shows the close relationship of the two species; whilst the differences, apart from the food-plants, are sufficiently wide to separate them.

When full grown the larva leaves the shoot, and affixes itself by the tail to the outside of the stem, leaf, &c. The pupa is a little over half an inch long, and exactly of the shape of that of *dichrodactylus* as described by Mr. Buckler, though perhaps a little stouter, as it can hardly be called "slender," the word applied by Mr. Buckler to that species. It has "a longish beak in front, projecting at a slight angle

downwards from the head, pointed at the tail; the wing-cases of moderate length, well developed, and the ends of the leg-cases projecting free from the abdomen." The colour is bright pale green, dorsal line darker green, edged on the thorax with white; beak white above, rust colour at the sides; there is also a conspicuous streak of this rust colour on the hind part of the thorax, and the same colour also appears (but more faintly) on the abdominal point, and at the tip of the leg-cases; sub-dorsal line dark green, lateral line white.

Ventral surface pale green, with darker green lines, and the wing-cases with whitish rays.

The first imago emerged July 24th.

Huddersfield:
August 12th, 1885.

ON *LEPIDOPTERA* FROM ST. VINCENT.

BY E. MEYRICK, B.A., F.E.S.

The six following species were taken by Mr. Gervase F. Mathew, R.N., at St. Vincent, Cape de Verde Islands, during his visit described in Vol. xviii of this Magazine, and were recently placed by him in my hands for determination; their locality renders them interesting, and the new genus of *Phycididæ* is intrinsically remarkable.

BOTYDIDÆ.

Phacellura indica, Saund.

Zinckenia recurvalis, Fab.—This and the preceding species are undoubtedly introduced by civilization, being now almost universal in sufficiently warm regions.

PHYCIDIDÆ.

Thylacoptila, *n. g.*

Face with a ridge of scales on each side; ocelli present; tongue well developed. Antennæ in ♂ filiform, evenly ciliated (1), hardly perceptibly sinuate at base, with a large rounded tuft of scales from base of stalk, basal joint swollen. Labial palpi moderately long, obliquely ascending, smoothly scaled, more loosely towards apex, terminal joint short, concealed. Maxillary palpi obsolete. Abdomen in ♂ with loose anal tuft, and a lateral tuft on each side of apex. Middle tibiæ in ♂ considerably thickened, with a brush of stiff hairs above, and a fringe of long fine hairs on inner side; posterior tibiæ in ♂ with a fine projecting pencil of hairs from base above, outer spurs half inner. Fore-wings with veins 4 and 5 closely approximated towards base, 7 absent, 8 and 9 stalked, 10 closely approximated to 9. Hind-wings with veins 2 and 3 almost from a point, 4 and 5 stalked out of 3, 7 out of 6 near

origin, anastomosing with 8 to middle: in ♂ with inner margin thickened and longitudinally folded to form a deep pocket-like groove beneath, containing a long pencil of fine hairs, and with a rounded thickened lamellar pad from middle of vein 1*a* above, appressed to marginal pocket, and causing space between to form a groove, which is clothed with loose hairs.

A very distinct genus, probably most allied to *Nephopteryx*.

THYLAC. PAUROSEMA, *n. sp.*

♂. 22 mm. Head, palpi, antennæ, and thorax light greyish-fuscous. Abdomen whitish, lateral apical tufts black. Legs whitish, anterior pair suffused with grey. Fore-wings elongate, posteriorly considerably dilated, costa posteriorly moderately arched, apex obtuse, hind-margin somewhat oblique, straight above, rounded beneath; light greyish-fuscous; veins and costa posteriorly suffusely darker grey; a cloudy dark grey irregular median streak from base, terminating in a small spot at one-third; some white scales, tending to form a cloudy transverse band, beyond one-third; a dark grey hind marginal line: cilia grey-whitish, with numerous grey lines. Hind-wings whitish, semi-transparent, base quite hyaline; a faint grey hind marginal line, darkest round apex; cilia whitish, with a faint grey line.

An inconspicuous species; I understand from Mr. Mathew that this was probably the insect mentioned as bred from the seed-pods of a *Cassia*. One specimen.

CRAMBIDÆ.

EROMENE —— ? *sp.*—One specimen of a species perhaps distinct, but extremely similar to some European forms; further specimens would be required to justify its description.

PTEROPHORIDÆ.

TRICHOPTILUS COMPSOCHARES, Meyr.—Five specimens amongst *Chenopodium*; described in a paper recently communicated to the Entomological Society; endemic, so far as known.

AGDISTIS TAMARICIS, Z.—One specimen.

Parramatta, N. S. W.:
June 21*st*, 1885.

Heliothis peltigera in Yorkshire.—On September 16th I captured, at rest, on the Sandhills at Kilnsea, on the Holderness coast, an exceedingly fine *H. peltigera* just out of the pupa. As the species is quite new to the County fauna, perhaps you may consider the record worthy of insertion in your pages. The identity of the specimen was kindly determined for me by my friend Mr. Geo. T. Porritt.—WM. EAGLE CLARKE, Leeds: *September* 17*th*, 1885.

SYNOPSIS OF THE BRITISH SPECIES OF *ORTHOPERUS*.

BY REV. A. MATTHEWS, M.A.

I have lately examined with much care the species of the genus *Orthoperus*, and have been greatly assisted in my work by M. de Marseul and Herr Reitter, who have very kindly furnished me with types of all the European species. The following paper contains the result of my investigations so far as the British species are concerned, and I hope that the characters I have given will prove sufficient to enable others to determine for themselves whatever species they may possess.

Orthoperus is a well-defined and easily recognised genus, distinguished from other *Corylophidæ* by its partly exserted head, long incurved anterior tibiæ, and nine-jointed geniculate antennæ, of which the fifth joint is generally much larger than the sixth, and, by its comparative size, often proves a valuable specific character.

The names of the species hitherto found in this kingdom, as far at least as I have had the means of discovering, are the following, viz.:—

Orthoperus Kluki, Wank.
brunnipes, Gyll.
corticalis, Redt.
punctatulus, *sp. n.*
atomus, Gyll.
mundus, *sp. n.*
coriaceus, Rey.
atomarius, Heer.

In the above list I have used the names "*atomus*, Gyll.," and "*atomarius*, Heer," in preference to "*picatus*, Marsh.," and "*punctum*, Marsh." Although those species are designated by the latter appellations in continental collections, yet the descriptions given by Mr. Marsham are so exceedingly vague and indeterminate, that it would be confusing to alter our present nomenclature without actual comparison with the Kirbyan types.

Orthoperus Kluki, Wank.

The species which stands in our lists under the name of *brunnipes* is known on the continent as *Kluki*. Of both these species types have been kindly sent by M. de Marseul and Herr Reitter; and I find that the *brunnipes* of their collections is rather smaller, and much more oval than our species, which agrees in every respect with *O. Kluki*. The sculpture also is very different. The description given by

Gyllenhal will agree equally well with either species, and hence the confusion ha arisen: I think that the best method of ensuring uniformity for the future will b to adopt the continental nomenclature.

Orth. Kluki may be known by its large size, attenuated elytra, black colour and piceous legs.

Orthoperus brunnipes, Gyll.

In the continental collections the species which bears this name differs from *Orth. Kluki*, as I have already said, in its rather smaller size, perfectly oval form paler legs and antennæ, and especially in a distinct row of punctures within the basal margin of the thorax.

The only British example of this species is contained in the fine collection o P. B. Mason, Esq., of Burton-on-Trent, and appears to have been taken by the late Mr. Wilkinson, of Scarborough.

Orthoperus corticalis, Redt.

Orth. corticalis is rather smaller than the two preceding, but larger than any of the rest, and may be known by its broadly oval form, pale castaneous colour, and bright yellow legs and antennæ, of which the fifth joint is scarcely larger than the sixth; the anterior tibiæ are unusually long, and much incurved.

Of this species two specimens were found some years ago by myself in Sherwood Forest.

Orthoperus punctatulus, *sp. n.*

L. c. $\frac{9}{160}$ lin., = 1·12 mm. *Ovalis, modice convexus, nitidus, totus alutaceus, elytris distincte punctatis, castaneus; capite modico; pronoto parvo, indistincte punctato, lateribus marginatis, modice rotundatis, margine ipsâ flavâ, margine basali scutellum versus leviter productâ angulis obtusis; elytris longis, capite atque pronoto parum latioribus et fere duplo longioribus, ad media latissimis, sat depressis, confertim, regulariter et distincte punctatis, lateribus marginatis, apicibus obtusis; pedibus sat magnis, ferrugineis; antennis sat brevibus, ferrugineis, clavis nigris, articulo sexto quinto vix minori.*

Body oval, moderately convex, shining, alutaceous throughout, with the elytra rather closely punctured, castaneous. Head moderate, eyes not prominent; antennæ rather short, ferruginous, with the club black, sixth joint not smaller than the fifth. Thorax small, alutaceous; indistinctly punctured, sides margined and moderately rounded, margin yellow, basal margin slightly produced towards the scutellum with the angles obtuse. Scutellum small, obtusely triangular. Elytra long, a little broader and almost twice longer than the head and thorax, widest near the middle, rather depressed, closely, regularly, and distinctly, punctured, sides margined, apex obtuse. Legs rather large, ferruginous. Under-parts castaneous.

Differs from other species in its intermediate size, oval depressed form, sculpture of the elytra, and short antennæ with a black club, and sixth joint not smaller than the fifth.

Of this species one specimen was found by myself some years ago near Gumley.

Orthoperus atomus, Gyll.

This is the most abundant of the British species, and may be distinguished by

its short, convex form, pale castaneous colour, remote and almost invisible punctation, and large yellow antennæ, of which the fifth joint is much longer than the sixth.

I cannot perceive any difference between some specimens which have been sent to me under the names of *Orth. pilosiusculus*, Duv., and *Orth. anxius*, Rey, and the present species; but as I have not yet been able to examine the original descriptions of those species, I cannot speak positively as to their identity.

Orthoperus mundus, *sp. n.*

L. c. $\frac{6-7}{10}$ lin., = ·75–·87 mm. *Latus, rotundatus, sat depressus, aterrimus, alutaceus, haud nitidus; capite magno, distincte alutaceo, oculis prominentibus; pronoto lato, ad basim latissimo, minute alutaceo, impressionibus tribus levibus ad basim notato, unâ mediali et utrinque alterâ laterali, disco impunctato, lateribus rotundatis et marginatis, margine ipsâ dilutiori, margine basali scutellum versus multum productâ angulis fere rectis; elytris capite atque pronoto parum latioribus, sesqui longioribus, prope media latissimis, sat profunde alutaceis, punctis parvis, equidistantibus, striatim dispositis notatis, lineâ suturali impressis, lateribus valde rotundatis, fortiter marginatis margine dilutiori, apice valde rotundato, dilutiori; abdominis pygidio haud exserto; pedibus brevibus, gracillimis, flavis, tibiis anterioribus fortiter incurvatis; antennis sat longis, flavis, clavis nigro-piceis, articulo quinto sexto longiori, haud latiori.*

Body broad, rounded, slightly depressed, deep black, alutaceous, not shining. Head large, minutely alutaceous; eyes large and very prominent; antennæ rather long, yellow, with the club pitchy-black and the fifth joint longer, but not broader than the sixth. Thorax broad, widest at the base, minutely alutaceous, with three faint impressions near the base, one in the middle and one on each side, disc impunctate, sides rounded and margined, with the margin pale, basal margin much produced towards the scutellum, with the angles nearly right angles. Scutellum moderate, obtusely triangular. Elytra rather broader, and one-half longer than the head and thorax, widest near the middle, rather deeply alutaceous, marked with small equidistant punctures arranged in striæ, and an impressed line on each side of the suture, sides much rounded and strongly margined, with the margin pale, apex much rounded and pale. Legs short, very slender, anterior tibiæ much incurved. Under-parts piceous.

Differs from all other species in its rounded and depressed form, large head and prominent eyes, deep black colour, and in sculpture.

This very distinct species was often found by my brothers and myself in a small spot near Weston-on-the-Green, in Oxfordshire, but I have never seen an example of it in any other British or foreign collection which I have examined, nor have we ever met with it in any other locality.

Orthoperus coriaceus, Rey.

Orth. coriaceus may be known by its small size, oval and rather narrow shape, piceous colour, small head and thorax, large shallow punctures on the elytra, robust antennæ, and long slender legs.

This species has also been sent to me under the name of *Orth. pilosiusculus*, Duv.

ORTHOPERUS ATOMARIUS, Heer.

The minute size, convex ovate form, deep sculpture, and usually pale castaneous colour, readily distinguish this species from its congeners.

It occurs not uncommonly in damp localities, and also in damp cellars in various parts of the kingdom.

As it seems very probable that the species of this genus, and indeed, of the *Corylophidæ* in general, are much more numerous than those contained in our present lists, I shall feel much indebted to any entomologist who will send me specimens for determination.

Gumley: *August* 31*st*, 1885.

What is the true Chrysophanus Hippothoë of Linnæus?—It appears to me that Pastor Wallengren has rather missed the point of my remarks respecting *Ch. Hippothoë*, which were not intended to prove that the Linnean species had been correctly referred by him to the Swedish fauna, but that the description in no respect corresponded with *Ch. Chryseis*, and could not, therefore, have been made upon that species.

I consider that I do no wrong to the memory of Linnæus when I suggest that a species which had not been taken in Sweden was palmed off upon him as Swedish; on the contrary, this sort of thing is constantly done in England with (so-called) British species, and it shows a beautiful simplicity and innocent faith in one's fellow creatures to allow oneself to be thus imposed upon: on the other hand, if I credit Linnæus with shameful carelessness in his descriptions, I do him a great wrong, and the points which I emphasized in my note upon *Ch. Hippothoë* are of so distinctive a character, that I imagined no one could fail to see the importance of them at a glance. I cannot conceive how Pastor Wallengren, who is one of the most observant Lepidopterists living, can possibly consider that the mere introduction of the species into the "Fauna Suecica" is of more importance that the description itself.

I suppose that nearly a third of the species described by the older authors were recorded as coming from wrong localities; such errors as "Surinam" for "Sumatra," and "India" for "West Indies," being of too common occurrence.—A. G. BUTLER, British Museum: *August* 29*th*, 1885.

Sphinx convolvuli in Regent's Park.—On the morning of Saturday, September 5th, I captured a fine female example of *Sphinx convolvuli* on a paling outside the Zoological Gardens.—FRANK E. BEDDARD, Zoological Gardens, Regent's Park, London, N.W.: *September* 8*th*, 1885.

Sphinx convolvuli in South Devon.—This seems to be common this year; I hear it is abundant over the beds of petunias in South Devon. Are they immigrants or home-bred?—R. C. R. JORDAN, 105, Harborne Road, Edgbaston: *September* 14*th*, 1885.

Colias Edusa, &c., at Portland.—After some years of scarcity, *Colias Edusa* seems this season to be once more comparatively plentiful, at all events, in this locality. The first specimen (a lovely *Helice*, apparently just out of the pupa) was taken on the Chesil Beach on the evening of August 17th, and during the following week, my wife and I obtained a good series in the lucerne-patches on the summit of the Island, which were literally alive with *Pyrameis cardui, Lycæna Icarus, Satyrus Megæra*, and other common butterflies. Some of the females of *Edusa* are the finest I have ever seen, one in particular having the yellow spots in the black border almost obliterated. On August 24th I caught a good male specimen of *C. Hyale*, the first I have seen alive since 1872.

Sphinx convolvuli has also been commoner than usual, as, during the past week, I have taken eight specimens at petunia flowers, although the weather has been anything but favourable for collecting. On the rocks under the Verne Fort, where a little shelter could be obtained from the boisterous west and south-west gales which have prevailed here, almost without intermission, for the last fortnight, the pretty *Heliophobus hispidus* has occurred in fair numbers, sitting quietly on the grass and herbage after dark, and allowing itself to be readily boxed.—J. J. Walker, H.M.S. "Cherub," Portland: *September 14th*, 1885.

Lepidoptera on stone walls and rocks.—During a visit to the north-west last autumn I was much interested in observing the insects which rest by preference on the rocks and stone walls with which that district is so plentifully garnished.

At Kendal, *Polia chi* was to be found commonly sitting on the stone walls, and in many instances so posted, against ledges and inequalities, as to be fairly well concealed, or, at any rate, only noticeable by those who looked for them, but on the slopes of the Pennine hills, between Oldham and Huddersfield, where the original grey or whitish colour of the stone walls has become totally changed by the constant action of smoke from the cotton mills of the large towns, and the woollen mills of the villages, this moth becomes so conspicuous that it may be seen fifty yards away, and is, indeed, rather more noticeable than the wall itself. Here one would suppose would be a grand opportunity for the development of the variety *olivacea* and other dark forms, but no such alteration has taken place. I searched for hours for such varieties, and found only one, and that by no means a striking one, although the moth actually varied much in the dark markings on a *white* ground. One specimen I found on the blackened trunk of a tree, but their preference for walls was astonishing, hardly one was to be found on the isolated rocks or rocky hill sides.

On these rocky fragments, however, especially towards the tops of the hills, *Oporabia filigrammaria* was common, and charmingly variable, and from its grey colour would seem to be admirably adapted for concealment while at rest. But this was by no means the case. Every moth could be seen at a considerable distance. The glossy brightness of their fore-wings made them as distinctly visible on the dull grey rocks as though they had been white. Even those which were sitting on the heath required no searching for, they were quite visible. On another hill, where there were no rocks, but plenty of stone walls, several specimens, larger and whiter than those on the rocks, were found sitting on the *blackened ground*, sheltered by slight inequalities. They might *possibly* have been passed over by a *very* careless observer as glossy pebbles.

A few *Larentia cæsiata* were also to be found on the hills, but generally on the high rocks, and quite conspicuous.

I searched long and almost fruitlessly for *Cloantha solidaginis*, but at last found two specimens on rocks. They approached more closely to the appearance of the dark stone, and, therefore, I suppose elevated themselves on their fore-legs into as prominent and striking a position as possible.—Chas. G. Barrett, *September*, 1885.

Curious performance of a Noctua.—While on the Pennines, I noticed a very curious freak on the part of *Celœna Haworthii*. According to the usual restless habit of the species, individuals were to be seen from time to time in the afternoon buzzing about the heath bloom, dashing hastily away when disturbed, and suddenly disappearing—which disappearance, by the way, was effected by settling on a tuft of *Eriophorum vaginatum*, and running down underneath it to near the ground—and, as sunset approached these restless specimens, all males, became more numerous, until just before dusk they were to be seen darting in every direction over the moors with headlong speed. But one evening during their period of greatest activity, I noticed two or three specimens to be exceedingly interested in some large tufts of *Eriophorum*, so that they were easily caught. Before these were boxed, more came, and so on until I had secured as many as I cared for, and set myself to find the—supposed—concealed female. But the mythical female could not be found! The tufts were searched first carefully, then thoroughly, meanwhile the males were still coming, running about the bare peaty soil between the tufts, running over my hands even, but though I pulled the tufts to pieces, and dug up the surface of the soil, no female could be found, nor could the males be deterred from their investigation of the ground. Darkness came on so rapidly, that I was compelled to leave them thus occupied, lest I should lose my own way in the increasing gloom. Next time I visited the spot at the same hour no interest whatever was taken in it by the moths. Females I found sitting on the top of heath twigs and other conspicuous places, and can only suppose that the males must have been attracted by pupæ very near to emergence, which in the twilight I was not able to find.—Id.

Food of Peronea caledoniana, Steph.—This species was extremely abundant on the Pennine Hills during my visit—worn on the lower slopes, but in fine condition towards the summits—and always among *Vaccinium myrtillus*, which, moreover, showed abundant traces of the action of the larva. It seems a pity that a larva so plentiful as this must be in July should not be obtained and carefully described. The moth is considered by Wocke as merely a variety of *ferrugana*—a view which is, I think, quite untenable.

Grapholitha geminana was also flying about its food-plant, and, I think, that this same plant is the principal food of the curious small forms of *Larentia didymata* and *Hypsipites elutata* so common here.—Id.

On the clothing of the pupæ in the genus Hyponomeuta.—Long ago Mr. Henry Doubleday called my attention to the fact that the denseness of the pupal shroud varied in different species of this genus; but lately I heard from Heer P. C. T.

Snellen, of Rotterdam, the very curious fact that the pupæ of the willow-feeding *H. rorellus* have no separate cocoons at all, but are suspended perfectly naked in the main larval web.—H. T. Stainton, Mountsfield, Lewisham, S.E.: *Sept. 15th*, 1885.

Note on Pulsation in the larvæ of Acronycta psi.—It may be for want of close and accurate observation on my part, but the physiological phenomenon I saw to-day was quite new to me, and to the best of my belief I have not seen it recorded. It is this, a caterpillar of *Acronycta psi* was brought to me to-day for identification, I was informed by the bringer that there was also in the box a small red maggot, in looking for this maggot with a pocket lens, the caterpillar remaining perfectly still on the side of the box, I observed, with the aid of the lens, that a regular pulsation was going on in this caterpillar, and viewing it in profile as I did, the movement or pulsation was very distinct. This process goes on in a small hump, thickly set with white hairs on the dorsal line at the posterior end of its body: the gradual rising and falling of this tuft rendered the process conspicuous under the lens. I took out my watch and timed the pulsations, they were from 48 to 52 per minute. I drew the attention of the gentleman who brought the caterpillar, and he had never seen the like of this before. This phenomenon may not be new, but as I have never seen it recorded, I thought it better to make a note of it at once, and as the caterpillars of this moth are easily procured, it being a generally distributed species, there can be no difficulty in verifying this.—Edward Parfitt, Exeter, *August 10th*, 1885.

[We presume it is the spot at which the pulsation was so distinctly visible that our correspondent considers of interest. The "pulsating dorsal vessel" (or heart) is a term constantly used by describers of larvæ, and any text book on the anatomy of Invertebrates details the structure and process.—Eds.]

Nepticula assimilella, Zell., a species new to Britain.—In October, 1883, I found some empty mines, and in September, 1884, a few larvæ of this species on *Populus tremula* in Abbott's Wood. From the latter I had the pleasure of breeding two moths in June last. A description of the imago is given on p. 12 of vol. 1 of "The Natural History of the Tineina." Herrich-Schäffer's figure 840 is a good representation of the specimens I have bred; but Mr. Stainton, who has kindly examined one of the moths from Abbott's Wood, informs me that the species is variable and widely distributed in Europe.—W. H. B. Fletcher, Fairlawn, Worthing, Sussex: *September 12th*, 1885.

Strange locality for Carabus monilis.—A friend of mine mentioned to me that at Donard, in Co. Wicklow, the people, when speaking about digging for water, would say that they "went down to the clocks and got no water." The same saying exists I am told about Armagh. "Clocks" are beetles, and the depth spoken of varied from 20 to 30 feet. I asked my friend to get me specimens of these "clocks," also whether there were many deep cracks in the ground. The "clocks" proved to be *Carabus monilis*, and it appears that there are deep cracks about Donard. I can only account for the appearance of the beetles at such a depth by the supposition that they descended into these deep cracks in search of prey, and either stayed there of their own accord, or got caught in some way.—W. F. Johnson, Armagh: *September 15th*, 1885.

Experiments with Bruchus-infested beans.—Having received, in the early part of the present year, a packet of seed beans, a large proportion of which were infested by *Bruchus rufimanus*, I determined to sow a quantity of the damaged seed in order to ascertain the true extent of the mischief wrought by the beetles. I therefore selected twenty beans, three of which had each been perforated by three weevils, five by two, and twelve by one only, and sowed them under the most favourable conditions for their growth and general welfare. In about a fortnight the young plants appeared, seemingly in no way the worse for the injury received by the seed. The growth was strong and vigorous, and the condition of the plants all that could be desired. When the time for fruition came round, however, a great change took place. The blossoms were scanty and small, the foliage faded and withered, and in several cases the plants died off without producing a single pod.

The first three plants, or those raised from seed pierced by three weevils, were naturally the least productive. One of these was altogether barren, while the remaining two bore but three pods between them, none of which arrived at perfection. The next five, grown from seed tenanted by two beetles only, were slightly more fruitful, bearing in all six pods, of which five reached their full growth. Two of these five plants, however, were barren. Upon the remaining twelve, the seed of which had but one perforation, I counted twenty-three pods, not more than ten of which arrived at maturity. Only one plant of this latter group was entirely unfruitful. It will thus be seen that the twenty plants bore among them but thirty-two pods in all, of which less than one-half came to perfection. The bean in question, I should mention, was not one of the most freely-bearing varieties, six pods being the average yield of each plant. The difference, however, between the produce of the infested seed and of that, sown at the same time, which was free from the weevil, proved beyond question that the presence of the beetle is highly prejudical, not to the germinating qualities of the seed, which appear to be uninjured, but to the reproductive capabilities of the adult plant.

A striking feature in connection with the above experiment was that the plants raised from weevilled seed, with one single exception, altogether escaped the attacks of *Aphis rumicis*, from which scarcely another plant in the garden was free. From this I infer that the sap of the weakened plants was of too deteriorated a character to satisfy the fastidious tastes of the "colliers."—THEODORE WOOD, Freeman Lodge, St. Peter's, Kent: *August 21st*, 1885.

Further note upon Adelops Wollastoni and Anommatus 12-striatus.—Since my previous note upon the subject (Ent. Mo. Mag., xxi, 256), I have met with these two insects in some abundance, by searching the decaying remains of seed potatoes when the plants were taken from the ground. *Adelops* was by far the more plentiful, as between July 15th and August 1st I took above one hundred specimens, while *Anommatus* was represented by sixteen examples only. Absence of sight seems but a very small deprivation to the former species, which runs with great swiftness, and eludes the various obstacles in its path with perfect ease. How it does so I could not ascertain, but, although I made repeated experiments on the subject, I never once saw it come into contact with the needles, &c., which I placed immediately in front of it. *Anommatus* is far more sluggish, and is easily overlooked in the semi-

liquid matter to which it clings, and which it greatly resembles in colour. It is rather curious that a substance which is so evidently sought after by these two beetles should not be attractive to a greater number of species. I found but four in all, namely, *Falagria thoracica*, which was tolerably plentiful, *Oxytelus insecatus*, of which I took but five examples, and the two already mentioned. Other collectors may possibly meet with greater variety.—Id.

Note on Batophila ærata, Marsh.—I cannot find any notice of this insect as an injurious species. Here it has been very destructive this season, feeding upon the leaves of the raspberry, and in some cases reducing them almost to skeletons. The young plants were those most affected; the more mature were comparatively free.—Id.: *September 10th*, 1885.

Coleoptera at Rainham, Surbiton, &c., in 1884—85.—During the last year I have made several excursions with Mr. Cripps in the neighbourhood of London. Among our captures some of the following may perhaps be worth recording:—

Stenolophus teutonus, Ceuthorhynchus campestris, Asclera cærulea, Grammoptera tabacicolor, Telephorus lateralis, Anthocomus fasciatus, Cleonus nebulosus, Cœliodes subrufus, Tanymecus palliatus, Telmatophilus typhæ, Gymnetron beccabungæ, Erirhinus festucæ, Malachius pulicarius, and *Lina populi.* I may also mention *Saperda carcharias,* of which insect three specimens were brought to me from Southend, and *Gibbium scotias,* which I found in the City.

We particularly worked the genus *Donacia,* of which our captures in Surrey were as follows:—*D. bidens* and *dentata,* Esher, September; the latter also from Chobham. *D. sparganii,* Esher; one specimen from *Sparganium,* August. *D. sagittariæ,* The Wey, Moorparks, Farnham, July. *D. lemnæ,* Farnham and Sunbury, July. *D. thalassina,* Esher and Farnham, common on rushes, May to July. *D. linearis, semicuprea,* and *sericea,* common, as a rule; the latter, however, rather scarce this year. *D. typhæ,* Esher and Farnham, on *Typha latifolia,* June and July. *D. menyanthidis,* Esher, very local, on a species of reed, June and July. *D. comari,* Esher, four specimens, July.—G. A. Lewcock, 40, Oxford Road, Islington, N.: *September,* 1885.

Reduvius personatus at Lincoln.—In July last I found a specimen of this Hemipteron on a sack in Lincoln: it has not, I believe, been before recorded from this locality.—H. T. Sims, Lincoln: *September 15th,* 1885.

Hemiptera at Lewisham.—During the month of September last year I found a good many examples of *Idiocerus cognatus* on a white poplar tree here, but, with two exceptions, all were females (*cf.* Ent. Mo. Mag., xxi, 127). This year, during August (but not since) I have taken several males from the same tree; from this I conclude that August is the honeymoon of the species, that in September, as a rule, the husbands having become superfluous have perished, and that only a republic of widows remains,—real *ferœ naturæ,* for instead of showing any kind of mourning, their colours are brighter than in their nuptial time.

On the same poplar I saw a few *Phytocoris distinctus* taking long courses with the utmost rapidity up the trunk, ultimately ending their exercise in a crevice of the bark, into which they squatted closely, and by their black colour were difficult to distinguish from their "environment," as the covert would be termed in the modern phraseology. The species was first detected at Blackheath on *Populus alba*, and this tree seems to be its special habitat. *Ph. tiliæ*, found resting on the dark bark of the same tree, was by its light colour rendered conspicuous.—J. W. Douglas, 8, Beaufort Gardens, Lewisham: *September 10th*, 1885.

Hymenoptera at Chobham in August.—Although I have not found this year a good one for *Hymenoptera* on the whole, still I was fortunate enough in one morning's collecting at Chobham to secure several species worth recording. They were all taken on the common, near what is known as Burrow Hill.

Myrmica sulcinodis, Nyl., 1 ♀ running on the ground; this is the only time that I have met with the ♀ of this species.

Methoca ichneumonides, Latr., 1 ♀ running on the ground.

Pompilus chalybeatus, Schiödte, ♀ on a bare sandy spot.

Mimesa bicolor, Jur., rather commonly, together with the rarer *M. unicolor*, V. de L., but I only obtained females of either species. Both of the black species have now occurred at Chobham, and although so very much alike, are abundantly distinct structurally; the raised lines on the under-side of the 9th and following joint of the antennæ in the ♂, and the shining dorsal apical segment of the abdomen with its strong lateral carinæ in the ♀, at once distinguishing *Dahlbomi*, Wesm., from *unicolor*, V. de L.

Crabro scutellatus, Schev.—Of this rare species I took three females flying about over the sand. I did not recognise it at the time, or should have tried to get more. I have already recorded the ♂ from Chobham, having captured two in 1878, but from that time to this I have never met with either sex, but Dr. Capron has taken it at Shiere.

Andrena argentata, Sm., males common, flying over the sand close to the ground and very difficult to secure. I only met with two females.

Nomada alboguttata, H.-S.—Of this pretty little species, which is a parasite of the above, I obtained two males and four females. Its flight is very similar to that of the *Andrena*, but its bright orange coloured body will distinguish it, even while flying. I may here remark that I have looked for *Andrena lucens*, Imh., every year since I first captured it in 1882 on Burrow Hill, and although I have been in the exact spot at the same season of the year several times, I have never again seen it. I took originally three males in July, 1882, and on the Bank Holiday in August I visited the spot, it was a very cloudy day, but I obtained a single female during a short gleam of sunshine on almost the same plant of *Erica* on which I had taken the males, and it does seem very strange that year after year one should search the locality carefully and not be able again to meet with it.

I hope other Hymenopterists will be able to give a better list of captures this year than I am; the weather has been so favourable that one would have expected *Hymenoptera* to be unusually abundant.—Edward Saunders, St. Ann's, Mason's Hill, Bromley, Kent: *September 15th*, 1885.

A SYNOPSIS OF THE BRITISH SPECIES OF *CIMBICIDINA*, *HYLOTOMINA*, *LOPHYRINA*, AND *LYDINA*.

BY P. CAMERON.

(*Concluded from page* 85.)

LOPHYRINA (vol. i, p. 65).

The *Lophyrina* contain only two European genera:—

Lophyrus has an open lanceolate cellule with an oblique cross nervure; the calcaria membranous at the apex; and the antennæ with a double row of pectinations in the ♂.

Monoctenus has the lanceolate cellule contracted in the middle; the calcaria not membranous, and the antennæ in the ♂ with only a single row of pectinations. It differs also from *Lophyrus* in having the fore lobes of the metanotum well developed.

LOPHYRUS, Latr.

SYNOPSIS OF THE SPECIES.

Females.

1 (2) Antennæ 23-jointed; head, thorax, abdomen, and legs, red; metathorax and base of abdomen black ..... *sertiferus*, Fourc. (= *rufus*, Kl.).

2 (1) Antennæ 19—20-jointed, head and thorax more or less black.

3 (4) Seventh abdominal segment deeply incised in front of saws; antennæ 18—20-jointed, femora more or less, and head, black ..... *pini*, L.

4 (3) Seventh ventral segment not incised in the middle; antennæ 18—19-jointed; femora not marked with black.

5 (6) Antennæ 19-jointed; head entirely black ..... *frutetorum*, Kl.

6 (5) Antennæ 18-jointed.

7 (8) Calcaria simple, meso-, metanotum, and back of abdomen, black, head entirely black ..... *pallipes*, Fall.

8 (7) Calcaria dilated; head and thorax testaceous; marked with black.

9 (10) A fascia across the vertex; mesosternum broadly black; abdomen testaceous, with black transverse bands on the back ..... *virens*, Kl.

10 (9) No fascia on vertex; mesosternum without black; dorsum of abdomen entirely black ... . *dorsatus*, Pz.

Males.

1 (2) Antennæ 23-jointed; legs and ventral surface red in the middle; thorax and abdomen smooth, shining, impunctate.

2 (1) Antennæ not 23-jointed; thorax punctured ..... *sertiferus.*

3 (4) Femora, coxæ, and trochanters, black; stigma piceous, black at the base ... *pini.*

4 (3) Coxæ and trochanters partly, and femora entirely, testaceous.

5 (6) Accessory nervure appendiculated close to the apex; antennæ 18-jointed, abdomen testaceous ..... *pallipes.*

6 (5) Accessory nervure appendiculated a little beyond the middle, abdomen reddish.

7 (8) Pronotum and mouth entirely black ..... *frutetorum.*

8 (7) Pronotum not entirely black.

9 (10) Pronotum almost entirely yellow; antennæ 21-jointed..... *virens.*

10 (9) Pronotum with only a narrow testaceous line; antennæ 17—20-jointed... *dorsatus.*

Section I.

Accessory nervure in hind-wings received a little beyond the middle; head and thorax strongly punctured.

A. Inner spur on the posterior tibiæ dilated into a leaf-like expansion; a more or less clearly defined fascia across the vertex; antennæ 23-jointed = *virens* and *dorsatus*.

The ♀ of the latter species may be known from the same sex of *virens* by there being no fascia over the antennæ, there being only a small dark space surrounding the ocelli, by the under-side of the thorax bearing no black, and by the scutellum being much less strongly punctured. The ♂ may be known from *virens* ♂ by the spots on the vertex, by the back of abdomen being entirely black, the under-side, too, being not red as in *virens*; the antennæ are more slender, the last two joints are distinctly shorter than the preceding, while in *virens* the last three are of nearly equal length, and considerably thicker.

B. Hind spurs not dilated, simple.

a. Seventh ventral segment not incised, oblong; legs, for the greater part, whitish-yellow; abdomen yellow, broadly banded with black = *frutetorum*.

b. Seventh ventral segment in front of saw with a triangular incision; broad, wide, for the greater part black; legs black at base; femora (especially the posterior) more or less black; antennæ 19—20-jointed = *pini*.

Section II.

Accessory nervure appendiculated close to the apex; body smooth, shining, almost impunctate; abdomen long, cylindrical; the 7th ventral segment entire (*sertiferus*), or slightly incised (*pallipes*); claws cleft (*sertiferus*), or simple (*pallipes*), = *sertiferus* and *pallipes*.

Obs.—I have found, in Inverness-shire, a larva on juniper which agreed very well with the description of that of *Monoctenus juniperi*, but unfortunately failed to rear it. From its wide distribution on the continent, I have no doubt this species will, before long, be discovered in Britain. The imago should be looked for in May.

LYDINA (vol. i, p. 65).

We have only two genera in Britain belonging to this sub-family, namely:—

Pamphilius, Latr. (= *Lyda*, Fab.), with three spines on hind tibiæ, and with setaceous, simple-jointed antennæ; and

Megalodontes, Latr. (= *Tarpa*, Fab.), with two closely situated spines on tibiæ, and the antennæ with the joints dentate, and never more than twenty-two in number.

MEGALODONTES.

Synopsis of the Species.

1 (2) The appendages of the antennæ equal in length to two of the joints; antennæ black or testaceous at the base; mesonotum with only two, or no, yellow marks ....*Klugii*, Leach.

2 (1) The appendages equal to one of the joints, and yellow at the base.

3 (4) The marks on thorax and abdomen clear bright yellow; mesonotum with four marks; antennæ 17-jointed, yellow at base; the 2nd abdominal segment marked with yellow .....*cephalotes*, Fab.

4 (3) The marks on thorax and abdomen white; mesonotum with two or no marks; antennæ 15—17-jointed; the base testaceous or bluish; the 2nd abdominal segment without any mark ..... *plagiocephalus*, Fab.

Klugii, Leach, = *spissicornis* and *pectinicornis*, Klug.—The coloration is variable; the mandibles are brownish or black; the frontal spots vary in size; the band on vertex may be continuous or interrupted in both sexes; the tegulæ may be yellow wholly or in part only, or may be entirely black; the spots on mesonotum may be absent, as may be also the lateral spots on the two basal segments of the abdomen. The coloration of the antennæ varies also, but the flabellations would appear to be always black. The ♂ has five of the ventral segments yellow; the 4th is much the widest above, this being also the case in the ♀. The length of the flabellations readily separates *Klugii* from the other species.

Cephalotes, Fab., = *Panzeri*, Leach; *plagiocephala*, Fab. (pl. vi, f. 10, vol. ii).—As with the other species, the colour varies. Generally the markings are white, but occasionally (and especially on the abdomen) yellowish. The tegulæ are occasionally black; there are seldom spots on the sides of the basal abdominal segment in the ♀, one is found usually on the third segment in the ♂, which has also the bands on the 5th and 6th narrower than in the ♀; and also the ventral segment broadly white; in the ♀ there are usually only two of the ventral segments banded with this colour. From *cephalotes* (which it resembles in having the flabellations not longer than the joints) it may be known by the white colour of the markings, by the thorax having, at the most, only two marks, by the 2nd and 3rd segments not having yellow marks at the sides, and by the wings being yellowish-brown almost throughout.

I introduce this species as British on the authority of a specimen in Shuckard's collection, bearing a label marked "from the British Collection, Brit. Mus., Ap. 16/42." It was named "*Panzeri*," but not on the label itself. I am not aware of any records for the other species besides those given by Stephens.

PAMPHILIUS, *Latr.*

Section I.

Anterior tibiæ with a spine; calcaria bifid, with a small tooth below the apical one; vertex without sutures, or with them very thin; the central region not being separated from the sides, but continuous with them; sub-costal nervure furcate beyond the middle; transverse brachial nervure obsolete.

The group of ERYTHROCEPHALUS.

Body blue or violaceous, with the head in the ♀ red, wholly or in part; wings violaceous; antennæ long, 25—32-jointed, the 3rd joint as long as the three following together.

1. PAMPHILIUS ERYTHROCEPHALUS, Linn. (pl. vi, f. 3, vol. ii).

The group of STELLATUS.

Head and thorax black, spotted with yellow; abdomen black at base and in middle, the sides and apex reddish. Antennæ as long as the body, 25—35-jointed, 3rd joint as long as the following two united.

2. PAMPHILIUS STELLATUS, Christ.
= *pratensis*, Fab., *nemoralis*, Thoms., ?, Linn.

I am not sure that this is *nemoralis*, Linn., and therefore, do not adopt that name. In the Linnean collection, *nemoralis* is represented by *Nematus fallax*, Lep.; it is not, I think, the original type, but one probably inserted by Sir J. E. Smith. Zaddach refers *nemoralis*, Lin., to *punctata*, F.

Section II.

Anterior tibiæ without a spine: sutures on vertex deep, so that the central part is distinctly separated from the sides, and more or less from the front; claws bifid; transverse brachial nervure present.

The group of FLAVIVENTRIS.

Head, thorax, and abdomen black above, the sides, legs, and more or less of face, yellow. Antennæ 24-jointed, the 3rd joint as long as the three following united; sutures on vertex not very deep, or distinct; head between antennæ projecting, bluntly keeled; sub-costal nervure broken off beyond the transverse costal nervure; stigma black, wings usually with a smoky fascia in the middle.

This is a very distinct group, and is, to some extent, intermediate between i and ii, inasmuch as the sutures on vertex are not so well developed as in the following groups, yet the lateral furrows are clearly enough defined. The wedge-shaped form of the front is peculiar, as is also the manner in which the sub-costal nervure is broken off beyond the middle.

3. Pamphilius flaviventris, Retz. (pl. vi, f. 5, vol. ii).
= *pyri*, Schr., = *fasciata*, Curt.

The group of sylvarum.

Head and thorax pale ochreous, with numerous black spots; metathorax and abdomen black above. Antennæ 19-jointed, shorter than the abdomen, 3rd joint a little longer than the following two together; head broader than thorax; lateral sutures on vertex very deep and broad, reaching to the antennæ, transverse suture not so broad nor so deep, but still clearly defined.

This is a group of small extent, but well defined by the broad and flat head, short antennæ; by the pale ochreous head and thorax, which bear more black markings than in any other species; and by the fulvous tinted wings.

4. Pamphilius sylvarum, Stephens (pl. vi, f. 4, vol. ii, ♀).
= *fulvipennis*, Zad.

The group of betulæ.

Body orange, thorax and apex of abdomen black; wings yellowish-hyaline, with a small fascia in the middle, the stigma testaceous. Antennæ long, 23—28-jointed, 3rd joint a little longer than the two following together; face slightly keeled; scutellum convex in the centre.

5. Pamphilius betulæ, L.

The group of sylvaticus.

Head and body violet-black; head and thorax marked with yellow. Antennæ and legs yellow, black at the base; 23—31-jointed, the 3rd joint not much longer than the 4th; face slightly keeled; wings hyaline, stigma black, paler at apex.

A group easily recognised by the violet-black body, yellow scutellum, legs, and antennæ.

6. Pamphilius sylvaticus, Linn.
= *nemorum*, Fab., = *flavipennis*, Curt., = *stigma*, Steph.

The group of inanitus.

Head black, behind the eyes and below the antennæ, yellow. Thorax black, except the pronotum. Abdomen black, broadly fulvous in the middle. Legs straw-yellow. Sutures on vertex deep, the lateral going down to the antennæ; the ocelli with a furrow before and behind, and from the former another furrow proceeds to the middle of the front. Head between the antennæ slightly carinated. Antennæ 21-jointed, yellow at the base, the rest testaceous, 3rd joint not much longer than the 4th.

The yellow and black stigma, the antennæ yellow at base, and with the 3rd joint not much longer than the 4th, readily separate this

group from the next (*depressus*), to which it has a general resemblance in coloration.

7. Pamphilius inanitus, Vill. (pl. vi, f. 6, vol. ii, ♀).

The group of depressus.

Head and thorax black, spotted with yellow marks; rarely entirely black; abdomen black at base and generally at apex, fulvous in the centre, rarely fulvous at apex; legs straw-yellow, the tarsi with a reddish tint. Antennæ 19—23 jointed, the 3rd joint as long as, rarely shorter than, two following united; scape black above, yellow beneath; basal half of flagellum reddish, the apical black above; wings hyaline; stigma yellow, or partly fuscous.

The species agree closely in form and coloration; the only differences being that some have fewer or no marks on the head, and in one the abdomen becomes for the greater part fulvous, while the stigma may be yellow, fuscous, or black. Structurally, the antennæ differ in one or two species having the 3rd joint shorter than the following two united, and thus approach the group of *inanitus*; but as these differ from the latter in some respects, and agree with *depressus* in other characters, they are most naturally placed in the present Section. Zaddach forms a separate group for *hortorum*, but I have not done so, as it merely differs from *depressus* in the head having the yellow marks obsolete, or much reduced, and in the stigma being blackish; and *arbustorum*, moreover, forms a connecting link in this respect.

1 (2) Third joint of antennæ not much longer than 4th ..... *arbustorum*.

2 (1) Third joint of antennæ double the length of 4th.

3 (6) Stigma fuscous or black, pleura immaculate.

4 (5) A longish curved mark on each side of vertex; abdomen fulvous in middle only, stigma fuscous ..... *cingulatus*.

5 (4) A small mark on vertex touching the eyes; abdomen with segments 3—5 entirely fulvous; stigma blackish ..... *hortorum*.

6 (3) Stigma yellowish; pleura marked with yellow.

7 (8) Third joint of antennæ not much, if more, than double the length of 4th; flagellum reddish-yellow ..... *latifrons*.

8 (7) Third joint of antennæ nearly treble the length of 4th.

9 (10) Front rugosely punctured, no mark over antennæ; abdomen mostly violet-black ..... *pallipes*.

10 (9) Front not rugosely punctured, two marks over antennæ; abdomen broadly fulvous ..... *depressus*.

8. Pamphilius arbustorum, Fab. (pl. vi, f. 7, vol. ii, ♀).
= *stramineipes*, Htg.

The short 3rd joint of the antennæ easily separates this species from the rest of the group.

9. Pamphilius latifrons, Fall.
= *maculosus*, Zad.

This species is unknown to me as British, and I record it on the authority of Mr. Kirby (List of Hymen., i, 338).

10. Pamphilius depressus, Vill.

A somewhat variable species in the amount of yellow on the head and thorax, and of fulvous on the abdomen; the intensity of the punctuation on the head varies also. The *P. albo-pictus*, Thoms., seems to be a var. of *depressus*, chiefly differing from it in the greater amount of white on the pleura, and in the lateral lobes of the mesonotum being marked with white. I have a specimen of *albo-pictus* from Kingussie.

11. Pamphilius pallipes, Fall.
= *variegata*, Zad.

The strongly punctured, opaque, rugose front easily distinguishes this species. In addition to the fact of there being no white or yellow marks over the antennæ, the abdomen being only obscure fulvous in the middle serves also to distinguish it.

12. Pamphilius cingulatus, Latr.
= *suffusus*, Htg., *balteatus*, Zad.

This is, perhaps, only a var. of *hortorum*; the vertex, however, is less strongly punctured; there are two conspicuous white marks on the vertex, the stigma is lighter in tint, especially in the middle, and only the centre of the abdomen is fulvous, not the two middle segments, as in *hortorum*. The ♂ differs from *hortorum* ♂ in having the scutellum black.

13. Pamphilius hortorum, *Klug.*
= *balteata*, Fall., *sec.* Thoms.

XYELINA (vol. i, p. 65).

Of this sub-family we have only one species, *Xyela Julii*, Bréb. (*pusilla*, Dal.), pl. vi, fig. 11, vol. ii.

Sale, Cheshire:
October, 1885.

ERRATUM.

Page 119—Instead of as printed, read as follows:—

Cephalotes, Fab., = *Panzeri*, Leach.

Plagiocephalus, Fab. (pl. vi, f. 10, vol. ii).—As with the other species the colour varies, &c.

NOTES ON THE *LEPIDOPTERA* OF BELFAST.

BY CHAS. G. BARRETT, F.E.S.

Business requiring that I should spend a few weeks of the latter part of this summer at Belfast, I went over full of the hope that in a part of Ireland which has been but little worked since the time of Haliday, something of special interest and rarity would surely turn up. This hope was not realized. With the exception of single specimens of *Larentia cæsiata* on Divas Hill, *Coriscium sulphurellum* in Colin Glen, *Larentia salicata* and *Stilbia anomala* near the Cave Hill, and *Plodia interpunctella* at the Custom House, hardly a single species was taken which would not be found commonly in ordinary English localities, and the only relief to the monotony of familiar species was when, occasionally, they exhibited some interesting tendency to "sports" and variations in colour from the normal types.

Perhaps one of the most interesting in this respect was the abundant *Pieris napi*, which, already known to produce dusky forms in the west, here shewed a special development of colouring, the males as creamy-white as elsewhere in their ground-colour, having the apical blotches black instead of grey, and the round spot below well developed, while in the females the veins of the upper side were also strongly tinged and suffused with black, while the spots in some cases almost coalesced into a band. In some also the under-side was extremely bright in colour and marking.

Abraxas grossulariata was common, of course, and provokingly monotonous in ordinary colouring, but the strange tendency to variation inherent in the species showed itself, in one specimen, in an unusual direction, a large portion of the fore-wings being suffused with *pale yellow*, while a narrow band of the same ornamented the hind-wings.

Melanthia rubiginata was very common among alder, but only of the typical colouring, while *Cidaria immanata*, which abounded along with it, was in great beauty, varying from white to blackish in the central band. *Eubolia mensuraria*, which swarmed, was also variable, and sometimes very richly banded, while *Melanippe fluctuata*, among its darker variations, produced one in which the pale portions of the fore-wings were beautifully covered with delicate rippled or crescented lines.

The gas lamps attracted plenty of *Luperina testacea*, several of which were nearly black, *Hydræcia micacea* varying to a deep brown, and *Noctua augur* smaller than usual and with narrower fore-wings.

On the other hand, all the *Xylophasia polyodon* seen were of the most ordinary brown form, no approach to the northern and western *black* variety being observed. This is the more remarkable, as the black form occurs near Dublin. *Scopula lutealis* was extremely abundant and well marked, and *Eudorea angustea* pretty common; from its time of appearance I judge that it is here *single* brooded. Two *E. murana* occurred on a wall *in a sheltered valley under trees*; I looked for it in vain on the stone walls on the hills. *Crambus tristellus* varied extremely, the ochreous form being rather common, and occasionally having very little indication of the longitudinal streak, but showing a faint tendency to *transverse* markings.

Tortrix unifasciana and *rosana* were rather more richly coloured than usual, and also *T. viburnana*, which occurred on the high hills. Here also *Eupithecia nanata* was common, and showed a slight tendency towards the markings of the variety from the west of Scotland which has lately excited so much interest.

Of *Sericoris lacunana* only the small Moorland form occurred, and *Halonota trigeminana* (which was scarce) was also small and dark, whilst some of the specimens of *Orthotænia antiquana* were among the most strongly marked that have come under my observation. *Grapholitha Penkleriana* (which was abundant) presented occasionally the rich variation of colouring which it shows in the Highlands of Scotland, *Sciaphila virgaureana* was very large and dark, and *Steganoptycha nævana* wonderfully plentiful, but of ordinary colouring. A few *Pœdisca occultana* and one *Coccyx nanana* occurred amongst firs, and two or three *Dichrorampha tanaceti* (*herbosana*) on the lower slope of the Cave Hill. This species must be exempted from the slight thrown on the rest, it certainly is *not* a common English species, unless in the north, and being new to me in the living state was naturally very interesting.

Tinea pallescentella flew round the lights indoors, having doubtless been at work upon the carpets, *Cerostoma nemorella* occurred singly in Colin Glen, and *Orthotælia sparganella* by the side of the Lagan, where, moreover, wasps' nests were so plentiful, that it was difficult to avoid stepping into them. Along the hawthorn hedges *Swammerdamia oxyacanthella* was very abundant, along with *Coleophora nigricella* and *Argyresthia nitidella*; *A. semitestaceella* was common among beeches, and *A. Gœdartella* in thousands among the alders, sometimes presenting most lovely variations, while, strange to say, *A. Brockeella* appeared to be totally absent.

A small moth buzzing over the ground in a street in the middle

of Belfast, one hot day at the end of July, proved to be *Ochsenheimeria Birdella*; it condescended to settle for an instant on a stone, so as to prove its identity by exhibiting its extremely hairy head, and then buzzed away, for I had no means at hand of securing it. It must have been brought in from the country among green fodder, but I saw no other specimen.

I seized upon the opportunity of Bank Holiday to run over to the Giant's Causeway—upon which I will not expatiate, nor upon the steam and electric trams and their inability to cope with the rush of holiday visitors, nor upon the furious torrents of rain from the north-west which attacked the said visitors and drove them away —but when the wonders of the place had been duly admired, the angles on the columns (from three to nine) duly counted, the customary fees exacted, and "specimens" purchased, I had, in spite of the rough wind, a short hunt after insects. The thrift (*Armeria vulgaris*) produced a few larvæ and pupæ of *Sericoris littorana*, and the rushes *a single sleeping specimen of Lycæna Alexis* (*Icarus*). What a result! but when this single "common blue" came to be examined, it proved to be a female, having, along with dark clouding, some *white* blotches on the upper-side, and thus was a very satisfactory variety.

A run round Island Magee on Saturday afternoon disclosed a grand coast of bold cliffs, with indications of the nesting of herring- and black-back gulls earlier in the season (indeed, one young one of the former species was still in the nest), and showed cliffs and banks everywhere beautifully ornamented with the largest harebells I ever saw, but of insects (save *P. napi*, *E. mensuraria*, and *S. lutealis*) none, and a careful search of the low coast at the other side of the entrance to Belfast Lough furnished no better result.

68, Camberwell Grove, S.E.:
September 27th, 1885.

NOTE ON THE CIRCULATION IN EMBRYONIC LARVÆ OF *BOTYS HYALINALIS*.

BY WILLIAM R. JEFFREY.

The subject of the "pulsating dorsal vessel," or heart of insects, which is readily seen in most Lepidopterous larvæ, having been alluded to in the pages of this month's magazine, is an inducement to put on record the *earliest* stage in the life of a larva at which I have been able to witness it. From the 5th to the 17th of last August I was engaged at times in watching the development of the embryo in

some eggs of *Botys hyalinalis*, which I had been so fortunate as to secure, laid upon slips of glass, thus affording a good opportunity for observing them under the microscope.

The early stages, interesting as they were, may be passed over here, but by the 15th, being the tenth day of incubation, the young larva was well formed, and most of the organs could be made out. That morning the dorsal vessel became visible, and at 8 a.m. I noticed the first traces of circulation in it. The pulsations at first were very faint and feeble, taking place somewhat irregularly at long intervals of 20 and even 30 seconds; at 2 p.m., they had become more distinct, with shorter intervals between each beat, and became still more accelerated by the evening. At this time the beautiful ramifications of the tracheæ came rather suddenly into view. The oral organs were well-developed, and conspicuous from their brown colour. The œsophagus also could be distinctly traced, especially when, by a sucking action, a bolus of yolk-granules was drawn down, and seen to pass into the alimentary canal, which effort was continued at intervals on the 16th, till all the remaining yolk-granules had been ingested.

Then a period of rest took place during part of the 17th, when a beautifully clear view of the heart and its action was obtained, the pulsations being timed at 40 per minute, increasing to 60 at 8 p.m., when great exertion was manifested on the part of the larva just before escaping from the egg at 8.10. Thus, it will be seen, some sixty hours had elapsed from the time I was first able to detect a circulatory movement in the dorsal vessel.

Ashford: *October* 1*st*, 1885.

THE QUESTION RESPECTING THE GENUS *AULOCERA*.

BY ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

A few days since I received a letter from Major Yerbury, now stationed at Campbellpur, but then on a trip to the Murri Hills, in which he says:—"Among the butterflies are two *Aulocera*, which I cannot think are identical, though I now and again take a specimen that appears to link them, they frequent quite different ground; No. 50 (your *A. Scylla*?) being found on the top of the hill 7000 ft. above sea level; No. 42 on the side of the hill, upwards of 1000 ft. lower down. I have not, so far, taken the two together."

Now, when I saw M. de Nicéville's somewhat excited reply to a paper which I wrote solely in the interests of truth, I first thought of the motto on the cover of this magazine, and afterwards of the paragraph above quoted, and which bears somewhat weightily in my favour.

I will not attempt to inform M. de Nicéville respecting the fauna of the Murree (or Murri) hills; he is resident in India, has the fauna, the altitudes, the climate of every place at his fingers' ends, and can, therefore, afford to look down with profound pity upon those who do not possess his advantages; but I will tell the readers of this magazine that there must be a considerable difference of temperature between 6000 and 7000 feet altitude above the sea, and much more between 7000 and 12,000; that, moreover, there are not a few genera occurring on the Murri hills which are found equally on the plains, such as, *Lethe*, *Pyrameis*, *Atella*, *Libythea*, *Lycæna*, *Teracolus*, *Colias*, &c., that as *Aulocera* is not (as M. de Nicéville asserts) a Palæarctic genus, but only allied to one, with about as much right to be called Palæarctic as *Lethe*: as the latter also is found from the N.W. Himalayas to the Philippine Islands, there is nothing very extraordinary in my "ignorant" suggestion, nor is it unprecedented to find the same species on both mountain and plain; on the contrary, several naturalists are now trying to explain the existence of slight local differences in the same species by the influence exerted over it by greater or less cold, and one constantly hears it said:—"this large form, or this modification, is the mountain type of so-and-so."

British Museum: *October*, 1885.

[We had intended to close this controversy with this paper, but fresh matter, apparently of considerable value, comes to hand. Unfortunately, we have been obliged to take liberties with nearly all the communications (Mr. Butler's included) so far as concerns the infringement of the terms of the motto on our cover (and on the title-page of vol. i, 1864—5). And all future communications will be treated in the same manner, if necessary.—Editors.]

REMARKS UPON CERTAIN HIMALAYAN SPECIES OF SATYRID *RHOPALOCERA*.

BY A. GRAHAM-YOUNG.

Having seen a paper by Mr. A. G. Butler (in the Ent. Mo. Mag. for this year, p. 245) upon the distinctness of his so-called species, *Aulocera Scylla*, it has struck me that a few remarks upon the genus *Aulocera*, based upon my personal acquaintance with it of over 20 years, might possibly be of use. I may add that I have for the past 17 years resided all the year round in the Himalayas, and have collected in Kashmir, Chumba, Kulu and Lahoul, at all heights up to nearly 16,000 feet.

Aulocera Padma, ♂, I first took near Rajaori in the Kashmir territory in July, 1864, at but little over 3000 feet, and have in June, 1883, taken the same sex at Barkli in the Mundi State in a deodar forest on the banks of the Beas, at barely 3000 feet. For some reason that I cannot explain, the females never appear to descend as low as the males do, and it is a very curious circumstance, that as far as my experience goes, the June and July broods seem to consist almost entirely of males; it was not until 1880 that I succeeded in obtaining a female in June, whereas, in October, the females are in a great majority, some faded, as though they had come out at the higher levels in the summer, and been driven down by the cold, whilst the greater number, to judge from their fresh condition, had but just emerged from the pupa. I never took but one worn and battered male along with this autumnal brood, which seems a true Amazonian one, all females, and appears in October between 3500 and 4500 feet.

The two low-level species of *Aulocera*, *Padma* and *Saraswati*, which latter I have taken (August 21st, 1885) at 3600 feet, seem wonderfully constant to the types; whilst, on the contrary, *A. Swaha*, which comes next in the order of ascension (7000—9000 feet) varies greatly in the colouring of its bands: before I knew much about this species, I made at least three beautiful brand-new species, but an increased knowledge of the genus obliged me to suppress their names.

The last remaining species, *A. brahminus*, which I have found between 8000 and 13,000 feet, is the most variable of all. Those examples which occur on the outer ranges at 8000 feet or so, are constant enough to the type; but as we go north, and ascend higher, it begins to vary, and once fairly across the great snowy range and in the true Palæarctic zone, it is simply Satyrid variation run "mad," all sorts and conditions of *brahminus* varying in every possible direction, some towards *Scylla*, others towards *weranga*, with a dozen intermediate forms, which, luckily for us poor perplexed field entomologists, have never yet fallen into the clutches of the species-mongers, who would incontinently have enriched our nomenclature with many new synonyms.

In the upper Chandra Valley, all these varieties go flying about, cheek by jowl, in the most amicable way, and worse still, intermarrying in the most unconcerned manner, as if there were no such beings as species-mongers in existence! No one who has, as I have, observed SOME THOUSANDS of *brahminus* in their native wilds, can possibly admit the so-called *A. Scylla* to be anything more than one of the many varieties of *A. brahminus*.

One word as to what are called "types." It appears to me the word is used in a misleading sense. A certain school of entomologists seem to consider that the first insect described of any species must of necessity be the type, and look upon it as something sacred, not to be touched or questioned, a golden image in the plain of Dura in fact, for us all to bow down to!

It is only after the careful examination of a long series of any given insect, that the dominant form can be ascertained; this once done, the true type becomes finally settled. No doubt many of the existing so-called types of species at present slenderly represented in our collections will, in the fulness of time, prove true types, and many others, *A. Scylla* included, will be relegated to the limbo of pseudo-types.

Nothing can be more certain than, that when the life-histories of the Himalayan butterflies come to be known, dire will be the havoc amongst the newly-manufactured species.

Callerebia hybrida is another *very* bad species, and I was somewhat surprised that Messrs. Marshall and de Nicéville should have admitted its specific rank. It simply swarms here, and I have this season made a careful examination of several hundred specimens to settle the point of its distinctness. I found every possible gradation, both in the shape of the wings (which is, I believe, the ground of separation), the markings of the under-side, and the blindness or pupillation of the ocelli beneath, between it and *C. Annada*, and find it simply impossible to draw the line anywhere, unless one is prepared to admit about *fifty* distinct species! *C. hybrida* must, I fear, cease, and stand under *C. Annada*, to which it really belongs.

Hipparchia diffusa was, when I first took it in the Ravi basin (I found it not uncommon in 1866 and 1867) at once recognised by me as merely a variety of *H. Semele*, and I had the less difficulty in coming to this conclusion, for whereas the specimens of *H. Semele* (which is very common in Persia) I took near Tabriz and other parts of Azerbijan agreed exactly with English specimens, those taken in the Shemron, due north of Tehran, had a slight tendency to vary, and specimens from Shahrood-i-Bostan and the mountains near Meshed showed a further, but still very slight, variation. I have no doubt the "missing links" will turn up in Affghanistan (whenever it becomes safe to collect there), and that this form from the Ravi basin, as far as we know, the eastern limit of *H. Semele*, will prove inseparable from the European type.

Kulu, Kangra, Punjab:
August 22nd, 1885.

SEASONAL VARIATION IN *RHOPALOCERA*.

BY GEORG SEMPER, F.E.S.

At the meeting of the Entomological Society of February 4th, whereof the report has recently been issued with part ii of the Transactions for this year, Mr. W. L. Distant exhibited a series of wings of butterflies to illustrate seasonal variation of Indian *Rhopalocera*.

At the 5th "deutscher Geographentag," held at Hamburg, 9—11th April, 1885, the Committee had arranged an exhibition of objects having in any way relations to geographical studies. In this exhibition I exhibited, among other *Lepidoptera*, a series of Manila *Pieridæ*, showing seasonal dimorphism (see "Führer durch die geographische Ausstellung, Hamburg, 1885," pp. 60, 61). The species exhibited were, *Tachyris Nerissa*, Godart; *Pieris Aspasia*, Stoll.; *Eronia Bœbera*, Eschscholtz.

Specimens flying during December to March, are nearly all lighter-coloured than those flying from June to September, which are the darkest; and those from the intermediate months are generally of an intermediate tint. Owing to the tropical climate of Manila, the various broods are not so distinctly separated as in Europe, and, therefore, it happens that light-coloured specimens may be found during June to September, or dark-coloured from December to March. But, after a careful examination of several hundred specimens, captured in the neighbourhood of Manila, the prevailing colour is as stated above.

For example, I may quote the figures in Cramer, Pap. Exot., t. 320, C D E F, *Papilio Zelmira*. The figures E F represent the light, and C D the dark form of the female of *Tachyris Nerissa*, Godart.

Altona: *September*, 1885.

THE *NEPTICULÆ* OF THE MOUNTAIN-ASH.

BY WILLIAM WARREN.

The 11th vol. of the "Linnæa Entomologica" contains a treatise by Prof. Frey on the *Nepticulæ*, in the course of which he describes as a new species *Nep. aucupariæ*; and, subsequently, he quotes Tengström's description of *Nep. Nylandriella*, the food of which was not then known. On p. 376, we read:—

"N. AUCUPARIÆ, *n. sp.*

Capillis ochreis, antennarum conchula dilute flavida; alis anter. fusco-æneis, subnitidis, apicem versus saturate violaceis, *ciliis griseis.* $2\frac{1}{3}$‴. 1 ♀."

Then follows a more detailed description in German, the principal points of which are:—

Head and face paler than in *N. viscerella*, light ochreous-yellow: the rather conspicuous eye-caps also appear lighter yellow, approaching rather to whitish: base of antennæ blackish: palpi whitish. Thorax deep olive-brown, with metallic lustre. Abdomen blackish: legs grey-brown; hinder tarsi slightly lighter. The fore-wings, which are rather broad, have the same ground-colour as the thorax, and may easily be distinguished from *viscerella* by their lustre, possessing as they do a much finer scaling.

Towards the apex they shine with a very bright purple gloss. * * *

Larva green, reminding one of that of *viscerella*; as also does the mine, which is often very serpentine. The cocoon, on the contrary, is nearly round, flattened and smooth, in colour deep reddish-brown.

On page 445, there are recorded, under the head of "Addenda," "two insufficiently described and ill-known species," viz., *Nylandriella*, Tgstr., and *subnitidella*, Z.: that is, species with which Professor Frey was personally unacquainted.

Of *Nylandriella*, the description *by Tengström himself* runs as follows:—

"*Nylandriella*, Zett. (*in litt.*).—*Minima* tota æneo-cinerea *nitida*, *capillis lutescentibus*. *Long. al. ant.* vix $1\frac{3}{4}$ millim. *Simillima præcedenti*, *at duplo minor*." Frey adds: "Near Helsingfors, in June;" and says, "The figure in H.-S. represents an insect entirely leaden-coloured with ochreous-yellow head. May it not be a much-wasted specimen?"

The preceding species in Tengström is recorded in a note as *concolorella*, Nyl., which is given in Staudinger and Wocke's Catalogue as a distinct species (2956), *Bucc. concolorella*, Tgstr., but which there can be little doubt from the description as given by Frey from Tengström, is identical with the well-known *Bucc. cristatella* (2957).

Now, the first thing that struck me when I saw Mr. Griffith's *Nepticulæ* from Sutherlandshire was their great resemblance to small *cristatella*; and the figure of *Nylandriella* in H.-S. represents them admirably. There is not a trace of purple towards the apex, and the insects are certainly not wasted. The only *aucupariæ* I have seen were six specimens which were sent me by Mr. Threlfall, of Preston: of these five correspond well with Frey's description of *aucupariæ*, and the sixth is manifestly identical with Mr. Griffith's insects. Mr. Threlfall tells me that he breeds two forms of the insect, which different forms he has hitherto attributed to difference in sex. I cannot but think that there are two species confounded. It must be remembered that Frey's description was made from a *single* bred ♀.

Since writing the above, I have had an opportunity of looking over Mr. Stainton's *aucupariæ* and *Nylandriella*, and I am glad to say

that he considers that there are two species mixed up in his series of the former: the smaller and unicolorous ones coinciding with those sent him as *Nylandriella*, while the larger specimens with purplish apex should be the real *aucupariæ*, Frey. The discovery of the larva would settle the question more satisfactorily.

Amongst a number of Mr. Griffith's captures, which Mr. Stainton received from him alive, were specimens both of *aucupariæ* and *Nylandriella*; the latter being, however, the more plentiful of the two.

Merton Cottage, Cambridge:
September 21st, 1885.

LIBURNIA GUTTULA, GERM., AND *L. GUTTULIFERA*, KBM.: A DIFFERENTIAL ESSAY.

BY JAMES EDWARDS.

Amongst the series of insects intended to represent *Lib. guttula* in my collection, I have long had a ♂ which I regarded as an abnormally small exponent of that species, but having recently taken a series of both sexes of a species evidently identical with my small ♂, I have been lead to investigate the matter, and upon attentive perusal of so much of the literature of the subject as is at my command, I find that my small species is the true *guttula*, as understood by Kirschbaum, J. Sahlberg, and Fieber, while the larger species is the *Delphax guttuliferus* of the author first named.

The principal distinctive characters of the two species may be stated as follows:—

GUTTULA, Germ.	GUTTULIFERA, Kbm.
Length, $2\frac{1}{3}$—$2\frac{1}{2}$ mm.	Length, $3\frac{1}{2}$—4 mm.
Insect very rarely macropterous.	Insect generally macropterous.
Elytra not widened towards the apex, which is sub-lanceolate. Dark marking at the apex of elytra very rarely more than a small sub-triangular black spot; the brown stripe on the corium entirely wanting.	Elytra slightly widened towards the rounded apex. A black or dark brown streak on the membrane, continued to the base of the elytra as a wide ill-defined brown stripe, which is sometimes very faint, but always discernible on holding the elytron up to the light. (In the brachypterous form the elytra are sub-lanceolate, but specimens in this state are easily distinguished from *guttula* by their superior size).
Styles (viewed *in situ*) curved, subparallel, scarcely perceptibly flattened, vertically gradually acuminate from the base.	Styles (viewed *in situ*) oblong parallel, very distinctly flattened, vertically and suddenly acuminate at about the apical third.

It is possible that Marshall, writing of *guttula* (Ent. Mo. Mag., i, 200, 2), had both species before him, for in his description he gives the correct length for true *guttula*, but he proceeds to remark that the dark stripe on the elytra is sometimes visible to the base, a circumstance proper to *guttulifera*, though it never occurs in *guttula*. The characters assigned by Scott to *guttula* (Rev. Brit. Delphacidæ, Ent. Mo. Mag , vii, 25, 5) apply equally well to either. In Puton's Catalogue, ed. 2, *L. guttulifera*, Kbm., appears as a synonym of *vittipennis*, Sahl., but it seems better to follow the latter author in using the name *guttulifera* for this species, as it is to be assumed that he had very good reason for adopting Kirschbaum's name in preference to that given by himself.

131, Rupert Street, Norwich :
Oct. 15*th*, 1885.

Danais Archippus (*Anosia Plexippus*) *in Dorsetshire.*—I caught, on the 26th September, in a field near my house, a few feet from the sea, a perfect *Anosia Plexippus*, Lin. She was strong on the wing. Mr. Butler says its capture is worthy of record as an additional item in the history of its migration.—T. Geo. Cuthell, Chaddesley Glen, Parkstone-on-Sea: *October 5th*, 1885.

Sphinx convolvuli in Co. Cork.—I found, on the 22nd of September last, a specimen of this fine moth floating in the sea in Glandore Harbour. The insect was quite alive, but was considerably rubbed. This is the first occurrence, to my knowledge, of this moth in County Cork. Another specimen, also floating in the sea in this harbour, was seen by a friend about a week after the above-mentioned date. I had shown the *Sphinx* I captured to the friend in question, so I am sure she could not have been mistaken. There must lately have been an unusually large influx of these Sphinges to these Islands.—C. Donovan, Jun., Westview, Glandore, Leap, Co. Cork: *October 9th*, 1885.

Sphinx convolvuli at Bromley, Kent.—A fine specimen of this species was captured here last month, and is now in the collection of Messrs. J. & C. Nussey.—E. Saunders, St. Ann's, Bromley: *October 10th*, 1885.

Sphinx convolvuli at Woking.—A rather worn specimen of *S. convolvuli* has been sent me from Woking, near which it was taken.—Id.

Sphinx convolvuli and Acherontia Atropos at Kingston-on-Thames.—During last month *Sphinx convolvuli* has been very common here and about Kingston. In my nine years' experience of this neighbourhood this is the first season in which *convolvuli* has been found in it. *Acherontia Atropos* has also been common here this season in the larval state.—H. Goss, Berrylands, Surbiton Hill: *Oct.* 17*th*, 1885.

Chœrocampa celerio at Walton-on-the-Naze.—I am glad to be able to add another to the long list of captures of *C. celerio*, Mr. E. Bidwell having kindly given me a specimen which had been caught by his nephew, Master H. H. Cotman, at 2, East Terrace, Walton-on-the-Naze, Essex, on September 15th. The insect when found was resting on the staircase, and was then quite perfect, but having been kept in a box alive for four days was somewhat injured.—J. R. Wellman, 8 (late 219), Medora Road, Elm Park, Brixton Rise, S.W.: *October*, 1885.

Which is the true Coleophora flavaginella?—Of this insect, so named by Madam Lienig, Zeller writes as follows in the "Isis" of 1846, p. 295:—"Madam Lienig has sent me several Livonian species of the more obscure forms of *Coleophora*, but either in solitary specimens, or in specimens in such poor condition (they have perhaps suffered from their journey to Glogau), that to name or describe them seems scarcely advisable. I therefore only remark that *Col. flavaginella*, Lienig, is identical with Fischer von Röslerstamm's *C. flavagipennella* (the former of these names seem preferable from its greater brevity), and is a species of the size of *C. luscinicepennella*,* with the anterior wings of the same colour, on which the brownish-yellow veins are so broad, that the dirty yellowish ground colour is only perceptible here and there; towards the apex of the wing are some brown scales; the antennæ are annulated black and white. Madam Lienig found the larva at the Pastorate from March to the end of June on walls, fences, and birch-trunks. The case is small, grey, like a grain of rye."

I fear at the present day none of us can decipher the above description so as to apply it to any species. There is no indication of a food plant, the birch trunks may have only been sought as a convenient foothold by some hibernating larva, which had fed up on some low plants, and it might be quite possible that the cases collected from "walls, fences and birch trunks" did not all belong to the same species.

Perhaps before seeking information from later writers, it may be as well to say something of Madam Lienig's locality. Few of us have been to Livonia, still fewer to Kokenhusen.

"The Pastorate of Kokenhusen," writes Zeller, "is two versts from Kokenhusen itself, and, like that place, is situated on the right bank of the Düna, 14 miles† above Riga. A stream, the Pehrse or Perse, flows near the Pastorate, and falls into the Düna below Kokenhusen. . . . . A notice of the geological, botanical and climatic conditions of the locality must be deferred to a future occasion."‡

Tengström, in his "Bidrag till Finlands Fjäril-Fauna" in 1847, introduces *C. flavaginella*, Lienig, Zell., with a ?, but only says of it "In the middle of July, once near Helsingfors in a hilly meadow."

Zeller, in the 4th volume of the "Linnæa Entomologica," p. 353, gives a more detailed description of the imago, to which I refer my readers. He remarks, "I received from Madam Lienig a specimen of the species, with a case on the pin, which was no doubt that from which the insect had emerged. This case resembles those

* Our rose-feeding *gryphipennella* was then known as *luscinicepennella*.

† A German mile is about five English miles.

‡ This future occasion probably never occurred, and the flora amongst which Madam Lienig worked is still unknown to us.

which, at the end of September, 1848, I found in great numbers on *Chenopodium album*, in places where the plant was well protected from the wind, but not too much shaded. They fed only on the seeds. The case of the young larva is cylindrical, slightly tapered posteriorly, rather short, pale grey, plastered with little bits of grey and brownish dirt, especially towards the mouth end. The case of the full-fed larvæ is 3 lines long, cylindrical, slightly tapered at both ends, beneath with a very faint longitudinal keel. . . . . The wide mouth is almost circular, and placed very obliquely. The ground-colour is pale grey, darker or paler, rarely quite whitish, and in many specimens we see bare streaks and longitudinal lines most frequently on the under-side, the length, breadth and number of these lines vary much. . . . The larva remains unchanged during the winter, and crawls about actively the following spring; I have often found it on fences in the grass, without having been able to breed the imago."

He never mentions, either then or afterwards, what moths were produced from these larvæ he had collected, so that we do not know whether they were *flavaginella* or not.

Tengström, in 1859, introduces in his "Anmärkningar och Tillägg till Finlands Småfjäril-Fauna," p. 157, *C. flavaginella* without any query, and says, "A female from the neighbourhood of Helsingfors I cannot separate from *flavaginella*, of which I have eight tolerably well preserved specimens from Madam Lienig's collection.* They somewhat resemble Nylander's *punctipennella*, especially wasted specimens, and agree also in size; but fine and uninjured specimens have no spots, but only darker shady streaks between the more shining wing-nervures. Scattered spots occur only in three somewhat wasted and injured specimens. The ground-colour is pale dirty yellow, with faint ochreous-yellow streaks. . . . ."

In the "Stettin. ent. Zeit.," 1864, p. 165, Herr G. G. Mühlig, for the first time, endeavoured to differentiate *flavaginella* from *annulatella*; the larvæ of both species feeding on the same plants at the same time. He says, "One used to collect from *Chenopodium* and *Atriplex* the free-sitting, grey and black granulated cases, striped with light grey, and gave them some branches of the plants for their food, and eventually there appeared both *annulatella* and *flavaginella*; but, then, one had overlooked that along with the above-mentioned cases, one had probably left on the food-plant larvæ with cases composed of green pieces of the seed covers, and which were less easily perceptible.

"After repeated attempts to breed the larvæ, we have now succeeded in distinguishing the two species.

"The free-sitting, *firm* case belongs to *flavaginella*, whilst that made with the seed-coverings belongs to *annulatella*. The larva of this last-named species constructs from fragments of the seeds a case in which it can move about on the plant; when the case is several days old the bits of seed become yellowish and might betray the concealment of the larva, which then quits this case to construct a new one. When full fed it descends to the earth, and buries itself in the soil, and then spins a case formed of grains of sand, which at a fast glance much resembles the case of *flavaginella* but it is quite tender and soft to the touch, whilst the case of *flavaginella* is firm and hard."

* Two of these specimens were handed to me by Dr. Nylander when I was in Paris in 1859, as a present from his friend Dr. af Tengström.

Wocke, in his continuation of Heinemann's "Schmetterlinge Deutschlands und der Schweiz," II, 2, ii, 611, adopts the above differentiation of the two larvæ given by Herr G. G. Mühlig.

I should here remark that I have received specimens as *flavaginella* from Mühlig and Hartmann; these are a narrow-winged, dark brown species *with no pale costa*, only with a few obscure darker streaks on the anterior wings; large specimens resemble *annulatella* in size, but ordinarily the insect is smaller. These specimens, received as *flavaginella*, do *not* resemble the two Lienigian types received through the kindness of Dr. af Tengström. Madam Lienig's specimens are ochreous (not dark brown), and show hardly any symptoms of darker streaks; in fact, they closely resemble specimens bred by Mr. W. H. B. Fletcher (which I have now before me) from *Suæda fruticosa*. This, however, is a plant scarcely likely, from all I can make out, to have occurred in Madam Lienig's locality.

How many species of this group of the genus occur on the plants of the Order *Chenopodiaceæ* is a puzzling question; but I think the proper way will be, first to learn to differentiate all the species, and then we shall be better able to answer the question, "Which is the true *C. flavaginella?*"—H. T. Stainton, Mountsfield, Lewisham, S.E.: *September 16th*, 1885.

Local Lepidoptera in Camberwell.—In spite of the rapid growth of the metropolis, and the consequent tendency to the destruction of localities for insects, the general cultivation and preservation of trees and shrubs in the roads, gardens and shrubberies, to some extent counteracts this tendency, and many moths, of species not usually considered abundant, seem to hold their own in this neighbourhood. *Smerinthus tiliæ* has twice this summer been found here in public thoroughfares, and *Cerura vinula* once, and one night I was much astonished at catching a male *Phorodesma bajularia* flying about a lamp *in the street*; I suppose it must have come over the hill from Dulwich Wood. *Cidaria dotata* and *Eupithecia fraxinata* have several times been met with close by, and twice *Sericoris bifasciana*. I confess that I cannot understand the occurrence of this last species, there being apparently no fir trees at hand. An old favourite with which I am much pleased to renew my acquaintance is that lovely creature, *Pyralis costalis*, another is *Chrysoclista linneella*, which has become astonishingly plentiful. It was very curious to see them at 9 o'clock on a sunny morning dancing round the trunks of the limes like swarms of black flies. Within the last few days *Ennomos angularia* and the larvæ of *Acronycta aceris* have been found upon the same trees.—Chas. G. Barrett, 68, Camberwell Grove, S.E.: *September 17th*, 1885.

Melanism in metropolitan Lepidoptera.—I have been a good deal interested this season in the apparently great proportionate increase in numbers of the black forms of *Eupithecia rectangulata* and *Tortrix Podana* here in Camberwell. I collected a good deal here twenty-five years ago, and remember that among the ordinary green specimens of *E. rectangulata* a black specimen would not unfrequently occur; but this summer nearly every specimen found in the neighbourhood has been more or less black—certainly the green form has been comparatively rare. Unfortunately the black specimens become worn almost immediately, so that very few are worth keeping.

In *Tortrix Podana* the melanism seems to be limited to the males, some specimens being very black, though the majority are still of the usual beautiful chestnut colour; but the proportion is very different to what it formerly was.

The cause of this change is very obscure. Other usually variable species show no such tendency here. *Abraxas grossulariata* is most provokingly constant in colour, and black *Amphydasis betularia* are here unknown.—Id.

A new (?) *Nepticula larva.*—When in the neighbourhood of Newcastle-on-Tyne a short time ago, I was seeking for anything that might turn up. After a while, happening to be looking on the grass, I noticed the mine of a *Nepticula* which seemed new to me, on a low plant. The plant was *Potentilla tormentilla*, and, as I knew we had no species feeding in it, I prostrated myself at the shrine of the goddess at once, and devoted the rest of my limited time to her service. With very close, hard searching, I found a few larvæ, and now have a few in cocoon. The mine is very neat and clean looking, the larva a very deep clear yellow (much like that of *N. poterii*), and the cocoon small, very pale drab. Mr. Warren tells me that he bred *N. æneofasciata* last year from a mine on the same plant; but this certainly is not that species. Mr. Stainton also found a mined leaf in Scotland some years ago, from which he bred an imago, which he cannot refer to any species with which he is acquainted. Should this not be *N. tormentillæ*, a continental species, it will most likely prove to be new to science.—J. Sang, Darlington: *October*, 1885.

Luciola italica at Darlington.—One evening last June, in one of our streets, several persons noticed two lights waving about in the air, which some fancied were lighted fusees being waved by some one. One of those who saw them, however, fancied they were not anything of the kind, and caught one of them in his hand; the other escaped. It proved to be a beetle, and was brought to me to name. Knowing that it was not either of our two luminous species, I sent it up to Mr. C. O. Waterhouse at the British Museum, who kindly determined it for me as above. The occurrence of this South European species here is rather remarkable. The light was brilliant, similar in colour to that of the glow-worm (*Lampyris noctiluca*), but increased and diminished with equal pulsations about every second.—Id.

Note on Actidium coarctatum, Hal., and Actinopteryx fucicola, Allib.—I have recently taken these two rare species in great abundance from a heap of decaying seaweed, &c., upon the cliffs; it would be difficult to say which was the more plentiful. From a single handful of shakings I got seventeen specimens of the former species, and forty-three of the latter. As a rule, however, the numbers were much more equal.—Theodore Wood, Freeman Lodge, St. Peter's, Kent: *Ootober 6th*, 1885.

Pelophila borealis, Payk.: peculiarity of tarsi.—In a series of about five and twenty of this beetle sent to me from Lowry's Lough, Ireland, by the Rev. W. F. Johnson, I found two specimens, both males, which appeared to have lost a great portion of the left hind-tarsus, as it seemed so much shorter than the right hand one; on examination, however, I found that both tarsi were quite perfect, but that the joints were much contracted, and instead of being very elongate, some of them were almost transverse: the claws were perfect and I could find no other peculiarity.

I have never noticed this in any beetle before, and it is strange that there should have been two instances in so small a series. They appear to be very ferocious beetles; many of them reached me alive, and, while I was looking at them, one rushed upon a companion and seized it by the leg like a bull dog, refusing to let go in spite of all I could do to force it to do so.—W. W. Fowler, Lincoln: *Oct. 14th*, 1885.

Coleoptera at Tenby.—During a visit to Tenby in August, I took a few *Coleoptera* worth recording, among them the following:—

Nebria complanata, one specimen, under a piece of old hamper on the beach; this species appears to be exceedingly rare at Tenby. Mr. Jeffreys, naturalist, of Tenby, informed me that he had taken two specimens at Pendine, about ten miles off, but that he had never known it to occur at Tenby before; this seems rather strange, as it is fairly abundant at Swansea, a little way up the coast: in the same way, however, the land-shell, *Helix pisana*, which literally swarms at Tenby will not flourish at Swansea, although experiments have been made with a view to naturalizing it there. On the shore close to the town, I found about fifty *Diglossa* below high water mark: they were chiefly running in the hot sun. I also obtained *Cassida hemisphærica* (one specimen: the only other I ever met with was at Filey, Yorkshire), *Anisotoma dubia*, *Œdemera cærulea* (a reddish variety), *Cteniopus sulphureus*, *Thyamis marcida*, *Meligethes umbrosus* (one or two specimens), and last, but not least, *Meligethes exilis*, which was by far the most plentiful *Meligethes*; it occurred in flowers of *Hieracium*, from which I also took *Olibrus liquidus*; the latter I obtained almost exclusively in one small spot between Giltar and Lydstep, but I found *Meligethes* at Lydstep, Giltar, Penalby Burrows, and on Tenby sand-hills close to the town.

Hemiptera were fairly plentiful, but I found nothing worth mentioning, except perhaps, *Verlusia rhombea* and *Picromerus bidens*.

Of the *Hymenoptera*, *Halictus cylindricus*, *Cerceris arenaria*, and *Pompilus plumbeus*, were abundant; and I found one specimen of *Ammophila sabulosa*. I failed to find *Harpalus melancholicus* and *Therapha hyoscyami*, of each of which I took a specimen on the sand-hills some years ago.—Id.

Drepanopteryx phalænoides, L., in Scotland: a re-discovery.—As it is nearly twenty years, I believe, since we have heard anything about *D. phalænoides* as British, it is gratifying to be able once more to confirm the existence of such an interesting Neuropterous form in this country.

On September 18th Mr. McLachlan, Mr. King and I made an excursion to the Mouse Glen, near Cleghorn, one of the best localities for *Neuroptera* in this part of Lanarkshire. Though cold weather had prevailed for some time before, we had a tolerably fine day, insects were out in number, and the locality quite maintained its reputation. While we were working the ground where *Adicella filicornis* occurs during the warmer months, an insect with a most deceptive resemblance to a dead leaf rolled into my net. When in London a few weeks earlier, Mr. McLachlan had shown me examples of *D. phalænoides* which he had brought home from the Schwarzwald, and with the striking appearance of these still fresh in my mind, I had no difficulty in recognising my capture. A few minutes later Mr. King secured

another; no more were seen that day, and when Mr. King and I again visited the spot the following week, we got but one other example. Hazel and sloe were affected by it; but possibly it occurs on almost any aphidiferous tree or shrub. As far as is borne out by careful search over the parts of the Glen, the area of occurrence is co-extensive with that of *Adicella filicornis*, therefore restricted to one well-sheltered little corner. Not the least noteworthy point in connection with these captures is that the locality cannot be looked on as new, for Curtis mentions a specimen taken about fifty years ago by H. Walker near Lanark, which town is only two miles or so distant from the spot where our examples were taken.

I give here the substance of an interesting communication received from Mr. McLachlan, concerning the occurrence of this insect in Britain. It is indicated as British in Turton's edition of Linné (Syst. Nat.), 1806; but Turton included a good many striking things as British that were never confirmed. Leach constituted the genus *Drepanepteryx* in the Edinb. Encyc., 1815, probably from the citation in Turton. Curtis refers to the example taken by Walker; and Stephens figures one taken by Little at Raehills. In the Proc. Ent. Soc. Lond., New Series, vol. i, p. xlvi (Jan. 6th, 1851), we read:—"Mr. Douglas, on the part of Mr. Allis, exhibited a specimen of the rare Neuropterous insect *D. phalænoides*, taken by him at Bowness." And in McLachlan's Monograph of the British Neuroptera-Planipennia, the author refers to an example in his own collection taken at Windermere by Mr. Strouvelle. If Turton's citation be excluded as doubtful, we have, with those now recorded for the first time, seven British examples in all. The ascertained distribution appears to be entirely western, limited on the north and south by the Clyde and Lake District respectively. On the continent it is said to be not uncommon, and very widely distributed.—Kenneth J. Morton, High Street, Carluke: *October*, 1885.

Is Megalodontes (*or Tarpa*) *plagiocephalus, Fab., really British?*—Mr. Cameron, in the last number of this Magazine at page 119, introduces the above named species as British on the authority of a specimen in Shuckard's collection, bearing a label marked "from the British collection, Brit. Mus., Ap. 16, 42." Among the *Aculeates* which I possess from Shuckard's collection, I have three species bearing tickets identical with that described by Cameron, viz., *Crabro clypeatus* ♂ and ♀, *Cerceris auritus*, F., = *Ferreri*, V. d. L., ♂ and ♀, and *C. sabulosus*, Pz., ♂. The first of these is of extreme rarity in England, Shuckard in his "Fossorial Hymenoptera," p. 133, only mentioning "♂ in the collection of the British Museum," and Smith, "Cat. Brit. Foss. Hym.," &c., p. 154, only recording his own captures of a ♂ and ♀ at Weybridge, in 1848 and 1853. The second is not recorded as British either by Shuckard or Smith, and has not yet found a place in our lists; the third is not a great rarity although much commoner on the Continent than in this country. Now the fact that F. Smith, who was so well acquainted with the British Museum collection, does not mention any specimens in it in support of the claims of these species to a place in our list, is I think clear proof that he did not consider their claims sufficiently valid, and I think we should pause before admitting into our list a species, merely on the authority of "the British collection of the British Museum." No locality is given, and if *Megalodontes plagiocephalus* be accepted on such authority, *Cerceris Ferreri* should be so also, and the latter is such a distinct, well-marked species, that it could

hardly have been overlooked till now by collectors.—Edward Saunders, St. Ann's, Bromley, Kent: *3rd October*, 1885.

The habitat of Phytocoris distinctus.—Referring to the remarks by Mr. Douglas in last month's issue, p. 116, concerning *Phytocoris distinctus; Populus alba* is certainly not the only tree frequented by these insects. They occur not uncommonly on the limes (*Tilia grandifolia*) in the Cathedral Close at Norwich. They are often to be seen exercising themselves on the railings under these trees, but are very difficult to capture owing to their extreme agility.—H. J. Thouless, Cathedral Close, Norwich: *October 10th*, 1885.

Eriopeltis festucæ, Fons., an addition to the British Coccidæ.—For several years I have seen this little Coccid on the grass *Festuca bromoides*, but not until I became interested in the *Micro-gasterides* did I take the trouble to examine it, and try to find out what it was.

The female in the autumn is clothed with a garb of white cotton, in which to pass the winter, and its appearance, would, for the moment, deceive the best and oldest Lepidopterist, should he be in search of ichneumon-cocoons, and he would, I feel certain, at once arrive at the conclusion it was an *Apanteles*-cocoon, from its size, shape, colour, and the way it is fixed on the grass-stem; but upon examination, with a lens, it would be a puzzle for him to account for the numerous short curly ends projecting from it.

The pupa-scales may be found about the middle of July, almost close to the roots of the food-plant; they are very small, and can only be obtained by pulling the grass up by the roots.

On the 22nd July, in company with Mr. J. Scott, I visited the locality where I had seen the females on several occasions. After being deceived several times by a seed (I believe a grass-seed), adhering to the fescue-grass, which looked very much like a scale, Scott at last obtained two scales, which afterwards proved to be a male and female; the male made its appearance two days after, while in transit through the post to Mr. Douglas; these were taken on the road leading to Whitsand Bay. On the 3rd of August, at Bickleigh, not far from the station, towards Shaugh Bridge, Scott and I obtained several females, clothed in white cotton, but not to such an extent as when taken in October; these were obtained low down on the stems, those found at the end of September and during October are well up from the soil, and very conspicuous. I have always found them in hedges facing the north. On October 19th I again visited the Whitsand Bay locality, which is reached from Plymouth by passing through Wiggall Farmyard, and found many females, which proved, on examination, by removing a part of the cottony covering, to be a mass of eggs.—G. C. Bignell, Stonehouse, Devon: *October 20th*, 1885.

[This species was first found in France on *Festuca phœnicoides* and *F. cæspitosa* described by Boyer de Fonscolombe, and figured (indifferently) in the "Annales de la Soc. Ent. de France," iii, p. 216; pl. 3, fig. 9 (1834), under the name of *Coccus festucæ*. It was afterwards referred by Dr. Signoret to a genus, and was more perfectly described and figured as *Eriopeltis festucæ*, in his "Essai sur les Cochinelles," p. 184; pl. 1, fig. 18; pl. 2, fig. 7; and pl. 8, fig. 3 (1877).—J. W. D.]

Reviews.

European Butterflies: by W. F. de Vismes Kane, M.A., M.R.I.A., Memb. Ent. Soc. Lond. Pp. xxi and 184, and 15 plates, 8vo. London: Macmillan & Co. 1885.

In some respects this book is got up on the plan of Kirby's "Manual," published in 1862, but it is on a much extended form. It reminds us of Wood's "Tourists' Flora," a useful work long out of print, and of which a new edition is much needed. It is of a handy, portable size, and may well serve as an indispensable travelling companion to all butterfly-collecting tourists and others. The descriptions seem to be excellent, and the local information is usually full. The 15 plates of crowded figures are reproduced from photographs. Naturally in those cases to which photography is applicable they are true, and excel any coloured figures that could be produced; but in other instances more or less failure is evident, and notably in the Fritillaries, which give one the idea of being all taken from the well-known dark varieties of these insects. The geographical area is limited to Europe proper, and the arrangement and nomenclature are as in "Staudinger." Curiously enough we find our old friend *Papilio Podalirius* figuring as *P. Sinon*, Poda. It is true that Staudinger did so designate the insect in the first instance, but in the "corrigenda" at p. 422 of his Catalogue he restored *Podalirius* (L., S. N., ed. x). The work should have an extensive sale; it supplies a want in being portable; much care has evidently been bestowed upon it, and it is well printed; the errors are few considering the large number of names of localities introduced. In a second edition the local information can be brought nearer down to date. A more complete list of Italian species was published by Antonio Curó in Bull. Ent. Ital., 1874, whereas our author only mentions the old list for the Kingdom of Sardinia by Ghiliani in 1852; and other analogous instances might be cited.

Elementary Text Book of Entomology: by W. F. Kirby, Assistant in Zoological Department, British Museum, and co-Secretary of the Entomological Society of London. 240-pp., with 87 plates, containing over 650 figures. London: W. Swan Sonnenschein & Co. 1885.

This book has been before us for several months. To a reviewer (if he know anything at all of the subject on which any particular book treats) first impressions are generally the best. Our first impressions were unfavourable; furthermore, immediately after the appearance of the work, some one was so enthusiastic in its praises as to state, amongst other things, that by its help "the insect must be a rare one indeed whose genus—and perhaps even whose species—the reader fails to determine without difficulty." Mr. Kirby estimates the number of known species of insects at about 222,000. The work is not a "Text Book." It is a laborious compilation on which much time must have been spent for small useful purpose, save that a considerable number of recorded statements are brought together; but those to whom these generalities will be welcome are precisely those who will find the dry details unintelligible. It is almost the first time that, in a book of such pretensions, we fail to find the name of either printer or artist. The printing, paper, &c., are good; the errors (there is no list of errata) must be ascribed to the author—no printer or elementary entomologist would com-

prehend what was meant by "fossorial *Lepidoptera*." The plates (the most attractive part of the volume) are suggestive of Olivier (Encyc. Méthod.), Chenu, and Wilson (Encyc. Britannica). All Butterflies and Moths appear to be legless, and in some other Orders (where neuration of wings is almost of primary importance) it is only charitable to suppose the artist must accidentally have had most abnormal individuals before him. An elementary text book should be modest and *correct in everything*, because its title indicates its educational aim; nothing is so difficult to eradicate as are first impressions.

Our Insect Enemies: by Theodore Wood. London: Society for Promoting Christian Knowledge. 8vo, 220-pp. 1885.

This is a companion volume to "Our Insect Allies,"* which we had occasion to notice at p. 140 of vol. xx. We consider it a considerable improvement on its predecessor, and its literary style is to be commended. The author evidently feels himself more untrammelled in dealing with *injurious* insects, more able to adapt himself to popular ideas, for are not *all* insects "injurious" from a popular point of view! Some of his reasonings are worthy of serious study. He may, we think, have occasionally accepted some still disputed points as pure "gospel," but he rejects others as being probably more hypothetical than anything else. The illustrations are scarcely so numerous as in the volume on "allies." But all are to the point: there is no introduction of extraneous figures for the sake of "effect." Occasionally they are rough. The number of books on our insect enemies is very large; this modest little volume compares favourably with any of them. The author is probably wise in not taking up the position of an "expert" in economic entomology, but his remarks on the encouragement and protection of birds should be seriously considered, and especially now, when a crusade is being advocated, almost to the length of extermination, against the sparrow, which is no doubt an enemy, but which, in our opinion, is equally an ally.

Obituary.

Prof. H. Weyenburgh died at Haarlem on July 25th; he was born, in the same town, on December 6th, 1842. After studying in Utrecht and in Göttingen, he went, under the auspices of the now venerable Prof. Burmeister, to Buenos Ayres, and in 1872 was appointed Professor of Zoology in the University of Cordova (Argentine Republic). Although this University (said to date from 1622) is the oldest in America, it had never taken a very prominent position in Zoological science until Weyenbergh's appointment. He established a Zoological Society; he started a most useful publication ("Periodico Zoologico"); he created a taste for zoological studies in his new home that cannot fail to produce the best results. More especially was he an entomologist, and his published papers concern nearly all Orders of Insects. A life of the greatest promise for the future, and of meritorious results in the past, has been prematurely ended. Weyenbergh was attacked by

*"Errata Ridicula" is the title of a series of papers by Dr. Dohrn in recent Nos. of the "Stettiner entomologische Zeitung." He might add another item to his series of amusing "errata." We have seen this work quoted in a German publication as "Our Insect Alleys." This *might* have formed the heading for a chapter in the book now under consideration.

cancer, and came home for surgical treatment, but unavailingly. A set of thorough workers in Entomology (mostly German and Dutch, although the "foreign" population consists largely of Italians) established themselves in the Argentine Republic; one of the most prominent was Weyenbergh. We trust the science is now too-well established there to sustain more than a temporary shock by the decease of one of its best expounders.

Entomological Society of London, *Sept. 2nd*, 1885: R. McLachlan, Esq., F.R.S., President, in the Chair.

The President made apologetic remarks, regretting that his absence from England at the last Meeting precluded him from personally congratulating his colleagues on the acquisition of a Royal Charter of Incorporation. He also stated, that on the 18th July he had the pleasure of assisting at the celebration of the 40th anniversary of the foundation of the Entomological Society of the Netherlands, held at Amsterdam. He desired to publicly thank that Society for the kindness and hospitality he had received on the occasion, and to intimate that their Dutch brethren wished to enter into still further cordial relations with British Entomologists.

Mr. C. O. Waterhouse exhibited living examples of *Eubrychius velatus* from Eastbourne, which he had found swimming freely amongst *Myriophyllum*. Also the larva of *Gyrinus marinus*; and a species of *Aleurodes* found in great numbers on fuchsia, the leaves of which they spotted.

Mr. Billups exhibited *Telenomus phalænarum*, Nees, bred from the eggs of *Pygæra bucephala*, and a large number of Aculeate *Hymenoptera* from Chobham.

The Rev. W. W. Fowler exhibited a specimen of *Deilephila livornica*, captured near Tenby two years ago.

Mr. Ralfe exhibited 18 examples of *Sesia asiliformis*, bred from eggs laid by a ♀ taken in a nursery at Coombe Wood; also *Cucullia scrophulariæ*, which had been four years in the pupa state, and an undetermined species of *Geometridæ* bred from eggs laid by a ♀ captured near Weymouth in August, 1883.

Mr. Adkin exhibited an undetermined species of *Lepisma*, which was common on account books kept in an iron safe in an office in London.

Mr. Jenner Weir exhibited specimens of *Batrachotettix bufo*, a singular toad-like grasshopper taken in the Kalahari Desert, South Africa, by Mr. Farini; they appeared to vary in colour in accordance with that of the sandy regions in which they lived. Also *Palpares immensus*, McLach., a large species of Ant Lion, from the same locality. Also cases of a species of *Psychidæ* (from the same district), forming silken tubes covered with sand and small pebbles. Also two immense spiders (from the same district), apparently a *Galeodes*, remarkable for curious coriaceous appendages on the hind legs, which might act as suckers. He further exhibited, from the same source, a living example of a large species of *Curculionidæ*, apparently a *Brachycerus*.

The President exhibited a large collection of Neuropterous insects of all Families, captured in July and August this year in the Schwarzwald, Baden. Their exact determination remained, in many cases, for future investigation. Although there were probably no new species amongst them, there were certainly some important points in respect to local distribution.

NOTES ON THE ACULEATE *HYMENOPTERA* OF GLOUCESTERSHIRE.

BY V. R. PERKINS, F.E.S.

During the past season I have, with the exception of about three weeks at the end of June and beginning of July, devoted a good deal of my spare time to the Aculeate *Hymenoptera* of this immediate district, and although I have been a great portion of the time single handed, I am glad to say that since the holiday season commenced I have had a very active companion in one of my nephews, and with his assistance we have made a very respectable collection, and if we have not added a new species, which is as yet doubtful, we have filled up several gaps among the rarer and more local kinds, concerning which I here send a few notes which, possibly, may be of interest to other collectors of these interesting insects.

Taking the season through I certainly consider it to have been a good one. In the early spring, when the blackthorn was in blossom, some of the *Andrenidæ* were in immense profusion, and I got nice fresh series of almost all the commoner kinds, together with *Nomada alternata*, Kirb., which was also plentiful at the same blossoms, while at the same time *Anthophora* and *Melecta* were here, there, and everywhere, about the fields and gardens. I will not take up space by giving a catalogue of the insects captured, but will simply enumerate some of the more interesting species, and add a few remarks upon them.

Among the *Fossores* I have captured the following:—*Myrmosa melanocephala*, Fab., *Pompilus niger*, Fab., *spissus*, Schiödte, and *pectinipes*, V. d. L., *Agenia variegata*, Linn., *Ceropales maculatus*, Fab., *Mimesa Dahlbomi*, Wesm., *Crabro tibialis*, Fab., *clavipes*, Linn., *gonager*, Lep., and *varius*, Lep.

Pompilus niger, Fab., is confined to the woods, but *spissus*, Schiödte, is all over the place; wherever we find the larger *Sphecodes* there we are sure to meet with *spissus;* can the wasp have any connection with the bee?, its prey consists of a large brown spider considerably larger than itself; *pectinipes*, V. d. L., is rare.

Agenia variegata, Linn., a wood insect and fairly common, but most difficult to catch, a net is next to useless, and the collector had much better rely upon his own nimble fingers if he would secure it, it frequents the decaying stumps of beech trees, whose bark has been warped and cracked with the rain and sun; under this bark it darts with the usual rapidity of these insects, and in a short time it will emerge just at the very place where it is least expected, and if

missed is gone in a second not to return again; what it finds, except the wood-lice which congregate in these places, I do not know, but I caution those who want the insect not to remove the bark to secure it, for that will not answer. It is not so much affected by the sun as many of these insects usually are, and I have seen it quite late of an evening after others have retired.

Crabro clavipes, Linn., is found in the same places but it prefers those stumps that are sounder, and whose bark does not show signs of decay.

Crabro gonager, Lep., is also a wood insect, and has either been more plentiful, or we have discovered its habitat, for we have taken no less than eleven females this season; the middle of August is the time it makes its appearance.

Crabro varius, Lep., is not a wood insect, but occurs along the field banks and burrows in the places where the clay has slipped, and in other bare patches, preferring the steep inclines.

Among the rarer or more local Bees I will mention *Prosopis confusa*, Nyl., *Sphecodes gibbus*, Linn., *subquadratus*, Sm., *ferruginatus*, Schk., *hyalinatus*, Schk., *variegatus*, v. Hag., and *affinis*, v. Hag., *Andrena bicolor*, Fab., *angustior*, Kirb., and *chrysosceles*, Kirb., *Cilissa hæmorrhoidalis*, Fab., *Nomada alternata*, Kirb., *Fabriciana*, Kirb., and *flavoguttata*, Kirb., *Osmia fulviventris*, Panz., *aurulenta*, Panz., and *bicolor*, Schrk., *Bombus cognatus*, Steph., and *distinguendus*, Mor.

Without any doubt the greatest capture of the season has been among the *Sphecodes*, the most difficult and puzzling of all the genera of Bees, and as all our captures in this genus have been carefully examined by my esteemed friend Mr. Edward Saunders, I cannot refrain from publicly thanking him for the vast amount of trouble he has taken in differentiating the species.

The first to be met with, about the middle of April, is *Sphecodes affinis*, v. Hag., this little bee occurs in the woods sometimes in company with *Halictus tumulorum*, Linn., or other small *Halicti*, and no doubt it breeds in the same places, but though it does burrow in the banks I have found it much more frequently among heaps of small stones that have been gathered up from the fields and laid by the side of a road, and in these it certainly breeds, and along with it here I have taken *Nomada flavoguttata*, Kirb., which looks as though it were its parasite, both bees being in about equal proportions. Then comes *subquadratus*, Sm., also a wood insect, towards the end of May it may be found flying along the deep ruts made by the wood carts in winter, and in these it makes its burrow; I have watched it burrowing away

in these places several times, it digs away with great rapidity, and throws out the dirt exactly like a *Pompilus*. The next two species, *ferruginatus*, Schk., and *hyalinatus*, Schk., belong more to the open country, their chief habitat seems to be along the steep bracks which are of such frequent occurrence in the pasture fields, at the base of the hills, which are locally called *meres*, and where the herbage is short and scanty, and in hard dry patches these bees are most likely to be found; they are very local and appear to be more social, breeding together in little colonies of ten or twelve individuals, and are most easily caught by standing quite still a little below the breeding place. One thing we have observed with regard to these bees, which I think especially worth noticing, is the attraction of males to the female. If a female is caught and kept a short time in the net, she will attract all the males in the neighbourhood towards her, and my nephew tells me that this is also the case after she has been killed if exposed in an open box; the great majority of our captures have been males. The last to be mentioned here is *variegatus*, v. Hag., this seems very rare, and we have only met with it in one locality, it is along these same "meres" in the hard dry patches that *Crabro varius*, Lep, is caught.

There is no doubt this genus is a very peculiar one, whether it is parasitic or not remains still an open question. My own opinion is that it is not, while my nephew, who has captured a great number this year, inclines the other way. I hope next season, now we know of their whereabouts, we shall be able to satisfy ourselves on this point. I have caught several in company with various *Halicti*, but I have also taken them where no *Halicti* occur. I have several times seen them digging their own burrows, which they do with the rapidity of a sand wasp; and I have also captured them with their heads covered with a yellow pollen.

The flowers on which they occur are thistles (especially the one with pale pink blossoms), ragwort, knapweed, wild parsnip, and the common *Crepis*; on this last plant it is more frequently met with than on either of the others.

Many of the *Halicti* have been very plentiful, but we have only met with one *zonulus*, Sm.

Andrena angustior, Kirb., I took again in the woods in the spring, but it was certainly more scarce than it was last year; I only met with few specimens, though I searched diligently for it. Of *bicolor*, Fab., I took a nice series in the flowers of *Malva moschata*. *A. chrysosceles*, Kirb., was abundant on the *Euphorbia amygdaloides*. *Cilissa hæmorrhoidalis*, Fab.; of this local bee I had before this year taken only single

specimens. It seems to be generally associated with the harebell. Smith says he never found it in any other flower, this is certainly not my experience, on the contrary, I have never found it on that flower, but while looking after *Andrena bicolor*, Fab., the first thing I saw in the Mallow flowers was this bee, and on them I succeeded in securing a good series, and I have taken ♂ and ♀ *in coitu;* only twice have I seen it in the Canterbury-bell, which is a common flower in the woods.

Nomada alternata, Kirb., has been double-brooded this year, the second brood made its appearance in August, and continued on the wing till the 19th September, on which day I captured the last specimens; these seem paler and brighter than the spring brood.

N. Fabriciana, Linn., which appears to be parasitic on *Halictus rubicundus*, Chr., was very plentiful in the spring, while *N. ruficornis*, Linn., was decidedly scarce.

Of the *Osmiæ*, *rufa*, Linn., swarmed; *aurulenta*, Panz., was more abundant than usual, and seemed particularly partial to the flowers of the common bugle—it is quite a wood insect; *bicolor*, Schr., as usual was on the slopes of the hills and in the woods, and seemed to occur pretty generally round the district, and we saw it several times conveying bents, which peculiar habit I drew attention to last year in this Magazine—of this last I captured three or four ♂; *fulviventris*, Panz., which generally burrows in posts, we found making its nidus along with *rufa* between the stones of my brother's garden wall. *Megachile centuncularis*, Linn., was there also in great numbers, making use of the leaves of *Circæa lutetiana* for its nidus.

Bombus cognatus, Steph., is generally scarce; we found one nest, and my nephew secured one very curious mouse-coloured specimen of this bee. He also captured in the early spring a very fine specimen of *Bombus distinguendus*, Mor., ♀, the only one that has yet occurred about here.

I have now one more observation to record, and that is on the neuration of the anterior-wings of some of the insects captured during this season. Variations in the anterior-wings of bees being very rare, are all worth recording, and I have met with no less than three distinct variations among our captures, and one of these I consider very remarkable.

1. In one *Sphecodes ferruginatus*, Schk., there are *two* sub-marginal cells in the right anterior-wing, while the left has only *one*, and with just a slight trace, or I should say, short petiole, where the start of the second nervure should be.

2. In another specimen of the same bee, there are *two* sub-marginal cells in the right anterior-wing, and *three* in the left.

Smith, in the "Entomologists' Annual" for 1858, records the capture of a specimen of *Sphecodes rufescens*, in which the anterior-wing (he does not mention which) has the second sub-marginal cell obsolete.

3. The third instance of variation occurs in a specimen of *Halictus villosulus*, Kirb., which has only *two sub-marginal cells on either side*, both anterior-wings being exactly alike, and decidedly different in their neuration to any *Halictus* I have ever seen.

Wotton-under-Edge:
October 17*th*, 1885.

DESCRIPTION OF THE LARVA OF *PTEROPHORUS COSMODACTYLUS*, H.-S., = *PUNCTIDACTYLUS*, STEPH.

BY GEO. T. PORRITT, F.L.S.

I have to thank most sincerely Mr. Eustace R. Bankes, of Corfe Castle, and Mr. Nelson M. Richardson, of Llangennech, for the trouble they have taken in helping me to an acquaintance with the larva of this species.

On the 8th of August, 1884, I received from Mr. Bankes about a score of larvæ which he had collected from *Stachys sylvatica* as "*Pterophorus acanthodactylus*," and I made careful notes on them for that species. The first two imagos which emerged—on August 17th and 19th respectively—were *acanthodactylus*, but, to my astonishment, the next specimen, on the 21st, and every one following, were *cosmodactylus!* I had described two distinct varieties of the larva, but as they had so much in common I had never suspected they might belong to different species; and being also quite ignorant as to which larvæ had produced *acanthodactylus*, and which *cosmodactylus*, it became necessary to wait for further specimens before anything satisfactory could be ascertained. In the middle of September, Mr. Richardson forwarded to me alive two fine ♀ of *cosmodactylus*, which he had beaten out of furze bushes at Aberayron, in Cardiganshire, with the information that he almost always took the ♀ in the autumn in such circumstances, and he had no doubt they hibernated in the bushes, and deposited their eggs in spring or early summer. The two moths I placed in a pot of growing *Stachys*, and various dry leaves, &c., and covered over with gauze. The moths lived well into the winter, but on examining the pot, I think in January or February (I have no note of the exact date), I found they had died. I was, therefore, very pleased to receive

in the middle of August last another consignment of eight larvæ from Mr. Bankes, from which I made fresh descriptions. From them I bred six *cosmodactylus*, but no *acanthodactylus*. The moths were bred from the larvæ described, and on comparing my notes with those taken the previous year, they corresponded so closely that I suppose all were taken from *cosmodactylus* larvæ; the alternative being that we have but one species under the two names; or the differences in the larvæ must be so slight as to be almost imperceptible. As the *acanthodactylus* I bred were the first specimens to appear, it is possible the species may have been in advance of *cosmodactylus*, and that the larvæ were in fact nearly over when Mr. Bankes collected them; but this year, although he searched early, he failed to find an *acanthodactylus* larva at all. It is now most necessary to have careful descriptions of larvæ which produce *acanthodactylus*, or still better, to rear larvæ from *acanthodactylus* eggs, and see if both forms of imago would be produced from them.

Length, about half an inch, and of the usual stumpy form when at rest. Head small, and narrower than the second segment; it has the lobes rounded and is highly polished; body cylindrical, attenuated a little posteriorly, each segment plump and distinct, making the divisions clearly defined; skin soft, and sparingly clothed with short hairs.

There are two very distinct varieties.

In var. I (which, judging from the larvæ sent me, is the rather commoner form) the ground-colour is a clear purplish-pink; head very dark sienna-brown, almost black; the smoke-coloured dorsal vessel shows through as the dorsal stripe; sub-dorsal stripes clear white, and very conspicuous; below them is a narrow and interrupted white line, and another about the same width, but being tinged with pink is not so pale, along the spiracles: hairs white. Ventral surface semi-translucent, yellowish-grey; pro-legs purplish-pink on the outside; anterior legs of the dark sienna-brown of the head, but with paler rings.

In var. II the ground-colour is bright pale green, the markings same as in var. I, except that the white stripes are scarcely so conspicuous; in some specimens the smoky medio-dorsal vessel is tinged with pink; and the ventral surface and pro-legs are of the same bright green as the dorsal area.

Some few larvæ of those received in 1884 were intermediate between the two varieties.

The pupa is attached to the food-plant by the tail, and two somewhat curved pointed protuberances, which spring from the back, give it a curious appearance. As in the larva, there are two distinct varieties, a purple form and a green form, but each having oblique dark markings.

In 1884, the first imago emerged August 21st, this year on September 6th.

Huddersfield: *November 7th*, 1885.

THE LARVA OF *PÆDISCA OPPRESSANA* AND ITS HABITS.

BY JOHN H. WOOD, M.B.

In the course of his valuable "Notes on British Tortrices," Mr. Barrett has given us (Vol. xx, p. 267) descriptive accounts of the larvæ of all our *Pædiscæ* with the exception of three. With one of these three, *P. oppressana*, I had the good fortune to become acquainted four seasons ago, and in each succeeding year I have been able to renew acquaintance with it. Most of our books are silent on the early stages of the insect, but Dr. Knaggs in his "Guide" says, in the bark of poplar and Merrin's Calendar gives September as the time of feeding—conclusions formed I suspect on the circumstance that the perfect insect appears early in the summer, and has an evident affection for the trunks of poplar. But if the Entomologist wants to find it, let him search the terminal buds on the short side-spurs of the black poplar (*Populus nigra*) in March and April—if he see a small brown somewhat curved projection standing out from the bud, which on closer inspection turns out to be a hollow tube of "frass" communicating with the interior, he may know that he has found *oppressana*. The only insect I am acquainted with that could be mistaken for it would be *Hedya aceriana*, but the latter feeds later in the year, and the frass-tube instead of projecting at right angles from the bud lies flat upon it. I have hitherto failed to learn where the egg is deposited or when it hatches. I have confined the perfect insect without getting eggs, and have carefully examined the buds early in the year without discovering traces of larvæ, where afterwards at the end of March I have found them present. At that time the larvæ, little purplish-brown creatures with rather conspicuous hairs, were rather more than one line long and were actively engaged feeding in the bud. And were I to venture an opinion it would be that the larva lives through the winter closely hidden within a bud, into which it penetrates by an opening too small to be detected, and when the approach of spring awakens it to renewed activity, it then for the first time constructs the characteristic frass-tube, to serve as a general refuse-pipe and ventilator. The bud occupied in March gets eaten out and killed, and then some time in April the larva passes to another, within which it remains until it leaves it to spin up among rubbish in the first or second week in May. The last bud attacked has its growth and development retarded but is not killed, for the tree has begun to shoot and can resist the injury.

The larva is semi-transparent, somewhat shining, short, fat, and soft-looking, and of a pale brown colour. Head very small, deep black. Thoracic plate and prolegs also deep black. A small black plate on anal segment.

Tarrington, Ledbury:
November, 1885.

DESCRIPTION OF A NEW MARITIME FLY BELONGING TO THE FAMILY *SCATOMYZIDES*, FALLEN.

BY R. H. MEADE.

The following Dipteron occupies a position intermediate between those in the genera *Scatophaga* and *Cordylura*. It has the elongated horny proboscis with the numerous vibrissæ, of the species in the former genus, and the sub-cylindrical, incurved, clubbed male abdomen of those in the latter.

I propose to place it in a new genus, which I shall call *Ceratinostoma*. Schiner describes a new *Cordylura* (*lurida*), which, from his account, should also be placed in the new genus.

CERATINOSTOMA, *g. n.*

Gen. ch.—*Caput modice latum; oculi sub-rotundi, genas ne longe tegenti; antennæ breves, truncatæ, epistoma distantes; arista tenuis, plumata, articulo secundo producto, et spissato; setæ orales plures; proboscis elongata, acuminata, cornea; palpi longi, filiformes, sub-clavati. Thorax ellipticus. Abdomen 6-annulatum, mare sub-cylindricum, fusiforme, apice incurvato clavato, feminâ sub-ovatum, ano acuto. Scutellum 4-spinosum. Alæ abdomine longiores. Pedes validi, tibiis setosis. Corpus parce pilosum.*

C. MARITIMUM, *sp. n.*

Plumbeo-nigricans opacum, thorace olivario-fusco pollinoso, sub-striato; palpis pallidis, breviter nigro-setosis; proboscide nigro-picea; pedibus plumbeis, tibiis posticis intus villosis, tarsis omnibus subtus fulvo-hirtis. *Long.*, ♂ *et* ♀, 8 *mm.*

Head: eyes rather small, oval, widely and nearly equally separated in both sexes; frontal stripe black, having a brownish tinge on the vertex, and being velvety black in both sexes in front over the antennæ; face extending somewhat obliquely backwards; epistome but little prominent; cheeks extending below the eyes, having their front part, together with the face, of a silvery-white colour with blue reflections; hinder part of the cheeks, with the occiput, bluish-black, clothed with soft tawny hairs; frontal bristles extending in a single row along each side of the frontal stripe, from the vertex to the base of the antennæ; those in the posterior half of each row turning outwards, and those in the front half inwards; oral setæ rather short, six to eight in number on each side; antennæ black, the first joint abbreviated, the second somewhat elongated, having a reddish-brown or grey tinge, with white reflections on the distal margin, and armed with short black bristles; the third joint oblong, rounded or blunt at the end, and about one and a half times as long as the second; arista short and mostly somewhat geniculated, the first joint abbreviated, the second two or three times longer than the first, and together with it considerably thickened and clothed with short pubescence; the third joint slender, four or five times longer than the two others together, feathered with yellowish hairs

of moderate length along its basal half, and having the distal half or apex bare; proboscis pendulous, rather longer than the depth of the head, pitchy-black, horny, with the apex pointed in front, and having two small lips turned backwards. Palpi clavate, nearly as long as the proboscis, whitish-yellow, clothed with short black bristles, and long soft tawny hairs. Thorax of a dull lead or slate colour, somewhat arched, having a distinct transverse suture, and clothed on the dorsum with short thick tomentum of an olive or tea-green colour, which is arranged in irregular shaped but symmetrical patches, broken at the suture; leaving a central longitudinal pale stripe and a pale spot on each shoulder; there are only a few fine setæ on the dorsum, but a number of shortish strong spines irregularly distributed on the sides. Scutellum slate coloured, with some olive-green tomentum on the sides and apex; having four long setæ and numerous short black hairs. Abdomen oblong-ovate (spindle shaped), and sub-cylindrical in the male, with the apex incurved and thickly clubbed, the hypopygium being large and furnished in front with two black, horny, pointed processes; in the female oval, and pointed at the extremity; it is of an uniform dull leaden colour in both sexes, immaculate, and almost smooth, having only a few minute black hairs on the surface; there are six segments, the first is very short, and so closely joined to the second, that they look like a single long one; the third, fourth and fifth are nearly equal in length, and so is the sixth in the female, in the male it is globose and partly incurved; in some specimens the posterior edges of the segments have a pale yellow tinge. Wings rather long, of a pale yellowish-brown colour, with black veins; the third and fourth longitudinal veins diverge gradually from each other from the site of the internal transverse to the apex of the wing, which is placed almost in the centre between their points; the internal transverse vein is situated a little beyond the point of termination of the second branch of the first longitudinal, and considerably beyond the middle of the discoidal cell; the external transverse is straight and upright, placed nearly one-third nearer to the internal transverse than to the extremity of the fourth longitudinal; the costal vein is very slightly ciliated and without spine. Alulets small, white, with yellowish-brown margins, and ciliated with long pale yellow hairs. Halteres with brown stiles, and yellowish-white knobs. Legs of an uniform slate-grey colour, with large whitish pulvilli and long black claws; the tibiæ are all armed with numerous long bristles in both sexes, but the coxæ and femora are almost destitute of setæ; the front surfaces of the fore coxæ, and the under-surfaces of the mesosternum (triangular plate between the fore and middle coxæ), as well as those of the hind coxæ, are clothed with tufts of soft yellow hairs; the fore-legs have the femora somewhat thickened, and furnished with short soft yellow hairs on their under-surfaces, mixed with short black ones, which also cover their outer and upper sides; the tibiæ have four or five long bristles projecting from the distal halves of their under-surfaces; their outer sides and extremities are also armed with a number of spines; the middle of the inner and under-surfaces is also clothed with short adpressed golden-yellow hairs, which extend along the whole under-surfaces of the tarsi; the middle legs have the femora almost smooth, the tibiæ armed with a few spines or bristles; and the tarsi similarly but more shortly clothed with yellow hairs than in the other legs; the hind-legs have the femora clothed with short soft yellow hairs on their under-surfaces, and have a few short black spines along their upper and outer sides, which are also covered with short black hairs; the tibiæ are somewhat curved, are

furnished along their inner surfaces in both sexes with soft black hairs of moderate lengths, and are armed on their outer sides and ends with long black spines; the inner extremities of the tibiæ, and under-surfaces of tarsi, are clothed like the other tarsi with golden hairs.

This interesting fly seems to be widely distributed on the British coast, but is of rare occurrence. It lives among the remains of sea weed and other marine rejectamenta above high water mark. The first specimens I saw were kindly sent to me for identification by Mr. W. H. Harris of Cardiff,* who captured them on the Welsh coast, in September, 1884. He found another pair near Cardiff this last summer (1885), and also a single specimen at Ilfracombe in July. I captured a pair myself (♂ & ♀) at Douglas, Isle of Man, on June 20th, 1885, in company with numerous specimens of *Fucellia fucorum*, *Scatina litorea*, and other marine flies; but though I searched carefully on many subsequent days, I never met with another individual.

Bradford, Yorks.:
November, 1885.

DESCRIPTIONS OF THREE NEW SPECIES OF *LYCÆNIDÆ*.

BY HAMILTON H. DRUCE, F.E.S.

Iolaus silarus, *n. sp.*

♂. Above. Primaries brilliant purple-blue, with the apex, costal and posterior margin black. Secondaries bicaudate, brilliant blue, with the costal margin broadly, and the posterior margin narrowly, black. The lobe, with a black margin, reddish-carmine, shaded with violet. A black patch between the sub-median nervure and the 3rd median nervule containing a small indistinct red spot, also a small black spot between the 2nd and 3rd median nervule containing an indistinct red spot. Under-side glossy white, posterior-wing with a distinct sub-marginal straight red linear band running from above the apex into a red spot between the 2nd and 3rd median nervules. The lobe red, shaded with violet, and a black spot. There is also an irregular broken black line above the lobe, extending to the 2nd median nervule.

♀. Above. Primaries violet-blue, whitish at the junction of the 2nd and 3rd median nervules with the median nervure. The apex, costal and posterior margin greyish-black. Secondaries violet-blue, with the apex, costal and posterior margin greyish-black, crossed beyond the middle by an irregular black band, bordered between the sub-median nervure and the 2nd median nervule with brick-red. The lobe reddish-carmine.

Antennæ black. Palpi black above, white below. Legs white.

Expanse, ♂, 1½ in.; ♀, 1⅝ in.

Hab.: Delagoa Bay, East Africa. Mus. Druce.

This species is allied to *I. Julus*, Hew., from which it may be easily distinguished by the unbroken linear band on the under-side of the secondaries, and the spotless white of the primaries in both sexes.

* The author of some interesting papers, with excellent illustrations, upon the *teeth* of flies, published in "Science Gossip."

Spindasis Clymenus, *n. sp.*

♀. Above. Primaries creamy-white, with the costal margin, the apex, the posterior margin, and the anal angle, dark brown, a brown spot about the middle of the cell, bordered by the median nervure, and another at the end of the cell extending slightly beyond. Secondaries bicaudate, creamy-white; anal angle rather broadly brown; slightly dusted with silver on the posterior margin close to the anal angle. Under-side: primaries same as above, excepting an indication of a brown band beyond spot at end of cell, extending from the costal margin half-way between the 2nd and 3rd median nervules, and a small spot in the cell close to the base. Secondaries yellowish creamy-white, the posterior and anal margins with a black fringe; the anal angle ochre-yellow, containing two black spots encircled with silver scales. A narrow black streak reaching from the anal margin to near the sub-median nervure blended with a faint silver line; below this and parallel to it is a rather broad silver streak. Also a blackish streak at the base of the sub-median nervure running downwards. Head, thorax, and anal tuft brownish-yellow. Abdomen white, with the base of each segment brown. Antennæ brown.

Expanse, $1\frac{1}{2}$ in.

Hab.: W. Africa, Cameroons (*Fuller*). Mus. Druce.

This species is quite unlike any with which I am acquainted.

Neocheritra Theodora, *n. sp.*

♂. Above. Primaries black, with the basal third thickly sprinkled with bluish-green scales, except along the costal margin, which is greyish, gradually merging into the black beyond. Secondaries bluish-green, changing into blue towards the anal angle, at which there is a black spot, the sub-median nervure being produced to a long white tail, with a pale blue central line for half the length, also a pure white projection on the third median nervule, the apex black, and the discoidal cell clothed with a thick covering of glossy greyish scales. There is a quadrate black spot between the 3rd median nervule and the sub-median nervure, between which and a black margin there is a whitish patch. The black margin extending only between the sub-median nervure and the third median nervule, and at the apex. A white fringe commencing just above the second median nervule and gradually deepening till it reaches the base of the long tail; also a trace of a black spot between the 2nd and 3rd median nervules.

Under-side. Primaries ochre-yellow, deepening to brown-yellow at the apex and along the posterior margin, with the exception of the inner margin, which is of a glossy grey colour. Secondaries with the anterior half ochre-yellow, slightly darker at the apex, the posterior half white with two sub-marginal rows of four irregular black patches, the fourth, counting from the abdominal margin, the smallest and more brown than the others. The inner about half the width of the outer. Base of tails blackish-brown.

Antennæ white, tipped with black; thorax and base of abdomen bluish-grey.

Expanse, $1\frac{7}{10}$ in.

Hab.: Elopura, N. Borneo (*Pryer*), in March. Mus. Druce.

This species, though closely allied to *N. Amrita*, may be easily

distinguished by the much greener colour of the wings, and in that the green colour runs in a line from primaries to secondaries. The tails are also considerably longer, and it is a more robust insect.

43, Circus Road, London. N.W.:
November, 1885.

A WORD RESPECTING *CALLEREBIA HYBRIDA*.

BY ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

I do not wish to combat Mr. Graham Young's views respecting *Aulocera*, which are, no doubt, quite correct from his point of view, but it is only fair to myself to call attention to the fact that I never described *Callerebia hybrida* as a species; but, as the name implies, regarded it simply as a cross between *C. Annada* and *C. Nirmala*; it was, indeed, raised to the rank of a species by Messrs. Marshall and De Nicéville, but it is hardly fair to tax me with the faults of others: one might as well become a godfather at once; I have not the least objection to answering for my own sins: that I did not describe the form, or series of forms, as a species will be evident if I reproduce here all that I ever gave to the world respecting *C. hybrida*:—

"CALLEREBIA HYBRIDA.

"Dr. Watt obtained a series of a *Callerebia* exhibiting intermediate forms between *C. Annada* and *C. Nirmala*. In the coloration of the under-surface of the primaries they agree almost entirely with *C. Nirmala*, but show the sub-marginal stripe strongly as in *C. Annada*; on the under-side of the secondaries they are coloured like *C. Annada*, but have rounded ocelli varying in number from two to five. In expanse they are intermediate, and, therefore, correspond with *C. Scanda* in this respect.

"N.W. Himalayas, up to 6000 feet."

If the above can be regarded as the description of a new species, I can only say that the Catalogue of Staudinger and Wocke abounds with such species, nay, more, that the species of Petiver and others must be adopted as having a prior claim to those of Linnæus, for *Papilio sulphureus* or *Papilio candidus*, with a description appended, although only intended as part of the description, have equal claims to *Callerebia hybrida*. If it be replied that I label the forms *C. hybrida* in the collection, I admit the fact, and also that I label the Aden series of *Limnas* "ancestral tetramorphic species," yet nobody would suppose that the latter represented a specific name.

British Museum: *November*, 1885.

NOTE ON SOME BRITISH *COCCIDÆ*.

BY J. W. DOUGLAS, F.E.S.

During the winter and spring of several recent years I collected the male scales of *Lecanium* attached to the branches of different trees, hoping to get therefrom the imago, but always without result; and I now believe this was because the scales were gathered too soon, and the tenant died, or that they were collected too late, that is, that the imago had previously come out. However, this year I collected some male scales from hawthorn early in April, and in the last week of the month I had the pleasure of obtaining from them some perfected forms (*cf.* *ante* p. 14).

Thus encouraged, I collected from several trees in the garden (sycamore, horse-chestnut, hazel-nut, apple, cherry) a good many of the white male scales of *Lecanium*, leaving them attached to the bark; except when the shoots were upright, as in the case of the hawthorn already alluded to, these scales were always on the under-side of the shoot, either of the growth of the last or the previous year; they were placed by me, each kind separate, in wide-mouthed glass bottles covered with gauze. Some (it was soon seen by their transparency) were empty, the imago having emerged; many contained dead pupæ, or even perfected insects; and others yielded perfect insects, which, before coming out, betrayed their presence by the protrusion from one end of the scale of two long, white, delicate filaments, which lay horizontally on the bark for a day or two before the emergence. The opposite end of the scale was always tightly adherent to the bark.

I did not in any instance see the actual exit from the scale, which it is well known is effected backwards; but I noticed in some cases that a day or so before it occurs the posterior portion of the scale is raised up from the bark, and the wings of the imago are clearly visible beneath, indeed, the ends of them project a little beyond the end of the scale; this position and condition being maintained for some hours.

The emerged males live but a few hours. They cling tenaciously to the bark of the twigs, and move about on them slowly without animation. The wings overlap each other horizontally above the abdomen, and considering their great development and the large size of the thorax, it might have been supposed that the insects had great power of flight, but it is not so, for the flight amounts to scarcely more than jumps with extended wings; the insect, after spreading these out, hesitates for an instant before springing, just like many beetles do.

At page 14 *ante* I have adverted to Dr. Signoret's remark respecting the scales of the ♂ of *Lecanium genevense* and *L. prunastri*, to the effect that the latter exhibit a rugosity which is not found in the former, and hence I was inclined to believe that some scales I had found on hawthorn, and which had this character, were those of the latter. I am now of opinion that this rugosity is not to be relied upon as a specific character, for I find it exists normally in the male scales of all the species I have found, but that it often gets abraded by adventitious circumstances, leaving the scale quite smooth, or it becomes removed only in part. The male scale of all the species has on its summit a raised oval ring; on this the minute tubercles forming a coronet are fixed, and when they are removed the smooth ring remains. I apprehend the scales of *L. prunastri* have the same form of coronet, but as I have not been fortunate enough to find any on the sloe, I cannot say if they differ in any way from those having a like form found on the hawthorn, such as I have indicated, nor can it be stated with certainty if the species be distinct from *L. genevense*, for it does not appear that the ♂ imago of *L. prunastri* is known. In the meantime *L. prunastri* is not to be reckoned as a British species; its distinctness also remains to be proved.

I have now the following species found in Britain:—

Lecanium aceris, Auct., from sycamore, ♂ and ♀ scales, ♂ imago reared.

L. æsculi, Koll., from horse-chestnut, ♂ and ♀ scales, ♂ imago reared.

L. pyri, Schrk., from pear and apple, ♂ and ♀ scales, ♂ imago reared.

L. genevense, Targ.-Tozz., from hawthorn, ♂ and ♀ scales, ♂ imago reared.

L. coryli, Linn., from hazel, ♂ and ♀ scales, ♂ imago reared.

L. tiliæ, Linn., from lime trees, ♀ scales.

L. caprææ, Linn., from willows, ♂ and ♀ scales.

L. rosarum, Snell. v. Vollenh., from cultivated roses, ♀ scales.

L. persicæ, Linn., from peach trees, ♀ scales.

ditto ?, from plum trees, ♀ scales, ♂ imago.

L. ribis, A. Fitch, on red currant and gooseberry bushes, ♀ scales only. I have never been able to find a male in any stage of life, although the scales are very abundant. The species is probably agamous, like *L. hesperidum*.

L. ——— ?, ♂ and ♀ scales on cherry trees (*Prunus cerasus*). The perfected males died in the scales.

L. ——— ?, ♂ and ♀ scales on laurel (*Prunus laurocerasus*). No males came out.

Eriopeltis festucæ, Fonsc., on *Festuca bromoides*, near Plymouth (Bignell).

Pulvinaria oxyacanthæ, Linn., on hawthorn, one example. The species is easily recognised by the white cottony pad exuding from under the flattened scale. Réaumur's figure of the scale is more regularly cordate than my example.

Mytilaspis pomorum, Bouché, abundant on apple trees.

From the terminal shoot of a young oak tree at Tunbridge Wells, Mr. G. S. Saunders sends me some round, lenticular, yellowish scales, which, in some respects, agree with the description of *Lecanium Emerici*, but those scales occur not on *Quercus robur*.

From greenhouses I have :—

Pulvinaria camellicola, Sign. As Dr. Signoret says, the scale falls off and leaves the cottony mass enveloping the eggs, which increases and forms a conspicuous white linear object, half an inch in length, adherent to the under-side of the leaf of camellias.

P. vitis, Linn., from vines at Hertford.

Lecanium hesperidum, common on and injurious to orange trees. Signoret says (Ess. Cochin., p. 229), "Jamais nous n'avons pu trouver de mâles, et nous n'avons pas vu non plus de description le concernant." Comstock says (Report 1880, p. 335), "The male of this species has never been found, although it has been studied from the time of Linnæus down. The species is viviparous." There is no doubt it is agamous, at least for many generations. Shaw, however, says (Gen. Zool., vi, 190), "The male is a very small two-winged fly." This he represents on pl. 60, but it is not recognisable as a Coccid. The figure of the female certainly does not represent this species ; it is more like the ♀ scale of *Lecanium oleæ*, which, according to Signoret, is sometimes found on orange trees and other plants ; but the male is unknown. There is every reason, therefore, to believe that Shaw's figures are not applicable to *L. hesperidum*.

I have also two species of *Lecanium*, found on cultivated ferns, that I am yet unable to recognise ; and one from *Sida abutilon*.

Stephens, in his "Catalogue of British Insects," gives the names of many species, of which no recent record of their occurrence in Britain exists, and it is very desirable that the statement should be verified. Such species are :—

Lecanium quercûs, L., on oaks. *Pulvinaria betulæ*, L., on beech. *P. carpini*, L., on hornbeam. *Gossyparia ulmi*, L., and *Lecanium ulmi*, L., on elms.

Several other species enumerated and described by Signoret in his "Essai" I believe are naturalized in Britain, and only await the hunter.

I may hereafter have to offer some observations on some of the unresolved points contained, alluded to or inferred in the foregoing notes, but in case the opportunity fails me, I think it is desirable thus to bring the *Coccidæ* under the notice of the coming men, as offering a field for research not surpassed in interest by any Order of insects ; and not difficult to work in when once the proper method is acquired. The chief things to be borne in mind by investigators are that the greater part of the males of the species appear in the spring (April and May, some perhaps earlier), and that the males afford the most salient characters for distinguishing species. *Ars longa vita brevis est.*

8, Beaufort Gardens, Lewisham :
October 14th, 1885.

P.S.—*November 17th.*—I have this day found at Lee :

Chionaspis aceris, Sign., on maple trees.

C. fraxini, Sign., on ash trees.

They were on the wood of the last or previous year, never on the shoot of this year's growth, and, as might have been expected at this time of the year, were desiccated scales. But as both are new to our record of native species it is well to note them.

The Lecanid from oak, mentioned above, I believe, on further investigation, to be *Asterolecanium quercicola*, Bouché, a species new to our list.—J. W. D.

ON A NEW GENUS ALLIED TO *CORYLOPHUS*.

BY REV. A. MATTHEWS, M.A.

The genus *Corylophus*, as at present constituted, contains insects of two very distinct forms; the one represented by the typical *C. cassidoides*, and the other by many of the species lately added to the genus. In the former of these classes the antennæ have only *nine* joints, and the thorax is large, and broader than the elytra, the shoulders of which are overlapped by the long and acute posterior angles of the thorax; while in the latter division the antennæ have *eleven* distinct joints, and the thorax is small, and narrower than the elytra, with its posterior angles either obtuse or rectangular.

It becomes, therefore, imperative that these groups should be separated; and since the name *Corylophus* must be retained for *C. cassidoides* and its allies, another name must be used for the remaining species of the present genus. For this latter group I propose the term *Corylophodes* as suggestive of their previous appellation. In the following description I have merely given such superficial characters as will serve to distinguish *Corylophodes* from *Corylophus*, and have not entered into any anatomical details, although in these points, especially in the organs of the mouth, the difference between the two genera is even more striking than in their external characters.

Corylophodes, gen. nov.

Body more or less hemispheric, generally smooth and very shining. Head small, completely covered by the front of the thorax; eyes often large and prominent; antennæ generally short, eleven-jointed, very long and large, slightly recurved, 2nd large, but smaller than 1st, 3rd slender, shorter than 2nd, 4th—8th very small, transverse, 9th—11th forming a much incrassated, sub-foliate club. Thorax small, widest at the base, and circularly or ovally rounded in front, anterior margin more or less broadly reflexed, basal margin generally sinuated with the angles not produced. Scutellum generally small and rounded. Elytra large, entire, much broader than the thorax. Legs generally short, tibiæ sometimes flattened, tarsi four-jointed, 1st and

2nd nearly equal, 3rd very minute, 4th elongate and slender, claws faintly incurved. Venter composed of six segments of which the basal segment is nearly equal in length to the other five.

This genus will contain the following species, viz.: *C. marginicollis*, Le Conte, N. America; *truncatus*, Le Conte, N. America; *rotundus*, Sharp, Sandwich Islands; *suturalis*, Sharp, Sandwich Islands; *Championis*, sp. n., Cent. America; *torquatus*, sp. n., Cent. America; *orbicularis*, sp. n., Cent. America; *Jansoni*, sp. n., Cent. America; *castaneus*, sp. n., Cent. America; and several others at present undescribed.

Corylophus will retain, as far as I have yet discovered, three species only, viz.: *C. cassidoides*, Europe; *sublævipennis*, Europe; *tectipennis*, Atlantic Islands.

I have not yet seen the following three species, and, therefore, cannot say to which genus they properly belong: *C. fasciatus*, Erichson, Tasmania; *thoracicus*, Erichson, Tasmania; *peruanus*, Kirsch, Peru.

Gumley, Market Harborough:
November, 1885.

Danais Archippus (*Anosia Plexippus*) *in Dorsetshire.*—A coastguardsman (whose name I failed to note down), stationed at the Haven, Poole Harbour, in 1877, shewed me, in a wall-case, some insects he had caught there within a year or two of that date. Among them was a *Danais Archippus*. I told him it had probably flown ashore from some inbound vessel, and that butterfly amateurs would be willing to offer a good price for the specimen on account of the locality of its capture.—A. E. Eaton, Addingham, Penrith: *November 2nd*, 1885.

[It is just possible that the history of this specimen can be traced. Also it is quite possible that after this record, "this specimen" may re-appear in several quarters: *verbum sap.!*—Eds.]

Acherontia Atropos at Caledon, Co. Tyrone.—On September 19th, a very fine specimen of *A. Atropos* was brought to me by a workman of this city, who informed me that it had been caught by his son-in-law in a lodging house at Caledon. This is the first time that this insect has been recorded as captured in this vicinity. It is a very large specimen, measuring exactly five inches from tip to tip of its extended wings.—W. F. Johnson, Armagh, Ireland: *November*, 1885.

Pterostoma palpina in Roxburghshire.—On the 28th of last June I took a fine and perfect ♂ specimen of *Pterostoma palpina*, apparently freshly emerged, from inside the window of the front porch here. This I think is worthy of record, as I believe this species has not hitherto been recorded for Scotland.—A. Elliot, Caverton, Roxburgh: *November 9th*, 1885.

[Our correspondent is mistaken in thinking *Pt. palpina* had not previously been recorded in Scotland. In the "Scottish Naturalist," vol. ii, p. 87, Dr. Buchanan White indicates that it has been found in the districts of Tweed, Tay, Moray, Solway, and Clyde.—Eds.]

Sphinx convolvuli.—At p. 110 *ante*, Dr. Jordan, after remarking on the abundance of these moths this year, asks, "Are they immigrants or home-bred?"

In connection with this question, and the fact that the prevailing winds last August and September were easterly, the following extract from Mr. Cordeaux's paper on "The Spurn," in the "Naturalist" for August, 1884, may be of interest:—

"Spurn has also long been famous for the capture of rare insects, many of these, such as the *Lepidoptera*, unquestionably coming from beyond the sea. The observations taken at Heligoland by Mr. Gätke, and recorded from time to time in the migration reports, show that not only birds, but immense numbers of butterflies and moths pass that island, travelling from east to west. Some years since many Convolvulus Hawk-moths were washed up by the waves on the coast between Spurn and Kilnsea, having doubtless perished in crossing; and quite recently we received three Death's-head moths taken on vessels far from land in the North Sea."—H. Goss, Berrylands, Surbiton Hill: *November 18th*, 1885.

Gelechia tetragonella in Norfolk.—In July last, whilst collecting Micros on a salt-marsh near King's Lynn, I came across several specimens of what I considered to be a strange *Gelechia*. Upon arrival home, I thought they would prove to be only a form of *Gelechia senectella*; but chancing to read Mr. Stainton's note upon the new salt-marsh species, *G. tetragonella*, in the October number of this Journal, p. 99, the idea occurred to me that my specimens bore a remarkable resemblance to the insect there described. Not long since, Mr. Sang kindly sent me two of his specimens, which appeared to be identical with some of my own. When writing to him I mentioned this fact, and, acting upon his suggestion, I sent him some specimens for examination, and he has in due course informed me that my insects are undoubtedly *G. tetragonella*.

Contrary to Mr. Sang's experience, I took nearly all my specimens on the wing, between 7 and 8 o'clock in the evening. I noticed, however, that the insect after getting up from the grass, quickly re-settled, and was not easily put up again. Mr. Sang's observations on the appearance of this species when at rest I can corroborate, but as yet I can give no clue as to the probable food-plant of its larvæ, suffice it to say that *Artemisia maritima* was absent from the locality.—Edward A. Atmore, 3, Haylett Terrace, King's Lynn: *November 19th*, 1885.

Coleoptera in Thanet.—Besides those *Coleoptera* which I have already recorded from this neighbourhood, I have met, during the present year, with several species of greater or less rarity, of which the following seem worthy of notice:—

Odacantha melanura (9), Birchington; *Platyderus ruficollis* (3), Pegwell Bay; *Pogonus littoralis*, Birchington, abundantly; *Bembidium 5-striatum* (2), Broadstairs; *B. ephippium*, Birchington, abundantly; *Cnemidotus impressus*, *Noterus clavicornis*, *Laccophilus variegatus*, Birchington, sparingly; *Gyrinus distinctus*, Birchington, common, but confined to one ditch; *Enochrus bicolor*, Pegwell and Birchington, not common; *Laccobius alutaceus* (6), *L. minutus* (8), *Limnebius nitidus*, *Ochthebius bicolon*, *O. æratus*, Birchington; *O. punctatus*, Pegwell; *Phytosus balticus* (12), and *P. spinifer* (8), Kingsgate, in loose, dry sand; *Scopæus minutus*, S. Peter's; *Oxyporus rufus*, Pegwell; *Pseudopsis sulcatus*, Kingsgate; *Hydnobius punctatissimus* (13), Kingsgate, crawling on cliffs, Nov. 3rd and 4th;

Gnathoncus rotundatus, Margate; *Olibrus oblongus*, Pegwell and Birchington, abundantly; *Psammœchus bipunctatus*, Birchington, commonly; *Telmatophilus brevicollis* (2), Birchington; *Monotoma spinicollis*, Kingsgate; *Corticaria fulva* and *C. curta*, Birchington; *C. Wollastoni*, Kingsgate; *Heterocerus obsoletus*, Pegwell, common; *Aphodius porcus*, Kingsgate; *Athous difformis*, S. Peter's, three by sweeping at dusk; *Meloe cicatricosa* (6), Margate and S. Peter's; *Trachyphlœus alternans*, Birchington; *Tanymecus palliatus*, Pegwell, common, but exceedingly local; *Plinthus caliginosus*, Kingsgate; *Hypera julini* (2), Pegwell, bred from cocoons found in sweep-net; *Tychius lineatulus*, Kingsgate, commonly; *Ceuthorrhynchideus frontalis* (2), Kingsgate; *Phytobius velatus* and *P. leucogaster*, Pegwell and Birchington, not uncommonly; *Hæmonia Curtisi* (1) and *Coccinella* 19-*punctata*, Birchington, commonly; *Coc. mutabilis* (7) and *C. labilis* (1) Kingsgate; *Scymnus Mulsanti*, Pegwell; *Coccidula scutellata*, Pegwell and Birchington, abundantly.

On the 2nd inst., I again took *Bathyscia Wollastoni*, eight specimens in all, in the same manner as before. This is the more curious, inasmuch as the piece of ground from which I took them was dug for the first time this year, and the beetles must presumably have travelled for some little distance, in order to reach the potatoes.

Subsequently to my note upon the subject (*cf. ante*, p. 138), *Actidium coarctatum* occurred to me in even greater profusion; I took upon one occasion 133 specimens from about an egg-cupful of shakings, with it were a few *Ptilium foveolatum*, *Nephanes titan*, &c.—Theodore Wood, Freeman Lodge, S. Peter's, Kent: *November 5th*, 1885.

Soronia punctatissima and grisea, &c.—In the "Revue d'Entomologie" for this year, Nos. 4 and 5, there are several notes on distinction between closely allied *Coleoptera* by M. des Gozis, some of which are likely to be of use to British Coleopterists; one of these notes relates to the two species of *Soronia*: as a rule, *S. punctatissima* is very easy to distinguish from *S. grisea* by its larger size; smaller specimens, however, are of common occurrence, and may easily be confounded with larger specimens of the kindred species; even although it is quite true that *S. punctatissima* is a broader and more convex insect, yet practically it will be found that it is occasionally difficult to distinguish some specimens. M. des Gozis points out the following characters: in *S. punctatissima* the black markings on the elytra, a little behind the middle, are interrupted by a wavy yellowish band; this yellowish band or fascia is succeeded by a dark band, which is interrupted at the suture, a space near the suture remaining testaceous; in *S. grisea* these markings are just the same, but the hinder dark band is not interrupted, and covers the whole sutural space. I have tested this difference on some doubtful specimens, and find that in mature specimens it is a very great help; in the case of slightly immature specimens it does not seem to be so trustworthy, and, at all events, it must be regarded merely as an auxiliary character.

Aphodius fœtens and *fimetarius* are two insects that are perpetually giving rise to confusion, although they may easily be separated by the colour of the apex of the abdomen, which is red in *fœtens*, and black in *fimetarius* M. des Gozis, however, says that a more convenient character is presented by the apical region of the elytra, which in *fœtens* is finely punctured, but is still smooth and shining, and differs in no respect from the interstices on the disc; in *fimetarius*, however, it is rugose and dull,

and thus differs very much from the interstices on the disc, which are smooth and polished. I have carefully compared specimens with a view to verifying this character, and find that although the apical region is certainly more punctured in *fimetarius* than in *fœtens*, yet this may be applied to the whole of the disc as well, as may be seen by examining them under a strong power; the difference, however, is very slight, but is much more apparent in some specimens than in others; as far as my experience goes, *A. fœtens* is a larger, stouter, and broader insect than *A. fimetarius*, usually darker coloured, and more shiny, but in neither of them, as a rule, is there a very noticeable difference between the apex and disc of the elytra, although, perhaps, there is enough to be a help in doubtful cases; had the distinction been a very obvious one, it would hardly have been so long passed over unnoticed.

Anthicus antherinus, L., and *læviceps*, Baudi. We do not possess the latter of these insects, as far as is yet known, but they are found in France, in the same localities, and, perhaps, some British collector may verify the latter among his series of *antherinus*, by the following descriptions given by M. des Gozis:—

Head and thorax thickly, finely, and almost rugosely punctured; apical black patches on elytra not covering the suture, but always leaving a ferruginous band between; anterior trochanters of male armed with a little sharp spine, at any rate in mature examples, occasionally simple. L. 3—3½ mm....
A. antherinus, L.

Head and thorax moderately, thickly and plainly punctured, the punctures separated by small, shining intervals; apical black patches on elytra covering suture, without leaving a band between; anterior trochanters of male armed with a long fine spine. L. 3⅓—3⅔ mm .....*A. læviceps*, Baudi.

W. W. Fowler, Lincoln: *October 14th*, 1885.

Is the Genus Megalodontes (or Tarpa) really British?—With regard to Mr. E. Saunders' query respecting *M. plagiocephalus* in your last No. (p. 140), I find, upon referring to the yet unpublished MS. of my monograph, the following observation:—"It will be observed that the evidence of the existence of *Megalodontes* as a British genus rests nearly entirely on the authority of Leach and Stephens. I can see no *à priori* reasons why the genus may not be expected to be native in Britain, yet bearing in mind the fact that some of the species recorded as British on the same authority have been proved to be erroneously recorded, and that no species of the genus has apparently been captured since Leach's time, I cannot help feeling very doubtful as to its being really native in this country." I intended to have inserted this note in my Synopsis, but forgot to do so.—P. Cameron, 20, Beech Road, Sale, Cheshire: *November 5th*, 1885.

[I fully share Mr. Cameron's suspicions as to the native origin of the genus, especially as it is composed of large striking saw-flies, with a most peculiar form and appearance. On the other hand we have the recent re-discovery of *Drepanopteryx phalænoides* fresh in our minds, and scarcely any entomologist would allow such an extraordinary insect as this to be passed by, unless absolutely deceived by its great resemblance to a dead leaf, combined with its habit of 'shamming dead.'—R. McL.]

Great swarms of Ephemeridæ on Lough Neagh.—On one of my many visits to Maghery, on the shores of Lough Neagh, I happened to be standing talking to Mr. Ross in front of his house. A steamer towing a barge had a little time before passed out of the canal on to the lake. Looking towards Derrywarra Island, I remarked to Mr. Ross that the smoke was taking a long time to clear off. He began to laugh, and told me that what I thought was smoke was flies. I was incredulous, but, on watching the appearance, saw that the apparent smoke, instead of blowing away, moved up and down, spread and contracted, but still kept over Derrywarra; in fact, it was a vast collection of *Ephemeræ* indulging in an evening dance.

The same day, when on Coney Island, I was struck by the remarkable appearance of the trees and shrubs with which the Island is covered. These were clothed in spiders' webs, so that they were quite white looking, and the man who lives on the Island told me that the spiders were always in great force at that time looking out for the flies.

The numbers of *Ephemeræ* were very great—the meadows along the Lough shores were full of them, and the edge of the Lough almost blackened with the bodies of those which had died.—W. F. Johnson, 2, The Seven Houses, Armagh: *November*, 1885.

Trichoptera from Belfast.—During a recent official visit to Belfast, my friend and colleague Mr. Barrett kindly collected such *Trichoptera* as came in his way. A list is here appended, with the idea that it may prove useful when Irish entomologists can work out a Trichopterous Fauna in the same manner as has recently been done for Scotland by Messrs. King and Morton in the pages of the "Scottish Naturalist."

Limnophilus marmoratus, Curt., *lunatus*, Curt., and *sparsus*, Curt., and *Stenophylax concentricus*, Zett., all at gas lamps in Belfast; *Silo pallipes*, F., Colin Glen; *Lepidostoma hirtum*, F., Cave Hill; *Crunœcia irrorata*, Curt., Colin Glen; *Beræa maurus*, Curt., Cave Hill; *Mystacides nigra*, L., River Lagan, very small; *Diplectrona felix*, McLach., Cave Hill; *Philopotamus montanus*, Donov., Colin Glen; *Polycentropus flavomaculatus*, Pict., Colin Glen; *P. Kingi*, McLach., Colin Glen, one very characteristic ♂; *Cyrnus trimaculatus*, Curt., River Lagan; *Tinodes wæneri*, L., River Lagan, and at gas lamps, very common; *Rhyacophila dorsalis*, Curt. (the ubiquitous), Colin Glen; *Agapetus fuscipes*, Curt., Cave Hill, common, excessively small.—R. McLachlan, Lewisham: *September 22nd*, 1885.

Review.

Fourteenth Report of the State Entomologist on the Noxious and Beneficial Insects of the State of Illinois. Third Annual Report of S. A. Forbes, year 1884. Springfield, Illinois, 1885.

Mr. Forbes is the indirect successor (Drs. Le Baron and Cyrus Thomas intervening) to the late gifted B. D. Walsh, as State Entomologist for Illinois, and as a notable feature in this Report he has been at the trouble to compile a general Index for the whole series, which will be very useful to those who are so fortunate as to possess the whole. The present volume is based on the same plan as is usual in American State Reports, and shews an amount of care and minute observation equal

to any of them. The twelve plates are full of figures characteristically drawn, but are a little rough as compared to those of some others we have seen. Two main divisions occur, viz.: Agricultural and Horticultural (the latter including what might more properly be termed Arboricultural). We cannot notice the articles in detail. A very useful feature is a short introductory summary for the year, in which it is stated that the general damage to crops in 1884 was less than usual, with a certain expression of lament that this was to be attributed more to providential than to human interposition. A good many new species are described, spread over nearly all Orders. We came across one item showing how imperatively necessary it is that scientific names be used in all works of this kind. At p. 80 "Cowslip" is incidentally mentioned, and we found that the Illinois "Cowslip" is not a *Primula*, but our well-known *Caltha palustris*.

Haggerston Entomological Society.—The Annual Pocket Box Exhibition of this Society was held on Thursday, November 12th, and was very successful, a large number of members and visitors being present.

The exhibits were numerous and interesting; among others may be mentioned five *S. convolvuli*, and a *C. celerio* from Lynmouth, Devonshire, exhibited by Mr. Thornthwaite, who also showed many other species.

Mr. H. Jobson's box contained two *P. orichalcea*, and a series of *E. venustula*, *B. argentula*, *A. sulphuralis*, and *E. stachydalis*.

Three boxes of *A. alni* were shown by Mr. E. Cooke, who also bought some varieties of *C. villica*, having the spots on the anterior-wings confluent, and a series of *E. curvistrigana*.

Mr. Franklin exhibited the life-histories of several species; but the best exhibit of this kind was Mr. Pearson's case, containing twelve species all most carefully worked out and arranged, including the ichneumons in many cases. Mr. Anderson also showed two boxes containing preserved larvæ, and Mr. Tufnell had a box with a careful selection both of larvæ and imagines.

Perhaps the most recently captured specimens in the room were a series of *H. pennaria*, exhibited by Mr. Gray, of Redhill; while Mr. Russell's box attracted attention by a fine "IVI" variety of *S. irrorella*, a peculiar sandy-yellow form of *M. fluctuata*, &c.

Mr. Huckett showed a graduated series of varieties of *A. grossulariata*, and Mr. Harper's box contained varieties of *A. lubricepeda*, *E. angularia*, &c.

Mr. J. A. Clarke had a specimen of *C. celerio* captured in Hackney, also varieties of *L. Corydon*, ♀, and a living specimen of *A. Atropos*; while Mr. J. A. Cooper's rows of bred *E. orbicularia*, *E. porata*, and *P. syringaria* were much admired.

Of course varieties of *A. caja* were present, some light and dwarf specimens being shown by Mr. Gates, and a dark suffused specimen by Mr. Gurney.

Among other exhibits by members were Mr. Allbuary's confluent variety of *C. villica*, *S. dealbata*, *E. ochroleuca*, *P. rhododactylus*, and specimens of *Liparis dispar* taken this year at Bexley Heath. Dr. Sequeira's selection from his Devonshire captures included some splendid forms of *Y. elutata*, *C. picata*, *C. prunata*, *C. silaceata*, &c. There were also many *Coleoptera*, exhibited by Messrs. Pearson, Cripps, Lewcock, &c.

The visitors made considerable additions to the exhibits, the most interesting

of which was Mr. B. W. Neave's very beautiful variety of *L. Alexis*, ♂, captured on Brighton Downs. This specimen has a series of long dashes on the under-side most regularly arranged in place of the usual markings.

Mr. Hawes showed a male *A. Paphia* much streaked with black, and also specimens of the bleached form of *S. Janira*; and Mr. J. Riches had a suffused specimen of *H. abruptaria*, taken at Hornsey Rise.

Mr. W. G. Pearce contributed specimens of *A. alni*, four *A. strigosa*, and one *S. ulvæ*, and very dark forms of *D. capsophila* were exhibited by Mr. Adkin; examples of *N. rubi*, *X. scolopacina*, and *X. rurea*, all showing much variation, were shown by Mr. Southey. Mr. Williams had several pretty forms of the common *O. dilutata*, and also a peculiar melanic form of *P. syringaria*. There were also a large number of excellent photographs of microscopic objects, sent by Mr. Gills of Bath, which added materially to the interest of the proceedings. Mr. Ralfe also exhibited some specimens, which, however, I do not notice.—Ernest Anderson, Secretary [abridged by Editors].

Entomological Society of London, *Oct. 7th*, 1885: Prof. J. O. Westwood, M.A., F.L.S., &c., Honorary Life President, in the Chair.

C. Donovan, Jun., Esq., of Glandore, Leap, Co. Cork, was elected a Fellow.

Mr. W. C. Boyd exhibited a series of a species of *Crambus*, from Lowestoft, allied to *C. contaminellus*, but which appeared to present certain differences from that species. Mr. H. J. C. Druce exhibited varieties of *Argynnis Aglaia* and *Hipparchia Janira*, captured by him at St. Moritz in the Engadine.

Prof. Westwood stated that he had been informed by Mr. Anstruther Thomson that a specimen of *Gonopteryx Cleopatra* had been really taken at Aldershot. Some discussion ensued as to the variation of *G. rhamni*, the distinctness of *G. Cleopatra*, and the increasing probability of continental (and other) *Lepidoptera* being found here, owing to the large importations of pupæ now made by the dealers in Natural History objects.

Mr. Jenner Weir exhibited a portion of a nest of a species of *Termitidæ* from S. Africa, in connection with a statement to the effect that the natives are said to utilise these nests for purposes of habitation. Also a large species of Entomostracous *Crustacea* from the Kalahari Desert, which appeared to have the same power of resisting drought as is known to obtain elsewhere.

Prof. Westwood exhibited specimens of a beetle found in S. Africa in imported boots, and which he was unable to distinguish from *Cis boleti*.

The Rev. Mr. Bickerstaff sent specimens of *Tropicoris rufipes*, taken outside the pro-Cathedral at Kensington.

Mr. Billups exhibited specimens of a *Lecanium* on exotic ferns; Mr. Douglas was not able to identify the species. He also exhibited further examples of the *Lepisma* shewn at the last meeting; it remained unidentified.

Mr. C. O. Waterhouse mentioned that he had seen examples of *Sphinx convolvuli* from Ramsgate, Yorkshire, and the Inventions Exhibition in London.

Prof. Westwood exhibited cylindrical tubes formed by the larva of an Homopterous insect—*Machærettia ensifera*, in Ceylon; the species was allied to our "Cuckoo-spit" insect, and the tubes were formed of indurated secretion. He also alluded to a notice in the report of the American Fisheries Commission, on the

destruction of young fish by mosquitos, the insects piercing the heads of their victims.

Mons. Wailly exhibited a large collection of exotic *Saturnidæ*, bred in this country, and made observations thereon.

Mr. McLachlan mentioned that 3 examples of *Drepanopteryx phalænoides* had been recently captured in Scotland by Messrs. Morton and King (*cf. ante*, p. 139).

Mr. E. Saunders read a communication from Mr. F. F. Freeman, of Plymouth, concerning the capture of *Danais Archippus* in that town.

Nov. 4th, 1885 : R. McLachlan, Esq., F.R.S., President, in the Chair.

Messrs. A. J. F. Fokker of Zierikzee, and Van der Pohl of Holland, were elected Foreign Fellows, and Mr. J. Cosmo Melville of Prestwich, an Ordinary Fellow. Dr. C. A. Dohrn of Stettin, and Mr. P. C. T. Snellen of Rotterdam, were elected Honorary Fellows.

Mr. S. Stevens exhibited two examples of *Chœrocampa celerio* from Brighton, in very fine condition.

Mr. Jenner Weir exhibited a *Colias*, taken at Lewes, apparently *C. Hyale*, and pointed out that it was almost intermediate between *C. Hyale* and *C. Edusa*, var. *Helice*, and as Mr. Butler had once taken *Hyale*, ♂, *in copulâ* with *Helice*, he thought this example might possibly be a hybrid.

Mr. G. F. Mathew exhibited a very large series of *Hypolimnas Bolina* from islands in the Pacific ; many of them he had bred from single broods of larvæ ; the females were very variable, the males more constant. He was convinced that several of the so-called new species of the genus were mere variations of *H. Bolina*.

Mr. Bliss exhibited a small collection of *Lepidoptera* from Formosa River, W. Africa.

The Rev. W. W. Fowler exhibited a series of *Pelophila borealis*, from Armagh, Ireland, and remarked on a malformation in the tarsi that occasionally occurred (*cf. ante*, p. 138). He also exhibited the unique example of *Tachys parvulus*, taken by Mr. Smedley near Liverpool, and remarked that two other rare species of the genus, viz., *Fockii* and 4-*signatus* might have been introduced into this country in ballast. He also brought the examples of *Cassididæ* exhibited by him in March last (*cf.* Ent. Mo. Mag., vol. xxi, p. 258), in order to shew that the colours were still preserved.

Mr. C. O. Waterhouse exhibited *Heliopeltis Antoni*, an Hemipterous insect damaging Cinchona plantations in Java. He mentioned that *H. braconiformis*, Walk., 1873, was synonymous with *Dulichius clavipes*, Walk., 1871 : both were from New Guinea.

Mr. McLachlan exhibited a sketch of a large grasshopper, taken in a hot-house near Birmingham, and remarked that it was probably identical with *Copiophora cornuta*, which had several times recently been found under similar circumstances in this country.

Mr. Fitch exhibited examples of *Eriopeltis festucæ*, Fonsc., taken near Plymouth by Messrs. Bignell and Scott, and new to this country (*cf. ante*, p. 141). Mr. Waterhouse said he had observed two larger species of *Coccidæ*, of similar nature, on grass.

Mr. Buckton communicated a letter from a correspondent in Portugal concerning the habits of *Phylloxera*.

Mr. Meyrick communicated a paper on *Lepidoptera* from the South Pacific.

THE HABITS OF *NONAGRIA CANNÆ*.

BY F. D. WHEELER, M.A.

For many years past this species has had a peculiar interest for me; as long ago as 1871, when I first commenced working the fens with an attracting lamp, it turned up at my light. For some years only a stray specimen or so occurred, all from various parts of the shores of Barton Broad; but in 1878 I was fortunate enough to light upon a spot in the same fens where *N. cannæ* seems to be something more than a mere straggler; at least, from that date to the present, I have never failed to take it there in greater or less abundance (chiefly the latter).

Like most moths, *N. cannæ* has very distinct habits of its own, a word or two on which may, perhaps, not be without interest to those who have had no personal acquaintance with this extremely local species. First as to time of emergence, my own experience would tend to make it a much later insect than is generally supposed. Twice only have I known single specimens to occur so early as the second week in August, while the bulk of my captures have been in September; in fact, I have invariably found *N. typhæ* well on the wing before any of its rarer congeners turned up. As soon as dusk sets in *cannæ* commences its flight, the females taking precedence of the other sex, so that of the very few I have taken on the wing half were secured before I lit my lamp, and only on two specially favourable nights have I known them to be attracted by the light. The males, on the other hand, fly from dark to about 10 p.m., or 10.30 at the latest, with a direct and moderately swift flight, but without any of the whirr and dash that characterize *typhæ*, and but just clearing the top of the herbage, or even flying through it where the stuff is long. They are powerfully attracted by light, and I have hardly ever known them to leave the lamp until, indeed, my invitations to enter a pill box became too pressing to be resisted. This peculiarity makes working for *cannæ* the very luxury of entomologizing; mooring your boat in a convenient creek, you rig up the covering, boil the kettle, and make all preparations for the night, hoisting your attracting lamp within a foot or two of the boat. Presently, as the dusk comes on, the first moths demand your attention; *Chilo forficellus* and *mucronellus* are still on the wing, with *Cataclysta lemnalis* and a late specimen or two of *Paraponyx stratiotalis* and other common things, but the bulk of the fen species are over, and soon this early activity is past, and scarce anything is to be seen save the bats and *Phryganidæ*, or, possibly, a few *Cidaria testata*, while the stillness of

night settles down, broken only by the sound of wings as a flock of plovers passes over, or by the splash of the wild fowl feeding, and the otters that haunt the adjoining reed bed, or the musical hum of a distant threshing machine. Now is the time to return to the boat for tea, and if you have any love for solitude and the sounds of the night, pleasant, indeed, will be the time as you sit at the entrance of your boat-tent peacefully watching for your moths. Presently there will be the rush of a brownish *Noctua* dashing about the light, and after circling wildly for a minute or two, it will content itself with buzzing up and down the glasses of the lower lamp; this is *Noctua rubi*, a perfect pest in the fens at the close of the season. Soon come more *rubi*, till there will rarely fail to be three or four of them about the lamps. Keep a sharp look out and you will see among them one rather larger the rest, and with a preceptibly longer body. Now is your time—not that there is any hurry about it, for our friend is by no means inclined to leave the light—no net is required, take a pill box or cyanide bottle, and your first *N. cannæ* will soon be secured. Even if standing beneath your "pharos" and keenly on the outlook for visitors, you may easily fail to detect *cannæ* as its comes up, so low is its flight and so speedily does it make its way to the ground lamp. Moreover, our Norfolk specimens are rather brown than red, some, indeed, of them are getting on for black, and the colour helps to make them inconspicuous.

When the distant clock strikes ten, you may, if *cannæ* be your only object, give up and turn in for the night, but a few other things are now to be had; *Ennomos erosaria*, *tiliaria*, and *fuscantaria*, possibly an early specimen of *Nonagria lutosa*, and certainly one or two *N. typhæ*, though the latter is so much less attracted by light than is *cannæ*, as to give the impression that on this piece of fen the latter is the commoner insect of the two, a very mistaken notion, as we shall see.

The capture of *cannæ* is, however, attended by some drawbacks, and especially that, owing to its habit of flying through the herbage, it is almost always more or less worn when caught. I have, therefore, long been anxious to breed it, but have never succeeded until this year. All the information I was previously able to obtain from other entomologists was that *cannæ* had formerly been bred in small numbers from Yaxley, and was still obtained in the same way from a locality in Sussex, but that the pupæ were taken with those of *N. typhæ*, and were not recognised until the moths emerged. To this information I added from Treitschke the fact, that *cannæ* might be distinguished from *typhæ* by feeding and pupating with the head up instead of down. However,

on working the *Typha latifolia* in the very place where I took *cannæ* on the wing, I found that I invariably got pupæ of *typhæ* and nothing else. Accordingly, I had quite made up my mind that there must be some mistake as to the food plant, and am the more glad to be able to confirm Treitschke's account.

In ordinary seasons the locality is inaccessible except by water, and the nature of the soil (a floating or "dancing" bog) makes it impossible to get to any distance inland. This year, however, the extreme dryness of the fens rendered it practicable with high boots, and a couple of boards for help at the worst places, to get almost anywhere, and I determined to avail myself of the opportunity. Devoting altogether about four days to the task, I searched, as thoroughly as possible, all the fen round my favourite locality, as well as some promising beds of *Typha* elsewhere; the result was a large number of pupæ of *N. typhæ*, and a very few of *cannæ*. The latter I found very easily distinguishable, the larva being greenish instead of putty-coloured, while the pupa is not only decidedly smaller than that of *typhæ*, but is also furnished with a very prominent and conspicuous beak containing the palpi. The distinction given by Treitschke, though usually correct, and in fact the best rough test, is not absolutely reliable, for I obtained one *cannæ* with its head down, and four or five *typhæ* with their heads up. I suppose that the latter would all have perished, having their backs to their entrance holes; indeed, two of mine did so, after which I opened the others to give them exit. As the two species of larvæ are feeding in precisely similar places, it follows, of course, that the hole of *cannæ*, above the larva, is much higher up the plant than that of *typhæ*, which is below; in fact, it is usually quite up in the leafy part of the *Typha*, and very inconspicuous.

The pupæ of *cannæ* were all found in the heart of the fen at some distance from the river, a few in small detached plants of *Typha latifolia*, the greater part in the dense reed-beds, where it was difficult to force one's way. These beds had evidently not been cut for years, and were a perfect miniature jungle, affording magnificent shelter to other creatures besides insects, while they contained here and there considerable quantities of *Typha latifolia* and *angustifolia*, *Cladium mariscus*, &c. All these plants I searched as well as I could, being by no means satisfied with the take of *cannæ* from *T. latifolia*. The smaller species of *Typha* produced several *N. typhæ*, but no *cannæ*; still it is much harder to work than the larger plant, growing in dense masses and being liable to turn brown naturally, thus depriving one of the surest indication of the presence of a larva, so that I may very

likely have overlooked them. The *Cladium* was certainly eaten in places, but my examination of it produced nothing but cut fingers, while I was unable to find any signs of larval work in the *Sparganium*.

I may add that the pupæ seem very delicate, so that, though I carefully avoided touching them, and kept the stems moist in a tin box, only seven moths emerged out of a dozen pupæ in all, and of these two were hopelessly crippled. The *typhæ*, on the contrary, came out as though they knew they were common things, until I grew tired of setting them; I was, however, rewarded by a few fine dark varieties.

Paragon House, Norwich:
November, 1885.

HARPALUS CALCEATUS, STURM, RE-ESTABLISHED AS BRITISH, WITH NOTES ON OTHER *HARPALI*.

BY REV. W. W. FOWLER, M.A., F.L.S.

A few years ago, when comparatively a beginner at collecting, while hunting for *Nebria livida* at Bridlington, I turned a large *Harpalus* out of a sandy place on the cliffs. For a long time I have had it in my collection as my sole representative of *H. tenebrosus*; on comparing it, however, a short time ago with specimens of *H. tenebrosus* taken by Mr. J. J. Walker at Whitsand Bay, near Plymouth, and given me by Mr. Champion, I at once saw that it was a distinct species, which opinion was endorsed by Dr. Sharp; Mr. C. O. Waterhouse kindly compared it for me with the European *Harpali* in the British Museum collection, and found that it was *H. calceatus*, Sturm.

The capture is very interesting, as the species is recorded by Dawson as British in the Entomologist's Annual for 1857, p. 66, where he says: "A single female example was captured near Swansea as long ago as 1830 by the Rev. C. Kuper. I am surprised that this species should not be common with us, and that its claim to be recorded should even now rest upon a solitary individual. It is plentiful in France, and occasionally enters lighted apartments in the summer evenings; moreover, it is a large and conspicuous insect, and very unlikely to be overlooked."

Schaum (Insect. Deutsch., I, 585) says, that the species is rather abundant over all Germany and the whole of mid-Europe, but that it is not found in England or Sweden. Fairmaire and Laboulbène (Faune Entomol. Franc., p. 132), from whom Dawson probably got his information, mention it as common everywhere in France, and as often flying into rooms at night, attracted by light. Bedel (Faune des

Coléopt. du bassin de la Seine, p. 173) says, that it lives in sandy and open places, and is often found in numbers in the ground or under stones; he gives a large number of localities in the Seine district, and says that it occurs in Central Asia as well as in Europe.

According to M. Bedel (who classes it with *Ophonus* and not with *Harpalus*) it belongs to the sub-genus *Pseudophonus*, Mots., but differs from our other two species of the group (*griseus* and *ruficornis*) in having only the two external interstices punctured, and in not being pubescent on the upper surface; it appears, however, to come nearer to *H. æneus*, which also has the external interstices punctured and the upper surface smooth. The following is a detailed description of the insect:—

Black or pitchy-black, under-side sometimes pitchy-brown; antennæ and palpi clear red; thorax much broader than long, with sides feebly rounded in front and very slightly contracted, almost straight, towards base, posterior angles right angles; the entire base is coarsely and rugosely punctured, and is depressed on each side, but with no evident basal foveæ; elytra rather long, broader in front than base of thorax, with deep impunctate striæ, interstices somewhat convex, the space between the 8th stria and the margin densely and finely punctured, besides the usual marginal row of large pores; metasternum rather strongly punctured; legs black or pitchy-black, tarsi clear red. Length, 11—13 mm. (5½—6½ lin.).

This species somewhat resembles a large male of *H. tenebrosus*, but may at once be distinguished by its larger size, sharp posterior angles of thorax, and the punctuation of the base of the thorax, and also by the clear red antennæ. *H. tenebrosus* appears to be somewhat variable; I have before me a pair from the same locality, of which the male is much darker and more shining than the female, and larger: the female is duller, with a bluish reflection on the elytra; the thorax also has the sides rather more rounded in front, and the base smoother; the striæ of the elytra are less deeply impressed, and the legs less robust; on the other hand, I have a male (taken by Dr. Power at Brighton, in company with Mr. Dawson) that agrees almost exactly with the female just spoken of. It is probably owing to this variation that a confusion has arisen concerning this species and *H. litigiosus*. As far as I can make out, this latter has never occurred in England, and must be erased from our lists; it comes, however, very close to *H. tenebrosus*, being apparently only distinguished by its larger and more parallel-sided thorax, and by having a row of large punctures at the extremity of the 8th stria of the elytra; the striæ also are very finely punctured.

Ophonus diffinis, Dej., is sunk by M. Bedel (*l. c.* p. 170) as

synonymous with *O. rotundicollis*, Fairm. (*obscurus*, Sturm, *nec* Fab.). As there has been considerable confusion in our lists with regard to this species, I wrote to Herr Reitter for a specimen, and he kindly sent me one from his collection; this differs from *rotundicollis* in having the thorax more strongly punctured and slightly less rounded at the sides, and with the posterior angles in a very small degree more strongly rounded; the differences, however, are so very slight (especially as *H. rotundicollis* is somewhat variable as regards punctuation of thorax), that there seems hardly any doubt but that the species are synonymous, or, at the most, that one is a variety or race of the other. Rye (Ent. Ann., 1872, p. 134) says, that "*H. diffinis* stands in the same relation to *H. rotundicollis*, Fairm., as *griseus* to *ruficornis*;" but in this he is wrong, as the difference in the posterior angles of thorax in the first two species is hardly perceptible, whereas *H. griseus* has the posterior angles very blunt, almost rounded, while in *H. ruficornis* they are very acute and projecting.

I have lately been carefully working through the *Ophonus* group, and I may add, in conclusion, that although I believe *H. cordatus*, Duft., and *H. rupicola*, Sturm, to be distinct species, yet, after a careful examination of a large number of species, I have come to the conclusion that the connecting links between *H. puncticollis*, Payk., *H. rufibarbis*, F. (*cribellum*, Steph.), and *H. parallelus*, Dej., are so strong, that it is extremely doubtful whether they do not all belong to one species; of course, the extreme forms are very easy to separate, but some of the intermediate forms cannot be assigned to either one or the other. *H. cordatus* is distinct by its strongly convex and cordate thorax, which never repeats itself in the other forms (although specimens occur that somewhat resemble it in shape, yet they are always distinct), and *H. rupicola* is easily distinguished by the much stronger and coarser punctuation of the interstices of the elytra. M. Bedel (*l. c.* p. 70) separates *puncticollis* and *rufibarbis* on the ground that the latter has no trace of a basal border, whereas, the base of the former is always finely bordered, but M. des Gozis (Revue d'Entomologie, iv, p. 116) proves that this character is not constant, and of no service in settling the difficulty; he says that in September, 1883, he took *Ophonus puncticollis* by hundreds, and that quite half presented no trace of a basal border. As far as my experience goes, specimens from the same locality or spot do not vary much. I once took upwards of two hundred specimens of *rufibarbis* at Repton from a spot a foot square, and they were very constant in the shape of the thorax.

Lincoln: *November 12th*, 1885.

A SYNOPSIS OF THE BRITISH SPECIES OF *CEPHINA*.

BY P. CAMERON.

The species of *Cephus* appear, with the exception of the common *C. pygmæus* and *phthisicus*, to be rare in this country. They are chiefly found in the South of England, there being only two species found in the North, namely, *C. pygmæus* and *C. phthisicus*; while only the latter is found in Scotland. I believe, however, that some of the European species may yet be discovered in Britain; and I hope that North and West during next season some attention may be given to the collecting of these insects.

C. floralis, Kl., has been recorded as British by Stephens, but I have not myself seen any specimens of this species, which seems to be very little known on the continent.

Sub-Genus JANUS, Steph.

Antennæ slender, filiform, not thickened towards the apex, the 3rd joint longer than the 4th; eyes oval, not reaching to the base of the mandibles; abdomen not more than one-half longer than the thorax; the 4th joint of maxillary palpus double the length of 6th; the basal joint not half the length of the 2nd.

1. CEPHUS CYNOSBATI, Lin. (pl. vii, vol. ii, fig. 1),
= *femoratus*, Curt., = *connectus*, Ste., = *faunus*, Newm.

Black, four anterior tibiæ and tarsi testaceous, a line on the pronotum, the base of femora and basal third of posterior tibiæ, white.

The ♂ has the apical third of the anterior femora, and the whole of the four posterior, reddish, the tibiæ pale testaceous, and the base of hinder tibiæ white.

Not uncommon in the South of England.

Sub-Genus PHYLLŒCUS, Newm.

Antennæ 25–28-jointed, thick, sub-filiform, thin at base, becoming gradually thickened towards the apex; the 3rd joint a little longer than the 4th; the two basal joints of maxillary palpi nearly equal, the 4th but very little longer than the 6th; prothorax not transverse; hind tibiæ with one spine.

1 (2) Pronotum yellow, the sides of abdomen with 6 or 7 broad yellow bands, the 4th segment banded with yellow. ♂ with two yellow marks on vertex, coxæ and femora yellow ..... *linearis*.

2 (1) Pronotum entirely black, abdomen with three small yellow marks, the 4th segment not yellow; ♂ coxæ and femora black, the vertex without yellow... *Satyrus*.

2. Cephus linearis, Schr. (vol. ii, pl. vii, fig. 2),
= *quinquefasciatus*, Ste., *faunus*, Thoms., *nec* Newm.

3. Cephus Satyrus, Pz.

This is a smaller species than *linearis*, and is easily known from it by the pronotum being entirely black, by the vertex being without any marks, by the marks on the abdomen being very much smaller, the 4th segment also being entirely black; the 2nd cubital cellule is shorter compared to the 3rd. The ♂ is readily separated from ♂ *linearis* by the femora and coxæ being entirely black.

As British I only know the species from a specimen in Shuckard's collection. It has no note of locality. Further evidence of the species being really British is very desirable.

Sub-Genus CEPHUS.

Antennæ 18—21-jointed; apex clavate or sub-clavate; the basal two joints of maxillary palpi sub-equal; the 6th scarcely double the length of 4th; eyes reaching to near the base of the mandibles.

Females.

1 (2) Hind tibiæ with only one spine; antennæ longish, the 3rd joint almost shorter than the 4th; posterior legs fuscous; ovipositor short; abdominal segments 2—6 bordered with yellow ..... *arundinis.*

2 (1) Hind tibiæ with two spines.

3 (4) Abdomen entirely black; antennæ 18—20-jointed, clavate; 1st recurrent nervure interstitial ..... *phthisicus.*

4 (3) Abdomen marked or banded with yellow.

5 (6) A longish spot on side of each of the abdominal segments, the whole forming an almost continuous band ..... *tabidus.*

6 (5) Abdomen with two or more yellow belts.

7 (8) Apex of abdomen black, a yellow band only on the 4th and 6th segments; head sub-cubital; vertex emarginated; length, 7—8 lines ... *troglodyta.*

8 (7) Apex of abdomen yellow; head transverse; vertex scarcely emarginated; length, 2½—4 lines.

9 (10) Abdomen with two complete yellow bands; antennæ brownish at apex; breast and vertex pilose; hind tibiæ and tarsi testaceous ..... *pusillus,*

10 (9) Abdomen with more than two complete bands; hind tibiæ and tarsi fuscous... *pygmæus.*

Males.

1 (2) Breast, coxæ and femora more or less yellow ..... *pygmæus.*

2 (1) Breast black.

3 (4) Abdomen entirely black ..... *phthisicus, var.*

4 (9) Abdomen banded with yellow.

5 (6) Abdomen with three complete bands, on the 4th, 5th and 6th segments; antennæ 18—20-jointed ..... *phthisicus.*

6 (5) With only two complete yellow bands.

7 (8) Length, 7—8 lines; the 4th and 6th abdominal segments yellow; head cubical; vertex emarginated ..... *troglodyta.*

8 (7) Length, 2½—3 lines; the 3rd and 5th segments banded with yellow; head transverse; vertex scarcely emarginate ..... *pusillus.*

9 (3) Abdomen with a row of triangular yellow spots along the sides; none of the segments banded ..... *tabidus.*

4. Cephus arundinis, Giraud (vol. ii, pl. vii, fig. 3),

= *quadricinctus*, Thoms., = *filiformis*, André.

The one spine on the hind tibiæ (which are black), the greater number of yellow bands on the abdomen, the cubical head emarginate behind, and the closely punctured head and thorax, easily separate this species from the others in this section. The greater extent of the yellow coloration on the face of the ♂, and the yellow front legs make it easy of identification.

5. Cephus phthisicus, Fab.,

= *pallipes*, Htg., = *cultrarius*, Htg., = *immaculatus*, Ste.

A distinct and common species.

6. Cephus tabidus, Fab.,

= *longicollis*, Fourc., = *mandibularis*, Lep.

The row of yellow spots on the abdomen of this species makes it easy of recognition.

7. Cephus troglodyta.

This is a larger species than *pygmæus*; the antennæ are shorter and less thickened towards the apex; the yellow bands on the abdomen are narrower, and there is no yellow on the last segment; the stigma and nervures are testaceous, not black, as in the common species; the ♂ is readily known by the black breast; the legs do not differ in coloration from those of the ♀.

8. Cephus pygmæus, Lin.

The common and destructive species.

9. Cephus pusillus, Ste.

I believe this is a distinct species. It differs from *pygmæus* in being smaller, in the antennæ being longer and brownish towards the apex; there are only two yellow bands on the abdomen in the ♀, and the posterior tibiæ and tarsi are yellowish-testaceous; the costa and stigma are lighter in colour, the transverse radial nervure is received nearer the apex of the 2nd cubital cellule, which is shorter compared to the 3rd. The ♂ is readily known from that of *pygmæus* by the breast and pleuræ being quite black. It resembles the ♂ of *pallipes*, but its abdomen is shorter and broader, and has not so many, nor so broad, yellow bands; and the 2nd cellule is distinctly longer compared to the 3rd.

20, Beech Road, Sale, Cheshire:
November, 1885.

NOTE ON *CERATINOSTOMA MARITIMUM*.

BY R. H. MEADE.

Since my description of this Dipteron appeared in the last number (December, 1885) of this Magazine, my friend, Herr Röder, of Hoym,* has informed me that he has taken this insect on the sea-shore at the island Nordeney, and believes it to be identical with the *Scatophaga oceana*, of Macquart, who described and figured it in 1838 in the 7th vol. of the Annales de la Société entomologique de France. Macquart's description is very short, so I will transcribe it:—

"SCATOPHAGA OCEANA, Nob.
(Pl. xi, fig. 2).

Obscure virescens, palpis flavidis; antennis nigris, stylo hirsuto; pedibus nigris. *Long.*, 3 *lin.*, ½.

Face blanche; thorax à quatre bandes brunes; les deux latérales contiguës, une tache grise sur la suture; ailes hyalines, nervures longitudinales et transversales bordées de brunâtre pâle. (La plage de Dunkerque)."

He adds that this fly is less hairy, has the forehead less prominent, and the third joint of the antennæ, together with the style, shorter than in the ordinary species of *Scatophaga*, in all which respects it will agree with *C. maritimum*, but he says nothing about the shape of the male abdomen, and seems to have described and figured a female specimen only. In the Wiener entomol. Zeitung, vol. iii, p. 290, Herr Röder published some remarks upon the synonymy of *Scatophaga oceana*, Macq., in which he says that he considers it to be identical with *Scatomyza borealis*, Zett., and *Scatophaga ostiorum*, Hal., which last was very briefly described in Curtis' "British Entomology."

Assuming that these opinions are correct, my name of *maritimum* must be superseded by that of *oceanum*, but the remarks which I made in my paper upon the necessity of forming a new genus for the reception of this species will remain in force, and the synonymy will stand as follows:—

CERATINOSTOMA, Meade.
oceana, Macq. (*Scatophaga*).
ostiorum, Hal.
borealis, Zett. (*Scatomyza*).
maritimum, Meade.

Bradford, Yorks.:
December, 1885.

* Who is noted for having one of the largest collections of *Diptera* in Europe.

A HUNDRED NEW BRITISH SPECIES OF *DIPTERA*.

BY G. H. VERRALL, F.E.S.

1. *Sciara carbonaria*, Mg.
2. *Boletina trivittata*, Mg.
3. *Rymosia truncata*, Winn.
4. *Scatopse tristis*, Ztt.
5. *incompleta*, *n. sp.*
6. *transversalis*, Lw.
7. *inermis*, Ruthe.
8. *recurva*, Lw.
9. *subnitens*, *n. sp.*
10. *minutissima*, *n. sp.*
11. *Psychoda albipennis*, Ztt.
12. *humeralis*, Mg.
13. *Dicranomyia ornata*, Mg.
14. *Rhipidia ctenophora*, Lw.
15. *Limnobia macrostigma*, Schum.
16. *annulus*, Mg.
17. *nigropunctata*, Schum.
18. *Thaumastoptera calceata*, Mik.
19. *Antocha opalizans*, O.-Sack.
20. *Empeda flava*, Schum.
21. *nubila*, Schum.
22. *Molophilus appendiculatus*, Stæg.
23. *propinquus*, Egg.
24. *bifilatus*, *n. sp.*
25. *Rhypholophus varius*, Mg.
26. *hæmorrhoidalis*, Ztt.
27. *similis*, Stæg.
28. *Dactylolabis Frauenfeldi*, Egg.
29. *Limnophila punctum*, Mg.
30. *fuscipennis*, Mg.
31. *lucorum*, Mg.
32. *sepium*, *n. sp.*
33. *Idioptera pulchella*, Mg.
34. *Pachyrrhina guestfalica*, Westh.
35. *maculosa*, Mg.
36. *Tipula scripta*, Mg.
37. *confusa*, V. d. Wulp.
38. *marmorata*, Mg.
39. *obsoleta*, Mg.
40. *vittata*, Mg.
41. *Pachygaster tarsalis*, Ztt.
42. *Odontomyia angulata*, Pz.
43. *Chrysops quadratus*, Mg.
44. *Tabanus græcus*, F.
45. *Scenopinus glabrifrons*, Mg.
46. *Bombylius canescens*, Mik.
47. *Rhamphomyia spissirostris*, Fln.
48. *dentipes*, Ztt.
49. *fumipennis*, Ztt.
50. *plumipes*, Fln.
51. *Rhamphomyia simplex*, Ztt.
52. *Empis caudatula*, Lw.
53. *æstiva*, Lw.
54. *volucris*, Mg.
55. *Oreogeton flavipes*, Mg.
56. *Clinocera plectrum*, Mik.
57. *Lepidomyia albiseta*, Ztt. [Pz.
58. *Tachydromia* (*Platypalpus*) *albiseta*,
59. *stigmatella*, Ztt.
60. *Campsicnemus pectinulatus*, Lw.
61. *Micromorphus albipes*, Ztt.
62. *Syrphus decorus*, Mg.
63. *lapponicus*, Ztt.
64. *Melanostoma dubia*, Ztt.
65. *Chilosia cynocephala*, Lw.
66. *Orthoneura brevicornis*, Lw.
67 *Chrysogaster virescens*, Lw.
68. *Melanophora atra*, Mcq.
69. *Calliphora azurea*, Fln.
70. *Pyrellia cyanicolor*, Ztt.
71. *Hæmatobia stimulans*, Mg.
72. *irritans*, L.
73. *Spilogaster trigonalis*, Mg.
74. *pertusa*, Mg.
75. *Homalomyia Roserii*, Rnd.
76. *Anthomyia sylvestris*, Fln.
77. *striolata*, Fln.
78. *discreta*, Mg.
79. *vetula*, Ztt.
80. *Pegomyia diaphana*, W.
81. *Chirosia albitarsis*, Ztt.
82. *Tetanocera lævifrons*, Lw.
83. *Elgiva rufa*, Pz.
84. *Psila villosula*, Mg.
85. *Psilosoma Lefebvrii*, Ztt.
86. *Themira spinosa*, *n. sp.*
87. *Ptilonota centralis*, F.
88. *Pteropœctria palustris*, Mg.
89. *Spilographa hamifera*, Lw.
90. *Trypeta jaceæ*, Dsv.
91. *Urophora quadrifasciata*, Mg.
92. *Tephritis vespertina*, Lw.
93. *conura*, Lw.
94. *conjuncta*, Lw.
95. *Urellia cometa*, Lw.
96. *Meromyza læta*, Mg.
97. *Notiphila nigricornis*, Stnh.
98. *annulipes*, Stnh.
99. *Ephydra breviventris*, Lw.
100. *Limosina ferruginata*, Stnh.

It is very difficult to say what is meant by a "new British species" of *Diptera* in the present confused state of our lists, as many species which were well known to Curtis and Stephens were omitted by Walker, whilst many described by Walker were incorrectly named; these, when recorded as British, are not strictly new species, but yet they would probably be omitted by any one endeavouring to ascertain the geographical distribution of species.

1. *Sciara carbonaria*, Mg.: this is undoubtedly the *S. morio* of Walker, and possibly Meigen, but not recognised as such by Winnertz in his Monograph of the *Sciarinæ*. It is abundant on lime trees in my garden about the middle of May.

2. *Boletina trivittata*, Mg.: taken at Lynton, Ivybridge, Loch Maree and Tongue, in June.

3. *Rymosia truncata*, Winn.: on my study window, January 14th, 1884.

4. *Scatopse tristis*, Ztt.: I took a specimen at Lyndhurst, on June 18th, 1869, which both Loew and I made out to be this species.

5. *S. incompleta*, *n. sp.*: two specimens of this occurred at Abbey Wood on August 15th, 1869; Loew returned one with "novam credo" attached to it.

It is a rather small species; thorax dullish black; abdomen shining black; wings with a very distinct venation, the second vein extending far beyond the middle of the costa, hence second costal space nearly one and a half times as long as first, this second vein curves a little into costa at its end; the forked vein starts at the transverse veinlet, and the forks are about the same length as the peduncle, but both forks vanish entirely before they reach the edge of the wing; the last vein is considerably twisted; the wings are altogether very much darkened. I know no species to compare the venation with at all; *S. pulicaria*, Lw., has clear wings, short peduncle of forked vein, and complete forks.

6. *S. transversalis*, Lw.: this well-marked though rare species occurred freely on a tree near Thetford on June 17th, 1880.

7. *S. inermis*, Ruthe: I find this a very common species and very widely spread, having taken specimens at Exeter, Cambridge, Windermere, and Gairloch. I expect most of Walker's *S. soluta* belong to this.

8. *S. recurva*, Lw.: this species is very common, especially in gardens.

9. *S. subnitens*, *n. sp.*: on May 11th, 1868, I took three specimens of this on a tree-trunk at Denmark Hill, and thought they seemed distinct from *S. recurva*, but had considerable doubt, desiring more

specimens to make sure. Year after year I searched in vain, though I was in the same garden almost every day, but when strolling in the garden early in the evening of May 24th, 1873, I noticed a peculiar shimmer in the air under a large mulberry tree; upon examination it proved to be caused by hundreds of this species. I have never seen it since.

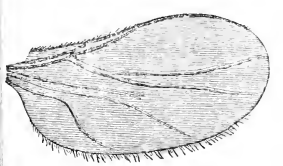
It is very closely allied to *S. recurva*, but is longer and thinner, the thorax somewhat shining, very distinct from the dull thorax of *S. recurva*; the wings are broader, with the forks of the forked vein widely diverging at the tip.

10. *S. minutissima*, *n. sp.*

Nigricans, opaca; abdomen depressum; pedes fusci, geniculis saltem tarsisque sordide albidis, tibiis posterioribus sub-clavatis; halteres et palpi sordide albidi; alæ latæ. Long., 1 mill.

This species occurred in profusion at Pagham Harbour (then being reclaimed from the sea) on June 22nd, 1876; it was so small that it readily crept through the meshes of my fine muslin net, but, like all the species of the genus, was most reluctant to fly.

Last winter I made some experiments in Micro-Photography, and was most successful with the wings of this species; I have, therefore, given a woodcut of the wing, which was taken from a photograph. It is curious that all three of these new species I have now introduced have the forked vein peculiar, in that the forks widely diverge or fade away. This species is not closely allied to any other; it is dullish black, rather narrow, the thorax brownish at the sides, and clothed with pale short dense pubescence, which is also on the scutellum; the antennæ are rather short and thick, becoming slightly thicker from base to tip, and with a whitish sheen over them; abdomen depressed, about two and a half times longer than broad, widest a little after middle; legs obscure brownish, knees, tarsi, halteres and short palpi dirty dull whitish, in paler specimens the legs are dull pale brownish; all the tibiæ, especially the posterior, widened towards the tip.



11. *Psychoda albipennis*, Ztt.: not at all uncommon on windows in my house.

12. *P. humeralis*, Mg.: also not uncommon on windows here, and I possess a considerable number of either this or a possibly new species, larger and more ochreous, bred from decaying snails by Mr. J. H. A. Jenner of Lewes. Stephens included *P. humeralis* in his Systematic Catalogue of British Insects.

13. *Dicranomyia ornata*, Mg.: many specimens of this handsome species were correctly named and distributed by the late Mr. J. C. Dale, but yet I do not find it recorded as British. I caught one myself this year at Bonchurch, I. W., in June.

14. *Rhipidia ctenophora*, Lw.: I caught one female of this at Lyndhurst on the 18th of June last. Only one specimen has been hitherto recorded, which was bred at Frankfort-on-the Maine.

15. *Limnobia macrostigma*, Schum.: common at Lyndhurst last June.

16. *L. annulus*, Mg.: one female at Lyndhurst on June 22nd, 1872. This is the grandest species of all the *Limnobiadæ*, except perhaps *Pedicia rivosa*.

17. *L. nigropunctata*, Schum.: one female at Darenth on May 12th, 1867. I also have one caught this spring near Lewes by Mr. J. H. A. Jenner.

18. *Thaumastoptera calceata*, Mik: this exceedingly rare species occurred abundantly in a hedgerow near Lymington last June; three or four might be caught in one stroke of the net. Mik described it in 1866 (Verh. zool.-bot. Wien, xvi, 302) from two males and five females caught by him at Gorz (Goritz) in Austria, and since then I have only noticed the record of one specimen caught by Westhoff in Westphalia in 1882.

19. *Antocha opalizans*, O.-Sack.: the occurrence of this species in Great Britain is possibly of even more interest than the last, as it was originally described from North America; it has, however, since been observed in Austria and Switzerland. I caught two specimens in June, 1884, at Tongue, it therefore very likely lurks under one of Zetterstedt's unrecognised Scandinavian species; it is also undoubtedly the species intended in Stephens' Catalogue, vol. ii, page 243; Genus 20: (1144)—7893, 1; *thoracicus, mihi*, as many specimens occur in the British Museum under that name; this is another proof of the accuracy of Stephens' eye as far as a "genus" was concerned. The group which Osten-Sacken has named *Limnobina anomala* seem to me to be remnants from a very ancient time, nearly all of them being exceedingly widely spread, but left only in isolated colonies; they are also interesting in being the obvious stepping stones from the *Limnobinæ* to the *Eriopterinæ*, the closest links of which at present are *Thaumastoptera* for the former and *Goniomyia* or *Empeda* for the latter, *Thaumastoptera* being apparently a *Goniomyia* with the short fork of the radial vein ending in the sub-costal vein, instead of in the costa.

20. *Empeda flava*, Schum.: this is not uncommon; I have taken it near here, and also last June at Bonchurch, Lymington and Lyndhurst. This is a species which may or may not be considered new to Britain, as undoubtedly when Walker (Ins. Brit. Dipt., iii, 275) described *Acyphona imbuta*, Mg., he had a specimen of this *E. flava* before him; however, as both species are British, one must be new to Britain.

(*To be continued*).

Distribution of Lepidoptera.—An interesting instance of fluctuation in the distribution of insects occurred to me in July, on the occasion of spending a few days at my old locality, Haslemere.

When I left there seventeen years ago I had so thoroughly worked the country for many miles round that it was extremely difficult to find any species of *Lepidoptera* new to the district. But on this year's visit, on my first walk a couple of miles out of the town I took one species, *Homæosoma binævella*, not previously known to occur there; and on the next day at Woolmer Forest another such novelty occurred, *Heterogenea asellus*. Considering the thorough manner in which both localities were formerly worked, I think it quite improbable that these two species inhabited the district at that time. Another day I beat out a specimen of *Botys lancealis*, from a hedge which I used constantly to work. This species had previously only occurred once or twice at some miles distance.—Chas. G. Barrett, 68, Camberwell Grove, S.E.: *September* 18*th*, 1885.

Lepidoptera near Haslemere.—Although insects do not seem yet to have recovered from the influence of the late unfavourable seasons, and are by no means to be found in their former numbers, it was pleasant at Haslemere this summer to see examples of many interesting species, familiar in that neighbourhood in old times, but hardly ever seen by me since. My stay was limited to one week, but I found the beautiful *Cidaria picata*, as of old, on the hill sides, hiding in the tall hedges, and requiring an immense amount of labour with the beating stick to bring them out. With them I found *Melanippe unangulata*, a few *Olindia ulmana* of both sexes, and rarely *Dichelia Grotiana*. One of my most gratifying captures was *Tortrix cinnamomeana*, which occurred in two or three localities among oak, beech, and larch, and of which I secured some very nice specimens. While watching for this species in the late afternoon, one of the children brought a specimen of *Cryptoblabes bistriga*, not quite in as good condition as could be desired. On the heath, *Anarta myrtilli* was flying much more commonly than I used to see it, and if possible, with more than its normal energy. Little else was to be found on these usually productive heaths except an occasional *Agrotis porphyrea* or *Pleurota bicostella*, and the abundant *Eupœcilia angustana*; but one *Gnophos obscurata* occurred of a very pretty colour, dark grey flecked with white scales. Further search for this species produced nothing but a pair of very handsome eggs of the goatsucker, *Caprimulgus europæus*.

My one day at Woolmer forest was delightful, and insects (*Tabanidæ* excepted) most remarkably scarce. It was glorious, after so many years, again to see *Limenitis Sibylla* soaring and gliding among the oak trees. The lovely creature was not at all common, I suppose I saw altogether but a dozen, yet every one was like a gleam of silver, and it seemed shameful to kill anything so lovely. Such sentiment was, however, tolerably cheap, for they had no intention of being killed, and only three allowed themselves to be deluded within reach. One (the last) fell fairly and evidently a victim to *curiosity*, for as I came to the glade which he frequented, he came down from the oak tree on which he was about to settle down for the night, and sailed close round me, evidently reconnoitring, and doubtless was much surprised and disgusted at the interruption he received. I suppose there was plenty of honey dew on the oak leaves, for bramble flowers seemed to have lost their attraction,

neither *L. Sibylla* nor *Argynnis Paphia* (which was scarce) seemed to take any notice of them. The only common butterfly was *Lycæna Ægon*, which was plentiful in the open boggy places, and in great beauty. One principal object of my journey that day was *Acidalia straminata*, but not a specimen could be disturbed from among the heather, and I at last secured two specimens only by the very unexpected method of jarring small fir trees with a heavy stick. They seemed to be resting on the *tops* of these trees. *Macaria liturata* appeared to be fairly common among the firs, but mostly worn; *Cleora lichenaria* sat on their trunks and limbs, and females of *Fidonia piniaria* on the tall Carices underneath them. Badly worn specimens of *Hypena crassalis* and *Erastria fuscula* were still to be found sitting on the trunks of the same trees, or among the whortleberry below; and two freshly-emerged *Ellopia fasciaria* seemed well satisfied to rest on the leaves of the bramble. Single specimens of *Euthemonia russula* and *Aspilates strigillaria* came out of the heath; of *Lithosia mesomella*, *Aventia flexula*, *Tortrix roborana*, *Penthina capræana*, and *Heterogenea asellus* (already noticed), from the oaks; and *Nephopteryx roborella* from birch; while *Pempelia palumbella* was of course among heath in open places. Formerly I should have thought this a poor day's result in that locality; now I was delighted with it.—Id.: *October*, 1885.

Abnormal neuration in the wings of Hymenoptera.—In our last number, pp. 148 and 149, Mr. Vincent R. Perkins describes some peculiarities in the neuration of the anterior wings of some of his captures. After reading his observations I referred to my own collection to see what I could find in the way of abnormal neuration among my own specimens, and, having found several examples, I thought I would add a few remarks supplementary to what Mr. Perkins has already recorded.

Sphecodes pilifrons, Th. One ♀ with only two sub-marginal cells in the left anterior wing, *the external nerve of 2nd sub-marginal being absent.*

Halictus rubicundus, Ch., ♂. Both anterior wings with only two sub-marginal cells, *the external nerve of 2nd sub-marginal absent.*

Halictus villosulus, K. A male and female each with the *external nerve of 2nd sub-marginal* slightly abbreviated at the apex in either wing; another ♀ has the *external nervures of the 2nd and 3rd sub-marginal cells* so faintly traced as to be scarcely observable, as also are the nervures of the 2nd apical cell.

Halictus breviceps, Saund., ♂. Right anterior wing with only two sub-marginal cells, *external nerve of 2nd sub-marginal absent.*

Andrena Clarkella, K., ♂. Left wing with only two sub-marginal cells, *external nervure of 2nd sub-marginal indicated only at the base.* Another ♂ has two sub-marginal cells only in either wing, *the external nervure of 2nd sub-marginal completely absent in both*; a ♀ has this nerve abbreviated in the left wing.

Nomada Roberjeotiana, Panz., ♂. Right wing with only two sub-marginal cells, *external nervure of 2nd sub-marginal absent.*

Nomada fucata, Panz., ♂. *3rd sub-marginal cell incomplete in left wing*, its external nerve being abbreviated.

Nomada ruficornis, L., ♀. I have a small ♀ with two sub-marginal cells only in either wing, the *external nervure of 1st sub-marginal cell* being only just indicated at its base.

Nomada ferruginata, K., ♂. Both wings with the *external nervure of the 2nd sub-marginal cell* abbreviated at the *apex*; ♀ with the *external nerve of the 1st sub-marginal* abbreviated on the left side.

It would appear from the above instances that the external nervure of the 2nd sub-marginal cell is that most liable to variation, there being 11 out of 14 specimens with this nervure affected, the external nervure of the 1st sub-marginal is affected in two cases, and that of the 3rd in one only. I have not found any peculiarity of neuration among such of the *Anthophila* as have only two sub-marginal cells; variation in the forms of the cells is very frequently observable, and makes one doubt the value that has usually been put upon neuration as a basis of classification.—Edward Saunders, St. Ann's, Mason's Hill, Bromley, Kent: *December 9th*, 1885.

Coleoptera near Lewes.—The following notes and list of captures of *Coleoptera* during 1885 may perhaps be of interest. I began the season by searching moss, tuft pulling, &c., but insects were very scarce compared with former years; some of the commonest were entirely absent, and nothing of particular note was captured. About the middle of February I tried flood rubbish, insects were fairly plentiful, but not nearly so common as in the previous year. Abbots Wood, one of our great strongholds, did not produce the usual number of good things, although I worked it at different times of the year. I paid two visits to Laughton Wood, and the quality of insects taken there I am glad to say was a little better. I worked principally in the vicinity of the town; now and then I had a fair day, but several times I came home without an insect in my bottle, which, I think, must be due in a great measure to the past dry seasons.

Appended is a list of my principal captures:—

Pelobius tardus, Lewes, common; *Brychius elevatus*, Lewes, fairly common; *Philhydrus melanocephalus*, Lewes, very common, but local; *Hydrochus angustatus*, Abbots Wood, common; *Ochthebius æratus*, Lewes, common; *Hydræna nigrita*, Abbots Wood, common; *Stenus pallitarsis*, flood rubbish, Barcombe, scarce; *Silpha thoracica*, Laughton Wood, scarce; *Telmatophilus typhæ*, Lewes, scarce; *Endomychus coccineus*, Lewes, scarce; *Adalia obliterata*, Laughton Wood, scarce; *Chilocorus similis*, Wivelsfield, common; *Elmis Volkmari*, Lewes, scarce; *Onthophagus vacca*, Abbots Wood, common; *Aphodius erraticus*, Abbots Wood, very common; *Homaloplia ruricola*, Lewes, scarce; *Drilus flavescens*, Lewes, ♂, common; *Apion punctigerum*, Abbots Wood, scarce; *Bruchus cisti*, Lewes, common. I have also taken a specimen or two of each of the following, viz.: *Licinus depressus*, *Sphodrus leucophthalmus*, *Hydroporus memnonius*, *Proteinus atomarius*, *Liodes orbicularis*, *Anisotoma dubia*, *Atomaria fimetarii*, *Cyrtotriplax bipustulatus*, *Athous niger*, *Corymbites bipustulatus*, *Scaphidema æneum*, *Melandrya caraboides*, *Pyrochroa coccinea*, *Orchestes pratensis*, *Gymnetron rostellum*, *Apion atomarium*, *Apion ebeninum*, *Rhynchites betuleti*, and *Orsodacna cerasi*. The principal part of these last were taken at Laughton Wood, and Abbots Wood.—C. H. Morris, School Hill, Lewes: *December*, 1885.

Hydnobius Perrisii, &c., near Hartlepool.—I have been fortunate in taking a good series of *Hydnobius Perrisii* this autumn at Hartlepool, and also three specimens of *Hydnobius punctatissimus*, as well as the following:—*Anisotoma Triepkii* (5), *A. rugosa* (3), *A. dubia* (8), *A. calcarata* (1), *A. litura* (1), and *Colon denticulatum* (1); Mr. W. G. Blatch, of Birmingham, has kindly named the above for me. Amongst a miscellaneous lot of my first year's captures, which I sent to my friend

Mr. Sang to get named, when he was at Burton-on-Trent, a specimen of the rare *Bryoporus Hardyi* was discovered, of which only two specimens have been previously recorded; this specimen is now in Dr. Mason's collection; I have looked for it again, but without success.—J. GARDNER, 8, Friar Terrace, Hartlepool: *November 20th*, 1885.

Observation on the habits of Litodactylus (Phytobius) leucogaster, Marsh.—At the November meeting of the Entomological Society, Mr. C. O. Waterhouse exhibited some living specimens of *Eubrychius (Phytobius) velatus*, Beck., in order to shew that they swam with their hind-legs after the fashion of a Dytiscide; these specimens he kindly gave to me after the meeting, and I kept them alive for some time; they were able to swim not only on the surface but could dive beneath it, and although their natural buoyancy appears to force them upwards yet they are able to dive quite far enough to seize the aquatic plants, and to which they cling, in case they do not project above the surface: if they do, they prefer to seize them near the surface and crawl down them. A little while ago I asked Mr. J. J. Walker if he could procure me living specimens of any of the other members of the genus and its allies, and he kindly captured for me two specimens of *Litodactylus leucogaster;* these swim in exactly the same way as *E. velatus*, except that their buoyancy seems to be somewhat greater, and their power of diving below the surface somewhat less in consequence. These sub-aquatic *Curculionidæ* seem to be able to sustain life under water as well as, if not better than, the *Dytiscidæ*. As I was going from place to place, when Mr. Waterhouse gave me his specimens, they were often corked up in a small tube of water for many hours together, but did not seem to be any the worse.—W. W. FOWLER, Lincoln: *Dec. 9th*, 1885.

Cryptocephalus frontalis, Marsham.—I have taken this beetle rather freely at Rusper, Horsham, during the month of July. This year it continued till the 22nd, a late date, I believe, for this genus. The Rev. H. S. Gorham, who accompanied me, captured upwards of twenty.—H. J. GORE, 7, Well Road, Hampstead: *December*, 1885.

Cryptocephalus frontalis, Marsham.—This species has been captured rather freely this year by Mr. Gore and myself in a place at Rusper where I swept up one specimen in June, 1873. Thanks to Mr. Gore's hospitality, I was able to re-visit the spot this year on the 15th July. Mr. Gore had previously met with a few this year. The place is a very unlikely looking one for *Cryptocephali*, being in fact by the side of a corn-field; but in the ditch some low sallow was growing, and it is my opinion that it was upon that that the insect was sitting.—H. S. GORHAM, Shirley Warren, Southampton: *December 15th*, 1885.

Notes on Arachnida.—I have this autumn taken *Lycosa riparia*, L. Koch, ♀, at Lower Camden, Chislehurst, the specimen having been kindly identified for me by the Rev. O. P. Cambridge. This spider is perhaps not uncommon, but it has as yet only been recorded for a very few British localities, and is new to the London district. With the *Lycosa* I took *Micaria pulicaria*, Sund., ♂, *Tegenaria atrica*, Koch, ♀, *Linyphia thoracica*, Wid., *L. tenebricola*, Wid., and several others. I have also taken *Linyphia bicolor*, Bl., and *Neriene livida*, Bl., at Bedford Park, Chiswick.—T. D. A. COCKERELL, Bedford Park, W.: *Nov. 27th*, 1885.

South London Entomological and Natural History Society.—The Annual Exhibition was held at 1, Denman Street, London Bridge, on December 3rd, and was very successful. The following is a summary of the principal exhibits:—Mr. McLachlan: drawers of European *Trichoptera*, Ant-Lions, *Ascalaphidæ* and *Nemopteridæ*, and the shell-like cases of *Psychidæ* from Zanzibar, noticed in Ent. Mo. Mag., xxi, pp. 1, 2. Mr. Jenner Weir: exotic *Rhopalocera*, including the genera *Morpho* and *Caligo*, and a series of *Danais Archippus* (*Anosia Plexippus*) from widely distant parts of the globe. Mr. South (the President): series of the British species of *Melitæa*, shewing local variation, species of *Argynnis*, *Lycæna*, and *Cœnonympha* from Britain and Switzerland, many varieties of British *Lepidoptera*, British Tortrices, *Bryophila par* and *impar*, &c. Mr. Adkin: British species of *Melitæa*, *Argynnis*, and *Vanessa*, with numerous varieties, northern forms of *Hepialus humuli*, *Eugonia quercinaria*, also *Nola centonalis*, *Macrogaster castaneæ*, &c. Mr. Elisha: fine series of British *Micro-Lepidoptera*, and series of bred *Geometra smaragdaria*, and *Coleophora vibicigerella* from the Essex marshes. Mr. Farn: hermaphrodite *Pœcilocampa populi*, with series of *Pteroxia caudella*, *Spilonota lariciana*, &c. Mr. Wellman: *Lepidoptera* taken or bred during the year, including *Sesia chrysidiformis*, *ichneumoniformis*, and *culiciformis*, *Chœrocampa Celerio*, *Hesperia Paniscus*, *Lobophora polycommata*, *Lemiodes pulveralis*, a third brood of *Acidalia rubricata*, and second broods of *A. trigeminata*, *holosericeata*, &c. Mr. Tugwell: three drawers of varieties of British *Zygænidæ*, the unique (as British) *Syntomis Phegæa*, IVI varieties of *Setina irrorella*, *Dianthœciæ* shewing local variation, *Nola centonalis*, &c. Mr. Tutt: a series of *Agrotis tritici*, *nigricans*, *obelisca*, and *cursoria*, shewing endless variation. Mr. Bird: *Lepidoptera* from the Fens, including *Macrogaster castaneæ*, *Acronycta strigosa*, *Senta ulvæ*, *Nascia cilialis*, *Coccyx Ochsenheimeriana*, &c. Mr. J. T. Williams: bred series of *Boletobia fuliginaria*, and *Acidalia rubricata*, &c. Mr. Lovett: varieties of British *Lepidoptera*. Mr. Bower: *Eupœcilia curvistrigana* and *subroseana*, *Peronea tristana*, *hastiana*, *Coleophora conyzæ*, &c. Mr. Dobson: *Ennomos erosaria*, a dark variety of *Platypteryx lacertula*, &c. Mr. Watkins: exotic *Lepidoptera*, including silk-producing *Bombycidæ*. Messrs. Jager and Brooks: *Callimorpha Hera*, and *Cucullia artemisiæ* from Devonshire. Mr. Neave: a very remarkable variety of *Lycæna Alexis*, in which the spots of the underside were replaced by a series of dashes, varieties of *Ennomos angularia*, *Abraxas grossulariata*, &c. Mr. Hickling: four examples of *Sphinx convolvuli* from Sidcup. Mr. Hall: a variety of *A. grossulariata*, also *Dianthœcia albimacula*, *Toxocampa craccæ*, &c. Mr. Cooper: *Pericallia syringaria*, &c. Mr. Gaskell: *Lithosia helveola*, and *Dianthœcia conspersa*. Mr. Croker: various *Lepidoptera*, *Coleoptera*, and *Hymenoptera*. Mr. W. Pearce: *Acherontia Atropos*. Messrs. Eley, Lowery, Barker, &c.: British *Lepidoptera*. Mr. Billups: British and exotic *Coleoptera*, including *Spercheus emarginatus*, *Dytiscus lapponicus*, &c.; also several drawers of British *Diptera*, and *Hymenoptera*, including *Ichneumonidæ*, and a drawer of British Galls, with their makers and parasites, &c.; the method of mounting the specimens was much admired. Mr. West (Greenwich): six drawers of British *Coleoptera*, including *Calosoma sycophanta*, *Chlænius Schrankii*, &c. Mr. Lewcock: British species of *Silpha*, *Prionus coriarius*, *Saperda carcharias*, &c. Mr. Cripp: British species of *Donacia*. Mr. Eley: *Notiophilus rufipes*, &c. Mr. Enock: three cases illustrating the habits of the British trap-door spider.

Apart from Entomology, there were Exhibitions in other Departments of Natural History. Messrs. Danes and Cook: ornithology. Mr. Mackenzie: birds'-eggs. Messrs. Step and Rowe: British land and fresh-water shells. Mr. Step: illustrations of Surrey fungi. Mr. W. A. Pearce: herbarium of British and exotic plants. Mr. A. E. Pearce: admirable water-colour studies of plants.—W. A. Pearce, Hon. Secretary [abridged by Editors].

Entomological Society of London, *Dec. 2nd*, 1885: J. W. Dunning, Esq., M.A., F.L.S., Vice-President, in the Chair.

Lieut.-Col. Blathwayt, of Batheaston, Bath, and S. P. Smith, Esq., of Danes Inn, Strand, were elected Fellows.

Mr. Enock exhibited photographs of *Mymaridæ*, and drawings copied by the "Auto-copyist," which gave satisfactory results.

Mr. Eland Shaw exhibited the species of *Copiophora*, of which a drawing was brought before the last meeting by the President, from an example taken in a hot-house at Birmingham

Mr. Porritt exhibited a melanic variety of *Luperina testacea* from Glasgow, and other melanic *Noctuæ*, which he was unable to determine with certainty. Also an *Agrotis*, probably *A. obelisca*, taken at Southport.

Mr. Dunning read an annotated List of all the Honorary Members elected into the Society since its foundation.

TROPICAL AFRICAN *COLEOPTERA*; CHIEFLY FROM THE ZANZIBAR MAINLAND.

BY H. W. BATES, F.R.S., &c.

Fam. CICINDELIDÆ.

Megacephala Baxteri, sp. n. *Maxime elongata, viridi-ænea, antennis (articulis basalibus fusco-annulatis), partibus oris (mandibulis apice nigris), pedibusque flavo-testaceis, his femoribus intermediis apice posticisque fere totis fusco-nigris: thorace elongato lateribus ante basin utrinque dente valida armatis: elytris versus suturam fusco-cupreis, undique sat dense acute tuberculatis, interstitiis sparsissime punctatis; apice sub-acute conjunctim rotundatis.* *Long.*, 34 *mm.*, ♂.

Ugogo, East Central Africa (*Dr. Baxter*).

A remarkably elongated species, the elytra being much more elongated even than in *M. excelsa*. In sculpture and colour it is allied to *M. Revoili* (Lucas), from Somali-land, but differs from that species effectively in the basal end of the sharp lateral margins of the thorax forming a projecting triangular tooth. In this peculiar feature it resembles *M. denticollis* (Chaud.), from the Bahr Ghazal country; the thorax, however, is much longer than in that species, the space between the lateral tooth and the basal margin being especially much greater. The tubercles of the elytra are rather close together, and nearly equally spaced, and incumbent, sub-conical, even to the apex.

In *M. regalis* (Boh.), from Natal, the dorsal tubercles are elongated or ridge-shaped; in *M. Revoili* they are more widely spaced, and in *M. excelsa* the elytra are roughly punctured, with the intervals elevated into rather flat tubercles only towards the base, the apical area being nearly smooth.

Megacephala Revoili, Lucas, Ann. Soc. Ent. Fr. Bull., 1881, 137; Revoil, Faune et Flore du Pays Çomalis, p. 3, tab. 1, fig. 1.

Ugogo (*Dr. Baxter*), one example, agreeing well with the figure and description above cited.

Dromica (Myrmecoptera) purpurascens, sp. n. D. giganteæ *(De Breme) affinis; differt corpore angustiori thorace lateribus nullomodo angulatis, elytris utrinque macula elongata sub-basali marginibusque posticis albis. Subæneo-nigra, elytris obscure purpurascenti-cupreis, corpore subtus pedibusque nigro-nitidis femoribus basi cupreis: thorace capite angustiori prope basin angustato et constricto, margine laterali vix acuto perparum arcuato, dorso grosse undulato-ruguloso, medio griseo-hirto: elytris utrinque lineis 5 elevatis nitide-cupreis fere usque ad apicem extensis, 6toque sub-humerali abbreviata, interstitiis confluenter punctatis sub-areolatis.* *Long.*, 20—25 *mm.*, ♂ ♀.

I have compared this fine species with *D. gigantea*, from Natal, as being better known; it is more closely allied, however, to *D. Mauchii* (Bates = *D. Oatesii*, Westw., in Oates' Matabele-land, p. 359), both differing from *D. gigantea* in the thorax being longer and narrower, with its lateral margin more obtuse and gently curved, without angles: in these respects both stand midway between *D. gigantea* and *D. limbata* (Bertoloni). *D. purpurascens* differs from *D. Mauchii* in its purplish-coppery elytra, the shining raised lines of which are all longer, reaching within a short distance of the apex; the first, at least, as long as the four others. The short streak or elongated spot on each elytron is distant from the base in *D. purpurascens*. The labrum is black, with a tawny-white central vitta in both sexes. The joints 5—10 of the antennæ are very much wider than in *D. gigantea* and the elytra more ovate, in both sexes gradually narrowing to the base, with obsolete shoulders.

Mamboia, East Central Africa (*Mr. J. T. Last*); several examples.

Dromica (Cosmema) quadriguttata, sp. n. D. citreoguttatæ (Chaud.) *angustior. Lineari-oblonga cuprascenti-nigra, elytris lateribus carinaque utrinque mediana valde obtusa, nitidis, utrinque maculis duabus rotundis a margine sat distantibus flavis, 1ma mox pone medium, 2nda ante apicem: labro (♀) nigro, vitta mediana flava: capite lato, (oculis valde prominentibus) undique eleganter strigoso: thorace fere cylindrico, undulato-strigoso: elytris anguste*

oblongis (♀), *angulo suturali dentato, dorso confertim grosse punctatis: corpore subtus cyaneo-violaceo, coxis femoribusque basi viridi-æneis pedibus nigris: antennis filiformibus, gracilibus.* *Long.*, 15 *mm.*, ♀.

Distinguished from all other described species by its elytral markings—two round whitish spots on each, distant from the margin, by the obtuse costa down the centre from the base nearly to the apex, on which the punctures are less dense than on the rest of the surface, and by the short and broad head, broad and flattened between the very prominent eyes, and suddenly narrowed behind. The elytra are moderately narrowed towards the base and have distinct humeral angles.

One female example taken near Mamboia by Mr. Last.

Fam. CARABIDÆ.

Sub-fam. *SCARITINÆ.*

Ochyropus gigas, Schiödte, Kröyer Tidskr., 1847, p. 350, tab. iv, figs. 1—4. *O. lucanoïdes*, Putzeys, in Chaudoir, Monogr. d. Scaritides (1879), p. 22, note.

Usambara. One example taken by the Ven. Archdeacon Farler.

Chaudoir confounded this species with the much commoner West African *O. Savagei*, of Hope, apparently not having studied Schiödte's excellent description and figure, in which the broadly flattened penultimate joint of the labial palpi, the longer and straighter mandibles, the frontal cavity, the peculiar form of the thorax, and the absence of conical projection behind the eyes, are clearly described and figured. The middle tibiæ have a row of short strong spines on their outer edge above the sub-apical spine; in *O. Savagei* the short spines are reduced to small denticulations. The maxillæ are curved and pointed at the apex; in *O. Savagei* they are broadly obtuse. According to Chaudoir's classification this would place the two species in different genera and in different chief sections of the sub-family; the form of the mentum is also different and the side lobes quite free from thickened margins, whilst they are margined in *O. Savagei*, as in the restricted genus *Scarites*. The species is found in West as well as in East Africa, in similar latitudes.

Mamboicus, nov. gen.

Facies gen. Crepidopteri *sed gen.* Ochyropo *magis affinis. Caput sicut in* Ochyropo Savagei; *mandibulæ* (♂) *elongatæ, sub-rectæ, læves; genæ post oculos valde prominentes acute conicæ. Mentum lobis extus haud carinatis. Maxillæ curvatæ, acutæ; palpi labiales articulo penultimo lineari compresso*

Antennæ thorace paullo longiores, filiformes, robustæ. Thorax brevis, angulis posticis dentatis, basi minime lobatus. Elytra sat breviter oblongo-ovata, marginibus acute usque ad apicem carinatis. Metathoracis episterna brevia. Abdomen segmentis haud transverse lineatis. Tibiæ intermediæ unispinosæ, et spinis 5—6 *brevioribus. Tarsi articulo* 5to *quam* 2—4 *conjunctis breviori.*

Approaches nearest the genus *Ochyropus*, the head and mandibles being very similar in shape to that of *O. Savagei*, the mandibles shorter in the ♀ than in the ♂. The normally slender tarsal claw joint and the metathoracic episterna very little longer than broad, with correspondingly shorter and more ovate elytra effectually distinguish it from that genus.

Mamboicus Lastii, sp. n. *Niger, nitidus, capite thoraceque brevibus, hoc antice arcuatim emarginato, angulis vix productis, marginibus post denticulum perparum sinuatis: elytris limbo laterali lato sub-opaco, valde striatis, interstitiis convexis,* 7mo *acute reflexo-carinato, epipleuris concavis lævibus; basi fere rectis humeris dentatis: sulcis frontalibus profundis parallelis, lævibus.* *Long.*, ♂ (*mand. incl.*), 25 *mm.*, *mand.* 4½ *mm.*; ♀, 21 *mm.*, *mand.* 3½ *mm.*

Mamboia, (*Mr. Last*); two examples.

The front edge of the clypeus has two scarcely prominent teeth.

Menigius afrellus, sp. n. *Sat graciliter elongato-ovatus, niger nitidus, epistomate omnino acute striolato, oculis prominentibus, mediocribus, tuberculo genarum multo minori et minus prominenti: thorace transversim quadrato, basi haud lobato, dente laterali parva distincta: elytris basi utrinque versus humeros dentatos obliquatis, granulatis, valde striatis, striis impunctatis interstitiis convexis* 7mo *convexiori et angustiori, stria* 4ta *tripunctata* (1mo *prope basin,* 2do *et* 3^{io} *versus apicem*): *tibiis intermediis unispinosis et pluridenticulatis.* *Long.*, 19 *mm.*

Mpwapwa (*Mr. Last*); three examples.

Agrees with Chaudoir's definition of his genus *Menigius* in all characters except the distinct but small tooth at the lateral-basal angles of the thorax. In his *M. Schaumi*, from Guinea, he says, "sans vestige de dent." The genus is distinguished from *Tæniolobus* by the singular form of the apex of the maxillæ, obtuse, but prolonged laterally into a sharp tooth, visible only from beneath under the hair fringe. The abdominal segments have very faint transverse basal sulci.

Menigius (?) mamboianus, sp. n. *Elongato-ovatus, convexus, niger nitidus, mandibulis* (♀?) *brevibus, striatis, capite rugulis undulatis haud profundis, sulcis frontalibus brevibus sub-parallelis, epistomate antice bidentato, genis, post oculos modice convexos, tumidulis, rotundatis; thorace transversim quadrato, lateribus post denticulum perparum sinuatis, lobo basali vix ulio:*

elytris sub-ovatis, basi utrinque obliquatis, grosse granulatis, apice conjunctim sub-acuminatis, sat acute striatis, interstitiis vix convexis 3^io^ longe post medium unipunctato: tibiis intermediis unispinosis et pluridenticulatis. Maxillæ apice breviter falcatæ. Epistoma metathoracis brevia.

Long., 11 *mm.*

Mamboia (*Mr. Last*); one example.

The ventral segments have faint traces of a transverse sulcus in the middle of the fore-margin. The elytra have no traces of lateral carinæ. The species differs from *Menigius* in the maxillæ being curved and pointed at the apex, but the hook is very short.

Chondressus, nov. gen.

Corpus elongato-oblongum parum convexum. Caput breve; oculi cum tuberculo genarum valde prominentes. Maxillæ apice acutæ, curvatæ. Mentum lobis extus marginatis (haud intra marginem carinatis): paragenæ intus valde dentatæ. Antennæ filiformes, mediocriter elongatæ, geniculatæ. Thorax subsemicircularis, angulis anticis truncatis ibique sulco marginali continuo, profundo; angulis posticis dentatis, margine ante dentes crenulato. Elytra oblonga, basi lata sub-truncata dente humerali valida, margine laterali a humeris usque ad apicem acute carinato. Pedes sat graciles; tibiæ intermediæ pluridenticulatæ et versus apicem validius unispinosæ: tarsi articulo unguiculari cum unguibus sat elongato. Metathoracis episterna brevia, latitudine perparum longiora. Abdomen alutaceum segmentis, haud transverse sulcatis bipunctatis.

Differs in important characters from all the numerous genera into which Chaudoir divided the old genus *Scarites*.

Chondressus granulipennis, sp. n. *Elongatus sub-rectilateris, niger nitidus, elytris opacis undique subtiliter granulatis: mandibulis striatis; epistomate antice bidentato versus angulos acute multistriato, sulcis frontalibus profundis, interspatio antice fovea elongata: clypeo ante oculos sat late rotundato-dilatato, genis oculos postice amplectentibus, oculo magis prominentibus, rotundatis: thorace lato et brevi, angulis anticis truncatis, marginibus post denticulum fere rectis, obliquis, lobo basali brevissimo: elytris striatis, interstitiis paullo convexis 7^mo^ acute reflexo-carinato, basi latis fere rectis ibique grosse granulatis, humeris valde dentatis; tibiis intermediis unispinosis et pluridenticulatis.* *Long.*, 21 *mm.*

Mamboia (*Mr. Last*); one example.

Scarites molossus, Klug, Peters' Reise nach Mosambique, Zool., p. 155, t. viii, fig. 9.

Mpwapwa (*Dr. Baxter*); two examples, without trace of punctures in the elytral striæ. In specimens from Lake Nyassa, the striæ are conspicuously punctured.

Sparostes brevilobis, sp. n. S. brevicolli (*Putz.*) *similis, sed differt lypei lobis lateralibus brevibus latis antice late rotundatis, striola scutellari longata, conspicua, etc. Cylindrica, piceo-nigra polita, antennis pedibusque rufescentibus; labro medio late triangulariter emarginato; genis ante oculos eniter rotundatis, post oculos haud prominulis occipite post oculos haud tuberculato: elytris punctato-striatis, sutura apud basin haud depressa striolaque cutellari valde elongata, interstitiis paullo convexis 3^io^ quinquepunctato: netasterni lateribus ventroque toto sparsim punctulatis.* *Long.*, 20 *mm.*

Zambesi (*Dr. Bradshaw*).

Similar in size and facies to the larger individuals of *S. brevicollis*; but distinguished at once by the anterior angles of the clypeus not being prolonged to the apex of the labrum, as in that species and in *S. striatulus*, but only slightly advanced and broadly rounded at their apices. The 8th elytral interstice, as in the other species of the genus, is narrow and cariniform at the extreme base and apex.

Sub-fam. *PELECIINÆ.*

Disphæricus multiporus, sp. n. D. quangoano *(Quedenf.), affinis et quoad formam similis, sed elytris versus basin minus longe angustatis, thorace utrinque biseriatim punctato, etc. Castaneo-rufus (immaturus?) palpis antennis pedibusque rufo-testaceis; thorace breviter ovato basi angustissime constricto ibique bisulcato, lateribus utrinque biseriatim setifero-punctatis, nec sulcatis, discoque antico punctis similibus confuse dispersis: elytris ovatis, a quarta parte antica usque ad pedunculum recte angustatis, punctulato-sulcatis (sulco suturali et marginali solum basin attingentibus) interstitiis* 3^io^, 5^to^, 7^o^, 8^o^, *et* 9^o^ *versus basin punctis setiferis nonnullis impressis.* ♂. *Tarsi antice articulis* 4 *late dilatatis* 4^to^ *breviter bilobato; tibiæ gradatim dilatatæ apice extus acutissimæ.* *Long.*, 10 *mm.*, ♂.

R. Ogowé.

Smaller than *D. quangoanus* (Quedenfeldt), which, from the long and gradual attenuation of the elytra towards the base, must be specifically different from *D. gambianus* (Waterhouse), of which Quedenfeldt considered it a variety. *D. quangoanus* differs clearly from our species in the thorax having a single row of setiferous punctures on each side, in an impressed line, with a few larger punctures on its inner side. In *D. multiporus* there are two rows of large punctures, the lower one (representing the single row of Quedenfeldt's species) in a line curved downwards, and shortened at both ends, the inner consisting of twelve punctures in an uninterrupted row from base to apex. The dilated middle tibiæ are, perhaps, a sexual character.

Disphæricus tarsalis, sp. n. *Niger nitidus, palpis et tarsis testaceo-rufis antennis extus rufescentibus: thorace ovato basi angustissime constricto,*

lateribus linea impressa simplice et intra lineam punctis setiferis 4 late separatis: elytris prope basin solum citiusque angustatis punctato-sulcatis, interstitiis lævibus. ♂. Tarsi antici sicut in D. multiporo; *tibiæ intermediæ versus apicem dilatatæ et apice spinosæ.* *Long.*, 7½ *mm.*

Angola (*Monteiro*).

Not much larger than the Natal *D. ebeninus* (Chaud. = *natalicus*, Westw.), from which it differs *inter alia* in the sculpture of the elytra, *D. ebeninus* having only a sutural and marginal sulcus, and the disc quite smooth. The ventral segments are very convex, and their articulation marked by a deep sulcus, as in *D. ebeninus* and *D. multiporus*.

Disphæricus Lastii, sp. n. *Longius ovatus, nigerrimus, palpis antennis extus tarsisque obscure rufescentibus: oculis minus prominentibus: thorace subquadrato-ovato, basi angustissime constricto; lateribus marginatis et linea impressa medio unipunctata: elytris longius ovatis prope basin curvatim angustatis, sulco lato suturali punctato (basin haud attingenti) fovea juxta basin, striisque punctatis duabus marginalibus (interiori versus apicem sulcata), disco lævi. ♂. Tarsi antici articulis 4 maxime dilatatis. Tibiæ anticæ apice extus spina valida exstanti armatæ; intermediæ apice dilatatæ.*

Long. 12—14 *mm.*, ♂.

Mamboia (*Mr. Last*); four examples, all males.

Sub-fam. *PANAGÆINÆ*.

Tefflus Megerlei, Fab.—A good structural character, distinguishing this from the allied large species, has been recently discovered by Quedenfeldt, viz., the straight carina of the outer edge of the anterior tibiæ in both sexes, from the base to the long and outwardly-directed apical spine. This is shown in numerous examples found in East Africa, at Mamboia, and Mpwapwa, which differ from Senegal and Guinea examples of *T. Megerlei* only in the narrower head and neck, and correspondingly narrow thorax (between the anterior angles) and more sinuated front margin. In these features they approach the true *T. Delegorguei*, from South-East Africa, which is considered by Quedenfeldt, I think unnecessarily, as a var. of *T. Megerlei*.

Tefflus Hacquardi, Chaudoir, in Oberthür's Coleopt. Novitates, i, 29. This appears to be the commonest of the large black species of *Tefflus* in Eastern Equatorial Africa. It has the heavy, robust form, long antennæ, and broadish head and neck of *T. Megerlei*, but the finer rugose-punctate thorax of *T. Delegorguei*. Its best distinguishing character, however, is the distinct dilatation of the anterior tibiæ

near the apex, caused by a strong flexure of the carina; a structure quite different from the dentiform projection in the same place, which distinguishes the *T. denticulatus*, described by General Quedenfeldt. The thorax is very variable in outline.

Found at Mombasa (*Mr. Wakefield*), Taveita (*J. Thomson*), and Mamboia (*Last*).

Tefflus brevicostatus, Quedenfeldt, Berl. Ent. Zeit., 1883, p. 275, tab. iii, fig. 14.

Usambara (*Archdeacon Farler*). General Quedenfeldt's typical example in the Berlin Museum came from the same district.

Tefflus carinatus, Klug, Peters' Reise, Zool., p. 161, t. 9, fig. 7.

Mombasa (*Mr. Wakefield*).

According to Quedenfeldt, who has examined Klug's type in the Berlin Museum, this is nothing more than a black form of *T. violaceus*, Klug.

Tefflus violaceus, Klug, Peters' Reise, Zool., p. 161, t. 9, fig. 8.
Var. purpuripennis, Chaudoir (MS.).

I have not seen the true *violaceus* from the mainland in the latitude of Zanzibar, but it has been sent in great abundance and without any admixture of *T. carinatus* or other variety, from Lake Nyassa. It appears to be represented nearer the equator by the purple-coppery var., named *T. purpuripennis*, by Chaudoir. Usually this form is rather smaller, more slender, and offers a much scantier punctuation on the prosternal episterna than *T. violaceus*. My examples are from Bagamoio and Usambara, near the coast. 200 miles in the interior a larger and broader form, like the true *violaceus*, ♀, is found, with coarsely punctured anterior episterna.

Tefflus cribriceps, Chaudoir, in Oberthür's Coleopt. Novitates, i, 29.

Mpwapwa; one example.

A very distinct hairy species, with the sides of the thorax sharply sinuated near the base, and then straight to the perfectly rectangular hind angles. M. Oberthür's specimens were from Mhonda, not far from Mpwapwa.

Tefflus cychroides, sp. n. *In hoc genere gracillimus; niger, nudus; capite angusto post oculos elongato, lævi, vertice convexo: thorace anguste rhomboïdeo, ante basin lateribus parallelis angulisque posticis rectis, confertim sat grosse vermiculato-rugoso: elytris graciliter ovatis antice gradatim angustatis, humeris nullis, costis angustis, interstitiis crebre transversim rugatis: episternis anticis politis impunctatis.* *Long.*, 30 *mm.*, ♂.

Mamboia (*Mr. Last*); one example.

Nearest allied, apparently, to *T. muata*, Harold, of West Central Africa; but the head much narrower and more elongated behind the eyes. The space between the 7th elytral costa and the margin is plane and granulated, as in *T. violaceus*.

Craspedophorus glaber.—*Breviter oblongus, latus, niger nitidus, partibus oris, antennis (basi exceptis) genubus tibiis et tarsis fulvo-piceis, elytris utrinque maculis magnis aurantiacis duabus, 1ma sub-humerali interstitia 5—9, 2da sub-apicali interstitia 1—8 tegentibus: capite lato, oculis valde prominentibus: thorace fere sicut in* C. grosso (*Murray*), *sed lateribus adhuc latius explanato-reflexis; elytris breviter subovatis profunde punctulato-striatis, interstitiis impunctatis glaberrimis.* *Long.* 16 *mm.*

Mount Cameroons; many examples.

In everything except the more triangular apical joint of the palpi this species accords with the first sub-section of Chaudoir's genus, *Craspedophorus* (Essai Monograph. *Panagæides*, 1878, p. 11). It has very short mesothoracic episterna, much broader than long, strongly crenulated anterior edges of ventral segments, and in the form of the thorax resembles closely *C. grossus*. It differs, however, from *C. grossus* and from *C. ruficrus* (Laf.) and *Lafertei* (Murray) in the more prominent eyes and narrower neck (the crown very coarsely punctured). It is a much shorter and less convex species than *C. grossus*. The thorax is relatively broader and more angularly dilated in the middle, and its surface is very strongly punctured, the punctures in the middle being distinctly separated from each other. In the elytral surface being quite destitute of hairs and the interstices impunctate it is distinguished from all allied species. The anterior red spot of the elytra is quadrate, and reaches nearly to the base, the sub-apical spot is shorter and more transverse, but variable in length. According to the shape of the apical joint of the palpi the species would belong to *Epicosmus*, according to Chaudoir, but all the other characters are those of *Craspedophorus*.

Craspedophorus cameronus.—C. Leprieuri (*Castl.*) *proxime affinis. Oblongo-ovatus, niger, palpis, antennis (basi exceptis) tibiis et tarsis picco-rufis, elytris utrinque maculis duabus aurantiacis—1ma interstitia 5—8 tegenti apud 7um et 8um maxime dilatata et humerum attingenti; 2nda sub-apicali minori interstitia 5—8 tegenti: capite supra haud depresso, vertice et fronte grosse punctatis; thorace lateribus late explanatis postice reflexis, medio rotundato-dilatato, antice arcuatim angustato, margine antico profunde sinuato, postice multo magis quam in* C. Leprieuri *angustato ibique margine sinuato et ante anguli denticulum profunde emarginato, toto superficie grosse punctato: elytris punctato-striatis breviter setosis, interstitiis sat sparsim punctulatis.* *Long.* 15 *mm.*

Mount Cameroons; many examples.

Belongs to the same section as *L. Leprieuri*, in which the posterior episterna are longer than broad, the ventral segments not crenulated on their fore margins, and the neck not constricted above. The thorax has the same broad outline—much broader and more dilated anteriorly than in *C. grossus* and its allies, but it is narrower, especially behind, than in *L. Leprieuri*. The scanty punctuation of the elytral interstices—the punctures not being more than 3 or 4 in a transverse row—and the great length of the red basal spot on the 7th and 8th interstices, further amply distinguish the species.

(*To be continued*).

DESCRIPTION OF A NEW SPECIES OF THE COLEOPTEROUS GENUS *MACRONOTA* (*CETONIADES*) FROM CEYLON.

BY D. SHARP, M.B., F.E.S.

During his recent fruitful visit to Ceylon, Mr. Geo. Lewis met with a *Macronota* apparently previously unknown, and as it is a species of much interest, I have, at his request, described it and named it in honour of the amiable and esteemed wife of A. Haly, Esq., of the Colombo Museum. Mr. Lewis met with this insect on a high ridge on the mountains between Bogawantalava and Balangoda, where, in March, 1882, it was clinging to the the stems of young Cinchona trees. Four or five examples comprise the whole of his captures.

Macronota Halyi.

Nigro-rubro-ochraceoque variegata; capite thoraceque ochraceo-squamosis, nigro-vittatis, hoc utrinque et ante scutellum macula nigra notato; elytris rubris, ochraceo-signatis, hic inde nigro variegatis; pygidio medio macula magna, utrinque macula parva, ochraceis; corpore subtus nigro ochraceoque variegato, pectore femoribusque fulvo-pubescentibus; pedibus rufis.

Long. corp. 18, *lat.* $8\frac{1}{2}$ *mm.*

Clypeus with reflexed margin, not emarginate, rufescent; a medial stripe along the head black, and on each side near the eye a smaller black mark, these marks, separated by broad ochraceous vittæ, converging, but not meeting on the vertex: punctuation confined to the anterior part. The thorax is slightly more than half as broad as the elytra, becomes considerably broader from the front margin till two-fifths of the length is attained, in the remaining three-fifths it becomes slightly narrower, but is broader at the base than at the front margin, the base forms in the middle only a short broad lobe over the scutellum; the greater part of the surface is ochraceous, but the fine lateral margin is black, and there is a black dot near each

side just in front of the widest part, there are also two black vittæ along the middle, of somewhat irregular outline and narrower in front, and there is also a black mark of quadrate form in front of the scutellum, which causes the central yellow vitta to be bifurcate at the base; the ochraceous portions have quite the appearance of a coarse squamosity, but this appearance is really only due to excessively fine interruptions caused by a scratching of the surface, a few very short pallid setæ are distributed over the surface, and are most easily perceived on the crenate lateral margin. The scutellum is black, ochraceous at the base, and its sides at the apex are marked with ochraceous in a V-like form; the elytra are in larger part of a dull brick-red colour, feebly depressed along the suture, longitudinally sub-costate along the middle, the costa being broken in front of the middle, and its anterior portion placed nearer the middle than that behind it; along the suture the colour is black, and on the middle this black colour is expanded to form a quadrate mark, which is divided by a furcate ochraceous mark; from the posterior part of this there is an extension of the ochraceous colour backwards, the black colour there being thus limited to the raised sutural margin, there is a transverse sub-reniform mark on each side quite close to the apex; external to the costa there is a black vitta, interrupted by two large ochraceous marks, and some few irregular smaller marks; the surface is marked with some undulate transverse aciculations: the pygidium may be either red or black, and the aciculations are more distinct on it than elsewhere. The under-surface is black, marked with transverse patches of a very pallid ochraceous colour. There is only an extremely slight prominence of the mesosternal process. The male has the second, third, and fourth rings of the hind body concave along the middle, and the front tibia acutely bidentate. The female is unknown to me.

This is a species of considerable interest; in the first place because the strongly margined unnotched clypeus is a very exceptional character in the genus, and next because of its peculiar resemblance to the female of *M. quadrivittata*. In this latter species the male is very unlike its female, whereas the male of *M. Halyi* almost exactly resembles superficially the female of *M. quadrivittata*; I am not acquainted with the female of *M. Halyi*, but have little doubt it will be found closely to resemble the male. We have thus a very curious mimetic analogy between the two species, which may be thus briefly stated: *M. Halyi* and *M. qaadrivittata* occur in company, and structurally are very distinct species, but the female of the latter simulates the appearance of the former species, though the male of *M. quadrivittata* looks very different. I may add that I think it will not be very long before the two insects will be treated as belonging to distinct genera.

Southampton: *December*, 1885.

A HUNDRED NEW BRITISH SPECIES OF *DIPTERA*.

BY G. H. VERRALL, F.E.S.

(*Continued from p.* 182).

21. *Empeda nubila*, Schum.: probably the *Limnobia tenella* of Walker (Ins. Brit. Dipt., iii, 300). The species is not uncommon, occurring in my garden, and I have also caught it at Lymington, Bonchurch, Three Bridges, and in the Isle of Arran. As to the true *Goniomyia tenella*, I must leave that and its allies at present, as I seem to have from four to six species under it.

22. *Molophilus appendiculatus*, Stæg.: seems to occur all over north and central Europe; it is very common, but usually confounded with *M. ochraceus*, Mg., which is however less common. As I understand them, these two species are clear yellow or ochreous with yellowish wings and the frons almost all yellow.

23. *M. propinquus*, Egger:

This species and the next differ from the last two by being larger and more obscure in colour, especially on the abdomen; both also have a darkened frons—in *M. propinquus* quite blackish-grey, and both have more smoky-yellow wings. In *M. propinquus* the upper lamella of the male genitalia is broad and seems blunt at its end, it is in fact almost square at its upper inner angle, being only a little produced so that the two lamellæ usually touch there, at the lower inner angle of these same lamellæ are short black hooks, and below and between them the long thin black sickle-like appendages, the lower lamellæ in both species run out in a narrow hairy process on each side.

It is common.

24. *M. bifilatus*, *n. sp.*: this seems to me to be the commonest British species.

It is allied to the last, but very distinct in the male genitalia; it is also still more obscure, the abdomen being usually entirely darkened except at end, and one female is almost all brownish-grey (= *M. griseus*, Mg.?), the frons is however a little more reddish, the pleuræ are brown rather than ochreous, and the antennæ are usually more darkened, with often the two basal joints more determinately yellow, also what Zetterstedt calls the lower fork of the wing veins is distinctly shorter than the upper, while in *M. propinquus* they are nearly equal; the male genitalia are most distinct from any species, in that they have only two very long black sickle-like middle appendages, no other portion being black, but these two being very prominent; the upper lamellæ are smaller than in *M. propinquus*, but bear at their upper inner angle a pair of shortish rather thick processes, which usually lie close together (just as the lamellæ usually touch in this part in *M. propinquus*); there are no black hooks at the lower inner angle. I do not think this can possibly be Meigen's *M. griseus*, as that must surely be more grey, and seems to have been recognised by Zetterstedt. Walker's *Erioptera grisea* is certainly not a *Molophilus* at all, according to his table, and his type specimen in the British Museum is a true *Erioptera*.

25. *Rhypholophus varius*, Mg.: this rather handsome species occurred freely near here in a wood in the fen at Chippenham last September; Stephens reputed it as British with a query, and Curtis without a query, while in February, 1870, Mr. B. Cooke sent me a specimen named *Erioptera varia*, but his specimen has the last vein short; what it is I cannot make out at present.

26. *R. hæmorrhoidalis*, Ztt.: I captured four specimens of this a few days after taking *R. varius*, in another marshy wood near the fen at Exning.

27. *R. similis*, Stæg: one specimen at Braemar in July, 1873.

28. *Dactylolabis Frauenfeldi*, Egger: the late Mr. J. C. Dale caught many specimens of this, and recognised it as a new species, which he called *Limnobia alpicola*, and even saw it was generally distinct from any other British species, but I do not think he ever described it. One specimen out of several which he gave me has on the label attached to it "Lakes," hence I suppose it occurs in the "Lake District."

29. *Limnophila punctum*, Mg.: Walker's *L. punctum* is only *L. dispar*, Mg., both from description and types, but I caught a true *L. punctum* at Rannoch in June, 1870.

30. *L. fuscipennis*, Mg.: in the New Forest last June; a clear character separating this and *L. discicollis*, Mg., from any *Limnophilæ* I know is that the base of the second sub-marginal cell is at a right angle with the præfurca.

31. *L. lucorum*, Mg.: Walker's *L. lucorum* is only *L. ochracea*, Mg., but true *L. lucorum* occurred freely at Lyndhurst and Lymington last June. *L. lucorum* has the marginal cross-vein at the base of the fork, or exceedingly near the base.

32. *L. sepium*, *n. sp.*: this is probably Zetterstedt's *L. lucorum*, var. β, and had I not taken numerous specimens of each, I should have thought it immature *L. lucorum*; however, I am now convinced it is distinct, as follows:—

L. lucorum.	*L. sepium.*
Pleuræ clear light grey, *never* yellowish.	Pleuræ always yellowish.
Marginal cross vein *at* fork.	Marginal cross vein *after* fork (because the fork is longer).
♂ genitalia brownish-yellow.	♂ genitalia more reddish and more hairy.

In *L. sepium* also the antennæ are more brownish after the base rather than blackish, and the lines on the thorax are more indistinct and the middle one never doubled, the abdomen is more ochreous, with an indistinct dorsal line, also the wings are a little paler.

I caught 19 specimens last June at Lyndhurst, Freshwater, and Lymington, at the last place it was exceedingly abundant.

33. *Idioptera pulchella*, Mg.: numerous specimens of both sexes in June, 1872, near Lyndhurst. Walker's *L. fasciata*, L., is probably this, but he does not mention the short wings of the female.

34. *Pachyrrhina guestfalica*, Westh.: this recently described species is abundant in my garden, while its ally, *P. cornicina*, occurs in the neighbourhood, though not in the garden.

35. *P. maculosa*, Mg.: common by roadsides about here in June, also about Lymington and Lyndhurst. Walker has mixed up this species and *P. histrio* under *Tipula flavescens*.

36. *Tipula scripta*, Mg.: in June at Bonchurch, Lynton, and Boxhill; it is undoubtedly Walker's *T. excisa*, Schum., but Schummel's species has never been clearly recognised.

37. *T. confusa*, Van d. Wulp: abundant on fir trees at Barton in September last; this species was only described in 1883.

38. *T. marmorata*, Mg.: I believe several old specimens which I possess from British collections belong to this species. It is given as British by Stephens, but of course at that time *T. confusa* was not distinguished.

39. *T. obsoleta*, Mg.: Lewes in October, also in old collections.

40. *T. vittata*, Mg.: I have an old specimen which I have no doubt is British. It is included in Stephens' Catalogue.

41. *Pachygaster tarsalis*, Ztt.: I possess a female of this, which was in the late Mr. Wilson Saunders' collection.

42. *Odontomyia angulata*, Pz.: a female which I caught at Tuddenham on July 20th, 1880, I can only refer to this species.

43. *Chrysops quadratus*, Mg.: this makes a third British *Chrysops*, all are very closely allied yet truly distinct; the female may be readily distinguished by the almost isolated black dot on the luteous base of the abdomen. I have specimens from Lyndhurst, Bournemouth, Wicken, and Abbots Wood in Sussex.

44. *Tabanus græcus*, F.: in the late Mr. Wilson Saunders' British collection was a female of this; I would not introduce the species as British, but for the fact that it is widely spread, and has occurred as close as France.

45. *Scenopinus glabrifrons*, Mg.: Mr. H. T. Stainton once gave me a female of this. I do not know its history.

46. *Bombylius canescens*, Mik: our usual small *Bombylius* with unspotted wings is this species; whether we have more than one small species I am at present doubtful.

47. *Rhamphomyia spissirostris*, Fln.: two or three specimens at Tongue on June 18th, 1884.

48. *R. dentipes*, Ztt.: a pair at Lynton on June 17th, 1883.

49. *R. fumipennis*, Ztt.: three specimens (2 ♂, 1 ♀) at Muchalls on June 4th, 1884, and a pair (which I believe belong to the same species) at Rannoch in June, 1870. It is a fine species, and the only large one I know as British which has black halteres.

50. *R. plumipes*, Fln.: this is very close to *R. geniculata*, Mg., which I have already introduced as British (Ent. Mo. Mag., xix, 224), but *R. plumipes* has the legs more brownish-yellow; my two species are clearly those intended by Zetterstedt. *R. plumipes* was abundant at Rannoch in June, 1870.

51. *R. simplex*, Ztt.: a rather small lightish grey species, which I have taken abundantly in May on the banks of the Cuckmere and the Ouse in Sussex, and also at Inverness and Aberlady in June, seems to me to answer very well to Zetterstedt's description of this supposed rare species.

52. *Empis caudatula*, Lw.: common in June or the end of May; I have specimens from five localities in Sussex, two in Cambridgeshire and one in Surrey.

53. *E. æstiva*, Lw.: very common in June and the beginning of July; I have specimens from numerous localities, extending from Penzance to the Lake District and to Newmarket.

54. *E. volucris*, Mg.: a species which I believe to be this was abundant at Lyndhurst on June 22nd and 26th, 1872.

55. *Oreogeton flavipes*, Mg.: common and widely distributed from Penzance to Braemar, and occurring from June to September; it is undoubtedly often mistaken for a *Hilara*; Stephens reputed it as British in his Catalogue.

56. *Clinocera plectrum*, Mik: a few specimens at (I think) Corriemulzie Falls, Braemar, in July, 1873, as I am informed by Mik who has had all my *Clinoceræ* to examine.

57. *Lepidomyia albiseta*, Ztt.: two females at Three Bridges on August 26th, 1874.

(*To be concluded in our next*).

NOTES ON THE BRITISH SPECIES OF THE GENUS *EUPLECTUS*, INCLUDING A DESCRIPTION OF *E. NUBIGENA*, REITTER, A SPECIES NEW TO BRITAIN.

BY W. G. BLATCH.

In writing the following notes, my aim has been to make the determination of our species of *Euplecti* as easy as possible to Coleopterists, and with that view I have been led to classify them under a somewhat different arrangement than usual. My plan may not be the best possible one, but, at least, it has the merit (so it appears to me) of grouping the species much more naturally than any other I have seen, and also (a matter of no little practical importance) of simplifying the work of naming specimens. Of most of the species I have examined a large number of examples, not only in my own collection, which is considerable, but in several others, the owners of which have kindly placed them at my service. I am much indebted to Mr. P. B. Mason for his kindness in allowing me the free use of the collections formed by Mr. Rye and Mr. Wilkinson, also to the Rev. W. W. Fowler, Dr. Power, and others.

My first idea (having been very successful in hunting up these interesting little beetles) was simply to record my own captures, with notes of localities and stray observations on points of difference in certain species; but, in working up the matter, my jottings multiplied and grew until they assumed the form in which I now present them to my co-workers, the readers of the Ent. Mo. Mag., to whom I trust they will prove of some use.

I. Abdomen with a more or less sharply defined depressed area, in middle of base of first two dorsal abdominal segments; dorsal striæ on elytra distinct, and reaching more or less nearly to middle.

A. Species lighter, red or reddish-yellow.

a. Head with a distinct basal fovea.

1. E. Kunzei, Aubé, Sturm, Col., 1841, p. 49; Ann. Soc. Ent. Fr., 1844, p. 143; G. R. Waterhouse, Trans. Ent. Soc. Lond., 1861. *E. brunneus*, Grimmer; E. Reitter, Best. Tab. Eur. Col., v, 524.

Long., 2 mm. This species may be recognised, *inter alia*, by its large size, reddish colour, the superior size and squarish form of its head, with its basal fovea, the rather deep depressed area on the first two segments of the abdomen, the sides of which depressions are divergent, and also by the characters of the ♂. In that sex the 5th ventral segment of the abdomen has an oblong impression in middle of base, the 6th segment is widely emarginate at the apex, and bears on each side a tubercle tufted with long whitish hairs; the sides of the abdomen underneath are also clothed with rather long hairs.

Of this fine species I have seen three specimens, a ♂ taken by Dr. Power at Darenth, and two ♀ from Rye's collection. It is evidently very rare.

b. Head without any distinct basal fovea.

1. E. Duponti, Aubé, Mon. Pselaph., p. 57.

Long., 1·6 mm. Similar in size and general appearance to *E. Kunzei*, but with head rather smaller, and more contracted and rounded behind eyes, which are slightly more prominent. Thorax with a discoidal channel, the basal foveæ connected by only a rudimentary transverse groove. Dorsal striæ on elytra somewhat longer than in *E. Kunzei*, and parallel with sutural striæ. The depressions at base of abdomen feebler and parallel-sided. Legs stouter, and with all tibiæ in the ♂ armed with a small spur at apex, that on posterior tibiæ being rudimentary and placed just before apex. The ♀ seems to be smaller and duller than the ♂, and less distinctly punctured.

I have seen two examples (♂) of this well-marked species, both belonging to Mr. P. B. Mason, one of them standing in Rye's collection under the name of *E. punctatus*, and the other in Wilkinson's collection. The latter was accompanied by a ♀ which, to my great regret, whilst in my temporary possession, became accidentally damaged beyond recognition.

Found by Mr. Lawson near Scarborough. Very rare.

2. E. punctatus, Muls., Opusc., 12 cah., 1861, 76.

Long., 1·4—1·5 mm. Smaller than either of the preceding species; reddish-yellow, with lighter antennæ and legs. Head large, but rather short, very wide across eyes, especially in ♂, and strongly punctured all over, except on depressed front margin; antennæ shorter than in *E. Kunzei* and *E. Duponti*. The thorax is also more or less strongly punctured all over, the discoidal channel rather large, and often continued to central basal fovea. The elytra are not so strongly punctured as the other parts, and the basal depressions on abdomen are much narrower and feebler than in *E. Kunzei*. The ♂ has a spur at apex of intermediate tibiæ and a deep fovea on last ventral abdominal segment; the same segment in the ♀ has a shallow fovea.

I have captured this species in some numbers in Sherwood Forest, and also more sparingly in the New Forest, Dean and Bewdley Forests, on Cannock Chase, and at Knowle and Salford Priors in Warwickshire, always under bark.

Represented in Rye's collection by a ♂ *E. Duponti* and a ♀ *E. Karsteni*.

3. E. Karsteni, Reich., Mon., p. 71, tab. 2, fig. 21; Waterhouse, *loc. cit.*

Long., 1—1·2 mm. Slightly inferior in size to *E. punctatus*, with thorax much more narrowed behind. The two large frontal punctures on the head are placed close to the side margin, a constant character, and apparently peculiar to this species. ♂ with a very rudimentary spur near apex of intermediate tibiæ. Basal depressions on abdomen shallow with divergent sides.

This species is sometimes made to do duty for *E. punctatus*, and I constantly find it mixed up in collections with *E. signatus*; specimens of the latter, on the other hand, being frequently substituted for *E. Karsteni*.

I do not consider this a very common species, although I have met with it in most localities in which I have hunted for *Euplecti*, including Smallheath, Edgbaston, Sutton Park, and Knowle near Birmingham, Salford Priors, Cannock Chase, Bewdley Forest, and Sherwood. It is found in hot-beds in company with *E. signatus*, amongst *débris* in barns, and also under bark of dead trees.

4. E. SIGNATUS, Reich., Mon., p. 73, fig. 22; Waterhouse, *loc. cit.*

Long., 1·1—1·2 mm. Generally a little larger than *E. Karsteni*. Head punctured at sides only above the eyes, grooves deep, convergent, uniting in a curve with the transverse depression in front, the puncture at each end of the latter being placed farther from the side margin than in *E. Karsteni*. Depressions at base of abdomen moderately deep, their sides divergent. Intermediate tibiæ of ♂ armed with a small spur at apex, varying in size in different individuals. 6th ventral segment of abdomen in ♂ emarginate, with a large deep fovea in middle, on each side of which is a very minute tubercle.

Abundant in hot-beds. On one occasion I found two specimens in rotten wood in Sherwood Forest.

B. Species darker, black, pitchy-black or pitchy-red.

a. Head with a distinct basal fovea.

1. E. NANUS, Reich. *E. Kirbyi*, Denny, Mon. Psel.; Waterhouse, *loc. cit.*; Ent. Mo. Mag., xvi, 123.

Long., 1·5 mm. The coloration of this species is peculiar, the fore parts being pitchy and the abdomen reddish, the antennæ and legs lighter. Pubescence rather long. Grooves on head strongly convergent, forming an inverted V more or less pronounced, frontal pair of punctures absent; the triangular shape of the basal fovea, together with the convergent grooves, give the central raised area the form of an arrow-head. The insect is punctured all over, with a row of punctures in each sutural and dorsal stria, the latter elongate, extending beyond middle of elytra. Basal depressions on abdomen distinct, their sides very divergent. ♂ with a distinct spur at apex of intermediate tibiæ, 5th ventral segment of abdomen deeply and widely emarginate at base, and depressed in middle of apex. 6th segment with a transverse groove in middle.

Rather variable in size, colour and sculpturation. Some examples are uniformly reddish; some are strongly others feebly punctured, and whilst the grooves on the head mostly take the V form, others are decidedly more or less U shaped. On a fair proportion of the specimens I have examined there is a rather distinct short stria midway between the dorsal and sutural striæ of the elytra.

After carefully examining a large number of specimens of both sexes, I have come to the conclusion that the beetle described by Mr.

Waterhouse as *E. Kirbyi* is only a form of this species, although for a long time I was inclined to regard it as distinct.

I have captured this species in some numbers in Sherwood Forest, under bark of fallen trees; also near Birmingham, at Bewdley, Cannock Chase, Hopwas Wood, Windsor, and the New Forest. It occurs in hot-beds, but certainly, in my experience, seems to prefer a sub-cortical life.

b. Head without any distinct basal fovea.

1. E. NIGRICANS, Chaud. *E. Dennyi*, Waterhouse, *loc. cit.* *E. sulcatulus*, De Saulcy. *E. piceus*, Mots.

Long., 1·8 mm. Black or pitch-black, antennæ and legs bright chestnut. Head short and broad, strongly punctured, especially near eyes, temples short, contracted behind, frontal depression traversed by a transverse groove, terminating in a deep puncture on each side. Besides the generally punctured surface there is a row of distinct punctures on each side of suture of elytra. Basal depressions on abdomen broad and shallow, with very divergent sides. The ♂ characters are remarkable; the middle and posterior tibiæ are armed with a rather strong spur at apex, the metasternum is deeply grooved along the middle, and on each side, near the posterior coxæ is a pointed tubercle, the 4th ventral segment of abdomen is bisinuate, 5th segment partly covered by a broad semi-circular plate bearing a blunt tubercle on each side, 6th segment depressed at base, emarginate at apex. Metasternum of ♀ also channelled, but less deeply than ♂.

In Mr. Wilkinson's collection, now in the possession of Mr. P. B. Mason, is a fine ♀ of this species which differs from typical specimens in being more intensely black, and in having very dark pitchy-brown legs and antennæ. It is the only example I have ever seen with the latter characteristics.

Immature specimens of this distinct species are of frequent occurrence, and, being destitute of any trace of the usual pitchy hue, are sometimes mistaken for other and totally different species. I have examined a specimen named by Dr. Sharp as *E. piceus*, and another returned by Brisout as *E. sulcatulus*, both of which are pale forms of *E. nigricans*. The specimens in Rye's collection, standing under the name of *E. Dennyi*, are also referable to this species.

This has generally been considered a rare beetle, but I have never had any difficulty in finding it in abundance; in fact, during the last four or five years I have captured and distributed several hundreds of specimens. It is decidedly a sub-cortical species, but has occurred rarely in hot-beds. Plentiful in the neighbourhood of Birmingham, also at Sutton Park, Knowle, Hopwas Wood, Cannock Chase, Bewdley and Sherwood Forests; in short, I find it in every locality in which I collect.

2. E. SANGUINEUS, Denny, Mon. Psel., p. 10, pl. 1, fig. 2. *E. nanus*, Waterhouse, *loc. cit.*

Long., 1·2—1·5 mm. Dark specimens of this very common species often do

duty in collections for *E. nigricans*, but no one who has seen the two beetles can possibly confuse them, except through carelessness. Compared with *E. nigricans*, *sanguineus* is smaller and lighter coloured, head not so short in proportion to its width, temples longer and not so strongly rounded off behind, and the antennæ shorter. Thorax and elytra similarly formed, punctuation of latter feebler. Depressions at base of abdomen very deep, sides nearly parallel, and not extending so far backward as in *E. nigricans*. ♂ with a spur at apex of intermediate tibiæ only, 6th ventral abdominal segment emarginate at apex and with a deep depression in middle.

Abundant in hot-beds. I once found a few specimens in Sherwood Forest amongst *débris* under decaying logs, but never under bark.

3. E. BICOLOR, Denny, Mon. Pscl., p. 17. pl. 2, fig. 3; Waterhouse, *loc. cit.* *Biblo-porus bicolor*, Thoms., Scand. Col., 1861, tab. iii, p. 225.

Long., 1·1—1·2 mm. Pitch-black, mouth, antennæ and legs pale reddish-yellow. Head small, narrower than thorax, temples very short, the four large punctures arranged in the form of an oblong placed transversely, front margin not depressed. Thorax with a curved longitudinal groove on each side, basal foveæ not connected by a transverse groove. Dorsal striæ on elytra short. Depressions at base of first two abdominal segments very shallow, bounded on each side by a slightly raised, smooth and shining, triangular space. Intermediate femora of ♂ much enlarged and armed with a small sharp tooth at base, middle tibiæ dilated in the form of a strong triangular tooth; 6th ventral abdominal segment widely semi-circularly emarginate. Metasternum widely and deeply channelled in both sexes, but most strongly in ♂.

I have met with this singular little species in many localities in the Midland Counties, sometimes in profusion. Very abundant in Hopwas Wood near Tamworth, under bark of oak trees infested (and in process of destruction) by *Rhagium inquisitor*, Sutton Park, Cannock Chase, Bewdley, Sherwood and Dean Forests, always under bark. It affects not only oaks, but birch, beech and other trees.

II. Abdomen without any distinct depressed area at base of first two dorsal abdominal segments; dorsal striæ on elytra very short or entirely absent.

A. Elytra with short dorsal striæ.

1. E. NUBIGENA, Reitter, Best. Tab. Eur. Col., v, p. 522 (1881).

Long., 1·5—1·7 mm. A narrow, elongate species. Shining reddish-yellow, palpi, antennæ and legs paler; pubescence yellow, scanty, much longer at apex of abdomen than on rest of body, a few stronger hairs or bristles placed at intervals. Head rather large, widest behind, with two small deep punctures near base, about equidistant from each other and from sides, from each of which emanates a deep groove, these unite in front, forming an inverted U, and enclose a rather extensive raised area very smooth and shining; eyes small and inconspicuous. Antennæ rather long and slender, 1st joint a little darker than the rest. Thorax rather convex, broadest before middle, rounded in front, much narrowed behind, base finely bordered, a small deep fovea on each side some distance from base, and midway between this is a crescentic fovea, with only an extremely indistinct connecting

groove; discoidal fovea very small. Elytra rather elongate, narrowed at base, shoulders prominent, dorsal striæ deep but very short, curved, arising from a small deep puncture at base, midway between humeral angle and suture; sutural striæ straight, a puncture at base of each near scutellum, a regular row of distinct punctures on each side of suture. Abdomen elongate, slightly convex, without any trace of basal depressions. The whole insect is delicately punctured, but, with the exception of the sutural row, the punctuation is entirely connected with the pubescence. Some of my specimens have the femora and tibiæ more thickened in middle than others, and I am inclined to think these must be males, but after a careful examination, I am unable to point out any other difference between the sexes. Reitter describes the ♂ as having a fine longitudinal groove on the abdomen, the anal segment of which has a longitudinal keel.

I first captured this well-marked species (now recorded for the first time as British) in Sherwood Forest, in May, 1884, on which occasion I took a single specimen. On re-visiting the same locality in September, 1885, I had the pleasure of finding four additional examples. All of them occurred under bark of beech and oak logs.

Herr Reitter, to whom I am indebted for his kindness in determining the species for me, says that this beetle is found in the mountainous parts of Moravia and Silesia, Hungary, Caucasus, &c.

B. Elytra without dorsal striæ.

1. E. AMBIGUUS, Reich.

Long., 1 mm. Pitch-brown, covered with a fine grey pubescence. Mouth, antennæ and legs dirty yellow, club of antennæ and femora sometimes smoky. Head rather elongate, widest behind, considerably narrowed in front, with two large deep punctures between eyes, from which proceed two strongly impressed grooves converging in front; eyes rather prominent. Thorax broadest near the fore part, not very strongly narrowed behind, with three deep foveæ near the base, central one the largest, connected by a fine, rather deep transverse groove; no discoidal fovea. Elytra without dorsal striæ, but with six large punctures at base, the outer pair being the strongest. No depressed area at base of first two abdominal segments. Intermediate tibiæ of ♂ with a spur at apex.

This seems to be a scarce species; the only occasion on which I ever found it was some years since at Tewkesbury, soon after an extensive flood. My specimens occurred in moss stripped from poplar trunks, and would appear to have been driven there for refuge, the flood having encircled the trees. All subsequent attempts to procure further specimens from the same locality resulted in failure.

2. E. MINUTISSIMUS, Aubé, Mon. Psel., p. 59. *E. Garneysi*, Fowler, Ent. Mo. Mag., xvi, 158 (1879).

Long., 0·9 mm. Most nearly allied to *E. ambiguus*, but readily separated by its lighter colour and linear form; the eyes also are smaller, and the ♀ has a rather long pointed process at the apex of the abdomen.

[This species was taken by the late Mr. Garneys and myself in flood refuse in June, 1879, in large numbers, at Repton, Burton-on-Trent; it has not been found in Great Britain either before or since that time; it appears, also, to be a rare species on the continent. Aubé's figure bears no resemblance to the insect, but, as M. Brisout says that his types are identical, my proposed name cannot stand.—W. W. F.]

214, Green Lane, Smallheath,
Birmingham: *November*, 1885.

DESCRIPTION OF THE LARVA OF *SCOPARIA ANGUSTEA*, CURT., = *COARCTALIS*, ZELL.

BY G. T. PORRITT, F.L.S.

At the beginning of September, 1884, Mr. G. H. K. Crosland, of this town, brought to me for determination a number of specimens of this species, which he had taken during August on the north side of our cemetery wall. As this wall is within five to seven minutes' walk of my own residence, and as, whenever I had wanted to collect *angustea*, I had found it necessary to take a railway journey of over seven miles, and then sometimes not even see the insect, I was considerably astonished when Mr. Crosland told me he had counted as many as sixty specimens on the wall at one time. I had worked all round the locality with tolerable regularity for towards twenty years and yet had never seen a specimen within miles of the place!

Consequently, it was with much pleasure that on the 21st of July last I accompanied Mr. Crosland to the wall, where, on stripping off the moss, we soon found in plenty both full-fed larvæ and pupæ of a *Scoparia*, which, as I saw at once, did not belong to *muralis*, we had no doubt would prove to be *angustea*. This was further confirmed by our finding before we left the wall, even at that early date, a single fine imago of the species. As I passed the wall three days later—on the 24th,—I found two more imagos, and a week later again I picked off twenty specimens. On this day—the 30th,—also appeared the first specimen from the larvæ and pupæ I had collected. For a week or so from that date, the species was in great plenty, but towards the middle of August seemed to be rapidly decreasing in numbers, though Mr. Crosland told me he noticed specimens on the wall well into September. Altogether, including a nice series bred from the collected larvæ and pupæ, I set about 120 beautiful specimens. How I missed the species for so many years, supposing it to have been always there, is to me a mystery.

After such an experience, I was a little surprised to receive, on the 11th of August, from Mr. H. B. Fletcher, of Worthing, a good supply of quite small larvæ, not more, indeed, than about one-third grown, which Mr. Fletcher said were *angustea*, and which, indeed, I at once saw were perfectly similar to my July larvæ. Mr. C. G. Barrett had told us (Ent. Mo. Mag., xxii, 42) that on the south coast the species is probably double-brooded; and that would have been a satisfactory explanation had not Mr. Fletcher, in referring to Mr. Barrett's paper, written that he was tolerably satisfied only one brood occurred at Worthing, as he could scarcely have missed an early brood had it been present on the spot he found his larvæ. The first imago from these larvæ did not appear until October 10th, and the last on the 27th! It certainly is most odd that with only one brood in the year it should be well on the wing in our northern county before the end of July, and not appear on the south coast until October. The species is generally supposed to hibernate as imago, but whether it does so here I am unable to say. Some of my captured females deposited bright straw-coloured eggs, but it is quite possible that had they been unmolested, they might have retained them until spring.

Length, half to five-eighths of an inch, and, for a *Scoparia*, rather slender. Body cylindrical, and of nearly uniform width, tapering very slightly at the anal extremity: head about the same width as the second segment, and is, as is also the frontal plate, highly polished: skin and the large tubercles smooth and glossy; the segmental divisions deeply cut.

Ground-colour very dark smoky-grey, with an indistinct greenish tinge: head pale brown, the mandibles darker brown; frontal plate very dark sienna-brown, in some specimens as nearly black as possible: tubercles of a darker shade of the ground-colour, in some, like the frontal plate, being nearly black.

Ventral surface of a rather paler shade of the ground of the dorsal area, the legs ringed and tipped with black. Feeds in silken galleries on one of the common wall-mosses.

The pupa is about three-eighths of an inch long; bright pale yellow, the eye-cases, abdominal divisions, and anal tip, brown.

Huddersfield: *January 7th*, 1886.

Suffolk Lepidoptera.—For some years past I have been collecting information about Suffolk *Lepidoptera*, and hope to publish a list shortly. I should be greatly obliged by lists of recent captures, as many of my records are of somewhat ancient date, when those enthusiastic naturalists, the Rev. Joseph Greene and the late Rev. Harpur Crewe resided in that county.—E. N. Bloomfield, Guestling, Hastings: *January 13th*, 1886.

Chœrocampa celerio near Bury St. Edmunds.—My friend, the Rev. W. M. Hind, informs me that a specimen of *C. celerio* was taken at Honnington on September 19th. It is strange that so many of this rare species should have occurred this season.—ID.: *December*, 1885.

Danais Archippus at Exmouth.—A few days ago I was passing a cab-stand, when one of the men whom I have long known as a steady fellow, and the biggest "cabby" in Exeter, but certainly never imagined to be a brother entomologist, asked me to give him my opinion about something he had to show; and taking a box from under his driving-seat, he opened it, and, to my surprise, displayed a specimen of *Danais Archippus* unset, but in very good condition.

He told me it had been captured at an open window in Exmouth by some friends of his whilst lodging there during last August, and had been brought to him by them on their return, just in the state in which I saw it. He had not the slightest notion of the real character of his specimen, thinking it must be one of our British species not common in this neighbourhood; in fact, I have no reason whatever to doubt that he gave a true account of its capture.—J. HELLINS, The Close, Exeter: *January 9th*, 1886.

An appeal to entomologists.—Two species of insects, both highly ornamental, and neither of them in any way injurious, are attempting to naturalize themselves in our island, these are *Danais Archippus* and *Hypercompa Hera.* The former is the least likely to obtain a home with us, but to my knowledge specimens were both caught and seen near The Lizard last season, and if it can find a food-plant it may fix its abode in the south of England; the other, *Hypercompa Hera*, is found every year in Devon, and is probably annually recruited by fresh arrivals in the Jersey fruit steamers. Now, I wish to ask all true entomologists to give these colonists fair play, and not to attempt to extirpate them; specimens of both can easily be procured for examination if wanted. The captor of *D. Archippus* at The Lizard was offered £5 for one of his specimens! I never heard of an ornithologist offering £5 for the skin of a grey parrot which had escaped from its cage and been unfortunately shot in England. No one of any sense would believe that the *Archippus* was a true native.

The worth of any insect is:—

1. Its actual value as a specimen.
2. The value of any fact that this individual specimen can teach us—in the present case the fact would be that *D. Archippus* is sometimes brought over by American ships.
3. A sentimental value put on a specimen by its captor; as it may bring old scenes or old friends to his mind.
4. —Its value as a type. This, in a doubtful species, may be great: as proving that the specimen in question was the insect described under that name by, for example, Haworth or Stephens. So an insect given by Mr. Stainton with his label and name is a safe type for reference.

These must be the only four sources of value; and as *D. Archippus* is worth sixpence, the would-be purchaser must regard £4 19s. 6d. as the value of the fact that the butterfly may cross the Atlantic in a steamer, and not die of sea-sickness. Old Benjamin Franklin would say that "he pays rather dear for his whistle!"—R. C. R. Jordan, 105, Harborne Road, Edgbaston, Birmingham: *Dec. 10th*, 1885.

Lycænidæ at Cambridge in 1885.—In connection with the occurrence in England of *Lycæna Argiades*, it is noteworthy how abundant the "blues" generally were last year. I think I never remember seeing *L. Alexis* in such profusion as it was about this neighbourhood, and I also obtained as many specimens of *L. Corydon* as I cared for, although, from unavoidable reasons, I was able to devote very little time to collecting last season.—Albert H. Waters, Mill Road, Cambridge: *January 16th*, 1886.

Superstition regarding Acherontia Atropos.—The following story is given me by a friend residing at Teignmouth, who has heard it more than once from the principal actor (or sufferer) in it; and it is by no means a story of ancient days.

A fine specimen of *Acherontia Atropos* had been caught by a sailor on board ship out at sea, and brought ashore and given by him to a youngster, who being fond of curiosities received it as a great prize, and in his pride displayed it on the wall in his mother's room in a case specially made for it. Some time after the young man fell ill, and, during his illness, an old woman, who had officiated as nurse in his early days, and took an especial interest in him, paid his mother a visit of condolence, and unfortunately cast eyes on the "Death's Head." The cause of the illness was seen at once! "No wonder your son has fallen ill! and he'll never be well again as long as *that* thing is in the house!"

Of course she had plenty of instances to relate of the horrible danger of neglecting her warnings, till the mother in alarm promised to throw the unlucky thing away. But that was not enough, it must be burnt; nothing else would avert the impending evils—and into the fire it went. And before long the unfortunate curiosity-lover recovered his health—only to find that the good ladies' affectionate care had robbed him of his greatest treasure!—J. Hellins, The Close, Exeter: *January 14th*, 1886.

Gelechia vilella bred fifteen years ago.—In the month of July, 1870, whilst having a day's collecting on the banks of the Thames near Shoeburyness, I came across a number of larvæ crawling actively about, up and down, on a wooden fence. They were evidently full fed, and seeking a place for pupation. As far as I can remember, they were flesh-coloured, with a strong tinge of pink. At the foot of the fence and by the side of the pathway the common mallow (*Malva sylvestris*) was growing in profusion, and though at that time I was quite ignorant of the habit which the larva of *Gel. malvella* has of leaving its winter hibernaculum and rambling abroad, I fancied my larvæ might belong to that species. I collected a fair number, and from them bred at the beginning of September (or in August) six or seven imagos, which, answering fairly well to the description given of *malvella*, I placed

in my cabinet as that species, where they have remained ever since. Although I have twice come across the larvæ of *Gel. malvella* feeding in autumn, I have always failed to breed them.

This last autumn, however, I received a few bred *Gel. malvella* from Mr. E. R. Bankes of Corfe Castle, with which I hoped to complete my series. When, however, I came to compare them, I observed at once that these bred specimens were darker than my old ones, with the dark fascia much more clearly expressed; and, on further examination, I found that my old specimens were in reality not *malvella* at all, but *vilella*, Z., the black dot at the base of the inner margin, which I had failed to notice before, being conclusive. I am not aware if *Gel. vilella* has been recorded as bred, but am under the impression that it has not. Whether the larvæ I found had really fed on the mallow or on some other plant I cannot say; but if, as I believe, the imagos of *vilella* hibernate, and can be beaten from thatch in spring, these larvæ must have fed up the same summer. I hope, if all's well, during the coming season, to renew my acquaintance with the larvæ so unfortunately unrecognised 15 years ago.—W. Warren, Merton Cottage, Cambridge: *January 12th*, 1886.

Distribution of Lepidoptera.—Mr. Barrett, in his last month's note on this subject, has touched upon a very interesting question, and one which so far has not, to the best of my knowledge, been sufficiently investigated. Surely many Entomologists residing for many years in the same neighbourhood can call to mind numerous instances of fluctuation in the distribution of insects: not only that they may by chance capture a single specimen unknown in their district before, not only that certain insects are common one year and scarce the next, but what is far more interesting, that certain insects apparently become more abundant at the expense of others, and gradually spread by what appears to be a slow migratory wave from one locality to others.

I am not here speaking of the sudden appearance and equally sudden disappearance of such insects as *Colias Edusa* and *Vanessa Antiopa*, which, probably owing to their strong powers of flight, brilliant appearance, and numbers, thrust themselves on our notice and compel our admiration while we confess ignorance of the cause, but I refer to the slower and less obtrusive manner in which many so-called local insects change their metropolis from year to year, and become common where they were formerly unknown.

To explain my meaning further, I will example *Thecla w-album*, *Melitæa Artemis*, and *Arge Galatea*, which have come more especially under my notice at Marlborough, where the entomological records of the College go back for twenty years, and my own observations incorporated with the above for twelve years.

Thecla w-album is, I imagine, a typical local insect, and we had no record of its occurring at Marlborough until 1873; 8 years after accurate records were commenced, when in the August of that year it was taken sparingly by Mr. Meyrick, and singly by myself, in localities some miles distant from each other, but both east of the town. In July of the following year, I discovered what may be called their head-quarters, midway between the localities of the year before, and here they were

certainly in hundreds flying about the elm trees, and resting on the flower-heads of *Umbelliferæ* beneath the trees; in fact, Stephens' well known description of the insect at Ripley would (except for the slaughter recorded) have well applied to the present case. Since that year it has been more or less abundant at its metropolis; but what is very remarkable, it has spread during the last ten years to localities it undoubtedly never occupied before, viz.: a part of Savernack Forest, south of the town; stragglers actually in the town; and last year I am creditably informed a locality west of the town. One might draw from this the conclusion, that a slow migration was taking place from east to west, possibly by means of pregnant females wandering by chance circumstances from the head-quarters (as the odd specimens of 1873 may have done), or due to circumstances concerning which we know little.

The case of *Melitæa Artemis* was the converse of the above in many respects, inasmuch as twenty years ago it was captured regularly in two or three localities, and though local, was not, I believe, considered a rarity; however, about the year 1870 the species was almost if not quite extinct, and no record of capture until 1881 appears in the reports of the College Nat. Hist. Soc.: for my own part I am quite satisfied that if the species had occurred during those years I should have known it, as I was furnished with the exact locality, and hunted for it annually, but entirely without success. In 1881 it again appeared singly in widely different localities (the school-field amongst others), thus strangely departing from its usual habits; for the last four years specimens have been taken in similar chance localities, and so far they do not appear to have been able to make up their minds to renew the secluded habits of their ancestors. Are they to be looked upon as skirmishers from an unknown head-quarters on the look out for a better billet; are they the descendants of some chance straggling female; or are they obeying a law of which we are ignorant?

Arge Galatea is first recorded in 1873 from Great Bedwyn, ten miles east of Marlboro', where it occurs in abundance, and only required looking for; it appears to be following the same tactics as *Thecla w-album*, a few odd specimens having been taken by me in localities close to the town where they had certainly not been taken before; whether they will succeed in establishing themselves permanently in these new localities is not yet evident.

On the other hand *Leucophasia sinapis*, a species fifteen years ago not rare with us in one or two copses, and from which I have a specimen, has now entirely died out, but without apparent cause.

The above remarks are confined to the butterflies only, but I imagine that such fluctuations are equally shared by the moths, though I can give no certain data regarding them. In the case of *Bombyces* and *Noctuæ*, the matter would be more difficult to investigate, and in the latter sugaring, carried out systematically for a number of years would have to be done; and this is not always practicable, and includes the proverbial uncertainty of the method. *Geometræ* are more hopeful, but I would lay stress upon the Micros giving the most satisfactory results, as many species are extremely local, and the majority being of weak powers of flight, a migration might be more easily noted.—N. Manders, Army Medical Staff, Chatham: *January 10th*, 1886.

Note on the synonymy of Perla virescentipennis, Blanchard.—This remarkable species was first published by Blanchard in Gay's "Historia fisica y politica de Chile," Zoologia, vol. vi, p. 99, the title-page of which bears the date 1851. Until recently there was great difficulty in being able to consult this work, and even now the number of copies of it in this country are very few; but it is in the libraries of most of the leading London scientific societies. It is thus not surprising that the numerous Chilian insects described therein have often not been recognised in synonymy. Amongst those I think is *P. virescentipennis*. I find the name nowhere quoted, but believe I am correct in considering the insect identical with *Stenoperla annulata*, Brauer, "Verh. zool.-bot. Ges. Wien," 1869, p. 17, and also with *Diamphipnoa lichenalis*, Gerstäcker, "Festschrift Ges. nat. Freunde zu Berlin," 1873, pp. 62–64, fig. 17. There are slight discrepancies in the various descriptions (I possess the insect and its nymph), but of a nature liable to be occasioned by change of colour through desiccation. The insect is not a *Stenoperla*, McLach., as restricted to the typical species of that genus from New Zealand, and the genus *Diamphipnoa* should stand for it thus:—*Diamphipnoa virescentipennis*, Blanchard, 1851 (1852 ?), = *annulata*, Brauer, 1869, = *lichenalis*, Gerstäcker, 1873.—R. McLachlan, Lewisham, London: *Dec. 28th*, 1885.

On the existence of "scales" on the wings of the Neuropterous genus Isocelipteron, Costa.—I am not aware that up to the present time scales have been recorded as existing in any genus of *Neuroptera-Planipennia* (or *Megaloptera*). They exist in *Isocelipteron*. I had never made a minute examination of *I. fulvum*, Costa (= *Dasypteryx græca*, Stein), of south-eastern Europe and Asia Minor, but had occasion to do so a few days ago. The conspicuous fringe of what look like coarse black hairs near the base of the inner margin of the posterior-wings especially attracted my attention, and even a pocket lens of moderate power shewed that this fringe is composed of what may properly be called 'scales'—short thick black hairs, much dilated (or inflated), and pointed at either end, reminding one of the seeds of certain umbelliferous plants. Microscopic examination seemed to prove that these scales are somewhat flattened, but probably not striated. Moreover, I found that similar scales, but smaller, stand erect on the neuration of the anal portion of the anterior-wings, mixed with the ordinary long hairs, and less conspicuous. My three examples of *I. fulvum* are all males, as is proved by the long caudate appendages. Having made this discovery, I directed attention to the only other species of the genus at present in my collection, which I take to be *I. flavicorne*, Walker (United States). In this species there is no fringe of scales, but semi-erect scales exist on the under-side of the anterior-wings placed on the lower branch of the sector, and on the two cubiti a little before the middle of the wing; and there are similar scales, more thickly placed and almost amounting to a fringe, on the upper-side of the base of the sector in the posterior-wings; the form of the scales is precisely similar to that seen in *I. fulvum*. Of *I. flavicorne* I possess both sexes, and in the females I find no trace of scales, which, therefore, are probably attributes of the male only. This discovery has bearing on another matter. In the North American species the individuals having the wings only slightly excised at the apex have been considered the females (a point doubted by Brauer) of those with the wings strongly excised. My males

and females of presumed *I. flavicorne* have the wings equally excised. Therefore, the whole genus stands in need of revision on several points.

In using the generic term *Isocelipteron*, I do not overlook the fact that it is probably only a synonym of *Berotha*, Walker (which has priority), and an examination of the type of the latter made many years ago, convinced me it was so; but in view of new discoveries in structure, a re-examination of *Berotha insolita* is desirable. Moreover, from a monographic point of view, it may be found necessary to retain *Isocelipteron* for *I. fulvum* only, on account of the very dense neuration.

In connection with scales in *Planipennia*, it occurred to me to examine the genus of Ant-Lions known as *Pamexis*, Hagen, with regard to the opaque coloration of the wings. Under the microscope this coloration is seen to proceed from granulose matter (secretion ?), analogous to that which exists in *Coniopteryx;* the pigment is not in the membrane of the wings.—Id.: *January 9th*, 1886.

Entomological Society of London, *Jan. 20th*, 1886 (Annual Meeting): R. McLachlan, Esq., F.R.S., President, in the Chair.

The Officers and Council for the ensuing year were announced as follows:—R. McLachlan, F.R.S., President; E. Saunders, F.L.S., Treasurer; H. Goss, F.L.S., and the Rev. W. W. Fowler, M.A., F.L.S., Secretaries; F. Grut, F.L.S., Librarian. And as other Members of Council:—T. R. Billups, E. A. Fitch, F.L.S., F. Du Cane Godman, M.A., F.R.S., W. F. Kirby, E. B. Poulton, M.A., F.G.S., S. Stevens, F.L.S., H. T. Stainton, F.R.S., and J. J. Weir, F.L.S.

An address was read by the President.

Mr. Stainton proposed, and Mr. Pascoe seconded, a vote of thanks to the President for the address, and that it be ordered to be printed. This was agreed to.

Mr. Dunning proposed, and Mr. Distant seconded, a vote of thanks to the officers for their services during the past year. This being agreed to, Messrs. Saunders, Fitch, Kirby, and Grut severally replied.

Obituary.

We regret to announce the death, at the age of 53, of the *Rev. S. C. Tress-Beale, M.A.*, on the 23rd December, at Tenterden. More than thirty years ago he was living at Tenterden, and supplied the Tenterden localities, which are cited in Stainton's Manual of British Butterflies and Moths. He afterwards moved to Alkham, near Dover, and thence furnished a number of localities for the latter portion of the second volume of the above work. In 1857, he added to our lists the very pretty *Sciaphila cinctana*, mentioned in the Entomologists' Annual for 1858, p. 88. He afterwards left Alkham and returned to Tenterden as the first Vicar of St. Michael's.

ANOSIA PLEXIPPUS, L. (*DANAIS ARCHIPPUS*, F.): A STUDY IN GEOGRAPHICAL DISTRIBUTION.

BY JAMES J. WALKER, R.N., F.E.S.

At the present time, when Entomologists are discussing the probability of the beautiful butterfly first described by Linné under the name of *Papilio* (*Danais*) *Plexippus* (but which is perhaps better known by the Fabrician name of *D. Archippus*) becoming a permanent resident in our islands, on the strength of the dozen specimens or more captured last autumn in the South of England, it may be interesting to give a brief account of the insect and its transformations, and then to consider its present geographical distribution. It is in the latter respect that the butterfly is most remarkable, for within the last thirty or forty years it has spread from its original home in the American continent over more than half the warmer regions of the globe, and now bids fair to soon become as world-wide in its distribution as our more familiar "Painted Lady," *Pyrameis cardui*.

My acquaintance with *Anosia Plexippus* (or rather with the well-marked *Erippus*, Cram., by many Entomologists raised to the rank of a distinct species) began at Monte Video, where, in December, 1880, I found the insect in small numbers. A few months later, at Callao, I had abundant opportunities of observing it in all its stages, it being one of the commonest butterflies of the locality. Here one could make sure, on almost any day in the year, of seeing the imago on the wing, though it was most abundant in January and February, and scarcest in July. The handsome larva, too, was always to be found wherever its food-plant grew, and as it was singularly easy and interesting to rear, I was seldom without several feeding in my cabin on board the "Kingfisher." During our cruise among the South Sea Islands in 1883, the first visitor from the shore of any island we touched at was usually the bold flying *Danais*, and in some of them, considering the recent introduction of the butterfly, its abundance was very remarkable.

As most Entomologists are doubtless familiar with the perfect insect, it need not here be described. According to my own experience, it seems to prefer waste weedy places and gardens near towns and villages, its flight being strong, though rather heavy, and it is not very difficult to catch. As if aware that it is a distasteful morsel to all insect-eating creatures, it seeks no concealment whatever, and I have often seen two or three, at sunset, roosting together on the summit of some tall weed in the middle of a field, and visible a hundred or more yards off.

The egg is laid singly, on the under-side of the leaves of various species of *Asclepias*, more particularly the *A. curassavica*, a very handsome, tall, upright-growing plant, with willow-like leaves and corymbs of showy orange and scarlet flowers, every part being full of an acrid, fœtid, and powerfully emetic milky juice. It is about one-twentieth of an inch long by one-thirtieth in diameter, in shape nearly cylindrical for half its length, then tapering to a somewhat obtuse point, and with a flat base ; its form may perhaps best be compared to one of the projectiles for modern rifled guns, known as "Palliser shot." Its surface is sculptured with about 22 strongly carinate longitudinal ribs, between which is a rather larger number of more delicate transverse ridges, and its colour is a pale-greenish yellow.

In four or five days to a week (varying with the time of year) the little larva emerges, and at once falls to work on the flowers and buds of its food-plant, proceeding to the leaves as it grows larger. In three weeks it is full-fed, and is then a very handsome and conspicuous creature, feeding quite exposed, and often stripping the *Asclepias* to the bare stalks.

The full-grown larva is about two inches in length, rather stout, and nearly cylindrical in form, the head and second segment, however, being considerably smaller than the succeeding ones. On the dorsal surface of the 3rd segment is a pair of slender, fleshy, slightly mobile black filaments, nearly half-an-inch long, and a similar but somewhat smaller pair on the 12th segment. The head is yellow, with two concentric ⊓-shaped black markings on the face: the mouth-parts, legs, and claspers shining black. The body is regularly annulated with black, opaque white, and bright gamboge-yellow, arranged as follows :—The front and hind-margins of segments 3 to 12 yellow, with a narrow transverse black band reaching the spiracular region : the middle part of the segment white, with a broad, clearly defined black band extending completely round the body, and including the black spiracles and the claspers, above the first four pairs of which is a rather large white spot, slightly tinged with yellow. The second and thirteenth segments have no white markings.

The pupa is suspended by the tail among the leaves of its food-plant, or to neighbouring objects, and is one of the most beautiful I have seen. Its shape is very short and "dumpy" with no prominent angles, and abruptly truncate at either end, the abdominal end especially being nearly hemispherical. The colour is a bright translucent emerald-green, with a narrow transverse black ridge on the hinder edge of the third abdominal segment, bordered behind by a narrow, brilliantly gilded line : on the thoracic segments and wing-cases are several minute tubercles of the brightest golden hue.

This stage lasts from fourteen to twenty days, the colours of the imago, just before disclosure, being very plainly visible through the thin translucent integument. It will thus be seen that, in Peru, the insect passes through all its stages in little more than six weeks, and there is a succession of probably seven or eight broods throughout the year. Beyond the tropics, the annual number of broods is of course less, though, according to Mr. Scudder, there are three or four in the warmer parts of the United States : but at its northern limit, it is probably only single-brooded.

Both larva and imago emit a faint and peculiar odour, which becomes strong and disagreeable when several larvæ are shut up in a close box. Like all the *Danaidæ*, the insect, in all its stages appears to be distasteful to every living creature.

Although small insect-eating birds are wonderfully numerous at Callao, the larvæ are untouched by them, and I have never bred an Ichneumon-fly or any other parasite from the numerous larvæ I have reared. In the United States, however, Mr. Riley informs us that the larva is attacked by a Dipterous fly, *Masicera* (*Tachina*) *archippivora*, Riley. The tenacity of life in the imago is very remarkable, as is also its longevity, as according to Mr. S. H. Scudder, it has been kept alive for fifteen months.

The original home of *Anosia Plexippus* is the American continent, where it enjoys a very wide range, extending from the Hudson's Bay territory and Canada to the Amazon region and Bolivia, or (if we regard *Erippus*, Cram., as a geographical race merely) to the estuary of the Rio de la Plata. Mr. J. Jenner Weir has received it from Moose Fort (lat. 50. 20 N.) where snow lies on the ground for eight months of the year, and I heard of it, though I did not see it, at Esquimalt, Vancouver Island, in nearly the same latitude. It thus ranges over nearly 90° of latitude, and extends farther North than any other of the *Danaidæ* (*D. Tytia* in Japan, and *D. Chrysippus* in South-eastern Europe, barely, if at all, reaching the 40th parallel). Nearly everywhere throughout this vast region, it appears to be common, and in many places, especially in the United States, it is one of the most abundant butterflies. Here it is often observed in prodigious swarms, and according to Mr. Riley (to whose lucid and admirable account of the insect, in the Third Annual Report on the Insects of Missouri, I am very much indebted) the air is sometimes filled with the butterflies to a height of 300 to 400 feet. These vast swarms usually appear in the autumn, and some of them at least, Mr. Riley states, migrate southwards to warmer regions at the approach of winter.

Of late years this range, great as it is, has extended in a wonderfully steady and rapid manner across the whole breadth of the Pacific Ocean, and far into the Malay Archipelago. *Anosia Plexippus*, unobserved by the early voyagers to the Sandwich Islands, is now abundant and firmly established there. In the Marquesas Islands, where it is now the commonest butterfly, I was informed by a Roman Catholic missionary, who had resided forty years on the island of O. Hiva-Oa (Dominica), that he distinctly remembered seeing the first specimens about the year 1860: certainly so conspicuous an addition to the very limited insect-fauna of these islands could not have been long overlooked. In the Society Islands (Tahiti and Eimeo) and the Cook and Hervey groups (Mangaia, Rarotonga, Aitutáki, and Atiú) I saw both the butterfly and its food-plant *Asclepias curassavica* in plenty, and the latter, indeed, is a pest to cultivation in some of the

islands. The insect has even reached the remote little island of Oparo or Rãp-á, far away to the southward; but I could not meet with it at Pitcairn Island, nor did any of the inhabitants, to whom I showed specimens, recognise it as existing there.

Mr. G. F. Mathew, R.N. (to whom I am greatly indebted for some most interesting notes on the butterfly as observed by him during his recent cruise in H.M.S. "Espiègle," as well as a full list of localities, given further on), informs me that *Anosia Plexippus* is found throughout the Samoan, Friendly, and Fiji Islands, and is especially abundant in the latter group, which he regards as perhaps its head-quarters (at the present time) in the Western Pacific. It appears also to have reached the North Island of New Zealand, as well as Norfolk Island. In New Caledonia, where it has been long established, it became very abundant some years ago, but is now comparatively scarce, owing, as suggested by Mr. E. L. Layard to Mr. Mathew, to the destruction of nearly all the food-plant by the larvæ. We first hear of its occurrence in Australia in 1870, when Mr. Miskin (Ent. Mo. Mag., vol. viii, p. 17) records its appearance in Queensland: it now seems to have spread throughout all the warmer parts of this great island, and even to Hobart Town (Tasmania) in lat. 42° S. In the New Hebrides, Solomon Islands, New Guinea, and other islands in that part of the Pacific, it appears to be now firmly established and not rare; but it was not seen by Mr. Mathew at the Gilbert, Ellice, and Marshall Islands, nor at the Carolines, though he noticed the *Asclepias* at the latter group, and Mr. Scudder (Psyche, vol. i, p. 81) records the occurrence of young larvæ at Ponapé Island (Carolines) on some "milk-weeds" (*Asclepias*) which had been accidentally introduced. Dr. Semper has recorded the butterfly from Celebes, and Mr. W. F. Kirby informs me that it has been found in Java.

Starting from the eastern coast of America, we find *Anosia Plexippus* throughout the West Indies in company with some curious local forms of the genus; and it has long been established in the Bermudas, 650 miles from the coast of the United States. Two examples, now in the collection of Messrs. Salvin and Godman, were taken in 1864 in the islands of Fayal and Flores respectively, but I cannot ascertain that any have since been found in the Azores, nor did I see the insect when there in October, 1880. It does not seem to have reached Madeira, though *Asclepias curassavica* has found its way to that island.

The first record of the occurrence of *Anosia Plexippus* in Britain is in 1876 (Ent. Mo. Mag., vol. xiii, p. 107), a specimen having been taken by Mr. J. T. D. Llewelyn at Neath in South Wales, on Septem-

ber 6th of that year. This is now in the British collection at the Natural History Museum, South Kensington, and is a very fine example of the ordinary North American type. Another was taken at Hayward's Heath, Sussex, in the autumn of the same year (Entomologist, vol. ix, p. 267). In September, 1877, a specimen was captured by M. Grassal in La Vendée (Petites Nouvelles Entomologiques, II, pp. 253, 254), the only record I can find of its occurrence on the European continent. A specimen is recorded by Mr. J. Jenner Weir (Entom. vol. xix, p. 12), as having been taken near Snodland, Kent, on September 21st, 1881; but the number seen and caught last year far exceeds all that have been previously noted. A round dozen, at least, have been recorded from our southern counties, Cornwall contributing quite half the number, though Devon, Dorset, and the Isle of Wight have also been favoured with the visits of the imposing stranger (Ent. Mo. Mag. vol. xxii, pp. 134, 161, 211; Entomologist, vol. xviii, p. 305).

The question naturally arises: What has caused this truly wonderful extension of the range of *Anosia Plexippus?* We may, I think, dismiss the idea that the insect and its chief food-plants (noxious and poisonous weeds) may have been voluntarily transported to new lands. The seeds, however, of *Asclepias curassavica* are eminently fitted for wide dispersal, being very minute, and enveloped in a great quantity of light cottony down, and it is quite possible that they may have, in the first instance, been carried unobserved to the Sandwich Islands through the medium of commerce. Thus the first great gap of 2350 miles in extent (measured from the nearest point of the American continent) may have been bridged over by the plant. As for the butterfly, its great hardiness and almost complete exemption from the attacks of enemies, joined with its well-known migratory propensities and habit of assembling in great swarms, render its chances of wide dispersal and ready adaptation to a new home especially favourable. It is wonderful to what great distances butterflies and moths are blown out to sea, and in what good condition they remain, all things considered. Mr. Mathew informs me that he has often seen *Anosia Plexippus* "flying at a great height above the ship, sometimes more than 200 miles from the nearest land. During a cruise between New Caledonia and the Solomon Islands, they were to be seen every day, often in numbers. This looked as if a steady migration was taking place, and the S.E. trade wind, which was blowing strongly at the time, was greatly in favour of the butterflies accomplishing their journey in safety." I once saw *Danais Chrysippus* (a much smaller and less powerful insect than *Plexippus*,) flying about the ship when she was

700 miles from the nearest land (the African coast), still strong on the wing and apparently in good order. Mr. J. M. Jones records the arrival of a vast swarm of the small and feeble *Terias Lisa* at Bermuda, which had evidently crossed more than 650 miles of stormy ocean, from the American coast; and a swarm of *Deiopeia pulchella* (another weak flyer) has been recorded in mid-Atlantic (Ent. Mo. Mag., vol. xxii, p. 12), 960 miles from the Cape de Verde Islands, the nearest land from which the moths could have come, and where I have found the species in plenty.

It is, therefore, not difficult to imagine one of the great migrating swarms of *Anosia Plexippus* being blown out to sea from the Californian or Mexican coast, and travelling with the N.E. trade wind; the greater number by far perishing *en route*, but a few stragglers of the host reaching the Sandwich Islands. This may have occurred many times before the introduction of a suitable food-plant, in which case the butterfly necessarily failed to establish itself; but once given the *Asclepias* it would soon be quite at home. Thence it would have no such tremendous expanses of ocean to traverse in order to reach new lands; the scattered islands (Fanning, Malden, Starbuck, Christmas Islands, and others), between the Sandwich group and those in the South Pacific, although small and mostly barren, might serve as stepping-stones in its progress. The distances between these islands, though great enough, are nothing like the first great step from America to the Sandwich Islands, and not more, I should imagine, than the light and downy seeds of the *Asclepias* could be carried by the agency of winds, &c., alone.

As bearing on this origin of the Pacific specimens of *Anosia Plexippus*, it is significant that they all agree with the North American type: the larger pale spots in the black apical portion of the fore-wing being tawny, not white as in those from the Peruvian coast of South America.

The same remarks may apply to its dispersal across the Atlantic; but owing to the much more stormy character of this ocean, and the less steady winds, the chances of the butterfly crossing a given extent of ocean in safety are less favourable. Still many American birds, some scarcely, if at all, as strong on the wing as *Anosia Plexippus*, find their way to our shores from time to time. We must also take into account the chances of the insect resting by the way on some of the numerous vessels constantly crossing the Atlantic, which, as Mr. Wallace suggests (Geog. Dist. of Animals, vol. i, p. 17), may materially aid the smaller and weaker birds in their occasional passage across

this ocean. We may, therefore, not wonder that circumstances may combine to carry this hardy and by no means delicate insect from the New to the Old World.

With regard to the probability of *Anosia Plexippus* becoming a permanent resident in our islands, there is, I think, nothing in our climate to prevent its continuance here except, perhaps, the dampness of our summer. We have, however, no plant of the natural order *Asclepiadaceæ* native to our flora, so the larva would have to find a substitute food. According to Mr. Riley, however, the larva is sometimes found on the Dogbane (*Apocynum*), and in the South of England we have two plants of the same natural order (*Apocynaceæ*), the Periwinkles, *Vinca major* and *minor* growing plentifully wild, or at all events naturalized in many places. The Oleander, another shrub of the same Order, is grown in the South of England with only slight protection during the winter, and I believe that one or two species of *Asclepias* are occasionally grown in gardens. If, therefore, as Dr. Jordan suggests (p. 211), the newly arrived "colonists" be not too eagerly caught up, but allowed fair play and a chance to perpetuate their race, it may be that in future years *Anosia Plexippus* may figure in our lists as a (naturalized) "Britisher," and perhaps in part make up for the great loss our insect fauna sustained when the "Large Copper" was improved off the face of the earth.

In the South of Europe, besides the advantage of a warmer and drier climate, a probable food-plant exists in the *Asclepias vincetoxicum*, which is common in the Mediterranean countries, and ranges through Central Europe as far north as Denmark. Hence there is even a greater chance of the insect, if it reaches these countries, establishing itself there than in Britain.

This paper may conclude with a list of localities whence specimens of *Anosia Plexippus* have been obtained, which will give a fair idea of its present distribution.

The National collection possesses specimens from South Wales, New York, Texas, Duenãs (Guatemala), Jamaica, St. Domingo, St. Thomas (West Indies), Venezuela, Brazil, Honolulu, Upolu (Samoan Is.), Tonga-tabu, Solomon Islands, Norfolk Island, and Cape York (North Australia). The six specimens representing the species in the Hewitson collection have no localities attached.

In the magnificent collection of Messrs. Salvin and Godman are examples from E. United States, Colorado, Mexico, Guatemala, Nicaragua, Costa Rica, Veragua, Panamá, New Granada, Ecuador, Eastern Peru, Upper Amazons, Haiti, St. Thomas, Jamaica, Dominica,

Samoa, Lifu (Loyalty Is.), Norfolk Island, New Zealand, New South Wales, New Caledonia, Waigiou, New Guinea, Fayal and Flores (Azores); also (race *Erippus*, Cram.) from N. Brazil, Lower Amazon, Pernambuco, S.E. Brazil, and the Argentine Republic.

Mr. G. F. Mathew has furnished me with the following localities in the Western Pacific, where the insect was observed or heard of by him: Sydney, not common; Parramatta, Newcastle (New South Wales), sparingly; Botany Bay, more frequent; Brisbane and Cooktown (Queensland), common; Tasmania, reported to have occurred at Hobart Town; New Zealand, reported from the North Island; Fiji Islands, in great abundance at all the localities visited, but perhaps most plentiful at Suva; Rotumah Island, common; New Hebrides, common at all the islands, and generally abundant; Samoa, not very common; New Britain and Duke of York Islands, noticed; New Guinea, common at Port Moresby, Dinner Island, Kerepuna, &c.; Solomon Islands, common at Ugi; Louisiade Islands, Friendly Islands, very common, especially at Tonga-tabu; New Caledonia, tolerably common though less so than formerly; also at Honolulu (Sandwich Islands), in thousands in 1873.

I have met with the butterfly at Monte Video (race *Erippus* Cram.), Callao and Lima, abundant; Chosica, Peru, abundant; Guayaquil, Panamá, Acapulco (Mexico), Vancouver Island, reported; Fatou-hiva, Taou-ate, O-Hiva-Oa, and Nuka Hiva (Marquesas Islands), generally common; Tahiti and Eimeo (Society Islands), common, especially in Tahiti; Mangaia, Rarotonga, abundant; Aitutáke, common, and Atiú; Oparo or Rãp-á Island, one or two specimens seen.

H.M.S. "Cherub," Portland:
11*th February*, 1886.

DESCRIPTION OF A NEW GENUS, AND SOME NEW SPECIES OF *CORYLOPHIDÆ*.

BY REV. A. MATTHEWS, M.A.

Among the New Zealand *Corylophidæ* in the collection of Dr. Sharp, I found the two very remarkable species described below. In superficial appearance these insects much resemble the *Trichopterygidæ*, but really belong to the *Sericoderina* of the *Corylophidæ*. From *Sericoderus* itself they are distinguished by their peculiarly formed 11-jointed antennæ, and other anatomical differences, and thus constitute a very distinct genus, which I propose to call *Anisomeristes*, from the unequal proportions of the articulations of the antennæ, and of which the following are the chief diagnostic characters:—

ANISOMERISTES, *gen. nov.*

Body obconic, convex, pubescent, with the hinder angles of the thorax much produced, and the extremities of the elytra sub-truncate. Head entirely covered by the front of the thorax. Antennæ 11-jointed. 1, large and long; 2, ovate, shorter and smaller than the first; 3, small and slender; 4, very short, transverse; 5, much enlarged and produced on the inner side; 6, small; 7, very much enlarged, and much produced on the inner side; 8, very short and small; 9—11 much incrassated, forming a sub-foliate club. Thorax generally large, and much dilated at the base, anterior margin entire, either circularly or ovally rounded, basal margin more or less arcuate, with the angles very much produced. Scutellum moderate, generally rounded. Elytra short, sub-truncate, more or less attenuated posteriorly. Legs moderate, with the tibiæ slightly recurved, setose, and armed with a single spur on the inner side of the apex; tarsi 4-jointed: the 2nd, and sometimes the 1st, joint bifid; 3rd, very small; 4th, long and slender; claws robust, and dentate at the base beneath. Venter composed of six segments, of which the first is very large.

Anisomeristes Sharpi, *sp. n.*

L. c., 1·25—1·37 mm. *Brevis, latissimus, postice valde attenuatus, valde convexus, nitidus, pilis longioribus aureis vestitus, pronoto læte aurantiaco, elytris castaneis; pronoto permagno, latissimo, antice circulariter rotundato atque abrupte reflexo, glabro, nitidissimo, margine basali fere arcuatâ angulis longe productis, acutissimis; elytris brevibus, postice valde attenuatis, pronoto parum angustioribus, vix longioribus, ad humeros latissimis, profunde et confertim punctatis, interstitiis glabris, nitidis, striâ suturali antice abbreviatâ, lateribus fere rectis, late marginatis, apicibus vix rotundatis, fere truncatis; pygidio rufo-testaceo; pedibus modicis, gracilibus, læte flavis; antennis magnis, robustis, læte flavis.*

Body short and very broad, much attenuated posteriorly, very convex and shining, clothed with rather long golden hair. Head moderate; eyes moderate; antennæ rather long and robust, bright yellow, with the 5th and 7th joints much enlarged. Thorax bright orange, very large and very broad, anterior margin circularly rounded and abruptly reflexed, smooth, and very shining, basal margin almost arcuate, with the angles very much produced, and very acute. Scutellum short and broad, rounded and punctured. Elytra short, much attenuated posteriorly, castaneous, narrower and scarcely longer than the thorax, widest at the shoulders, very deeply and closely punctured, with the interstices smooth and shining, sutural stria abbreviated anteriorly, sides nearly straight, extremities scarcely rounded, almost truncate. Abdomen with two segments exposed, rufo-testaceous. Legs rather short, bright yellow. Under-parts rufo-castaneous, with the metasternum and apical segments of the venter paler.

Differs from the other species in its larger size, broad form, very large thorax, attenuated elytra, and bright orange colour.

Habitat: New Zealand.

Anisomeristes ater, *sp. n.*

L. c., 1·12—1·25 mm. *Perbrevis, latus, postice valde attenuatus, valde*

convexus, nitidus, aterrimus, pilis aureis, sat longis, vestitus ; pronoto magno, latissimo, antice circulariter rotundato, nitidissimo, indistincte punctato, margine basali arcuatâ angulis latis, valde productis ; elytris sat parvis, pronoto angustioribus, sat longioribus, ad humeros latissimis, postice valde attenuatis, profundissimæ punctatis, interstitiis glabris, nitidis, striâ suturali profunde impressâ, lateribus rectis et marginatis, apicibus vix rotundatis ; pygidio exserto, nigro ; pedibus flavis, femoribus piceis ; antennis valde robustis, læte flavis, articulis 5 et 7 valde incrassatis.

Body broad and very short, much attenuated posteriorly, very convex, shining, deep black, clothed with rather long golden hair. Head piceous, large and broad; eyes rather large and prominent; antennæ bright yellow, very robust, with the 5th and 7th joints very much enlarged. Thorax large and very broad, circularly rounded in front, very shining, indistinctly punctured, basal margin arcuate, with the angles very broad and much produced. Scutellum rather large, sub-triangular. Elytra rather small, rather longer, but narrower than the thorax, widest at the shoulders, and much attenuated posteriorly, very deeply punctured, with the interstices smooth and shining, sutural stria very deep, sides straight and margined, extremities scarcely rounded. Abdomen with the apical segments exposed and black. Legs moderate, femora piceous and tibiæ yellow. Under-parts piceous, and deeply punctured; mouth and ventral segments paler.

Differs from *A. Sharpi* in its smaller size, shorter form, and deep black colour.

Habitat : New Zealand.

To this genus must also be added a species found in Italy and other parts of southern Europe, and lately described by Herr Reitter under the name of *Sericoderus Revelierei*. In this species the antennæ are 11-jointed, and formed on the same type, though not so strongly developed, as in the New Zealand insects. The following characters will be sufficient to distinguish this species from its congeners : —

Anisomeristes Revelierei, *Reitter.*

L. c., 1·12—1·25 mm. Sub-conical, attenuated posteriorly, pitchy-black, with the elytra either concolorous or more or less rufous on their posterior half; legs and antennæ moderate, yellow.

Differs from both the other species in its smaller size, much narrower form, and less dilated thorax.

I also feel much pleased in being able to add a new species to the rare genus *Peltinus* from some *Corylophidæ* collected in the south of Europe by Mr. J. J. Walker, R.N., and kindly sent to me by Mr. Champion. All the species of *Peltinus* are very minute, and at first sight look like small *Corylophi*, but may be recognised by the abrupt deflection of the front of the thorax. In anatomical details *Peltinus* differs very widely from any other genus; and its antennæ have only

ten joints, of which the 6th is very large, almost equal in size to the articulations of the club.

PELTINUS WALKERI, *sp. n.*

L. c., ·75—·87 mm. *Omnino ovalis, validissime convexus, nitidissimus, minutissime et confertim punctatus, interstitiis glabris, haud alutaceis, aterrimus; pronoto modico, antice ovaliter rotundato, margine anteriori vix reflexâ, pellucidâ, minute et confertim punctato, interstitiis glabris nitidissimis, margine basali fere rectâ angulis sat acutis; elytris pronoto duplo longioribus, vix latioribus, ad media latissimis, minute et sat confertim punctatis, interstitiis glabris, nitidissimis, lateribus leviter marginatis, apice obtuso; pygidio minime exserto, nigro; pedibus brevibus, piceo-testaceis; antennis sat longis, robustis, læte flavis.*

Body perfectly oval, exceedingly convex, very shining, very minutely and rather closely punctured, with the interstices smooth and shining, not alutaceous, deep black. Head very small, piceous; eyes small; antennæ rather long and robust, bright yellow. Thorax moderate, ovally rounded in front with the margin scarcely reflexed and pellucid, minutely and indistinctly punctured, with the interstices smooth and shining, basal margin nearly straight, with the angles rather acute. Scutellum moderate, triangular. Elytra twice longer, but scarcely broader than the thorax, widest at the middle, minutely and rather closely punctured, with the interstices smooth and shining, sides faintly margined, apex very obtuse. Abdomen with the pygidium very slightly exposed, black. Legs rather short, pitchy-testaceous. Under-parts piceous, with the head, prothorax, and edges of the ventral segments paler.

Differs from *P. alutaceus* in its rather larger size, oval and not attenuated form, smaller thorax, piceous legs, large bright yellow antennæ, deep black colour, and sculpture; from other species it may be known by its much larger size and black colour.

Habitat: Europe, found in Sardinia, near Cagliari; J. J. Walker, R.N.

I have dedicated this species in honour of its captor, who for many years has been so well known as an energetic and most successful Coleopterist.

As the genus *Peltinus* appears to be but little known, it may be worth while to add a short diagnosis of the species which have been previously described:—

P. ALUTACEUS, *Reitter.*

L. c., ·63—·75 mm. Sub-hemispheric, very shining, castaneous, distinctly alutaceous throughout; thorax ovally rounded in front, legs and antennæ bright yellow.

Found in Dalmatia.

P. VELATUS, *Duval.*

L. c., ·50—·63 mm. Shorter and more hemispheric than *P. alutaceus*, piceous, and very shining, very faintly alutaceous, thorax circularly rounded in front; antennæ yellow, with the 6th joint very slightly enlarged, legs and apical segments of the venter yellow.

Found in Spain and in Morocco.

P. MATTHEWSII, *Reitter.*

L. c., ·50—·63 mm. Ovate, attenuated in front, exceedingly convex, pale castaneous, thorax ovally rounded in front, smooth, and very shining, elytra distinctly punctured, legs and antennæ bright yellow.

Found in Syria.

At p. 160, *ante*, of this Magazine, the following erratum occurs in my description of *Corylophodes*: line 7, from the bottom, insert "1st" before "very."

Gumley, Market Harborough:
December 8th, 1885.

TWO ADDITIONAL BRITISH SPECIES OF *BRACONIDÆ*.

BY EDWARD CAPRON, M.D.

BRACON OOSTMAELI, Wesm.

Bracon Oostmaeli, Wesm., Nouv. Mém. Ac. Brux., 1838, p. 57, ♀; Vollenhoven, Pinacographia, pl. 24, fig. 8, ♀.

♀. Head black, with reddish spot at the top of the inner orbits, antennæ as long as body. Thorax entirely black, metathoraeic space very smooth and shining. Abdomen with 1st segment black, remainder rufo-testaceous above and beneath, entirely smooth and shining, legs rufo-testaceous, with posterior coxæ, extreme base of posterior tibiæ, and all the tarsi, black. Wings deeply infuscated, with an angular whitish mark beneath the stigma. Terebra one-fourth the length of abdomen. Length, 2 lines.

♂ coloured as the female, but the abdomen has a black spot on the last one or two segments, and is somewhat smaller. Length, $1\frac{3}{4}$ lines.

Three males and three females taken at Shiere in the summer of 1884.

The deeply infuscated wings contrasted with the pale legs and abdomen make it easily identified. It would come under the Rev. T. A. Marshall's 4th section; as he appears not to have received it from any of his correspondents, and Wesmael only had one female, it seems to be not a common species. Vollenhoven's figure is very characteristic. Among the rarer species I have also taken here a single female of *lætus*, and one of Marshall's new species, *exarator*, agreeing entirely with his description.

Ascogaster canifrons, Wesm.

Ascogaster canifrons, Wesm., Nouv. Mém. Ac. Brux., 1835, p. 236; Reinh., Berl. ent. Zeit., 1867, p. 364. ♀ ♂.

♂. Black, base of antennæ and legs, with the exception of the coxæ, apex of the four posterior tibiæ, hind femora and tarsi, rufo-testaceous. Meso-thorax reticulato-rugose. Length, 2 lines.

One male taken at Shiere in 1884.

At first sight very like a black-bodied *instabilis*, but at once separated by the rugose unpunctured mesothorax. The hind margin of the head is also much less emarginate, the metathorax distinctly bidentate, and the posterior coxæ transversely rugose.

With regard to the observations made by the Rev. T. A. Marshall, in his monograph, on *Chelonus annulipes*, Wesm., I may here observe that I have met with a female *Chelonus* here which scarcely agrees with any he describes, and seems to answer well to Wesmael's insect. It is a larger and broader insect than *inanitus* ($2\frac{3}{4}$ lines), with testaceous spots at the base of the abdomen, and antennæ with 24 joints; I have taken with it some with the abdomen unspotted, but curiously enough these are even still larger (quite 3 lines), so can hardly be his new species *corvulus*. I have also taken his *carbonator*, which is very different. Mine seems to come nearest to *speculator*, but this again is much smaller.

Shiere: *January*, 1886.

Tenthredinidæ at Shiere.—*Hoplocampa cratægi*, Klug, was abundant in the blossom of hawthorn in the spring of last year. I also captured one of the rare *H. pectoralis*, Thom. During the summer I likewise took *Dineura verna*, Klug, and *Nematus sub-bifidus*, Thom.

Synærema rubi, Pz.—I see Mr. Cameron says he has not seen the ♀ of this species. I took one in this neighbourhood some years ago; it agrees very well with Thomson's description, with the exception of the scutellum, which is pitchy as contrasted with the rest of the deep black and white mesonotum. It looks as if it ought to be white.—Id.: *February*, 1886.

Myrmecina Latreillei, Curt., at Shiere.—This rare ant was abundant last autumn. I took many of the neuters in moss in the spring, while the winged males and females abounded in the autumn on a chalk hill close to the village. I have never seen it on the sandy side of our stream which divides the chalk from the greensand.—Id.

Chærocampa celerio and Sphinx convolvuli at Ilfracombe.—On or about the 6th of September last (1885), I took a perfect specimen of *Chærocampa celerio* within twenty yards of the back of my premises; it was suspended from a low wall. During that month I had also numerous *Sphinx convolvuli* brought to me.—H. A. Copp, 37, High Street, Ilfracombe: *February 12th*, 1886.

A HUNDRED NEW BRITISH SPECIES OF *DIPTERA*.

BY G. H. VERRALL, F.E.S.

(*Concluded from p.* 202).

58. *Tachydromia* (*Platypalpus*) *albiseta*, Pz.: at Brandon and Wicken Fen in July, also at Fawley in June.

59. *T. stigmatella*, Ztt.: this is distinct from *T. compta*, Walker, and I caught eight (6 ♂, 2 ♀) at Braemar on July 23rd, 1873.

60. *Campsicnemus pectinulatus*, Lw.: I caught eight (6 ♂, 2 ♀) of this little species at Brandon on July 10th, 1877. The males have almost unarmed legs, the middle femora bearing only an entire row of smallish inconspicuous bristles, and the middle tibiæ having about five small bristles behind on the basal half.

61. *Micromorphus albipes*, Ztt.: this tiny species puzzled me for years; it is common on seacoasts, and by its attitude in the sweeping net I was convinced it belonged to the *Dolichopodidæ*, but I could not succeed in naming it until assisted by Mik, who had formed the genus *Micromorphus* for it in 1878. Amongst other places I have caught it at Bognor, Wisbech and Aberlady, and also at Wicken Fen.

62. *Syrphus decorus*, Mg.: Mr. J. E. Fletcher caught a few specimens of this at Middleyard Copse, near Worcester, of which he gave me one caught on May 3rd, 1873. I believe all previous records of *S. decorus* as British relate to *S. auricollis*, Mg.

63. *S. lapponicus*, Ztt.: a female from Pitlochrie caught on June 29th, 1870, was named by Loew as certainly this species. Loew seemed clearly to distinguish this from *S. arcuatus* and *S. luniger*; unfortunately the latter is the only one I know well.

64. *Melanostoma dubia*, Ztt.: Loew is equally confident about the distinctness of this species, and names positively one female caught at Darenth on May 5th, 1868.

65. *Chilosia cynocephala*, Lw.: I rather doubtfully refer to this species a half-dozen specimens (5 ♂, 1 ♀) caught at various places within a few miles of Newmarket.

66. *Orthoneura brevicornis*, Lw.: Loew named as this species a specimen given me by the late Mr. D'Orville.

67. *Chrysogaster virescens*, Lw.: Loew also named as this a specimen I caught at Rannoch on June 26th, 1870, and I have since taken one specimen each at Loch Maree, Ivybridge and Lyndhurst.

68. *Melanophora atra*, Mcq.: this, which may be a variety of *M. roralis*, L., is common in Wicken Fen.

69. *Calliphora azurea*, Fln.: in this Magazine for December, 1881, I practically excluded this species from the British lists on the grounds that all British specimens were *C. grœnlandica*, Ztt.: I find, however, that true *C. azurea*, Fln., does occur rather rarely in England, as I have taken odd specimens at Boxhill, Abbots Wood in Sussex, Exeter, Barton, and even a pair in this house, one occurring in my own study just as I was working at the species; the male is very like *grœnlandica* but rather stouter, and the acrochætal bristles are distinct, those bristles being almost obsolete in *C. grœnlandica*; the females are very distinct, those of *C. grœnlandica* resembling the male, while those of *C. azurea* have the thorax with dull stripes, whence L. Dufour called the species *C. dispar*.

70. *Pyrellia cyanicolor*, Ztt.: the lovely bright purplish *Pyrellia* with three faint lines on the thorax and quite bare eyes seems to me to be *P. cyanicolor*, Ztt. It is not uncommon at Lynton and at Loch Maree and Rannoch.

71. *Hæmatobia stimulans*, Mg.: I do not consider this species or the next (both commonly known as *Stomoxys*) have ever been clearly identified as British. *H. stimulans* is very much like *Stomoxys calcitrans*, but the short proboscis and long palpi at once distinguish it, while in *H. stimulans* ♂ the eyes touch. I do not consider it rare, as since I first saw it at Rannoch I have taken it at various localities, amongst which (to show its distribution) I may mention Gairloch, Arran, Ivybridge, Lynton, Abbots Wood in Sussex, &c.

72. *H. irritans*, L.: this is the *H. serrata*, Dsv.; it is only half the size of the others, and very distinct. I used to catch specimens on a cow at Denmark Hill.

73. *Spilogaster trigonalis*, Mg.: this somewhat abnormal species (probably allied to *S. fuscata*) occurred freely at Lynton in June, 1884, and I have also taken it at Ivybridge, Teignmouth, Three Bridges, and last June even at Tongue.

74. *S. pertusa*, Mg.: closely allied to *S. consimilis*, Fln.; it is not very rare in the north, I took several at Braemar in 1873 and I have odd specimens from the Lake District and North Sutherland. I mention this species because Meade omits it, otherwise it has been reported British.

75. *Homalomyia Roserii*, Rnd.: this very distinct species occurred abundantly under *one* tree in a wood close to Three Bridges Station on July 31st, 1882; I had previously caught one at Rotherfield, also in Sussex, on September 8th, 1875. Unfortunately I have been unable to find the female.

76. *Anthomyia sylvestris*, Fln.: of this fine species I caught two males and one female at Aberlady on June 23rd, 1884; I believe it was abundant, but unfortunately I mistook it for *Hylemyia conica*. I suppose this would come in Meade's genus *Chortophila*, but at present I leave all *Phorbia* and *Chortophila* under *Anthomyia*.

77. *A. striolata*, Fln.: this and the following species are fairly described by Schiner, and I believe do not come under any of Meade's species, most of which I possess. *A. striolata* used to occur very freely in May on long grasses in a field which is now part of my garden; since this land has been joined to the garden the species still occurs, but less abundantly. I have also taken it at Darenth, Aberlady, and near Lewes. Dr. R. H. Meade informs me that it is his *Ch. trapezina*, Ztt.; it is, however, very distinct from a specimen I received from Kowarz named *Ch. trapezina*.

78. *A. discreta*, Mg.: very like the preceding species, but it is smaller, and the frons of the male is much wider; I have taken it at various places, amongst others at Barton, South Walsham, near Lewes, Aberdeen, and Tongue.

79. *A. vetula*, Ztt.: I am not well satisfied with the name of this species, but yet believe it correct; one important point is that Wahlberg mentions catching it abundantly on March 1st, when it was the only *Anthomyia* to be seen, while I caught mine abundantly in Widgham Wood near here on March 17th, 1884, when *A. muscaria* was the only other species about. It is a very small species, with a dark thorax, produced face (hence Zetterstedt's synonym *A. naso*), thin proboscis, short antennæ, and hind tibiæ with from 2 to 4 tiny erect bristles inside.

80. *Pegomyia diaphana*, W.: this conspicuous yellow *Anthomyia*, which at first glance resembles *Hyetodesia pallida*, has occurred rarely in my own garden and at other places within about two miles.

81. *Chirosia albitarsis*, Ztt.: this very remarkable species, the male of which has the base of the front tarsi whitish, occurred freely in June, 1884, at Loch Maree and at Tongue. The genus *Chirosia* would come amongst Meade's genera allied to *Cœnosia*, but is easily known by its complete anal vein (like *Mycophaga*) and its bare arista.

82. *Tetanocera lævifrons*, Lw.: amongst other specimens of this I note one taken at Plashet Park near Lewes on July 3rd, 1868, and another at Kew on July 17th, 1868.

83. *Elgiva rufa*, Pz.: I think Walker's *Tetanocera cucullaria*

(Ins. Brit. Dipt., ii, 166) is really *Elgiva rufa*, which is common in England, but true *E. cucullaria*, L., also occurs though more rarely; I possess it from Plashet Park near Lewes and from Woking.

84. *Psila villosula*, Mg.: on my study window on September 9th, 1884; probably common, but overlooked.

85. *Psilosoma Lefebvrii*, Ztt.: I have an old specimen which I do not know the history of, but which I have no doubt is British.

86. *Themira spinosa*, *n. sp.*

Near *T. minor*, Hal., and like that, small, entirely black-legged, and having the black costa extending to end of fourth vein; the front legs are however very different from any figure given by Van der Wulp in Tijds. Ent., vii, Tab. 8, and the end of the male abdomen bears pencils of bristles very like his *T. curvipes*, *l. c.*, Tab. 8, f. 11; the front (♂) tibiæ have a strong tubercle in front about the middle, on the lower edge of which is a good sized bristle, while just above the tubercle is another double bristle; the femora are extremely compressed about the middle and swollen after, on this swollen part above are about four strongish bristly hairs, and beneath about the middle is a strong bifid or double tooth, between which the tibial tubercle would lie when the legs are folded, near the base is a long thin bristle; the basal joint of the front tarsi is thin, except at end, and as long as the next three joints, the second and third being about equal; the hind tibiæ are very strongly twisted about the middle, almost as if broken, and are finely ciliated inside above the twist. The pleuræ are greyish above the middle coxæ. Of the European species with fasciculated male genitalia (*Cheligaster*, Mcq.), *T. Leachii*, Mg., *curvipes*, V. d. Wulp, and (*Enicita*) *annulipes*, Mcq., have the legs more or less reddish-yellow; of the black-legged species *T. putris*, L., is much larger than the others, leaving *T. superba*, Hal., *ciliata*, Stæg., and *pusilla*, Zett., to be distinguished from *T. spinosa*. I omit Desvoidy's two species (on which the genus was founded) as I think his *T. pilosa* is most likely only *T. putris*, L., rather than *T. superba*, Hal., as given by Walker (Ins. Brit. Dipt., ii, 212), and his *T. phantasma* may well be *T. Leachii*, Mg.; of the three left I possess a male of *T. superba*, Hal., and in that the hind tibiæ are comparatively simple, and the front legs much as Haliday describes them, which is quite distinct from, though allied to, *T. spinosa*; *T. ciliata*, Stæg, besides having presumably simple hind tibiæ, has "pleuris immaculatis—femoribus intermediis subtus apice, posticis latere interiori ciliatis;" *T. pusilla*, Ztt., is very insufficiently described, but probably has simple hind tibiæ and "femora antica subtus—denticulo—et setulis aliquot brevibus nigris."

I caught several specimens of this on the islands on Loch Maree, on June 9th, 1884, and one male at Tongue on June 18th, 1884. *T. minor*, Hal., occurred in company with it on Loch Maree, or at any rate was taken on the same day.

87. *Ptilonota centralis*, F.: one female at Darenth, May 5th, 1867.

88. *Pteropœctria palustris*, Mg.: several specimens caught on August 3rd, 1884, at Seaford answer well to this species, also some caught at Plashet Park near Lewes on August 4th, 1872, and one at Abbots Wood, Sussex, on July 12th, 1869. I am not at all satisfied with the distinctness of this species from *P. oscillans*, Mg.

89. *Spilographa hamifera*, Lw.: I have a female of this from Scotland, given me by Dr. Algernon Chapman.

90. *Trypeta jaceæ*, Dsv.: the true *T. jaceæ*, Dsv., with three pairs of bristles on the middle of the thorax, has never been distinguished as British; I caught several in Wicken Fen from July 3rd to 7th, 1875.

91. *Urophora quadrifasciata*, Mg: I caught this well-marked species on July 17th, 1870, near Warrengore Wood, Lewes; besides this I possess old specimens.

92. *Tephritis vespertina*, Lw.: this species (easily recognised by the pale spot at the tip of the wing being almost pushed out by the extent of the dark lattice-work) is not uncommon. I first distinguished it from specimens bred by Mr. W. A. Vice, in 1873, from *Hypochæris radicata* at Banchory, but I have caught it at Handcross in the middle of Sussex on April 12th, 1884, and at Lyndhurst, Fawley, and Rannoch, in June, at Barton in July, and at Esher in August.

93. *T. conura*, Lw.: this also was bred by Mr. Vice, in 1873, from *Carduus palustris*; I caught one specimen at Pitlochrie on July 1st, 1874.

94. *T. conjuncta*, Lw.: I have specimens (which I believe belong to this species) from Aberdeen, Rannoch, and Three Bridges. Besides this I have a still more typical specimen, the history of which I do not know.

95. *Urellia cometa*, Lw.: I caught one of this beautiful species at Lymington on June 24th, 1885.

96. *Meromyza læta*, Mg.: specimens from Lewes, Lewisham and Abbey Wood seem clearly to be this species.

97. *Notiphila nigricornis*, Stnh.: I have caught this at Lyndhurst on June 26th, 1872, and Bournemouth on July 14th, 1874.

98. *N. annulipes*, Stnh.: one specimen at Plashet Park near Lewes on August 4th, 1872.

99. *Ephydra breviventris*, Lw.: Loew named a specimen caught at Kew on August 4th, 1868, as this; he ought to know the distinctness of this from *E. micans*, which he named for me at the same time. I have not studied the *Ephydrinæ* enough to give any clear opinion myself.

100. *Limosina ferruginata*, Stnh.: this used to be abundant at Denmark Hill when I lived there.

In No. 28, *Dactylolabis Frauenfeldi*, line 3, the word "generally" should be "generically."

Sussex Lodge, Newmarket:
December 11th, 1885.

Possible acclimatization of Papilio Erectheus, Don., in Europe.—This fine species could, probably, be easily acclimatized in the South of Europe. When we left Sydney on March 30th, 1885, I had a number of pupæ which emerged at different times on the way home, after undergoing great changes of temperature. From Sydney we proceeded through Torres Straits to Singapore, where we arrived on May 8th, and remained for about a month. Larvæ and pupæ taken in March and April would, in their natural course, produce butterflies in August or September. The temperature at Sydney at the end of March averaged 70° in the shade, and it would continue to get cooler up to the middle of June, which is about the coldest time of the year. At Singapore, in May, the thermometer ranged from 80° to 88°. From Singapore we went for a few days to Batavia, and from thence across the Indian ocean to Aden. The temperature during the passage was, comparatively speaking, cooler, but directly we passed through the straits of Bab-el-mandeb and entered the Red Sea the heat became intense, 89° to 94° in the shade, and not much cooler at night. At Malta, where we arrived on August 2nd and remained until the 7th, the heat was very great, indeed, it was said that they had not experienced such weather for nearly thirty years. On board ship the temperature was only recorded 79° to 93°, but I feel convinced that it must have been higher, for on shore it rose to 120° in the shade, and cases of sunstroke occurred daily, even among the Maltese. Notwithstanding the extreme heat the pupæ of *Erectheus* were subject to, the perfect insects did not appear much earlier than they would have done had they remained in their native country. The first emerged at sea between Java and Aden on June 19th, and the last at sea between Malta and Gibraltar on August 14th. Had we come direct home from Sydney, these butterflies would not have been born until after our arrival in England. There would be no difficulty in sending a supply of pupæ by mail steamer to Brindisi, where they would doubtless soon acclimatize themselves, as the larvæ feed almost exclusively upon various varieties of orange and lemon.—Gervase F. Mathew, H.M.S. "Penelope," Harwich: *February 12th*, 1886.

Grapholitha Penkleriana bred from Nut and Alder Catkins.—The green larva which last season I found abundantly in catkins of nut and alder, but was unable to rear (see Ent. Mo. Mag., vol. xxi, p. 203), has this season proved to be the above species. On the 2nd of November, 1884, I was in the neighbourhood of the nut plantation where I had obtained the larva the previous spring, and was surprised to find that the catkins of the nut were fully grown, and only required the warm sun of early spring to expand the anthers. The late and very fine autumn had had a similar effect also upon the catkins of the birch and alder, which, however, were not so forward as those of the nut. It was about the middle of March when I had previously found the larva, then quite small, which I now know to be *Penkleriana;* three months and a half later, but as I did not expect to be in the locality again for some time, and as the catkins were as forward as I had previously found them in March, I gathered a quantity, selecting those which had an abnormal bulge near the centre. There were a considerable number thus distorted, but when I got them home and examined them I was not able to detect anything which had caused the swelling, nor indeed could I find larvæ of any kind in the catkins. I put the catkins, much broken up by examination, into a bottle, and tied a piece of rag over the mouth. Towards the end of February there was a plentiful supply of larvæ

crawling about in the inside of the bottle. The catkins were getting too dry to be eatable, having been in the bottle nearly four months. Being unable to obtain more catkins, as they had been out of flower for some weeks, I placed in the jar some nut buds, and was pleased to see that the larvæ ate into them in the same manner that I had found them eating the alder buds in the spring This cleared up the point that the larvæ had the same habits upon the nut as upon the alder, of feeding in the catkin when small, and resorting to the buds when the catkins had become too expanded to conceal them; or as they were then dead, for the withered remains of the catkins upon the trees were less fit for food than those which I had kept in the jar. At the beginning of April, I visited the locality where I had obtained the larvæ, thinking I might be able to get a fresh supply, and being anxious to ascertain whether in a state of nature they eat the nut buds. The latter point I was able to settle, as I found numbers of buds scooped out by the larvæ; I could not, however, find any larvæ, and all buds that had been eaten had grown considerably since their voracious visitor had left them, so it was evident that those I had in confinement in a cool and almost sunless room, had been more retarded in their growth than their comrades who, though exposed to the frost of winter, and often with their pendulous home encased in snow and ice, yet had the warmth of every hour's sunshine. On the 3rd of May I visited my alder locality, and found the larvæ almost full-fed within the buds. When attacking a fresh bud the habit of the larva is generally to make the hole near the foot of the bud, between the bud and the stem, so that when it had got within the bud, the hole by which it had entered was almost concealed. This method of operation had also the advantage, that the larvæ were less exposed while eating into the bud than if they had commenced in any other position. On the 25th of May I again searched these alders, and found the larvæ then full grown; the alder was almost fully in leaf, and the larvæ in search of fresh pabulum had evidently difficulty in finding unexpanded buds. Buds which had begun to open were webbed at the top slightly to keep them together. and in one instance I found a larva which had webbed together two young leaves, but in this as in all cases where leaves were attached to buds, the larvæ appeared only to eat the projecting ribs of the under-side of the leaf. Finding that the larvæ were to some extent forsaking the buds, I applied a walking stick rather vigorously to the branches, with the result of finding several larvæ in the umbrella held beneath. Two days after this I bred *G. Penkleriana* from the larvæ out of the nut catkins obtained in November, and on the 6th of July and following I bred it from the larvæ got in April and May in alder buds.

The larva, when young, is pale green, and tapers slightly and gradually from the third to the anal segment; head and second segment unusually large and shining black, having somewhat the appearance of a helmet; thoracic feet dark. As the larva approaches full growth, the third to sixth segments become slightly swollen, and the head and second segment are proportionately less and lose their blackness, being but very slightly darker than the rest of the body, with some brownish markings; spiracles very small, with a spot above and below very faintly darker; a few shining spots on anal segment; pupa light brown, with large wing-cases meeting to a projecting point in front; eye-case large, round, and conspicuously black-brown.—A. Balding, Wisbech: *December 30th*, 1885.

Longevity of the larva of Nepticula apicella.—At the beginning of September

I noticed that all the aspen leaves on some young trees had, at the bases of their footstalks, the little commencing mines of this insect. How much earlier the larvæ really begin to feed is another matter, as it has to mine up the greater part of the leaf stalk before appearing in the leaf; and if it makes no better progress then than afterwards, it probably begins at the end of June or beginning of July. I never find any mines empty until the beginning of November, and very few then. The mine does not appear to be enlarged much until after the middle of October. Of course in November the aspen leaves have all been off some time and are quite brown, and many of them half rotted. The great bulk of the larvæ remain in the leaves until the middle of November (some even a month later) before entering the ground, so that they will have most likely from five to six months of larval life, as the summer-laid eggs of *Nepticulæ* hatch quickly.

There is another matter connected with this species to which, at Mr. Stainton's request, I wish to draw attention. In volume seven of the Nat. Hist. Tineina, the life-history, food-plant, and description of the larva of *N. apicella* are given; but, most unfortunately, the name, figure, description of imago, and the (Beckenham) locality, are those of *argyropeza*, a very different insect and quite distinct from *apicella*. I believe the larva of *N. argyropeza* is totally unknown both here and on the Continent. This error has caused great confusion in many cabinets; many specimens of *apicella* having been distributed, both by myself and others, as the much rarer *argyropeza*, before the error was detected. In all probability the great bulk of the captured, and all the bred examples extant, are *apicella*. It would be well if gentlemen having specimens of *argyropeza* in their cabinets, would rectify the error at once where it exists.—J. Sang, 33, Oxford Street, Darlington: *February*, 1886.

Nepticula argyropeza and apicella.—The error of confusing these two insects in the 7th volume of the Natural History of the *Tineina* was brought before me by Professor Fritzsche in some manuscript notes which he placed in my hands when we met at Stettin in September, 1863, at the Meeting of German Naturalists at that place. Immediately on my return home I wrote to Professor Fritzsche on the 2nd October, 1863, as follows:—

"Having safely reached home the day before yesterday, I write to-day about *Nepticula argyropeza*. To my great regret I must confess that in the last volume of the Natural History of the *Tineina* a serious error has occurred.

"The *larva* of my therein mentioned *argyropeza* belongs to my *apicella* (the *argyropeza*, *a*, Zeller), the *imago*, however, is really my *argyropeza!* The question now arises on what does the larva feed which produces my *argyropeza* with the costal spot nearer to the base than the dorsal spot?"

Professor Fritzsche replied to this November 5th, 1863:—

"Your note as to *argyropeza* has much interested me. Now that we have come to a clear understanding as to this species, one matter is still needed, that is, a *new* name for your *argyropeza* of vol. 7 of the N. H. *Tineina*, since, according to the rules of priority, Zeller's name of *argyropeza* (var. *a*) must be retained for *apicella*, Stainton. Please, therefore, to name your *argyropeza* afresh, and to let me know the new name, in order that I may introduce it in my short paper."

To this I replied, November 16th, 1863, suggesting the name of *subapicella* for the *argyropeza* noticed and figured in the *imago* state in the 7th vol. of the N. H. *Tineina*.

I have no reason to believe that Professor Fritzsche ever published his intended paper; in the mean time, the matter being in his hands, I deferred writing any notice on the subject myself: but now that Mr. Sang has kindly broken the ice for me, I am bound to say a few words.

Professor Fritzsche's suggestion that Zeller's name *argyropeza* should be retained for my *apicella*, and that my *argyropeza* should bear a new name, seems unfortunately to render the whole matter more complicated; perhaps, for the present, it were better to let that point rest, and look upon my proposed *subapicella* as a benevolent wish that has never been carried out.

In vol. 7 of the Natural History of the *Tineina*, pp. 188—195, "the larva," "the mode of life," and "the geographical distribution," apply to *apicella* with "the costal and dorsal spots exactly opposite;" "the imago" applies to *argyropeza* with "the costal spot anterior to the dorsal spot." The food and larva of this latter insect has yet to be ascertained. Can it feed on *Populus alba* (the white poplar)?—H. T. Stainton, Mountsfield, Lewisham: *February 6th*, 1886.

The probable food of Gelechia vilella.—Mr. Warren's note as to his having bred *G. vilella* (unwittingly) 15 years ago has much interested me. This insect, first described by Zeller from his Sicilian captures in 1844, has since been found widely distributed in the Mediterranean region, and has occurred commonly in several localities in England. In Germany I believe it has not been found in any plenty, and only in a few localities. In a letter which I received from Herr Josef Mann in October, 1851, I find an intimation that the larva of *Gelechia vilella* feeds on stinging nettles, and is full fed at the beginning of April.

This observation, made at Brussa in the spring of 1851, seems never to have been published. Herr Mann's notes on his captures at Brussa in 1851 were not sent to press till eleven years afterwards, and the observation on the larva of *G. vilella* was not recorded in its proper place. Now, after an interval of 35 years! I place it before the public.

Herr Mann subsequently met with the insect in Corsica and in Sicily; in the former locality he says it was "flying amongst nettles in the evening," in the latter locality that he found "several on walls where nettles and *Parietaria* grew."—Id.: *January 25th*, 1886.

Crambus vigens, Butl., or Crambus fucatellus, Christ.—When I was looking over the Museum collection of *Crambi* a little time ago, I noticed one from Japan named *vigens*, Butl., which I at once recognised as being identical with *C. fucatellus*, Christ., and of which I have several specimens from Vladivostock in Southern Amoor.

There appears to have been a little confusion with the synonymy of this *Crambus*, arising, probably, from the fact that Christoph was not aware that his *fucatellus* had been previously described by Butler. It appears advisable, therefore, in order to prevent this being perpetuated, to put on record the history of this species.

In the Ann. & Mag. Nat. Hist. for December, 1879, p. 456, Butler describes this new *Crambus* from Japan under the name *vigens*, one specimen being then in the collection.

In the Moscow Bulletin for 1881, vol. lvi, Christoph, in his paper, Neue Lepidopteren des Amurgebietes, also describes this same species under the name of *fucatellus*, saying that he found it from the middle of July to the middle of August at Vladivostock and Askold.

Butler's name, therefore, has the priority, so that, hereafter, *fucatellus*, Christ., must sink as a synonym of *vigens*, Butler.

In Lord Walsingham's most valuable addition to the Museum, I also found a single poor specimen of this *Crambus*, to which Zeller had affixed a label, *vide porcellanellus*, which is quite a distinct species of Motschulsky's. Zeller's reference to this latter insect was probably caused by the fact that he did not know *porcellanellus*, and that the dark markings of *vigens* (which his specimen undoubtedly is) were in his one example very much obliterated.

It is unnecessary to describe *vigens* afresh, as any entomologist can readily refer to the original description; but I believe there is no description of Motschulsky's species in the English language, so that, to prevent any further confusion of these two *Crambi*, it may be well to describe it here.

C. porcellanellus, Motsch:—Anterior wings satiny-white, with a marginal black line from the apex to the third median veinlet, followed by three black dots below this vein. Posterior wings pale brownish-grey, darkest towards the costa, and gradually changing to pure white on the abdominal margin. The fringes are white throughout. The thorax is white, and the abdomen brownish-grey. Beneath the anterior wings are clouded with silvery-brown, excepting on the costal, exterior, and interior margins, and the posterior wings are white, becoming silvery-brownish towards the costa; body as above.

This description is taken from the specimen in the Museum collection from Hakodaté, standing next to *C. vigens*.—G. T. Baker, Augustus Road, Edgbaston: *February* 3*rd*, 1886.

Butalis fusco-cuprea bred.—This insect is given by Mr. Stainton, in the Manual, as "perhaps, not truly distinct" (from the preceding species, *senescens*). I have always maintained its distinctness, having for the past twenty years been taking it among *Lotus corniculatus* on our railway banks, where I invariably swept it from, or took it on, *that plant*. Of late years I had looked for the larva but was never able to find it. We have no thyme within many miles. I had the pleasure, at the end of last year, of having my opinion confirmed by Mr. Gregson having bred a fine series of it, from larvæ found in the Isle of Man feeding on *Lotus corniculatus*. There is no scarcity of thyme in that island, so that it can hardly be a case of compelled change of food. The larva spins a slight web up the stems of its food-plant. I have seen the specimens and they are truly *fusco-cuprea*, so that, perhaps, the doubt as to its specific rank may now be at an end.—J. Sang, 33, Oxford Street, Darlington: *February*, 1886.

Drepanopteryx phalænoides at Hastings.—Mr. E. A. Butler, formerly of Hastings, has communicated to me a wing of this species, mounted as a microscopic

slide, with the following note: "I took the insect at Hastings many years ago, and impaled it on a 'spike.' It ultimately went to pieces, and I preserved only the wing, as I thought it a curious insect. It was named for me, some years ago, by the late F. Smith."

This forms an exception to the otherwise ascertained distribution of the insect in Britain (*cf. ante*, p. 140). There is no *prima facie* reason why the species should not occur over nearly the whole of this island. Still a suspicion suggests itself to the effect that the Hastings example *may* have resulted from an egg or pupa on an imported shrub. The mystery attached to this insect in connection with its occurrence in Britain, is why, having so conspicuous an appearance, it should be so little known.

The specimen here alluded to has been already recorded, and should have been included in Mr. Morton's notes at p. 140. The record is to be found in "The Natural History of Hastings and vicinity: first supplement (p. 35)," published in 1883.—R. McLachlan, Lewisham, London: *February 13th*, 1886.

On the occurrence of Orthezia cataphracta, Shaw, in Styria.—Some years ago, when my attention was occupied with the Flora of the calcareous mountains of North Stiermark, I found at the roots of a saxifrage (*Saxifraga aizoon*) an elegant cream-white insect, which afterwards proved to be *Orthezia cataphracta*. For assistance in its determination I am obliged to Dr. F. Löw of Vienna. I found it only at the roots of the said saxifrage, and to be able to see it the plant must be drawn out of the ground. Although the saxifrage abounds on our calcareous mountains, I can obtain the *Orthezia* up to this time only at the place where I found it at first. On the Krumpalpe *Saxifraga aizoon* occurs frequently, but I have found yearly at the roots of only a few plants a moderate number of the *Orthezia*, yet over a range of nearly 1300 met., which is the height of the mountain. Thus we find this insect, which lives in Greenland, Lapland, North England, Scotland and Ireland, to be also an inhabitant of our Alps. I may mention that I found the *Orthezia* specially on those plants of saxifrage which grew on the more humid and mossy ground. During the last four years I have visited the place at different times from April to December, and although I always found females, with and without marsupium, I have failed to obtain a male; my experiments in breeding have also had a negative result.

I hope to finish in a short time a detailed monograph of this anatomically interesting insect.—J. H. List, Zool. Institut, Graz: *February 5th*, 1886.

A species of Amara new to Britain.—Among a number of beetles sent me some time ago for determination by Mr. Robert Gillo, of Bath, I found a specimen of an *Amara* which at once struck me as being different from any of the hitherto recorded British species. I sent the specimen to the Rev. W. W. Fowler, and afterwards to Herr Reitter, the latter of whom returned it as certainly the *Amara montivaga*, of Sturm, a species which in the most recent European catalogue is given as an inhabitant of middle and northern Europe, but which has not, I think, been previously recorded from Britain. Mr. Gillo tells me he took the specimen near Bath, but does not remember the exact locality or the date of its capture. I have appended a description of the specimen, which is a male.

Amara montivaga, Sturm:—Oblong-oval, slightly convex; dark greenish-bronze,

very shiny; antennæ pitchy, with the three basal joints yellow-red; thorax slightly broader at the base than the elytra, much narrowed in front, sides only slightly rounded; anterior angles obtuse, and not prominent; posterior angles right angles, but rounded at the apex; base of the thorax distinctly sinuate; basal impressions obsolete; elytra broad, parallel-sided for two-thirds of their length, faintly sinuate before the apex which is slightly produced; striæ simple, rather deeper behind; the marginal row of punctures interrupted in the middle; legs with the femora black; tibiæ reddish; tarsi brown. Length 3½ lines.

This species is at once recognised from all the other British *Amaræ* by its very broad thorax, the base of which is somewhat wider than the base of the elytra, by its somewhat depressed and parallel-sided form, and by its high polish. It is distinguished at once from *lunicollis*, *ovata*, and *similata*, its nearest allies in Britain, by the absence of any foveæ at the base of the thorax.—John W. Ellis, Brougham Terrace, Liverpool: *February 11th*, 1886.

[Dr. Ellis remarks that he sent the specimen to me; I returned it to him as probably *A. nitida*, Sturm, a species that is placed in the European lists immediately before *A. montivaga*; as Herr Reitter is acquainted with *A. montivaga*, his determination must be in all probability correct. It did not, however, appear to me possible that Dr. Ellis's insect could belong to that species, as Schaum (Naturgeschichte der Insect. Deutsch., vol. i, p. 524) lays particular stress upon the legs being entirely black; in the short Latin description of *A. montivaga*, he says, "pedibus totis nigris," and again in the German description, "die Beine sind ganz schwarz;" on the other hand, in describing *A. nitida*, he says, "femora black, tibiæ ferruginous, tarsi brown;" this it will be seen agrees exactly with Dr. Ellis's description; it is obvious, therefore, that either Schaum or Reitter must be wrong. I am rather inclined to think that the colour of the legs in the genus *Amara*, which some authors lay so much stress upon, is a very misleading character.—W. W. F.].

The South London Entomological and Natural History Society, 21*st January*, 1886: R. Adkin, Esq., F.E.S., President, in the Chair.

Mr. Frohawk exhibited specimens of the curious ichneumon *Allysia manducator*, Gr., bred from the Coleopteron *Creophilus maxillosus*, L. Mr. Billups exhibited male and female specimens of *Sirex gigas*, L., belonging to the family *Siricidæ*, and remarked that the larvæ were very destructive to wood, more especially Fir plantations, and cited many instances to show the great rapacity and strength of the mandibles of these destructive creatures. This gentleman also exhibited specimens of the ichneumon *Rhyssa persuasoria*, which species was parasitic on the *Sirex*. Mr. Wellman exhibited some striking forms of *Xanthia aurago*. Mr. Dobson exhibited two specimens of *Acherontia Atropos*, the pupæ having been kept in a temperature of between 60° and 70°, and emerging respectively on the 2nd and 5th of January. Mr. Carrington exhibited a curious malformation of *Pieris rapæ*. Mr. South exhibited specimens of *Noctua castanea* (*neglecta*) from the New Forest, and two localities in Perthshire, and said those from the New Forest were gray with an ochreous tinge and were the true *neglecta*, whilst those from Perthshire were either gray with a reddish tinge or of a decided chestnut colour, the chestnut coloured specimens being the *castanea* of Esper; and the reddish tinged gray ex-

amples connecting the true named forms. Mr. Carrington said he had taken and bred both forms in Scotland, where he had found the larvæ feeding on sallow.

February 4th, 1886: The President in the Chair.

Mr. Billups exhibited *Agapanthia lineaticollis*, Don., from Lincoln, also *Callidium variabile*, Linn., and *Strangalia 4-fasciata*, Linn., from Chobham. Mr. Rose exhibited a variety of *Satyrus Hyperanthus*, L., in which the ring-spots of the upper-side, instead of being of the ordinary form, were identical with those usually confined to the under-sides. Mr. Wellman, a fine series of *Oporabia filigrammaria*, H.-S. Mr. J. T. Williams, a very beautiful banded variety of *Nyssia hispidaria*, Fb. Mr. Joy, subdiaphanous varieties of *Vanessa Io*, L., and *V. urticæ*, L., and Mr. South, short series of *Emmelesia albulata*, Schiff, from Switzerland, Kent, N. Devon, Dumbarton, Rannoch, and the Shetland Isles, and contributed some interesting notes on the different forms exhibited. The President having briefly referred to the suggested publication by the Society of a list of the fauna and flora of certain of the southern counties of England, Mr. J. T. Carrington proposed the following resolution :—"That as no complete list of the fauna and flora of the southern counties of England exists, this meeting resolves that the Council of the South London Entomological and Natural History Society be requested to organize the collection and publication of the material for such lists, under the auspices of this Society, of those counties which shall be agreed upon." Mr. Eley seconded the resolution which was then put to the meeting and carried unanimously.—H. W. Barker, W. A. Pearce, Hon. Secs.

Entomological Society of London, *February 3rd*, 1886: R. McLachlan, Esq., F.R.S., President, in the Chair.

The President appointed Mr. F. DuCane Godman, Mr. Stainton, and Mr. J. J. Weir, Vice-Presidents for the year.

Dr. Livett, Lieut. Goodrich, Mr. Eustace Bankes, and Mr. F. Enock (formerly a subscriber), were elected ordinary Fellows, and Mons. E. L. Ragonot (ex-president of the Société Entomologique de France) a foreign Fellow.

Mr. C. O. Waterhouse exhibited female scales of *Coccidæ* of the genus *Eriopeltis*, possibly different from *E. festucæ* (*cf.* Ent. Mo. Mag., *ante* p. 168). Mr. E. A. Fitch remarked that *E. festucæ* had been recorded as British at a meeting of the Society held about thirty years ago.

Mr. Douglas sent for exhibition leaves of *Euonymus japonicus*, received from M. Lichtenstein, infested by *Chionaspis euonymi* (Comstock), first noticed in the United States, but which occurred in great numbers at Montpellier and Nîmes, and always destroyed the shrubs attacked by it. The number of ♂ scales was quite out of proportion to the ♀. M. Lichtenstein expressed a hope that the insect did not occur in Britain.

The President exhibited specimens of *Tettix australis*, Walker, received from Mr. A. S. Olliff of the Sydney Museum, who had captured them at the river Nepean (N.S.W.); Mr. Olliff stated that the insect was decidedly sub-aquatic; he had found the insects not only on the surface of pools, but also eight or ten inches below the surface on the stems of water-plants, and they descended when approached. The President remarked on the interesting nature of this exhibition, and stated as his

belief (from personal observation) that many *Acrydiidæ* and *Locustidæ* voluntarily took a bath by leaping on to the surface of streams, &c., swimming to the bank after a short time (if not meanwhile swallowed by fish).

Mr. W. F. Kirby exhibited, on behalf of Mr. Ralfe, certain specimens of *Lycæna Corydon*, &c., purchased by the latter at a recent sale, of a very extraordinary character, and suggestive of chemical action. Mr. Weir and others made some remarks on the specimens.

The Rev. W. W. Fowler exhibited the British example of *Harpalus calceatus*, Sturm, recorded *ante* pp. 172–174; also a series of British species of *Helophorus*, and made some remarks with regard to the extreme difficulties in synonymy affecting this genus. Furthermore he exhibited a specimen of *Apion Lemoroi*, Brisout; it was not uncommon on the French shores; the larvæ feed in the stems of *Polygonum aviculare*, and he was of opinion that it might be found on our own coast.

Mr. H. Goss read an analysis of Mons. Brongniart's recent work on "Les Insectes Fossiles des Terrains Primaires" (Rouen, 1885), and expounded that author's views on the classification of insects from geological data,

The Rev. W. W. Fowler read notes "On a small collection of *Languriidæ* from Assam, with descriptions of two new species."

Mr. Baly read a paper "On new genera and species of *Galerucidæ*," chiefly from the collections of Mr. A. R. Wallace.

Mr. J. Edwards communicated the first part of a synopsis of British *Cicadina*.

NOTE ON SOME BRITISH *COCCIDÆ* (No. 2).

BY J. W. DOUGLAS, F.E.S.

The attention given to the *Coccidæ* in this country, although extending over a long period, has been so desultory, intermittent, and imperfect as regards the number of species noticed, that no systematic English work on the subject exists, and much remains to be done, both in collecting and investigation, before the number of species inhabiting Britain can be known. My previous tentative "Note" (p. 157 *ante*) has brought to me several kind, instructive and encouraging letters; with the aid therein promised, and that of other entomologists who may be induced to collect and observe, an authentic list of British *Coccidæ*, accompanied by accounts of their varied economy and times of appearance, may be rendered possible. The last item is of importance, for much of success in obtaining the males depends upon the time of year when the scales are collected; and it would too often happen to the collector, that with such vague terms as "spring" or "summer," which for the most part are the only ones given as the season when the males are disclosed, he would find, if he got the scales, that the imagos had flown.

One correspondent suggests that I should not say "British

Coccidæ," because they are cosmopolitan, and wherever the plants that they affect grow, there the insects will be present. It seems, therefore, necessary to state that the term "British" is only employed in the usual zoological sense, not to indicate that the insects are exclusively British (the foreign origin of most of the names negatives this), but that the species inhabit or have been introduced into Britain. Although it is true that a comprehensive philosophical idea of species and generic groups can only be obtained by the study of forms from all parts of the earth, yet it must be remembered that the great majority of the collectors of insects in Britain are only able to give attention to those within their immediate reach, and it is to aid and encourage such, with reference to *Coccidæ*, that is now my primary object.

In a new field of research the acquisitions, if not absolutely new to science, are at any rate new to the collector, and the pleasure of their discovery is only second in degree to that of him who finds a species unknown before. Of this Kingsley speaks in his "Glaucus" as "the delight of finding a new species, of rescuing (as it seems to you) one more thought of the divine mind from Hela, and the realms of the unknown, unclassified, uncomprehended." There are many delights in store for those who will work up the *Coccidæ* with even a portion of the attention that has hitherto been given to *Lepidoptera* and *Coleoptera*.

Fortified with a competent knowledge of our native or introduced *Coccidæ*, any one who may have the opportunity will be better prepared to enter on the study of the whole cycle of the existence of these organisms; and the best modern guides will be found in the works of Signoret and Targioni-Tozzetti for Europe, Comstock for America, and Maskell for New Zealand.

For the information of enquirers as to what they are to look for, where the objects are to be found, and when, I subjoin a brief summary of the *prima facie* aspect in their *ultimate state* of such *scales* as are most likely to occur in this country, either in the open air or under glass, but this list is not exhausted; together with a list of the plants upon which they have been obtained, omitting those species mentioned in this or my preceding paper. The time of the year can, as a rule, be given only as spring or summer, for in most cases it has not been more precisely stated. The object should be to get the scales as soon as may be before the wonderfully formed males emerge; the greater interest attaches to this in that the male of many species is not known, and without this knowledge the natural history of the species is im-

perfect. The scale is formed by the moulting of the successive skins of the insect, combined with and augmented to a greater extent by the secretion by the insect of a waxy matter, which soon hardens into special forms; in some genera the scale is wholly formed of such secretion. The insect in all cases lives beneath the shield, the apterous female laying her eggs there and her body then drying up; the male, losing its mouth organization when it becomes a pupa, when it has attained its wings emerges backwards. The scales of the male, as a rule, are different in form and size to those of the female, as will appear in the following notes. Directions for rearing the males from the scales will be found p. 14, *ante*.

From the adult female scales many Hymenopterous parasites of different genera will be sure to appear, and may be obtained by securing the scales in the same way as those of the males. I have several reared from *Lecanium* which are very much at the service of any specialist.

Scales.

DIASPINA.

Scale formed in part of moulted skins and in part of secretion by the insect.

Aspidiotus—circular or nearly so; exuviæ central or lateral in ♂, concealed, covered with a pellicle with a raised point in the middle.

Diaspis—♀ circular; ♂ long, carinated, larval skin at one end.

Chionaspis—♀ elongate, narrow in front where the larval skin is, greatly widened posteriorly; ♂ small, narrow, linear, elongate, mostly carinated.

Mytilaspis—long, narrow, mussel-form, alike in both sexes, larval skin anterior, ♂ smaller than ♀, with only one moult, ♀ with two moults.

Fiorinia—♀, larval skin anterior, the rest of the scale wide with almost parallel sides, and formed of secretion anteriorly ridged lengthwise; ♂ smaller, of similar form.

Asterodiaspis—♀, circular, lenticular, somewhat drawn up in the centre, the margin showing a filmy fringe, which is secreted by spinnerets on the margin of the insect; ♂ long-oval.

LECANINA.

Scales formed wholly of secretion, with a deep cleft in the posterior margin; form, ♀, gibbous, hemispherical, inverted boat-shaped, or sacs covered with cottony secretion; ♂, oval, plano-convex, thin and waxen.

Lecanium—♀, form various, more or less convex, hemispheric, or inverted boat-shaped; ♂, oval, slightly convex, waxen, delicate; imago in April.

Pulvinaria—♀, form like the preceding, but flatter, with a mass of cottony material containing the eggs protruding from beneath (ovisac); ♂ imago in April.

Signoretia—a complete sac of very thin felted pellicle; very small.

Eriopeltis—♀, an oval sac covered with woolly matter; ♂ in a waxen scale; imago in July.

Lichtensia—sac of cottony material, but with a skin beneath.

Physokermes—sac rounded, divided from beneath into two equal portions by a ventral skin.

Lecanopsis—case subterranean, without ovisac.

Aclerda—like the preceding, differing in the absence of legs and antennæ in the adult insect; ♂ unknown.

Fairmairia—♀, formed as of two waxen scales united, each surmounted by a small elevation.

Ceroplastes—♀, varying in form according to age, when adult it has six or more waxen plates round a central one; ♂ unknown.

COCCINA.

With or without scale-covering.

Kermes—♀ globose, with a narrow base of attachment.

Gossyparia—covered with cottony matter, ultimately leaving only the disc of the scale visible.

Eriococcus—small white sac; ♂ smaller.

Acanthococcus—small white sac, very near to the preceding.

Rhizococcus—naked.

Dactylopius, *Coccus* and other genera of this division, being the insects commonly known as "Mealy Bugs," are without scales, and being also to a great extent exotic, are left out of this enumeration, but they may be the subject of future notes if desired.

PLANTS AFFECTED, AND THE *COCCIDÆ*.

Alder, *Lecanium gibber*, Dalm.

Ash, *Pulvinaria fraxini*, Licht.

Asperula cynanchina (roots), *Lecanopsis rhizophila*, Targ.

Bay, *Lecanium lauri*, Boisd.

Berberry, *Lecanium berberidis*, Schrk.

Bilberry (leaves), *Chionaspis vaccinii*, Bouché.

Birch, in cracks of (or under) last year's bark, *Aspidiotus betulæ*, Baer.

Box (leaves), *Mytilaspis buxi*, Bouché, *Eriococcus buxi*, Fonsc., in May.

Box, holly, ivy, *Aspidiotus hederæ*, Vallot.

Broom, *Aspidiotus genistæ*, Westw.

Butcher's broom and fig trees, *Ceroplastes rusci*, Lin.

Camellia, *Aonidia lauri*, Bouché.

Currant, *Pulvinaria ribesiæ*, Sign.

Dogwood, *Lecanium corni*, Bouché.

Elm, *Lecanium ulmi*, Lin.

Ferns, *Lecanium filicum*, Boisd.

Fescue grass, *Lecanopsis radicum graminis*, Baer.

Fig, *Mytilaspis ficus*, Sign.

Furze, *Aspidiotus ulicis*, Sign., *Lecanium genistæ*, Sign.

Grass roots, *Aclerda subterranea*, Sign., *Fairmairia bipartita*, Sign.

Guelder rose, *Lichtensia viburni*, Sign.

Hawthorn, *Aspid. oxyacanthæ*, Sign., *Lec. bituberculatum*, Targ.

Hornbeam, *Pulvinaria carpini*, Lin.

Horse-chestnut, *Aspid. hippocastani*, Sign.

Ivy, *Lecan. maculatum*, Sign.
Juniper, *Diaspis Carueli*, Targ., *D. juniperi*, Bouché.
Laurel, *Lecan. elongatum*, Sign.
Lime, *Aspid. tiliæ*, Sign., *Mytil. linearis*, Geoff.
Mistletoe, *Aspid. visci*, Schrk.
Oak, *Aspid. quercus*, Sign., *Lec. fuscum*, Geoff.
„ evergreen, *Aspid. ilicis*, Sign., *Chionaspis Planchoni*, Sign.
Oleander, *Aspid. nerii*, Bouché.
Peach, *Diaspis Leperii*, Sign., *Lec. rotundum*, Sign., *Lec. rugosum*, Sign.
Pear, *Diaspis ostreæformis*, Curt., ♂ imago in April.
Pine trees, *Leucaspis pini*, Hart., *L. Signoreti*, Targ., *Physokermes hemicryphus*, Dalm.
Poplar, *Aspid. spurcatus*, Sign., *Chionaspis populi*, Baer., *Pulvin. populi*, Sign., *P. tremulæ*, Sign.
Rose, *Diaspis rosæ*, Sandb.
Sallow, *Lec. caprææ*, Lin., *Pulvin. salicis*, Bouché.
Spindle (*Euonymus europæus*), *Pulvin. euonymi*, Gour.
„ „ *japonicus*), *Chionaspis euonymi*, Comst.
Spruce fir, *Lec. abietis*, Geoff., *Mytil. abietis*, Schrk.
Walnut, *Mytil. juglandis*, Sign.
Wistaria, *Lec. wistariæ*, Sign.
Wood-rush *(Luzula)*, *Signoretia luzulæ*, Sign.

I have used the nomenclature in general employment; much might be said about the wide-spread epidemic, of which there are here some examples, which induces the creation under abstract names of so-called genera (frequently doubtfully valid even to their authors) for species (often only a single one) which differ *inter se* in the smallest characters, thus burdening science quite unnecessarily with thousands of names which are a hindrance to the proficient and a source of dismay and embarrassment to the student. But the disorder, to call it by no harder name, seems incurable, and this is neither the time nor the place to discuss the subject.

Yet a word may be permitted on the way in which some generic names of Linné have been appropriated when his genera have been dismembered; I refer to *Coccus* and *Chermes*. Respecting the *Coccidæ* Westwood wrote (Mod. Class. Insects, ii, 447), "The type of this family (and for which, of course, the generic name *Coccus* must unquestionably be retained, instead of Illiger's name *Lecanium*) is the *Coccus ilicis*, Lin., a species which lives upon the *Quercus* or *Ilex coccifera*, and which was the insect which supplied the famous dye KOKKOS of the Greeks, *Coccum* or *Coccus baphica* of the Romans (whence the origin of the terms *Coccus* and *Coccinum* given to cloth dyed with this production, whilst persons wearing this kind of cloth were said by the Romans to be *Coccinati*); the *Chermes* or *Kermes* of

the Arabs, *Cremesi* or *Cocchi* of the Italians, and *Alkermes* of the Persians. Burmeister unites into one genus this and many others having the body of the female greatly swollen without any trace of limbs or articulations; and those which have the body flat, slender, and shield-like (*L. hesperidum*, &c.), with the limbs, antennæ and anal appendages distinct; the latter may retain the name of *Lecanium*, *C. ilicis* that of *Coccus*, and *C. cacti* that of *Pseudo-coccus*." This counsel has not been attended to, for when *ilicis* was separated from *Lecanium* it was made into two species, which were not referred to *Coccus* but to *Kermes*; *hesperidum* is still associated with its former companions as *Lecanium*, and *cacti* stands as the representative of *Coccus*, which nominates the family, all, as I think with Westwood, in contravention of the intention of the founder of the genus *Coccus*.

As to *Chermes*, under which name Linné placed a well-defined group of *Homoptera* (Faun. Suec., 1761), but did not until afterwards characterize the genus (Syst. Nat., 1767), Geoffroy, in the interval (Hist. abr. des Insectes, 1764), on the ground that Linné had misappropriated the old name *Chermes*, substituted *Psylla* for it, and his idea has been generally adopted; Linné, however, adhered to *Chermes* and cited *Psylla* as a synonym; Fabricius, Zetterstedt, and, later, Thomson, follow Linné in using *Chermes* instead of *Psylla*. *Chermes* is now made to do duty for a genus of *Coccidæ*, and still more curiously Buckton (Brit. Aphides, iv, 22) follows Passerini, Kaltenbach, Koch, &c., in employing the name for a genus of *Aphidæ*. This anomalous state of things Maskell (Trans. N. Zeal. Instit., xvii, 19, 1885) proposes to rectify by using the name *Kermaphis* for the Aphidians, leaving *Chermes* for the Coccids.

With respect to the reputed species of *Lecanium*, some scales ♂ & ♀ found on different trees are so extremely similar to each other that I long entertained an unverified suspicion that they really belonged to but one polyphagous species only, and I have just learned that Foerster in his overlooked article "Ueber Schildläuse" in the "Verhandl. des naturhist. Vereins der preuss. Rheinlande," 1851, viii, p. 551, united *L. coryli*, Lin., *tiliæ*, Lin., *betulæ*, Lin., and *carpini*, Lin., as one species under the name *L. vagabundum*. This deserves further investigation in the light of recent microscopic research; at present I am not in a position to say anything decisive. The same kind of enquiry may advantageously be made with other reputed species, and the removal of gravid females from one kind of tree and fixing them on another might also be tried and the result watched.

I have lately obtained—

Aspidiotus camelliæ, Boisd., on buds and bracts of Camellia, from Mr. Parfitt, Exeter; new to us.

A. limonii, Sign., on imported lemons, ♂ and ♀; ♂ imago dead under a few scales.

Chionaspis alni, Sign., on alder, at Lewisham; new to us.

Chionaspis euonymi, Comst. M. Lichtenstein sends this from Montpellier, where, during the last few years, it has become so abundant on the leaves of *Euonymus japonicus*, that, as it kills the shrub, it threatens to render the cultivation of this fine hardy evergreen impossible. It is likely enough that it will be found in Britain where the shrub is now common (*c.f.* Proc. Ent. Soc. Lond., Feb. 3rd).

C. salicis, Linn. I find this on sallows at Lee, and Mr. Parfitt finds it very common at Exeter. I think with Prof. Comstock that it is identcal with *C. fraxini*, Sign.

Mytilaspis pomorum, Bouché.

Besides that on apple and pear trees, I find a scale very similar to if not identical with it on plum trees and dogwood, which have already been taken to be the same species; I also find scales, apparently the same, on blackthorn, whitethorn and currant bushes, but a microscopical examination is requisite to determine the identity or difference. Comstock enumerates 19 trees on which he finds scales ostensibly of one species (*pomorum*), but as he sagaciously observes, "In nearly each if not in every case the opinion respecting the specific identity of the forms occurring on other plants with that upon the apple has been based upon the characters presented by the scale. These characters being insufficient to distinguish this species from closely allied forms, it is very desirable to confirm these observations" (Report, 1880, p. 326). There is, then, good work to be done here, but only with a high microscopic power.

Mytilaspis flavescens, Targ.-Tozz., Sign.

Upon some lemons imported from Sicily I found, in August, some yellowish-brown scales of a *Mytilaspis* which agree exactly with the description of this species. They were full of eggs. In December, on lemons and oranges, I found a quantity of female scales of the same species, but empty, and surrounded by young ones varying in size from a mere speck to up to half the length of the mother.

This is certainly the species described and excellently figured in all its stages by Mr. R. Beck in the "Transactions of the Microscopical Society of London," vol. ix, N.S., p. 47, pl. v (1861), under the title of "The Coccus found upon oranges." He found his examples on imported oranges, and also on plants in this country.

I have no doubt also that this is the *Mytilaspis citricola* described and figured by Comstock in his "Report," 1880, p. 321, pl. vii, fig. 1, pl. xviii, fig. 3, and pl. xx, fig. 3. He says it is one of the most common species of scale-insects found on citrus trees in Florida, and that he has frequently found it on oranges imported from Europe. It also occurs in Louisiana, and was imported into America in 1855 on lemons sent from Bermuda.

Mytilaspis ulicis.

Under this name I wish to record provisionally, in order that it may not be lost sight of, a *Mytilaspis* that does not appear to have been hitherto noticed. It may prove to be an undescribed species, but only an examination of the spinnerets and abdominal fringe, such as is not now practicable for me, can decide if it be distinct. On December 14th, on furze bushes (*Ulex europæus*) growing on the most open and exposed part of Blackheath, far from any other shrub or any tree, I found the scales not uncommon. They were on the young terminal shoots, not on the bark, but closely fitted into the longitudinal grooves of the spines or the narrow hollow of the leaflet at their base, and being of the exact width of their site, were

not easy to detect. They are dark castaneous, straight, not widened posteriorly, 1½ lines in length. This is the normal form and position, here and there, however, at the wider part of a spine at its base was a scale somewhat broader behind. On one spine are two scales that had begun at a level point, and for as far as they were only as wide as the larval scale they are side by side, but then one of them having occupied the width of the groove, the other had no resource left but to cross the scale of its rival, which it did, and maintained its position. All were females, and the bodies were full of large white eggs.

Fiorinia camellicola, Comst. Mr. Parfitt finds this on camellias at Exeter; new to us.

Asterodiaspis quercicola.

In his "Essai," at p. 167, Signoret placed *Aspidiotus quercicola*, Bouché, in the genus *Asterolecanium* (p. 160, *ante*), but having subsequently obtained the perfect male, he found more of the character of a Diaspid than a Lecanid (which, however, Comstock doubts, Report, 1883), and he made the species the type of the new genus *Asterodiaspis* (p. 444).

During the latter part of November I found on oaks at Lee and Eltham ♀ scales of the last brood, but by lapse of time and by exposure the yellowish colour has become tarnished. At one side of a batch of scales there are some very small round ones of a new brood, but I see none of the male, which is stated to be of a long-oval form, 1 mm. in length, of a clear brilliant yellow, with a weak median carina, and a fringe similar to that of the female. Mr. Parfitt finds the ♀ scales at Exeter, but says they are scarce.

8, Beaufort Gardens, Lewisham:
January 14th, 1886.

NOTES ON SOME *LEPIDOPTERA* FROM ALGERIA.

BY GEORGE T. BAKER, F.E.S.

In continuation of my former notes on Algerian *Lepidoptera*, vol. xxi, pp. 241 and 268, the following list of insects, taken there in the first half of the year 1884, may not be devoid of interest. The arrangement is that of Staudinger's catalogue.

Papilio Podalirius, v. *Latteri*, not uncommon at Guelma in June. All my specimens appear to be an intermediate form between v. *Feisthamelii* and v. *Latteri*, they are, however, nearer the latter, and must therefore be placed under that variety.

Pieris Daplidice, L., plentiful in February around Lambessa.

Anthocharis Belemia, Esp.: this appeared on the wing at the end of February, and continued moderately common at Lambessa till towards the end of March; v. *Glauce*, Hb., common at Guelma in May; *Belia*, Cr., Lambessa, March, in May, its variety, *Ausonia* was not rare at Guelma; v. *Levaillantii*, Lucas: the first specimen was captured on the 10th of February, and it continued on the wing till near the middle of March in the neighbourhood of Lambessa. It is strange how rare the ♀ is, only a single specimen was taken to about

two or three dozen ♂. All my Lambessa specimens are small and dark, which can probably be accounted for by being taken high up in the mountains.

Donzel's name *Charlonia* should take priority to that of Lucas, as the species described by him, and discovered near Msila (about 75 miles west of Lambessa, and rather nearer the Mediterranean), cannot be the same as *Penia*, Frr., which Dr. Staudinger catalogues as *Charlonia*. Oberthür is, without doubt, correct in saying, see "Faune des Lépidoptères d'Algérie," p. 17, that *Penia* is a variety of *Charlonia*, *i. e.*, *Levaillantii*, of Lucas: *Penia* being white, only just tinged with yellow, whereas *Charlonia* is of a decided and rather bright yellow colour, the fringes of *Charlonia* are also rosy, but are almost white in *Penia*.

Another interesting variety was discovered last year in Mesopotamia, and named by Staudinger *mesopotamica*, a pair of which that gentleman kindly sent me, and as they are very similar to *Levaillantii*, it may be interesting to describe them.

Fore-wings sulphur-yellow, rather brighter than in *Levaillantii*, discoidal spot dark brown, larger than in Donzel's species, apical patch also brown, extending further down the posterior margin than in that species, and having scarcely a trace of the transverse spotted stripe. In *Levaillantii* both the discoidal spot and the apical patch are almost black. Hind-wings sulphur-yellow, slightly greenish on account of the dark under-side appearing through.

Beneath, the fore-wings are yellowish-white, with the dark markings of the upper surface appearing through, but the discoidal spot is not a distinct black spot as in *Levaillantii*. Hind-wings dark grey, densely irrorated with greenish, with three distinct whitish spots and one or two very indistinct ones. The irrorations are not so dark and are browner than in *Levaillantii*.

The ♀ is much larger than the ♂, measuring about 41 mm. to about 36 mm., it also has the discoidal and apical patches of the anterior-wings larger and blacker, and the latter has a distinct yellow spot in front of the apex, which is the commencement of a less indistinct transverse band. The small spots on the under-side of the hind-wings are also larger and more distinct.

The only ♀ *Levaillantii* I have is scarcely larger than the ♂, but it will be seen that the two species are extremely nearly allied.

Anthocharis Eupheno, L., common at Lambessa in April: I have also one remarkably small variety taken at Guelma in May.

Colias Edusa, F., common during February around Lambessa, and in June v. *Helice* was plentiful at Guelma.

Rhodocera farinosa, L., Guelma, June, rare.

Thecla ilicis, v. *œsculi*, Hb., Guelma, June, and its aberration, *cerri*, occurred not unfrequently at Souk Harras.

Thestor Ballus appeared on the wing at Lambessa towards the end of February, and was common during the following month; *mauritanicus*, Lucas, plentiful at Lambessa for about the first three weeks of February.

Polyommatus phlæas, L., common at Lambessa in February, as was also its v. *Eleus* at Guelma in June.

Cigaritis Massinissa, Lucas, Guelma, May, rare.

Lycæna bœtica, L., not rare at Souk Harras in June; *Theophrastus*, F., Souk Harras, June; *Abencerragus*, Pierret, Lambessa, March, common: it would be quite impossible to distinguish some of my specimens from *Baton*, v. *Panoptes*, if they were unlabelled; *Astrarche*, Bgstr., Guelma, May, all of the usual Algerian form, *i. e.*, with the red spotted border very bright and broad; *Icarus*, v. *Cœlina*, Const.: this variety replaces *Icarus* in Algeria, and was abundant at Guelma in June; *Argiolus*, L., Guelma, June: the only specimen taken comes very near the var. *hypoleuca*, the spots on the under-side being almost obliterated; *melanops*, Bdv., rare at Lambessa in March, one v. *Marchandii* was also taken at the same place; *Iolas*, Och., one specimen, of the usual Algerian form, viz., with the ocelli beneath to a minimum, was taken at Guelma in May.

Vanessa polychloros, L., plentiful during the whole of February around Lambessa, v. *saturata* occurred at Guelma in May.

Melitæa Phœbe, L., one specimen was taken at Lambessa in April, which is a link between *Phœbe* and Oberthür's variety *punica*.

Satyrus Alcyone, Schiff., Guelma, May, rare.

Pararge Megæra, v. *Lyssa*, Guelma, June, not uncommon; *Ægeria*, L., rare at Guelma in June, this was of the usual South European form.

Epinephele janiroides, Guelma, June.; *Pasiphaë*, v. *Philippina*, Guelma, June, common.

Cœnonympha Pamphilus, v. *Lyllus*, Guelma, July.

Spilothyrus althææ, v. *bœticus*, Guelma, June, rare.

Syrichthus Alveus, v. *onopordi*, Lambessa, March; *Sao*, v. *ali*, Guelma, June.

Sesia albiventris, Ld., one specimen taken at Guelma in June; *doryliformis*, O., Guelma, June, rare.

Paranthrene tineiformis, Esp., Guelma, June.

Chimæra nana, Guelma, July, rare.

Ino certana, Lucas, Guelma, May.

Zygæna Favonia, F., Guelma, June; *algira*, Dup., plentiful at Guelma in June.

Naclia punctata, v. *servula*, one specimen from Guelma in June.

Lithosia marcida, Mn., Guelma, June.

Deiopeia pulchella, L., Guelma, June.

Ocnogyna bœtica, Rambr.: nests of the young larvæ were common in the mountains around Lambessa in February, in the lower

valleys the larvæ were at least half-fed up at the same time: they are polyphagous and easily reared; the perfect insect begins to appear towards the end of October.

Endagria Ulula, ab. algeriensis, one specimen taken at Guelma in June.

Orgyia trigotephras, B., rare at Guelma in June: the specimens taken are of this species, and not *anceps,* Obr., as is evidenced by the darker colour, and the smaller crescent-shaped white mark at the interior angle of the fore-wings.

Caradrina, v. *sebdonensis,* Guelma, June.

Cleophana bætica, Rambr., Lambessa, April, rare.

Plusia ni, Hb., Guelma, June, rare.

Thalpochares ostrina, Hb., Guelma, May; v. *æstivalis,* Gn., Guelma, June; v. *carthami,* H.-S., Guelma, July; v. *Numida,* Lucas, Guelma, July, rare.

Metoponia vespertalis, Hb., Guelma, June, rare.

Metoptria monogramma, Hb., Guelma and Souk Harras, June, not rare.

Zethes insularis, Ramb., Guelma, June: this, I believe, has not been taken in Algeria before.

Pseudoterpna coronillaria, Hb., Guelma, June, rare.

Acidalia vittaria, Hb., Guelma, June; *numidaria,* Lucas, Guelma, May; *litigiosaria,* Bdv., Guelma, June, rare; *manicaria,* H.-S.: this is, I believe, also new to Algeria, it was taken at Guelma in June.

Acidalia inesata, Mill.: this species, of which one specimen was taken at Guelma in June, is, I believe, new to Algeria; *carnearia,* Mn., Guelma, June, not uncommon, new to Algeria; *incarnaria,* H.-S., Guelma, June; *ostrinaria,* Hb., Guelma, June; *elongaria,* Rambr., Guelma, June.

Zonosoma pupillaria, v. *badiaria,* Guelma, June.

Pellonia sicanaria, L., Guelma, June.

Pachycnemia hippocastanaria, Hb., Guelma, June.

Gnophos mucidaria, Hb., one specimen occurred at Lambessa in March, it is, I believe, new to Algeria; *asperaria,* v. *pityata,* Rambr., Guelma, June.

Fidonia fasciolaria, Hufn., Lambessa, March, Guelma, June.

Athroolopha chrysitaria, H., Lambessa, April: I have one specimen of the pale variety, figured by Lucas, and another, which must be a link very near to the var. *kabylaria,* Oberthür.

Eurranthis plumistraria, Vill., common at Lambessa in April; some pretty orange-striped varieties were also not rare.

Halia vincularia, Hb., Guelma, June, rare; *semicanaria,* Frr., Guelma, June.

Ligia Jourdanaria, Vill.: this species, which was plentiful at Lambessa in April, has not, I believe, been taken before in Algeria.

Sterrha sacraria, L., not rare at Guelma in June: I have one curious specimen with the wings of a much dingier yellow, and the transverse stripe brown, and much obliterated; *ab. sanguinaria*, Guelma, June.

Cidaria bilineata, v. *testaceolata*, Stgr., Guelma, June.

Eupithecia breviculata, Guelma, June.

Among the *Pyralidina*, the following are most worthy of notice:

Cledeobia interjunctalis, Gn., Guelma, May.

Botys polygonalis, v. *meridionalis* and *institalis*, both taken at Guelma in June.

Eurycreon nudalis, Hb., Guelma, June.

Cornifrons ulceratalis, Ld., Lambessa, April: this is, I believe, a new locality for this insect.

Metasia suppandalis, Hb., and *adelalis*, Gn., both of these were taken at Guelma in June, and, I believe, are new to Algeria.

Crambus alpinellus, Hb., common at Guelma in June: this is, I think, also new to Algeria.

I take this opportunity of making a correction in my former paper on Algerian *Lepidoptera*. In my description of *Bombyx loti*, var. *algeriensis*, see page 242 of the last volume, I stated that the ♀ had no small central whitish spot in the anterior-wings. I have since received another ♀ specimen which has this spot (as in the parent species); it is, however, rather indistinct.

Augustus Road, Edgbaston:
December 14th, 1885.

SOME CAPTURES OF *LEPIDOPTERA* IN 1885, WITH REMARKS.

BY WILLIAM WARREN.

Though my collecting during the season of 1885 was somewhat desultory, yet as I had the good fortune to meet with two or three rarities, with which I hope to become better acquainted another year a short account of my principal captures may prove interesting.

To prevent confusion, I will enumerate separately the species met with in the Eastern Counties, taking Cambridge as the centre, and those caught in the London district.

My first capture of any importance was on April 26th, at Saffron Walden, when after beating up and down a lane for a whole afternoon without dislodging anything better than a stray *S. Steinkellneriana*, just before dusk I secured a fine fresh ♀ *H. pauperana*. Beaten out

of a rose-bush, it flitted quickly along close to the ground for a few yards, and settled beneath a privet leaf, off which it allowed itself to be boxed without further trouble. This specimen was evidently just out. The margins of the basal patch and central fascia were marked by slightly raised scales, as in some of the *Peroneæ*. I spent two more afternoons after this without seeing another *pauperana:* and though I have searched regularly every spring for the last six years, I have never been lucky enough to observe a single specimen on the wing.

Larvæ of *E. nigricostana*, *A. fuligana*, and *E. rupicola*, were as abundant as usual in their favourite haunts. It was while collecting the larvæ of this last near Cambridge in April, that I found in the lower part of a hollow stem of *Eupatorium* a single *Elachista* pupa, which presently produced a ♂ imago, that, as far as I can ascertain (and both Mr. Stainton and Lord Walsingham have seen my insect), is distinct from any hitherto described species. A single specimen, however, is hardly sufficient on which to form a species, but further search this spring will possibly enable me to detect the larvæ, and throw light on the matter, by breeding the insect in large numbers and both sexes.

In June, the usual ground in the Fen districts yielded *B. argentula* and *A. Schrebersiana* in undiminished numbers, while in one spot *A. Sulzella* and *M. Mansuetella* were not uncommon. In Wicken Fen the larvæ of *Gel. morosa* and *subdecurtella* were both abundant in the tops of the yellow and red loose-strifes respectively, but the mines of *Grac. imperialella* in both broods, were this year conspicuous only by their absence.

From a batch of two dozen pupæ of *G. quercifolia*, I bred one imago, which, though unfortunately a cripple, is remarkable by reason of its colour, which is almost exactly the same as that of its smaller, but rarer relative, *ilicifolia*. While on the subject of the Fens, it may not be amiss to record that this season the local Pyralid, *Nascia cilialis* was more than usually abundant, and that a single example of *H. palustris*, a somewhat damaged ♂, came to the lamp of one of the local collectors.

At Tuddenham, in Suffolk, *A. sulphuralis*, *A. rubricata*, and *O. lætus* occurred in profusion, both in June, when I was there, and throughout the summer, while here and there *H. dipsacea* and *H. luctuosa* showed themselves in smaller numbers. At Brandon, about the middle of June, I had the good luck to beat out of a spruce fir a fine ♀ *C. Ochsenheimeriana*, previously, I believe, only recorded from Lord Walsingham's fir plantations at Merton, where it is said to

frequent *Abies cephalonica*. Continued searching produced a few more, all more or less damaged. The end of May I have since learned is the right time for getting this *Tortrix* in its perfection.

The end of July and beginning of August were spent in looking for *B. impar*, of which I took a larger number than usual. I think I should be within the mark if I computed the number of specimens taken during the season as at least a hundred, probably twice as many as the captures of all previous years put together. I am inclined to think that this was simply owing to the fact that the search for the species was carried on by a larger number of collectors, and with greater emulation than hitherto, rather than to any real increase in the numbers of the insect. At the beginning of August, also *Nonagria neurica* was abundant in its reedy haunts; near Cambridge I have never taken it before August, but in the Norfolk Fens I am told it is out during the second half of July. About the same period I collected a few larvæ of *P. margaritalis*, and a considerable number of those of *Eup. sodaliana* feeding in the unripe berries of buckthorn. Early in September, larvæ of *A. strigosa* and *A. sinuata* were to be found, but neither so commonly as in former years.

One other good species remains to be recorded, *H. Servillana*, of which I bred seven fine specimens from larvæ collected in April at Monk's Wood, in Hunts. With regard to this species, it may be useful to draw attention to the fact, that two out of every three sallow twigs cut in spring will have been robbed of their tenants by the birds during the winter months.

The rest of my collecting has been, as I said before, chiefly in the neighbourhood of London, and I will now briefly enumerate the most noteworthy captures therein.

Early in February, while looking for *N. hispidaria* in Richmond Park, I found a ♂ *A. prodromaria*, which exhibited a curious instance of malformation. The whole of the abdomen was orange-coloured, and on closer examination was found to be entirely enveloped in a thin membranous integument without any opening at the anus, but so transparent that the parts of the male organs could be clearly discerned through it, imbedded in a sort of waxy, yellow substance. Unfortunately, when placed on the setting board, instead of retaining its former appearance and shape as it dried, the abdomen shrank and withered away into a shapeless brown mass, resembling more than anything else a shrivelled pupa-case. I do not remember to have ever heard of a like occurrence, and should be glad to hear of the probable explanation.

In April, hearing from Mr. Fletcher of Worthing, that, acting on the suggestion of Mr. Stainton, he had succeeded in finding larvæ of *Chaul. insecurellus* on *Thesium humifusum*, I visited a locality on the downs beyond Sanderstead, where the previous year I had taken an imago, and managed to collect about a dozen larvæ and pupæ, from which five moths emerged. I was not able to look for the second brood at the right time, but at the end of October I caught a ♀ in the same spot, which was probably intending to hibernate. The month of July yielded the usual Micros in the Parks and suburbs, such as *M. vinguis*, *Gel. pinguinella*, *albiceps*, and *gerronella*, *T. caprimulgella*, *Lav.*, *Stephensi*, with other commoner species. On a Suburban Railway Embankment, to which I was introduced by the kindness of a friend, I secured *Col. Fabriciella*, *Eup. dubitana*, and *implicitana*, *Bucc. cristatella*, and *Antithesia sellana;* of which last species I watched a ♀ deposit a single egg on the upper-side of a leaf of *Plantago lanceolata*. From my friend's garden I became possessed of two examples of *Gel. nanella*, and a third turned up on the trunk of a poplar-tree on Wandsworth Common, whither it must have been blown from some neighbouring garden. At the end of this month and the beginning of August, I had the pleasure of netting, near Sanderstead, a few beautiful specimens of *Eup. flaviciliana*, but as I was late, the majority were worn. Can any one tell me if this species, like *Degreyana*, is double-brooded?

A single imago of *Lith. scabiosella*, bred from about 50 mines, collected in October—all the rest of which were either empty or produced ichneumons—and a single *Lith. comparella*, bred from a mine from Ripley, in Surrey, which both emerged in *November*, were very acceptable.

A day at Boxhill in this last month with the snow on the ground, produced about 50 *Z. hepariella*, and a solitary, but equally welcome, *Grac. stramineella*. About a month earlier, in Headley Lane, I was enabled, again following a hint received from Mr. Fletcher, to detect the larvæ of a *Nepticula* in the radical leaves of *Prunella vulgaris*, which there is little doubt will produce the hitherto little known and almost unrecognised *Nep. headleyella*, of which, until last summer, when Mr. Fletcher captured several in the South of England, I believe there existed only the two original specimens caught by Mr. Stainton many years ago in the lane after which he named the species.

Lastly, I must not forget to mention the capture at Shoeburyness, on *Artemisia maritima* of four larvæ, three of which I am glad to say have pupated safely, of a "Pug," which I have strong hopes will produce *Eup. innotata;* at all events, the larvæ answer precisely to the published description of that insect. If I should prove right in my surmise, I shall have no reason to grumble at the results of 1885.

Merton Cottage, Cambridge:
January 12*th*, 1886.

DESCRIPTION OF A NEW *BOMBYX* ALLIED TO *ARCTIA CAJA*.

BY DR. STAUDINGER.

ARCTIA CAJULA, Stgr., *n. sp.*

I received this pretty new species from my friend Mr. H. J. Elwes, and proposed at first to have named it after him, but as it very much resembles a small *Arctia caja*, I hope he will not object to my naming it *cajula*.

Mr. Elwes informed me that it was caught at a great elevation, 13,000 to 14,000 feet, in the North West Himalaya, in the Tibetan valley of Laboul, many days' journey from any inhabited place. A number of males were taken, but only one female which, to my regret, is not before me whilst writing this description.

Arctia cajula is only a little larger than the well-known European *Arctia aulica*, L. The average length of the fore-wing is 20 mm., whereas in *A. caja* the average length is 30 mm., and in the variety *Wiskotti*, Stgr., from Asia Minor, even 40 mm. *Cajula* has very much the coloration and markings of typical specimens of *caja*. It is well known that *Arctia caja* is apt to show most curious aberrations and varieties, whereas *cajula* appears to vary but very little.

The anterior wings of *cajula* do not show as much of the white markings as in *caja*; sometimes there are only from three to four irregular white spots near the base, a larger white spot in the middle of the costa, and an irregular narrow white fascia before the hinder margin. These latter marks in many specimens form an X-like marking as in *caja*.

On the under-side the basal portion of the anterior wings is more or less red, with some two or three black spots.

The posterior wings are of a brighter red than in *caja*; they show near the base two small black spots one above the other, there is a larger spot at the end of the median cell, and three large black spots, generally united so as to form a fascia, before the hind margin. Before the reddish-yellow cilia is a narrow black sub-marginal line, sometimes dissolved into separate spots; this never occurs in *caja*, where only sometimes the upper part of the cilia themselves are black.

On the under-side of the posterior wings the colouring is duller, and the two small black basal spots are here confluent, forming a slender fascia.

The antennæ are black, and proportionately with longer pectinations than the white antennæ of *caja*. The head and thorax are smoky-brown; the palpi sometimes rather reddish beneath. The pro-thorax is edged with reddish-white hairs, and also faintly divided with similar hairs in the middle. On the meso-thorax may be perceived two faint reddish stripes which never occur in *caja*.

The tibiæ, especially the anterior pair, bear reddish hairs; the tarsi are spotted with yellow. The red abdomen is broadly ringed with black as in *caja*.

Cajula cannot be a dwarf local form of *caja* owing to the black antennæ, the reddish stripes on the thorax, and the black sub-marginal line of the posterior wings, &c. But on the other hand it is probably a local form of a species found on high mountains in Central Asia (Russian Turkestan), by Herr Grumm Grschimailo, for which he has proposed the name of *Arctia Alpherakii*.

This form is even smaller with darker brown-black anterior wings, and shows more and broader white markings than *cajula*. In the specimen of *Alpherakii* before me, the posterior wings have only the three large spots before the hind margin, which are in it not confluent. Otherwise the markings of the anterior wings are similar, the antennæ are also dark, and the thorax also bears the two reddish lines.

I am certainly of opinion that a larger number of specimens, especially from different localities, would enable us to unite *Arctia cajula* with *Alpherakii*.

Blasewitz, Dresden:
January 11*th*, 1886.

ON THE INCONSTANCY OF A GENERIC CHARACTER IN *NEPHERONIA ARABICA*.

BY ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

In the separation of species of *Lepidoptera* into genera, it has been long admitted that neuration is an item of primary importance, and the presence or absence of a vein in either front or hind wings is regarded as an amply sufficient character upon which to found a new genus; that this is so, as a general rule, I do not deny, but that it is a rule with exceptions is evidenced by the abnormally-veined individuals of well-known species, to which, from time to time, I have thought it of importance to call attention.

I have long held the view that, as no species or genus is absolutely fixed and stationary, it should be possible not only to find links between species, but also between genera, and I have looked upon aberrations of structure especially when often recurring in individuals of the same species, either as the commencement of a new generic type, or as a reversion to an ancestral type.

In my revision of the sub-family *Pierinæ*, in vol. i of "Cistula Entomologica," I separated the genera into three main divisions, differing in the number of sub-costal branches in their front-wings—whether three, four, or five; and, so far, I had never had cause to doubt the completeness of this arrangement; but, wishing recently to find some good structural character for separating *N. Buquetii* and allies from *Nepheronia*, to which externally they bear but little resemblance, I carefully re-examined their structure, beginning with our seven examples of *N. arabica*; to my astonishment, the first specimen I examined possessed only four instead of five sub-costal branches; I took up another, and yet another specimen, until I had examined five, still with the same result; when, just as I was begin-

ning to make up my mind that I had before me a widely distinct genus, I took up the sixth specimen, and then the seventh, both had five sub-costal branches; I next examined *N. capensis*, five; three unnamed species, five again; *N. Buquetii*, five; *N. Ægia*, five. It thus becomes evident that five out of our seven specimens of *N. arabica* ought to be referred to Division 2 of my Revision, and the remaining two to Division 3, or, in other words, if neuration be arbitrarily adhered to, that there exist two widely distinct genera in the individuals of one and the same species, and that the aberrant character is the prevalent one in this species.

Once more, knowing that a prevalent variation is likely to become (by interbreeding) the normal one, there can be little doubt that in a comparatively short time *N. arabica*, instead of being, as its describer supposed, a mere variety of *N. Buquetii*, will be a widely distinct genus, and one that may even, at some future period, be regarded as a mimic of its common ancestor.

British Museum:
February, 1886.

DESCRIPTION OF THE LARVA OF *SCOPARIA MERCURELLA*.

BY G. T. PORRITT, F.L.S.

On the 14th of April last, I received from Mr. W. H. B. Fletcher, of Worthing, a box containing mosses, in which were feeding (living in silken galleries) a number of *Scoparia* larvæ, but of what species Mr. Fletcher was uncertain. The mosses I submitted to my friend Mr. C. P. Hobkirk, who named them *Isothecium myurum*, and *Hypnum cupressiforme*, var. *elatum*; and at the end of July and beginning of August a beautifully marked series of *Scoparia mercurella* was produced from the larvæ.

On April 16th, I described the larvæ as follows:—

Length, about half to five-eighths of an inch, and moderately stout; head polished, the lobes rounded, it is scarcely so wide as the frontal plate, and still narrower than the 3rd segment; body cylindrical, and of almost uniform width, tapering only a little at the posterior extremity; segmental divisions deeply cut; skin smooth, and slightly glossy; the frontal and small anal plate, with the large round tubercles, polished.

In adult specimens, the ground-colour is a dingy straw-colour, but in young examples it is strongly suffused with a darker dirty greenish tinge, which dark colour seems to be gradually lost as the larva attains maturity. Head dark brown, with frontal streak and mandibles still darker sienna-brown; frontal plate very dark

sienna-brown, almost black indeed; tubercles olive-brown, the anal plate with a slightly greener tinge. A very faint, narrow, brown, pulsating vessel forms the dorsal line, but there are no perceptible sub-dorsal or spiracular lines.

Ventral surface and prolegs the same colour as the ground of the dorsal area, and placed transversely on segments 5 and 6 are three olive tubercles; legs black, ringed with olive.

Huddersfield: *February* 15*th*, 1886.

Abundance of Sphinx convolvuli at Scilly last August.—I was there at Christmas, and was shown two specimens of *S. convolvuli* at Tresco Abbey, and was informed that there had often been five or six at a time buzzing in the conservatory. A large larva had been brought in from the island of Bryher, which was supposed to be of this species, and there were said to be many more. But as they were not seen by any entomologist, this must remain uncertain.—F. Jenkinson, Trinity College, Cambridge: *March*, 1886.

Occurrence in Herefordshire of Lithocolletis distentella, a species new to Britain.—Having spent some time in the autumn of 1884 in seeing how far it might be possible to separate the mines of the different common *Lithocolletis* of the oak from one another, I found that at the end of the season I had among various assortments a small collection of five or six specimens, from which there issued in the following summer, two moths, which Mr. Warren kindly identified as the above species. He tells me that in Staudinger's Catalogue the localities given are France, Switzerland, and Germany, and the food-plants *Quercus Robur* and *pubescens*: further, that it is figured in Herrich-Schäffer, 756, and that this author records that it was bred at Zürich by Professor Frey. As a short description will, probably, not be out of place, I append one.

Pale saffron, with a silvery-white unmargined basal streak, and four costal and two dorsal ones internally dark-margined; the first costal streak is continued along the extreme edge of the costa towards the base, and a curved dark line runs through the apical fringe. It is a large, well-marked insect, and with the dark hook in the fringe not likely to be mistaken for any of our other species.

Now for a word on the mine, to many, probably, the most interesting part of the subject, more especially as I hope to be able to show that it can be separated without difficulty from most if not all of our other numerous oak-feeders. The mine is large, sometimes occupying the middle of the leaf between two of the main ribs, and then much resembling the mine of *roboris*, at others, and this is the more common form, crossing the ribs and lying along the edge of the leaf; in both forms arching the leaf considerably. Such are its general features; the more special ones by which it is distinguished from its allies are the absence of a cocoon; the pupa being simply suspended by a few cross threads in the centre of the mine, whereas, in all others I am acquainted with, viz., *roboris, Cramerella, lautella, quercifoliella*, and *messaniella*, a cocoon of some kind is constructed; and in the second place, the pre-

sence of a few fine wrinkles only, without any plait or fold on the under-surface of the mine, this plait being present in all the species mentioned above with the exception of *roboris*, in which it is completely absent as in *distentella*.

Allusion has already been made to the general likeness of the mine of *roboris* to one form of that of *distentella*, and this additional and important resemblance might be expected, at least in some instances, to make it a matter of difficulty to distinguish between them by an external examination alone; opening the mine to ascertain the condition of the pupa would settle the question at once, but as this is an operation not unattended with danger, any means by which it can be avoided would be desirable. Now *roboris*, it is well known, leaves a large patch of parenchyma untouched in the middle of the mine upon which to spin its cocoon, and contrasting strongly with the skeletonized portion all round; but in *distentella* this patch is not only much smaller, but, what is more important, it is imperfect, the larva having nibbled little holes all over it or even broken it up into two portions,—a careless, slovenly habit, perhaps, correlated with the absence of a cocoon. This difference in the manner in which the leaf has been browsed is so easy of recognition and, so far as my experience goes, so reliable, that such minor points as the lesser arching of the leaf in *roboris*, and the fewer and finer wrinkles on the under-side are scarcely wanted to decide between them.

My specimens were collected in September and October on under-growth in a wood, and I have again, in the autumn just past, met with a few more in the same locality. It appears to prefer small-leaved bushes.—John H. Wood, Tarrington, Ledbury: *February*, 1886.

Lithocolletis sorbi, Frey.—The identity of the *Lithocolletis* from mountian ash, generally known as *aucupariella*, Scott, has long been rather a sore point with me, as I have always (though almost single handed) maintained its distinctness from *pomifoliella*. Within the last two years, certain fresh facts connected with it have tended still more to confirm me in my opinion that it is truly a good and distinct species. In the autumn of 1854, I was in a small plantation in the upper part of Weardale, on the edge of the moors, where a few small trees of *Prunus padus* were growing. *L. sorbi* was plentiful on the mountain ash, as it usually is with us, at high elevations. I caught sight of a *Lithocolletis* mine on the *Prunus*, and further search produced more; in all about two dozen. Thinking that it might be a novelty I communicated at once with Mr. Stainton, who told me that a species from the *Prunus padus* was known on the Continent as *padella*, Glitz.

A fair proportion of them duly emerged the following spring, identical with the mountain ash species. I forwarded them to Mr. Stainton at the end of the season. He told me that the continental specimens were lighter and brighter in colour, but declined to give any opinion as to their distinctness from *pomifoliella*. Looking over them very carefully one day, I noticed, for the first time, that the tarsi were different to those of *pomifoliella*, which are pale and ringed with dark, but, like those of *spinicolella*, pale and unicolorous. Now I never find either *spinicolella* in the sloe, or *pomifoliella* in the hawthorn on the high grounds where I take the mines of *sorbi*. I have been told that mines are common in the South of England in the mountain ash, and it will be of interest to hear to which group the moths produced

from them belong. There are no mines in the mountain ash here, although *pomifoliella* and *spinicolella* are common enough, the former especially. *Prunus padus*, so little attacked by *Lepidoptera* (always excepting *Hyp. padi*), must have rather close affinities with *Sorbus aucuparia*, as I saw a series of remarkably fine *Argyresthia spiniella*, which had been captured from the bird-cherry by a friend of mine last autumn, and there is no mountain ash in the neighbourhood, so they had undoubtedly fed on the tree.

The mines of the *Lithocolletis*, probably from the thinness of the leaves, were very large, and the leaves often, in consequence, quite recurved, exactly like the leaves of honeysuckle mined by the larvæ of *L. trifasciella*.—J. Sang, 33, Oxford Street, Darlington: *February 15th*, 1886.

Probable food of Trifurcula pallidella.—Professor Zeller noticed in 1861, that on the Carinthian Alps this insect flew amongst *Genista sagittalis*, and suggested that it was probably attached to that plant, just as *T. immundella* is attached to the common broom (Ent. Ann., 1862, p. 140). Wocke in his conclusion of Heinemann's "Schmetterlinge Deutschlands und der Schweiz," Zweite Abth., Band ii, Heft ii, p. 726, says the only specimen he took in Silesia was on *Genista germanica*.

I have been led from the above to infer that with us the insect will be found attached to *Genista tinctoria*, and when writing to Mr. A. F. Griffith the other day about his two specimens recorded at p. 65 of this volume, I put to him the question if he could remember whether they had been found amongst *Genista tinctoria?* His reply was very satisfactory: "My two specimens were taken one evening in a waste corner of a field, near St. Alban's, which was covered with *Genista tinctoria*, together with *Scabiosa succisa*, *Hypericum*, &c. There are plenty of scattered plants of *Genista* in the neighbourhood, but this particular corner had been left uncultivated for several years, and had become quite grown over with the *Genista tinctoria*."

My inference that *Genista tinctoria* grew in the very locality where the specimens of *Trifurcula pallidella* had been captured by Mr. Griffith has thus been very fully confirmed.

Unfortunately for the anticipations of those who may have been hoping to place a series of the insect in their collections, Mr. Griffith added: "Last year I went there one day and found the whole place ploughed up."—H. T. Stainton, Mountsfield, Lewisham: *March 8th*, 1886.

Insects at Shiere in 1885.—Although the greater part of the year 1885 was not very productive in insect life, yet I met with several species worth noting, some of which I have not before observed in this neighbourhood.

Among the *Coleoptera*, *Oodes helopioides* occurred under cut reeds, and *Harpalus caspius* on the chalk hills; *Luperus flavipes* on oak; *Cryptocephalus moræi* in the blossom of hawthorn, and *pusillus* in abundance on *Brachypodium pinnatum*; *Magdalinus pruni* and *cerasi* on blackthorn, and a few *atramentarius* in hedges; some sand-pits afforded *Chrysomela Gœttingensis*, *Calodera umbrosa*, *Tachyusa scitula*, *Myrmedonia limbata*, *Homalota elegantula*, and *scapularis*, and also several specimens of the rare *Euplectus Kunzei*, while casual sweeping gave *Ceuthorhynchus*

arcuatus, and *setosus*; *Hylesinus oleiperda* (several), *Colenis dentipes*, *Anisotoma dubia* and *parvula*, *Apion ebeninum*; and on the 19th of June I captured in the same way an example of *Aphodius villosus*, swept off short grass on Albury Heath. Early in June I took one of *Molorchus minor*, and in the same place the beautiful *Eros minutus*; *Bruchus canus* and *cisti* both occurred on *Helianthemum vulgare*, and with them I met with *Mordellistena humeralis*, *pumila*, and *brevicauda*. In September I met with *Phlœophilus Edwardsii*, and a specimen of *Lissodena Heyana*, which I have taken here once previously; and in October the curious and uncommon *Pseudopsis sulcatus* was at last taken in a haystack, an insect I had long searched for in vain, with it occurred *Cryptophagus umbratus*, *Micropeplus margaritæ*, and *Heterothops dissimilis*. The much neglected group of *Homoptera* yielded several good things. In the last week of February I beat out of some young yew trees many fully developed examples of *Tettigometra impressopunctata*, which had evidently hibernated; with them I also took a male of *Idiocerus elegans*, Flor, and during the summer took many females of the latter on sallow. *Liburnia lineata*, Perris, ♀ was not uncommon in the spring, in one grassy spot, but I could take no ♂. Among the better species I also took *guttula*, *speciosa*, *Fieberi*, *niveimarginata*, and *mesomela*, and the fine *L. longipennis*, Curtis, was plentiful on Gomshall Marsh in the autumn. *Stiroma affinis*, *pteridis*, and *albomarginata* all occurred, and one of the much less common *nasalis*, *Athysanus canescens*, and *Doratura stylata* (one developed) were taken on Albury Heath, also one of *Eupelex cuspidata*, *Acocephalus bifasciatus*, and *histrionicus* were also taken, the latter seems very distinct from the common and similar looking *flavostriatus*. *Hymenoptera*, especially the Aculeate and larger *Ichneumonidæ*, were not at all abundant; I may, however, mention among the former several *Crabro cetratus*, the ants *Ponera contracta*, *Tetramorium lippula*, and the ♂ of *Myrmosa melanocephala*, and in the latter *Excenterus lituratorius*, *Gnathoxys marginellus*, and *Phytodietus rufipictus*, Brischke, the latter new to Britain. The *Braconidæ* were much better represented, as I can include among my captures the following species: *Spathius clavatus* and *rubidus*, *Phanonesis catenator*, *Rhypalus clavator*, *Hornius moniliatus*, *Hecabolus sulcatus*, *Doryctes imperator* and *spathiiformis*, *Clinonectrus excubitor*, *Diachasma fulgida* and *caffer*; *Utetes testaceus*, and *Laccophrys cephalotes* (new to Britain) with many others.

It was, however, the *Oxyura* that gave the prize of the year, for on June 15th I had the good fortune to beat into my net a fine example of *Dryinus formicarius*, Lat., an insect I believe only once before recorded in England.

During a short stay at Bournemouth in April, I found *Trechus rubens*, *Platyderus ruficollis*, and *Cassida oblonga* under sea-weed, and on the sand hills *Apion sorbi*, and *Sitones cambricus*; and at Hayling Island in August I met with *Heterothops binotata*, *Homalota vestita* and *plumbea* and on the mud of the æstuary the pretty Alysid, *Idiaster maritima*.—Edward Capron, Shiere: *Feb.*, 1886.

Anchomenus Sahlbergi, Chaud., a species new to Europe.—A short time ago, while examining the *Anchomeni* in Dr. Sharp's collection, I came across three specimens set aside as undetermined near *A. parumpunctatus*; as Dr. Sharp kindly allowed me to identify them I tried to do so, but as I could find nothing that agreed with them among the descriptions I had access to, I sent a specimen to M. Bedel,

who returned it as probably *Agonum archangelicum*, which J. Sahlberg described in 1879: he also was good enough to copy the description for me from L'Abeille, xix, p. 433: as, however, I did not feel certain of the species, I communicated with Professor Sahlberg, who very kindly sent me one of his three specimens of *A. archangelicum:* on comparison with Dr. Sharp's specimens, I saw at once that they did not agree, and again wrote to Prof. Sahlberg, regarding *A. Sahlbergi*, a species that he had mentioned as near his species; I also sent him one of Dr. Sharp's specimens. This he has just returned with an authentic specimen of *A. Sahlbergi*, and it is evident that they are identical, and that *A. Sahlbergi* must be henceforth regarded as an European insect; the following is the description:—

A. Sahlbergi, Chaud. (Bull. de Mosc., 1850, iii, 117, 30).—Upper surface of a unicolorous bronze-coppery colour; under-side black, with a slight greenish metallic reflection; head moderately large, with two impressions in front of eyes; vertex smooth; antennæ rather long, entirely black; thorax sub-quadrate, with sides not strongly rounded, slightly contracted to base; anterior angles marked; posterior angles very blunt, almost completely rounded, with central furrow distinct meeting a transverse furrow in front, and a small but plain and rather deep round or oblong depression a little before base; the usual depressions near posterior angles are well marked; elytra of female considerably widened behind, and narrower towards base; of male more parallel sided, with fine striæ and broad flat interstices, which are extremely finely shagreened; third interstice with three pores; legs deep black. Long., $7\frac{1}{2}$—$8\frac{1}{4}$ mm.

Three specimens, one male and two females, taken by Mr. Henderson on the banks of the Clyde, below Glasgow, Scotland, about 20 years ago; Dr. Sharp believes it was also taken by Mr. Bishop at the same locality; it has hitherto occurred in Eastern Siberia, and has not before been found in Europe.

From *A. parumpunctatus* this species differs in the following points: the thorax is narrower and longer in proportion, with the sides less rounded and more evidently, though very gradually, narrowed towards base; the upper-side is of a unicolorous coppery colour, and the antennæ and legs are entirely black, whereas in *A. parumpunctatus* the thorax is almost invariably more or less greenish-metallic, and the tibiæ and first joint of antennæ are pale; in the female the elytra are more widened behind than in the corresponding sex of *A. parumpunctatus;* the central furrow of thorax in the latter species is nearly always clear and uninterrupted to base, but in *A. Sahlbergi* and *A. gracilipes* it meets a depression before base.

A. Sahlbergi may at once be distinguished from *A. gracilipes*, which it much resembles, by having only three pores on the third insterstice of the elytra, whereas the latter species has five or six; the thorax is rather narrower, and the posterior angles much less pronounced; the deep black legs and antennæ will also distinguish it. In *A. gracilipes* the tibiæ, although darker than in *A. parumpunctatus*, are distinctly pitchy and not deep black, and the first joint of the antennæ is reddish beneath; the colour of *A. gracilipes* is also redder and less coppery, and the sides of the elytra are much more parallel in the female, and not or scarcely dilated behind.

Anchomenus archangelicus (*Agonum archangelicum*) very much resembles *A. Sahlbergi*, but has the thorax rather shorter and broader, with the sides more rounded in front and more contracted behind; it is, however, easily distinguished

by the much deeper striæ of the elytra, and the convex interstices; the anterior angles of thorax are also less pronounced.

In the specimen of *A. Sahlbergi* sent me by Professor Sahlberg, there is a broad depression near scutellum, and the posterior angles of the thorax are very slightly more marked; Professor Sahlberg also tells me that some of his specimens are a little less depressed. Dr. Sharp, however, agrees with me in considering that the Scotch specimens must be referred to this species; at all events, while quite distinct from the other allied species, they so closely agree with this one that it would be impossible to describe a new species upon them, especially when we remember that many *Anchomeni* present certain variations accordingly as they are found in mountainous or lowland districts, a fact that Professor Sahlberg notices in his letter to me, as probably explaining any slight discrepancy.—W. W. Fowler, Lincoln: *March 17th*, 1886.

Apion annulipes, Wenck.—I have for several years had a doubtful specimen of an *Apion*. When sending a box to M. Bedel recently, I enclosed this specimen for his opinion, knowing that he is at present working at this genus. He returned it as the *A. annulipes*, Wenck. In his articles on New British *Coleoptera*, &c., the Rev. W. W. Fowler (Ent. Mo. Mag., vol. xx, p. 44) states that only two specimens, both females, of this species have been previously captured in Britain. My specimen is a male. The exact locality where my specimen was taken is unknown to me, but it has been collected in this neighbourhood. I shall be glad of any information as to the food-plant of this species.—J. W. Ellis, Liverpool: *March 14th*, 1886.

An abnormal Apion pallipes.—While examining my *Apions* of last year's capture, I found a ♂ example of *A. pallipes*, Kirby, from Birchington, the right posterior femur of which is armed beneath with a tolerably large and sharp tooth, while the corresponding limb is perfectly simple. At first I thought that the specimen might possibly be a hermaphrodite, but, as toothed femora are not among the male characters of beetles belonging to this genus, my specimen must, presumably, be a monstrosity. I have carefully examined some fifty examples of *A. pallipes* in my own and other collections without finding a similar specimen.—Theodore Wood St. Peter's, Kent: *March 5th*, 1886.

A luminous insect larva in New Zealand.—Whilst collecting recently after dark beside a densely shaded creek near Auckland, New Zealand, I observed the precipitous earthy banks of the creek illuminated with great numbers of a larva, which has, I believe, never been reared. It resembles in general appearance an Annelid, being about an inch and half in length, very slender, slimy, and without apparent organs; but under a microscope (as Professor Hutton has shown me) the head appears that of a predaceous Coleopterous larva, *e. g.*, of one of the *Staphylinidæ*. The light consists of a small, bright, greenish-white, erect flame, rising from the back of the neck. The larva burrows in the earth, exposing the head and anterior portion from the burrow, but having in front of them a sort of irregular slimy network. They occur in great numbers; I have counted fifty in a square foot of surface. The same or a similar species has been noticed in caves and mines elsewhere in New

Zealand. It is impossible for a wandering entomologist to attack a larva of these habits; I should, therefore, be interested if any reader can give me a clue to its systematic identification. I suppose that it is carnivorous, feeding on minute insects, which it entangles in the slimy network; and I conjecture that it uses its lamp (as I do mine) to attract them, or, perhaps, to see to eat them.—E. Meyrick, Wellington, N. Z.: *January 24th*, 1886.

[There is distinct necessity for further information (with examples in fluid) respecting the animal noticed above. The larvæ of *Staphylinidæ* are ordinarily so like the perfect insect in form (allowing for absence of elytra, &c.), that we venture to doubt the connection of the animal with that family.—Eds.]

The South London Entomological and Natural History Society, *February 18th*, 1886: R. Adkin, Esq., F.E.S., President, in the Chair.

Mr. South exhibited a long series of *Hydræcia nictitans*, Bork., for the purpose of comparison with a specimen of the same species exhibited at the last meeting by Mr. Chaney, and which was not then identified. Mr. Adkin also exhibited a specimen which closely resembled that of Mr. Chaney. Mr. Rose exhibited series of *Bryophila perla*, Fb., from Lea Bridge and Eastbourne, *Boarmia repandata*, L., from Rannoch, and a variety of *Acidalia emarginata*, L., taken at Herne Bay. Mr. Hall, series of *Cleoceris viminalis*, Fb., and *Xanthia fulvago*, L., both bred from Derbyshire larvæ. Mr. South said that some of the specimens of the latter insect looked like dark forms of *X. flavago*, Fb. Mr. Tugwell exhibited specimens of the supposed new *Crambus*, together with *C. inquinatellus*, Schiff., and *C. contaminellus*, Hb. Mr. Tugwell stated that he first took this *Crambus* at Deal in 1877, and he believed the time of appearance to be July and August. Mr. Tutt had taken the species in some numbers at Deal, and Mr. Coverdale had found it at Shoeburyness. Mr. Adkin also exhibited a specimen of this *Crambus*, and the species to which it approached very closely, viz., *C. inquinatellus*, *C. contaminellus*, and *C. geniculeus*, Haw. Mr. Billups exhibited the following species of *Coleoptera*, viz., *Meligethes exilis*, Sturm, and *Anthicus Schaumi*, Wol., from Lincoln; *Hydnobius Perrisi*, Fair., *Mycetoporus nanus*, Grav., and *Omalium rugulipenne*, Rye, from Hartlepool; also three species from West Africa belonging to the family *Cetoniidæ*: *Ceratorhina Morganii*, White, *C. Grallii*, Buq., and *C. Hornimanii*, Bates.

March 4th, 1886: The President in the Chair.

Mr. Billups exhibited a female specimen of *Sirex gigas*, L. Mr. Wellman exhibited a series of *Bankia argentula*, Hb., from Cambridge. Mr. Oldham, dark forms of *Satyrus Janira*, L., taken in North Wales. Mr. Adkin, specimens of *Nyssia hispidaria*, Fb. Mr. South, two specimens of *Lycæna Icarus*, Rott. (*Alexis*), one of them a remarkably small specimen, the expanse of wings being only 10 lines, taken at Folkestone, 1885, while the other, from Sligo, measured 1 inch, 5 lines. Mr. Frohawk, a case containing a long and varied series of *Melitæa Aurinia*, Rott. (*Artemis*, Fb.), coloured drawings of the larvæ and pupæ, also specimens of an ichneumon he had bred from the pupæ of this species. Mr. Billups stated the ichneumon was *Panteles glomeratus*. Mr. Tugwell again exhibited specimens of the

supposed new *Crambus*, for which Mr. Tutt had suggested the name of *cantiellus*, and said that he had now seen the Blackheath form of *C. contaminellus*, Hb., and felt convinced it was identical with the insect from Deal. Herrich-Schäffer figured the Lancashire form of *contaminellus* very minutely under this name, whilst Hübner, under the same name, figured most correctly the Deal insect. Now, there were evidently two different representations either of two forms of the same insect, or, probably, of two distinct insects, both having been named *contaminellus*, but the question must remain an open one, until the insect had been bred. There were exhibits in other branches of Natural History: Mr. Step exhibiting a case of bird's-eggs from Leith Hill, and Mr. Cook several mounted specimens of birds from Hampshire.—H. W. Barker and W. A. Pearce, Hon. Secs.

Entomological Society of London, *March 3rd*, 1886: R. McLachlan, Esq., F.R.S., President, in the Chair.

The following Fellows were elected, viz.:—Mr. J. M. C. Johnston, of Denmark Hill, S.E., and Cav. Piero Bargagli, of Florence.

Mr. Pascoe exhibited a Lepidopterous larva from Pará, with peculiar cephalic processes—probably that of a *Papilio*; also the puparium of the Brazilian race of *Anosia Plexippus* (*Danais Archippus*) from the same locality.

Mr. Williams exhibited for Mr. Bartlett a gigantic (7 inches) Lepidopterous larva received from Madagascar; in general characters it resembled the larva of *Gastropacha*.

Mr. C. O. Waterhouse exhibited certain Columbian *Coleoptera*, some apparently new.

Mr. Billups exhibited a rhyncophorous beetle, found alive in a well-known horticultural sale room in London; Mr. Pascoe stated that it was *Cholus Forbesii*, and South American.

Mr. Eland Shaw alluded to Mr. Olliff's notes on the aquatic habits of *Tettix australis*, read at the last meeting, and showed that, from old records (which he cited), such habits had been recorded for Indian species of the same genus.

Prof. Meldola communicated, on behalf of Dr. Fritz Müller, notes by the latter on the economy and synonymy of "Fig Insects," especially with regard to a paper published by Her Gustav Mayr ("Feigen-insecten") in 1885, the materials for which had been furnished by Dr. Müller from the district of the Itajahy in South Brazil. Dr. Müller sent illustrative specimens in alcohol; the object of the notes and exhibition was to show that in South Brazil several of these insects presented trimorphic conditions, and that the synonymy was thereby naturally affected.

Mr. Poulton read a continuation of his remarks on Lepidopterous larvæ and pupæ. This paper was illustrated by diagrams and magic-lanthorn slides. It concerned the ontogeny of certain *Sphingidæ*, the protective markings and attitudes of *Sphingidæ* and *Dicranuridæ*, and of *Acronycta leporina*. An important part of the paper consisted of the results of observations on the enormous loss in weight (by evaporation) sustained by newly-formed Lepidopterous pupæ. A discussion followed, in which many Fellows took part.

ON THE CASE, &c., OF *AGRAYLEA MULTIPUNCTATA*, CURT. (= *HYDROPTILA FLABELLIFERA*, BREMI).

BY KENNETH J. MORTON.

In the "Stettiner entomologische Zeitung" for 1864, will be found a memoir by Dr. Hagen, entitled, "Ueber Phryganiden-Gehäuse." The first portion of it especially, based in great part on the correspondence of the author with Bremi, contains much valuable information concerning the earlier conditions of the *Trichoptera*, and several problems of unusual interest relating to the life histories of these insects are brought forward. That some of these problems have remained unsolved to the present day, is due, I think, more to a lack of observers than to the difficulties their solution presents, although aquatic insects are necessarily less easy to deal with than others. And on this subject of rearing I may here quote the following remarks from Eaton's Monograph of *Ephemeridæ* :—"In the absence of elaborate contrivances many *Ephemeridæ* can be bred in captivity if confined in flower-pot saucers, or other wide vessels containing little water, duly protected from extremes of temperature. If the bottom be glazed inside it should be thoroughly strewn over with sand or fine river-gravel, that the insects need not die of fatigue in struggling to maintain their footing upon it." These directions suit equally well the *Trichoptera*. An increase in the number of vessels is preferable to the adoption of large ones, since small vessels lend themselves better to exactness of observation; and in every case I recommend the use of river-sand, a little of which put into the phials containing minute species appears to give all that is required for the maintenance of life.

At page 115 of Dr. Hagen's paper, we find under *Agraylea? Gehäuse*, a quotation from one of Bremi's letters, in which is described the finding on water-plants during the summer, of some caddis-cases similar to those which Pictet figures on pl. 20, fig. 10, of the "Recherches" (*Hydroptila pulchricornis*), but differing therefrom on account of *Confervæ* being made use of in their construction. Very broad and flat femora of the fore legs, and long, sharp, strongly bent claws distinguish the larva, which, when in motion, carries the case on the angle, and is able to put its head out at either end. When the larva passes into the nymph state, the case is said to be fixed at each of the four corners by means of a stalked fan-like patella. A second letter states that it is only when the larva changes that the case assumes its characteristic oblong form, and that as long as the larva is

feeding the form of the case does not differ from that of those of other *Hydroptilidæ*. It is repeated that the case is carried on the sharp angle, and composed only of *Algæ*. Bremi applied to this remarkable creature the provisional name of *Hydroptila flabellifera*. He never reared the perfect insect, but a nymph supposed to have come out of one of the cases, Hagen referred with doubt to *Agraylea*. According to Hagen the case of the larva is yellowish, transparent as if made out of thin glue; structure of the employed vegetable matter not visible. Long., 3 mm.; lat., 1 mm.; oblong, widened in the middle, flat, open at both ends. The principal point in connection with the larva is the great length of the middle and posterior-legs. The nymph-case is dark brown, less transparent; long., 5 mm.; lat., $1\frac{1}{2}$ mm.; flat, form exactly as in larval case. At each of the four corners is fastened an appendage (pilzartiger Anhang) with a short pedicel. It may be remarked, that Bremi's words seem to imply that a difference exists between the form of the case of the larva and that of the nymph, while Hagen says explicitly there is none.

Further information on *Hydroptila flabellifera* is given in McLachlan's "Monographic Revision of the European *Trichoptera*." That author, after referring to a note by Bremi in the "Mitth. naturf. Gesell. Zürich,"* 1848, p. 62, and Hagen's account, proceeds to notice larvæ found by Dr. Barker (Quarterly Journal Micr. Science, new ser., vol. vii, p. 175) and Eugène Guinard (Mém. Acad. Sci. Montpellier, vol. ix, pp. 139—143), both of which he considers to have been the same as Bremi's. It appears that M. Guinard actually bred the insect (which he named *Leiochiton Fagesii*); but as he is not an Entomologist, his published description and figures do not suffice for identification.

It was on the 3rd and 5th of November last that I received, through the kindness of Mr. McLachlan, two cases with larvæ, forwarded to him by Mr. Bolton of Birmingham, which in the main points agreed with Hagen's description. Interesting in themselves, they possessed a double interest, since, though they had been known so long (assuming all the above citations and the cases I had before me to belong to one and the same species), they had always evaded satisfactory elucidation. They were delicate looking things, and my hopes of being able to rear the insects were not great. The wished-for result came about at a most unlikely time. About Christmas, I was surprised to see signs of a change. The semi-transparency of the case allowed one to get some idea of what was going on within, and in a few days it was evident the nymph stage had been reached. Now, out of more than a dozen species

* "Bern" is an error in my original citation.—R. McL.

of *Trichoptera* which I have bred, in no instance has this stage extended over more than five weeks, and I was therefore curious to know whether we had here to do with an exception to what seemed a general rule. But no; on the 25th of January, while there was deep snow lying on the ground, a perfect ♂ of *Agraylea multipunctata* appeared. The equable temperature of the room, in which there was a fire kept burning night and day, had no doubt the effect of "forcing;" and it may be mentioned that on the day of appearance, the hard frost that had prevailed for some time shewed signs of giving way.

I regret that I was not able to confirm what Hagen says about the larva. To have made a description would have involved the destruction of one of my examples, and that, with the limited materials, it was undesirable to risk. But with regard to the long posterior-legs, I may say other larvæ, presumably *Hydroptilid*, possess such, and surely Pictet too strongly emphasizes the shortness of the legs in his figures.

From the first my larvæ were sluggish, and the cases were almost constantly fixed by the four cables to the glass (once, one of them was fixed almost totally out of the water); however, I did see them in motion, and was able to confirm the statement that the case is borne along on the angle—a habit apparently not uncommon in the family. The final fixing was effected precisely as Bremi describes: the case was placed on the flat and each of the corners attached to the glass by means of a silken cable of many threads, which spread out at the point of attachment in a fan-like way (giving rise to Bremi's expressions—"Eine gestielte fächerförmige Patella," and "Händchen und Aermchen"). The case is of a brownish colour, but when viewed as a transparency, its basis appears to be of an amber-coloured substance, and round the two ends are seen to be wrought filaments of *Confervæ* in curves, concave side inwards, and these filaments are likewise carried narrowly along the sides, leaving a longish oval in the centre composed of the basis-substance only. The form may be called oblong; the ends are slightly rounded, and the sides produced a little. The reason of the more commodious middle part—for in addition to the produced sides, the oval central part is doubtless elastic—is very obvious, and I had often the pleasure of seeing the larva turn round and present its head at the end opposite to that which it had just left, the revolution being made in the roomy middle part. Without doubt the end openings are also elastic, and close on the withdrawal of the head of the larva. Pictet gives this form of opening as an universal character of the case of *Hydroptilidæ* (Recherches, p. 224),

but if I mistake not, there are exceptions. Fritz Müller says, wit regard to the *Hydroptilidæ* of the Brazils, that they include the mos varied and remarkable larval cases; and I believe that even our ow species when thoroughly known, will be found to have cases of mos diversified structures, and habits of the greatest interest.

Carluke, N.B.:
March 8th, 1886.

THE LIFE-HISTORY OF *NONAGRIA BREVILINEA*.

BY W. H. B. FLETCHER, M.A., F.E.S.

This curiously local moth was discovered in the Norfolk Fens in 1864, by Mr. Fenn (Ent. Mo. Mag., i, p. 107), but, I think, little or nothing has as yet been published about its earlier stages. In April, 1880, Mr. E. G. Meek told me that he bred two specimens the summer before from larvæ taken among those of *Leucania straminea* and other species. He added that they were external feeders, and, I believe, on various plants; but of the latter point I am not quite sure. Thanks to the untiring kindness and great liberality of Mr. F. D. Wheeler, of Norwich, I am now able to give some further particulars of the life-history.

On July 30th, 1884, I received by parcel post from Mr. Wheeler six females taken by him in Ranworth Fen. The next day, a very hot one, was spent in moving from Worthing to Deal. No wonder that after two long journeys in such weather my friend's kindness only just escaped being in vain! However, eight eggs were laid by a fine specimen of the form "*sinelinea*." They were laid singly, and were very loosely glued to the lining of a band-box. They were of the usual *Noctua* shape, and ribbed in both directions. They were at first of a very pale cream colour, after a few days of an equally light pink, and in the middle of April, 1885, they assumed a dull purple hue.

The larvæ began to hatch towards the end of the month. All but one died before the right food-plant was hit upon. Plants of many Natural Orders, including several grasses, were offered in vain. One larva took up its natural position on the leaf of a small *Carex*, and ate a few mouthfuls, but no more. It and six of its fellows died after a few days' life. The last larva was hatched on May 6th, and was placed in a lamp-chimney with some shoots of *Arundo phragmites*. I soon had good evidence that it had entered the stem of one of the reeds just above the point where an unfolding leaf diverged from the

central shoot. I did not see this larva again until May 17th, when the old food-plant was broken up and re-placed by fresh. It was then about to moult.

The following description was taken:—Rather slender; length about $\frac{3}{16}$ inch; head, corselet, and anal plate brown; body very light brown, almost white between the segments, spots rather large, black, surrounded by pale rings, with rather long black bristles; dorsal and sub-dorsal lines white.

On May 20th, it was found to have moulted, most likely soon after the above description was taken. It was now nearly $\frac{1}{4}$ inch long, and fairly stout, head, corselet, and anal plate very pale brown, body pale yellowish-green; dorsal, sub-dorsal, and spiracular lines white, spots small, with very short black bristles. When placed on a reed, it took up its position on the upper-side of the base of a leaf which was just unfolding itself from the stem. Here the larva remained for some days, during which it nearly bit off this leaf, and gnawed the still unfolded one above it considerably.

I described it on June 8th, as follows:—Nearly $\frac{1}{2}$ inch long; cylindrical, not tapering much at either end; head and plates pale brown, the former rather darker at the top of the lobes; the lines broad, white, edged with brown, darker than that of the general surface of the body; spiracles black; legs and claspers almost colourless. Having started from its former position at the base of the leaf-blade, the larva had gnawed a spiral tunnel in the reed-stem, making two turns in $\frac{3}{4}$ of an inch. The "frass" was all thrown out. I took it out of the old reed on June 17th, and by the next day it had bored its full length into a fresh one, having made its entry as before. On June 19th it came out of its burrow and spun a silken pad on the muslin at the top of the lamp-chimney, on which to undergo its last larval moult. Unluckily, it lost its hold and died at the bottom of its prison.

On June 20th, Mr. Wheeler most kindly went with me to Ranworth Fen to hunt for the larvæ in their own home. It was a cold, showery day, and for the best part of the afternoon our search was in vain. At last, in a small alder carr, we were rewarded by finding some sixteen or seventeen larvæ, all of which Mr. Wheeler most generously insisted on my taking home with me. These larvæ fed just like my lamented friend. They entered at the tops of the reeds, bored down two of the joints and made holes as they went, through which to eject their frass. All the larvæ but two were head downwards. The forwardest were of the same age as the one I had reared from the egg. The *work* of the larvæ was shown by the reeds being withered at the top; not always their *presence*, however, for we found many empty mines, and many full of frass and tenanted by the larvæ of *Calamia phragmitidis*, those made by the larvæ of *N. brevilinea* being always clean.

On June 21st, I returned home and placed the larvæ with reeds in lamp-chimneys and tins. Some of them at once came out of their

burrows and spun pads on which to moult. By June 24th some o them had changed their skins, and the leaves of the reeds had bee eaten at their edges, like some that we had noticed in the fen. T prove that the larvæ are really external feeders when mostly full grown, I secured a newly-moulted larva on June 28th, and kept i without food for twenty-four hours. When food was given it, i began by eating a burrow as long as itself in the stem of a reed, i then came out and fed only on the leaves until it pupated, alway resting on the outside of a reed or in some old hollow stems given i for the purpose. This, I think, is the usual mode of life, for on July 5th, I looked through the cage containing the rest of the larvæ, eigh of them being then alive, and found a few empty burrows about th length of a larva and the leaves much eaten at the edges.

On June 28th, I described a nearly full-grown larva. With th change from internal to external feeding it had become quite hand some. In markings and colour it greatly resembled the larvæ o *Neuronia popularis* or *cespitis*, but was not nearly so stout.

Length, about $1\frac{5}{8}$ inch, of average thickness in proportion; head light brown with slightly darker markings near the top of the lobes and about the mouth; body pale ochreous, almost obscured by thick reticulation of olive-brown; dorsal, sub dorsal, and spiracular lines broad pale yellow, the last being the palest, with centra stripes of orange, all the lines show on the second segment, the dorsal and sub-dorsa reach almost to the posterior edge of the anal flap, and the spiracular to the posterio claspers; spiracles black; legs pale brown; pro-legs concolorous with the pal ventral area.

Pupa about $\frac{5}{8}$ inch long, of usual *Noctua* shape, *i. e.*, not long and thin as thos of *Nonagria geminipuncta*; dull red; eyes, antennæ, legs, and wings rather faintly defined; anal segment ending in two stout bristles, $\frac{1}{20}$ inch long, remote at thei bases, approaching each other near the middle of their length, and bent outwards at the ends to form hooks; around them were three or four shorter and thinner bristles curled at their points. The object of these bristles being, I suppose, to anchor the pupa-skin firmly to the cocoon during the escape of the moth.

The cocoons were formed on the surface of the soil, rather slightly, of silk, and a few pieces of cocoa-nut fibre and moss interwoven with it.

The moths, four in number, emerged during the last week in July.

Fairlawn, Worthing:
April 10th, 1886.

THE HABITS OF THE IMAGO OF *NONAGRIA BREVILINEA*.

BY F. D. WHEELER, M.A., F.E.S.

My friend Mr. Fletcher, to whose zeal and skill we are now indebted for a knowledge of the larva of this local species, has, with characteristic modesty, requested me to supplement his life-history of the species with some account of the habits of the perfect insect.

My first acquaintance with it dates back to 1870, when Mr. C. G. Barrett introduced me to the Ranworth Fens—a red-letter day (or rather night) in my entomological diary, so many were the experiences crowded into a few hours: first chasing swallow-tails in the afternoon, involving experimental acquaintance with the nature of bogs; then the wonderful sight, to a novice, of *Nonagria despecta* hovering and fluttering all over the fen in countless numbers; and later, *Apamea fibrosa*, *Nonagria fulva*, *Nudaria senex*, *Lithosia griseola*, and the var. *stramineola*, *muscerda*, and *camplanula*, all in profusion, while numerous other species entered into the catch—all combined to impress it on my memory, and not least the fact that it was my first trip with Mr. Barrett, my "pater entomologicus."

It was while boxing three or four specimens of *N. despecta* from the net, that my attention was caught by a *Noctua* sitting on a reed stem, with wings still soft and rather crumpled. Even my ignorance recognised it as a "wainscot," and not one of the common ones, and Mr. Barrett at once assured me that it was a specimen of the then *unique N. brevilinea*.* It was not until some years later that my acquaintance with the insect was renewed, circumstances preventing me from collecting in the fens for the next season or two, but in 1871 Mr. Barrett took three specimens (I believe) by sugaring, usually a most unprofitable method of work in the fens. Then between 1873 and 1877 some numbers were taken by Messrs. Farn, Bird, Jenkinson, Barrett, and others, chiefly by working the honeydewed leaves of the sallows late at night. In common with most of the fen *Noctuæ*, *brevilinea* is powerfully attracted by this natural banquet, and by searching the leaves with a lamp may be readily secured, either by boxing it at rest, or more easily by netting as it flies off. But this method is by no means equally productive in all seasons, the supply of honeydew being sometimes scanty and poor, and it is by means of the attracting lamp that the species is best known to me. In 1878 Mr. Fletcher, during a month's visit to Ranworth, turned it up thus in some plenty, and from that season to the last I have never failed to meet with it, in fluctuating, but, on the whole, increasing numbers. Considering its wide range over the Bure fens, at least from Horning Village to St. Benet's Abbey, it is surprising that this insect does not seem to have yet extended its quarters up the Ant, though it certainly occurs at the mouth of that river; probably, however, it may do so ere long, though it is noteworthy that a considerable difference exists in the insect fauna of different spots, even in the same range of fens.

* The captures of Mr. King, made in the same season, were as yet, of course, unknown.

In habit of flight, *N. brevilinea* is intermediate between the wild dash of *L. impura* and the steadier motion of the true *Nonagriæ*. Before dark it begins to be on the move, and I have found 8.30 to 9 p.m. the most "lively" time for it. During this half hour and the next, on a favourable night, it affords much exercise to its would-be captor. Early in the evening moths are never much attracted by light, but the lamp serves to show everything that passes, and the *Noctuæ* generally diverge from their course enough to come within a long reach as they dash by. During a trip last season, one of Mr. Barrett's sons, who accompanied me, gifted with active legs and wielding a mighty net, was particularly successful in this way. Making charges out into the darkness beyond the circle of the lamp, and frantically striking with the big net, he generally brought back his spoil. Before 10 p.m. the first flight is over, and thenceforward during the night an odd specimen may be taken now and then, usually coming straight to the lamp, and secured with comparative ease; when the morning is beginning to dawn it flies again more freely, but the morning flight is but a feeble imitation of that of the evening. Of course, these details refer to a good night; if the weather be unfavourable, scarcely a specimen will be seen.

Perhaps the insect most nearly resembling *N. brevilinea* when on the wing is *L. impura* (by no means so great a pest, by the way, in the deep fens as might be imagined, while *pallens* is almost absent), but a very little practice suffices to distinguish them, and the commoner species is but little attracted to light.

I have occasionally taken *N. brevilinea* at rest, *in cop.*, and also flying in the open fen, but if one's captures depended on these methods alone, it would still be a rarity in collections.

In conclusion, I may say that, in common with almost all who are acquainted with the species, I believe it should be transferred to the genus *Leucania*, which in habits and form it far more closely resembles; and the discovery of the larva has made this belief as to the propriety of its removal from the *Nonagriæ* a certainty. The genus *Leucania* itself, however, is a very heterogeneous one as to the larval habit of the species it embraces.

Paragon House, Norwich:
April, 1886.

Nyssia hispidaria near Horsham.—When shooting near Horsham, March 20th, I took a beautiful specimen of *N. hispidaria* ♂, at rest on an oak tree.—W. C. Boyd, College Road, Cheshunt: *April 15th*, 1886.

ENTOMOLOGICAL FIELD NOTES AT SÛAKIN.

BY N. MANDERS.

The insect-fauna of the Sûdan being at present little known, any notes on the region will be interesting; and, therefore, I venture to record the scanty information I obtained during the campaign in the neighbourhood of Sûakin last spring.

So much has lately appeared regarding our various operations there, that any detailed remarks on the country itself would be superfluous; but I was somewhat surprised to find the country, especially near the mountains, supporting a vegetation in some parts decidedly thick, and not altogether the barren waste I had imagined. From the top of the isolated hill at Handoûb (12½ miles inland), the country looks fairly well-wooded and a fine expanse of green meets the eye, which is continued up to quite the foot of the mountains, being more luxuriant in the neighbourhood of the water-courses which dry up during the spring months.

The vegetation was of the character usually found in tropical deserts; Mimosas, thorny Acacias, and various species of *Euphorbiæ* preponderating, the former ran commonly to the size of a thorn-tree, usually very dense, covered with creepers and armed with thorns of of an alarming character. One species known to us there as the "umbrella Mimosa," and which I am told is peculiar to the Sûdan, is remarkable inasmuch as it throws out branches in every direction immediately above the ground, and presents a plane surface of closely approximated small flat green leaves which it is impossible to see through, and which, consequently, considerably aided the Arabs in carrying out their sudden attacks.

Flowering plants were naturally not abundant, still I think I might have collected about a score of different kinds; but I had no means of carrying or preserving them. One species—yellow with a red centre, something like a foxglove—was very fine and conspicuous.

Animal life was far more abundant than I had expected, but the night dews were very heavy, and were due to the cool night winds from the sea condensing the hot vapour given off from the earth; often on waking I found my blanket wet through, and the early mornings were very cold, so that condensation must have taken place very rapidly.

The butterflies more particularly engaged my attention, and of these *Pyrameis cardui* was by far the commonest; *Danais Chrysippus* was also not uncommon and in splendid condition, but too difficult for me to catch with my improvised net of mosquito netting and telegraph

wire. I saw at least two species of "orange-tip," and was so fortunate as to catch one which Mr. Butler informs me is new. It is interesting as being extremely similar to species from the Soumali country. Two "blues," *Azarius Zena* and *A. Gamra* were decidedly common; the former has a peculiar habit of flying in swarms round the thorn bushes reminding one of *Lithosia rubricollis*. Another butterfly also new was not uncommon, flying low amongst rank grass, but was difficult to capture on account of the intense glare arising from the sand; Mr. Butler will shortly describe this novelty. Moths were apparently scarce; but numerous Micros belonging, I think, to some genus akin to *Lithocolletis* were not uncommon on the glass of our lamps in the evening; but I saw no *Noctuæ*, unless a large moth, very like an "under-wing," belonged to this genus, but it persistently declined my offers to an intimate acquaintance; it was a day-flier very strong on the wing, and had a disappointing habit of soaring when I was very nearly within range.

Beetles were not numerous, being, to a large extent, kept under by the extraordinary number of lizards which swarmed everywhere; however, I saw one particularly handsome fellow which put me in mind of the "Diamond beetle" of Brazil; it flew strongly in the hot sunshine and did not appear to be very uncommon though I failed to make a capture. The only other beetle, at all common, was a large black one which had an annoying habit of getting amongst one's kit and crawling over one at night, which made one think of scorpions. Of these latter, some spots where we encamped seemed to swarm with them, whilst at others we were more fortunate. I was much impressed by my first sight of a real live specimen, and my ideas derived from dried-up museum specimens received a rude shock. I hesitate to give the dimensions of one we captured, but the officer under whose bed it was found assured me that he had never seen a larger in India; all we captured were of a semi-transparent green colour. Several men were stung and suffered severely; and, following their usual tactics, the creatures were very fond of getting amongst the blankets at night, and not uncommonly repaying their unconscious host by an unfriendly sting in the morning.

Mosquitoes were remarkable for their absence, and this I attribute to the want of water in which the larvæ are reared.

Concerning house-flies it is unnecessary to speak, suffice it to say that they swarmed in the tents more particularly in countless thousands, until the extreme heat killed them off. I believe "*Musca domestica*" cannot survive a heat bordering on 100° in the shade; at any rate, they

almost entirely disappeared towards the end of April, and no one regretted their departure. It was curious how entirely free horses were from flies, &c., there was none of that constant whisking of tails and shaking of heads we are accustomed to during the summer months in England; and this again I attribute to the want of water (flies are thirsty creatures), and great heat.

In conclusion, though I only brought home some half-a-dozen different kinds of butterflies, yet I saw many more, the majority, probably, new; for instance, I saw a grand *Pieris* on the day of the engagement at Hasheen; but the small opportunities, constant and multifarious duties, and, not least, the decided risk of being myself captured, prevented me from doing justice to an interesting country.

Army Medical Staff: *February*, 1886.

Variety of Larva of Acherontia Atropos.—Last autumn I had brought to me a beautiful example of the variety of the larva of *Acherontia Atropos*, which is mentioned in Stainton's "Manual," but which was perhaps even more remarkable than the variety there described. In this instance the three anterior segments, instead of being of the usual yellow hue, and without markings, were pure white with a broad dorsal marbling of deep black, which came down on each side like a double saddle. The remaining segments were without the oblique markings on the sides, but down the back there was a broad chain of diamond-shaped links and purple tracery. The anal horn and spiracles were as usual; unfortunately, it buried itself before there was any opportunity of sketching it.—James Balding, Wisbech: *March*, 1886.

Queries concerning the habits of certain British Tortrices.—Being engaged on a revision of the British Tortrices, and desirous of making my facts as complete as possible up to the present date, I shall be grateful for any information, whether positive or suggestive, as to the food-plants and larval habits of any of the following species, still, as far as positive information goes, quite unknown, and of opinions tending to confirm or modify the accompanying statements concerning certain species whose previous states are more or less ascertained; or concerning the habits of others in the imago state.

Tortrices of which the larvæ are still unknown :—*C. cinctana*, Schiff., *bifasciana* Hb., *hybridana*, Hb., *osseana*, Scop. (*pratana*, Stn.), *argentana*, Cl., *B. Woodiana*, Barr. *A. sellana*, Hb., *E. purpurana*, Haw., *M. Schultziana*, F., *palustrana*, Z., *S. olivana*, Tr. (*micana*, Stn.), *umbrosana*, Frr. (*alternella*, Stn.), *irriguana*, H.-S., *Doubledayana*, Barr., *cespitana*, Hb., *latifasciana*, Haw., *ravulana*, H.-S., *R. arcuella*, Cl., *O. ulmana*, Hb., *C. cæcimaculana*, Hb., *microgrammana*, Gn., *H. pauperana*, Dup., *S. upupana*, Tr., *S. spiniana*, Dup., *S. compositella*, F., *internana*, Gn., *leguminana*, Z., *E. puncticostana*, Steph., *H. fimbriana*, Haw., *A. Mussehliana*, Tr., *Hartmanniana*, Cl. (*Baumanniana*, Stn.), *subbaumanniana*, Wilk., *E. albicapitana*, Z., *gilvicomana*, H.-S., *flaviciliana*, Wlk., *Degreyana*, McL., *Manniana*, F. R.

Statements requiring confirmation concerning certain Tortrices.

A. prodromana : "On the wing freely from 9 till 11 a.m., April 20th." E. W. Int., 1856, p. 28.

A. ochroleucana : "On rose and fruit trees?" Heinemann.

A. sellana : ? In flower heads of *Centaurea nigra* and of *Plantago lanceolata.*

P. Lecheana : "Often full-fed by end of April." Heinemann. ? full-fed in autumn.

N. Udmanniana, S. tripunctana, roborana, rosæcolana, suffusana : do the larvæ of these hibernate small?—that of *incarnatana* does.

L. campoliliana : ? "Two broods, v and viii," Snellen.

H. Paykulliana : How does the larva feed?

A. derasana : How many broods, one or two?

A. obtusana : How many broods? What is the true food plant?

O. ulmana : ? "in leaves of *Aquilegia vulgaris,*" Frey. ? on wych-elm and on hazel.

R. arcuella : On hazel inside the twigs.

E. trauniana and *regiana :* Has any one ever seen either actually feeding beneath the bark?

E. argyrana : ? On leaves or in bark of oak and other trees.

H. fimbriana : ? "In rotten wood," Heinemann.

G. Albersana "Hibernates full-fed," Snellen : where and how does it feed?

C. microgrammana : ? on *Ononis spinosa.* How, and when?

G. citrana : ? Mining young shoots of yarrow, ? on flowers of *Artemisia campestris,*" Jourdheuille.

E. fractifasciana and *quadrana :* ? "in heads of *scabious,*" Jourdheuille.—W. Warren, Merton Cottage, Cambridge : *April,* 1886.

Amara nitida, Sturm.—Previous to the appearance of last month's number of the Ent. Mo. Mag., which contains my notice of the capture of a species of *Amara* new to Britain, and which had been determined by Herr Reitter as *A. montivaga,* Sturm, I had received a communication from the Rev. W. W. Fowler to the same effect as his editorial foot-note to my record; with a recommendation that the specimen should be submitted to M. Louis Bedel, of Paris. This I did, and received from M. Bedel, but not in time for a correction of last month's article, a note in which he states most decidedly that the *Amara* is, as suggested by Mr. Fowler, the *A. nitida,* Sturm. This species, like the one that the specimen was previously referred to, is quite new to our fauna, though a native of middle and northern Europe. *A. montivaga,* according to M. Bedel, differs from *A. nitida* in having black tibiæ, the posterior angles of the prothorax less rounded, and the scutellary striæ of the elytra are provided with a large umbilical pore.—J. W. Ellis, 3, Brougham Terrace, Liverpool: *March 14th,* 1886.

[The *Amara nitida* of Stephens (Illus. Mand., i, p. 129), is the common *A. plebeia,* and has nothing to do with the above-mentioned insect.—W. W. F.]

Tachinus scapularis and elongatus at Lewisham.—Last June I obtained from decayed mangold wurzel at Lewisham specimens of *Tachinus scapularis* and *elongatus.* —A. Beaumont, 30, Ladywell Park, Lewisham : *April,* 1886.

Coleoptera at Falmouth.—I spent a week at Falmouth, from March 8th to 15th, and endeavoured, during this time, to work the district for *Coleoptera*. The east wind, even in this extreme south-west corner of England, had, however, lost none of its bitterness, and the only sheltered place I could find was the sandy beach under the low cliffs to the westward of Pendennis Castle. Here I had the pleasure of seeing *Aëpys marinus* alive for the first time, under stones at high water mark, but it required a lot of working for, and I succeeded in finding only three specimens. An even more welcome sight was that of the tiny and active *Actocharis Readingi* (hitherto, I believe, recorded as British from Plymouth only), of which a couple of specimens were found running on the under-sides of large stones sunk in the sand, in places where a little trickle of fresh water came down from the cliffs above. *Philonthus fucicola* was common here (also at Mylor, on the shores of the harbour), accompanied by the var. *variolosus* of *P. xantholoma*, and many of the usual littoral *Staphylinidæ*, &c. In the lanes, almost the only beetle to be obtained was *Phlœophagus æneopiceus*, which occurred plentifully in old stumps in the hedges: its favourite food appeared to be ash, though I found it also in oak, hawthorn, and elder, as well as traces of its former presence in holly.

A good looking piece of marshy ground at the head of a large piece of fresh water near the shore, about a mile west of Falmouth (called Swan Pool), produced nothing better than *Pæderus fuscipes*.

A few unset specimens of *Phlœophagus æneopiceus* are at the service of any Coleopterist who may wish for the species.—James J. Walker, H.M.S. "Cherub," Portland: *March 31st*, 1886.

Description of the nymph of Psylla mali, Schmidtberger.—Pale green, shining, with a fringe of pale hairs round the front of the head, costal margin of the elytra-lobes, and apex of the abdomen, those round the latter longest. Head: anterior margin flattish-convex, crown flattish-convex, with a minute fovea on each side of the centre between the eyes. Eye-caps whitish, through which shines a somewhat round, small, dark spot. Antennæ greenish-yellow, apex black. Pronotum with two foveæ in front on each side of the centre, and another pair near the posterior-margin, the latter larger than the former. Elytra-lobes whitish, opaque, with a small notch on the costal margin at the extremity of the suture. Legs green, apex of the tibiæ and claws dark brown. Abdomen, in one sex, somewhat convex above and underneath, contracted at the base, whereby the acute extremities of the elytra-lobes overhang the sides; in the other sex somewhat ovate; extreme apical margin very narrowly clear brown in both sexes.

The insect in this state is to be met with very commonly on apple trees, generally from the middle to the end of May.—John Scott, Lewisham: *Feb. 17th*, 1886.

Description of the nymph of Psyllopsis (*Psylla, Foerst.*) *fraxinicola.*—Pale green, thickly farinose. Head: anterior-margin almost straight; eyes brown or slightly reddish-brown; antennæ pale yellowish, apex black. Elytra-lobes pale greyish-white, costal margin with a fringe of short hairs. Abdomen somewhat oval, slightly convex transversely, pale green, thickly farinose; apex somewhat thickly clothed with long, fine, white hairs of irregular length. Legs white, extreme

apex of the tibiæ and tarsi black. As it approaches the perfect state, the abdomen, especially towards the apex, becomes clothed with long, white, curled hairs or filaments, and the head and elytra-lobes also in a more or less degree. They live on the under-side of the leaves of the ash (*Fraxinus excelsior*), in the beginning of July, but do not cause any deformation, and are generally found in little colonies, partly, or sometimes entirely, enveloped in a fine, soft, loose, farinose secretion. When disturbed they are very active.

In the "Verh. der k. k. zool.-bot., Gesellschaft in Wien," for 1879, p. 587, Dr. Franz Löw gives his reasons for the separation of the above species and *Ps. fraxini* from the genus *Psylla*, Foerster, and other authors, and amongst other characters he points out the remarkable shape of the genital processes (Zange) of the ♂ when viewed from the side. In *Ps. fraxinicola* these are hatchet-shaped, and in *Ps. fraxini* hammer-shaped, and are easy of recognition with the aid of a pocket-lens. There are only two other European species known (*discrepans* and *meliphila*), which, like ours, are also attached to the ash.—Id.: *March 9th*, 1886.

Note on Trioza remota, Foerster, together with a description of the nymph.—This *Trioza* was described by me in the "Transactions of the Entomological Society," for 1876, p. 557, under the name of *T. hæmatodes*, which is a synonym of it, as are also *T. cinnabarina*, Förster, and *T. dryobia*, Flor. It is a common species, and is frequently found on fir trees, if growing in the vicinity of the oak on which it has passed through its various stages, thereby misleading collectors.

The nymph is of a pale green colour, flat, broad, about three-fourths as broad as long. Head: anterior-margin almost straight, with a border or fringe of short, pale, shining, fine stiff hairs placed closely together; eyes reddish-brown. Antennæ short, whitish, or very pale greenish, apex brown. Thorax: upper-side very pale green, more or less spotted with yellow down the middle. Elytra-lobes almost white in front, extending beyond the head; costal margin with a fringe of short, pale, shining, fine stiff hairs placed closely together. Abdomen very pale green, down the middle more or less spotted with yellow, outer margin with a fringe of hairs similar to those on the head and elytra. Legs very pale green, or almost white, apex brown.

They are to be beaten at the end of March and beginning of April from oaks, on the under-side of the leaves of which trees they live, apparently singly, and without causing any deformation.—Id.: *March 10th*, 1886.

Newspaper Entomology.—A correspondent has forwarded a cutting from a Scotch newspaper, which we reproduce. The words italicised by us seem to indicate that a knowledge of elementary entomology is desirable in some quarters in Great Britain, as well as in South Africa:—

"*A Scourge of Caterpillars.*—Much alarm has been caused in the Camperdown district of Durban, says the *Cape Times* of March 6th, by the scourge of armies of caterpillars, which have appeared amongst the forage crops. One army extends a mile and a half deep, and has swept over seventy acres of fine forage. It is now going in a westerly direction. Another, comprising many millions, has eaten every bit of forage in one district. By to-day the two armies will have joined, and threaten Boston. It is feared it will do more damage than the visitation of the 1878 pest.

It makes its appearance in the form of a small moth, with velvety-black body and head, green stripes along sides, and is about quarter-inch long. In a few days *it sheds wings, becoming a caterpillar, and in a week it lays eggs, each caterpillar producing two hundred!!* It grows two inches, and it blackens the field as they move about voraciously eating. In one place forty acres of forage were reduced to stubble. Even grass has been eaten up."

This astonishing statement is, however, eclipsed in a London paper usually well-informed, where we read :—"In common with other countries, Natal has been troubled with an insect plague which has played sad havoc with the crops. It seems to be of the genus *Aphis*, of which there are many varieties, and a description of it is appended, in order that those suffering from a similar pest in other parts of the world may compare notes :—The pest makes its appearance in the form of a small moth, &c., &c."—Eds.

The South London Entomological and Natural History Society, *March 18th*, 1886 : R. Adkin, Esq., F.E.S., President, in the Chair.

Messrs. G. Day, T. H. Hall, W. D. Gooch, and J. W. Tutt were elected Members of the Society. Mr. South exhibited specimens of *Vanessa Callirhoë*, Fab., bred from larvæ found at Teneriffe, and contributed some interesting notes. Mr. Wellman exhibited dark forms of *Hypsipetes elutata*, Hb., from Barnsley. Mr. Mera, dwarf forms of *Lycæna Ægon*, Schiff., *L. Icarus*, Rott., and *Vanessa cardui*, L. Mr. Adkin, reddish forms of *Tæniocampa gracilis*, Fb., which he said he understood were bred from larvæ obtained in the Kentish Marshes, but the specimens exhibited were very different from the ordinary Kentish form. Mr. Carrington stated he had taken this form of *T. gracilis* in the New Forest, but it was really the Scotch form of the species. Mr. Henderson exhibited the following insects from Lundy Island :—*Ichneumon xanthorius*, Foerst., *Lacon murinus*, L., and a species of *Tenthredopsis*. Mr. Billups, the following species of *Coleoptera* :—*Demochroa gratiosa*, L., from the Malaccas, *Clinteria chloronota*, F., from Ceylon, *C. confinis*, F., from N. India, and *Polydæis puber*, F., *Onthophagus gazella*, *O. Marsyas*, *O. 4-punctata*, Ol., and *Bricoptis variolosa*, Ol., from Madagascar, and *Anthia sexguttata*, Lat., from India, and read a short paper on this latter species. Mr. E. Joy read notes on collecting *Lepidoptera* at Wicken Fen.

April 1st, 1886 : the President in the Chair. Messrs. C. H. Watson, G. P. Shearwood, Stanley Edwards, A. Beaumont, and B. W. Adkin were elected Members. Mr. Goldthwaite exhibited series of *Cœnonympha Typhon*, Rott., and *Erebia æthiops*, Esp. Mr. Cooper, *Drepana binaria*, Hufn., *D. cultraria*, Fb., and *Erastria venustula*, Hb., from Epping Forest ; imagines and pupa cases of *Eupœcilia ambiguella*, Hb., from the New Forest, and varieties of *Lycæna Icarus*, Rott. Mr. J. T. Williams, a fine series of *Eriogaster lanestris*, L., and a long column of varieties of *Hybernia leucophearia*, Schiff. Mr. E. Joy, *Nyssia hispidaria*, Fb. Mr. Stevens, *Petasia nubeculosa*, Esp. Messrs. South and Tugwell, fine series of *Hybernia marginaria*, Bork., var. *fuscata*. Mr. South said the specimens exhibited were bred from ova received from Mr. J. Harrison of Barnsley, who stated, that the eggs were deposited by a dark female which had been in union with a melanic male. Mr. Billups exhibited the following *Coleoptera*, taken by him in Headley Lane on the 22nd March, 1886 :—*Panagæus quadripustulatus*, Sturm, *Lebia chlorocephala*,

Hoff., and *Brachinus crepitans*, L. ; also two species of *Diptera*, *Sciaria pulicaria*, Hoff., and *Trichocera regelationis*, L., bred from apples.—H. W. Barker and W. A. Pearce, *Hon. Secs.*

Entomological Society of London, *April 7th*, 1886 : R. McLachlan, Esq., F.R.S., President, in the Chair.

The following were elected Fellows, viz. :—Messrs. E. Capron, M.D., J. B. Bridgman, F.L.S., T. D. Gibson-Carmichael, F.L.S., A. C. Horner, J. T. Harris, Evan John, A. Sidney Olliff (formerly Subscribers), F. D. Wheeler, M.A., of Norwich, J. W. Ellis, L.R.C.P., of Liverpool, J. Rhodes, F.R.M.S., of Accrington, Martin Jacoby of Kentish Town, J. A. Clark of Hackney, and George Elisha of Shepherdess Walk, City Road.

Mr. Crowley exhibited a large number of *Lepidoptera* from Accra, W. Africa, including long series of *Charaxes*, *Rhomalæosoma*, &c., and a series of fine *Saturnidæ* from Natal. He stated that he was assured that the larvæ of several species of the latter entered the earth in order to undergo transformation to pupæ.

The Rev. W. W. Fowler exhibited the examples of *Anchomenus Sahlbergi*, Chaud., from the banks of the Clyde, noticed by him in this Magazine, p. 264 *anté*, and an example of *A. archangelicus*, Sahlb., for comparison.

Mr. Slater exhibited, on behalf of Mr. Mutch, a spider of the genus *Galeodes*, and a *Cetonia* apparently presenting monstrosity in the elytra, but which was owing to intentional reversal in position in one of them.

Mr. Billups exhibited *Bassus bizonarius*, Grav., from Peckham, a species of *Ichneumonidæ* new to Britain, and a series of *Dimeris mira*, Ruthe (*Braconidæ*), recently taken in Headley Lane, Surrey.

Mr. White exhibited preserved larvæ of species of *Catocala*, calling attention to the remarkable processes on the under-side ; and Prof. Meldola and Mr. Jenner Weir made remarks thereon.

Mr. S. Edwards exhibited an apparently exotic spider from an Orchid House at Blackheath.

Mr. H. Goss exhibited two remarkable varieties of the ♂ of *Argynnis Paphia*, taken in Sussex and Hampshire respectively.

Mr. A. G. Butler communicated a paper, "Descriptions and remarks upon five new Noctuid moths from Japan."

The Rev. W. W. Fowler read a paper on "New genera and species of *Languriadæ*," from materials in the British and Cambridge Museums, and the collections of Mr. G. Lewis and the Rev. H. S. Gorham. He stated his reasons for the elevation of *Languriadæ* to family rank, and gave notes on the habits. Dr. Sharp and Mr. Champion made remarks on this latter subject.

Dr. Sharp read a paper "On some proposed transfers of generic names," occasioned by a pamphlet recently published by Mons. Des Gozis, in which that author transferred and transposed many of the most familiar generic names in *Coleoptera* (such as *Carabus*, &c.), on the grounds that the current application of these names is opposed to the intentions of the original authors of them. Dr. Sharp stigmatized the proposed changes as unsound, and objectionable as occasioning confusion. A long discussion ensued, in which Messrs. Fowler, Waterhouse, Dunning, Pascoe, McLachlan, &c., took part, the proposed changes advocated by M. Des Gozis being universally condemned.

END OF VOL. XXII.

The "Zoological Record."

It has been found that a condensed Record of all that appears each year in the scattered literature of all parts of the globe, on any branch of Science, is of most essential service to all scientific workers, and the "Zoological Record" was started in 1865 in order to supply this great desideratum for all branches of Zoology.

Twenty Volumes of the "Zoological Record" have already appeared, and it was sanguinely hoped that by this time the Subscribers to the work would have become sufficiently numerous to make it self-supporting, or nearly so.

This, however, has not yet been the case, partly owing to the increased cost of the publication (arising mainly from the continuous increase in serial scientific literature, which has all to be examined and collated by the Recorders), and though valuable assistance has been received from the British Association for the Advancement of Science, also, formerly from the Zoological Society of London, and more recently from the Government Grant Fund of the Royal Society, there is yet considerable risk that the work will have to be discontinued unless an increased amount of support can be obtained from new Subscribers.

The Annual Volumes (stout octavos, which have latterly run to between seven and eight hundred pages) are sold to the public at Thirty Shillings. The Volumes are supplied to Subscribers in return for an Annual payment of Twenty Shillings.

After the first Six Volumes of the "Zoological Record" had been brought out by Mr. John Van Voorst at his own risk, the Zoological Record Association was founded, in 1871, as the most probable means of successfully continuing the undertaking, which would otherwise have dropped at the close of the Sixth Volume. The Association has continued the work up to the present time.

There are, probably, many local Libraries and Natural History Societies which would be quite willing to become Subscribers to the Work, especially if it were known that by so doing they would, probably, ensure the continuance of the publication, or at any rate avert the possibility of any immediate collapse.

The Zoological Record Association consists of Members and Subscribers.

MEMBERS are public-spirited persons, who receive a copy of the Annual Volume, and make themselves liable to the extent of Five Pounds, in the event of the Funds from all other sources not being equal to meet the Annual Expenditure. When this amount of Five Pounds has once been reached, Members can either withdraw or renew their Membership, and thereby incur a fresh liability. The average cost to Members of the Volumes already issued by the Association has been Twenty-four Shillings.

SUBSCRIBERS pay annually, on the 1st of July, Twenty Shillings, but incur no other liability: in return for this they receive the Volume containing the "Record of Zoological Literature" of the preceding year as soon as published.

There are, probably, many who would gladly aid Science by contributing an Annual Subscription to keep up the "Zoological Record," but who, perhaps, till reading these lines, have been unaware of its existence.

Any one wishing to join in the good work, should forward his name as soon as possible to the SECRETARY, who will also be glad to hear from the Secretary of any Natural History Society, Scientific Institution, or Public Library wishing to be enrolled amongst the Subscribers to the Zoological Record Association.

H. T. STAINTON,

Secretary.

Mountsfield, Lewisham, near London, S.E.,
November 16th, 1885.

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