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CONDUCTED BY

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SECOND SERIES—VOL. XI.

[VOL. XXXVI.]

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“If all the eggs laid by insects came to maturity, the earth would be overwhelmed with them, and every green thing would be devoured.”—*Packard.*

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SECOND SERIES—VOL. XI.

[VOLUME XXXVI.]

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GREAT FLIGHT OF *COLIAS EDUSA* IN THE WEST OF IRELAND.

BY THE REV. C. T. CRUTTWELL, M.A.

While enjoying an August holiday this year in Ireland at Renvyle, on the beautiful coast of Galway, just opposite the rocky Isle of Achill, I was greatly surprised to observe a large flight of *Colias Edusa*, consisting of several hundred specimens, which had established their head-quarters along a narrow strip of flowery meadow land extending about half a mile in length, between the sandhills and the boggy land within. I counted over two hundred in one day (August 5th), every one of which was a male, and nearly all were in good condition. During the next ten or twelve days I revisited the spot several times, as well as suitable flowery places further south for three or four miles, at several of which I came across single specimens, but never any numbers. I can speak positively to the fact that not a single female was to be seen.

My three boys, who were keen butterfly catchers, took several *Edusa* in their daily rambles, and, following my instructions, kept a sharp look out for a female specimen, but never saw one. I feel quite sure that if that sex had occurred it must have fallen to the net of one of our party. The occurrence seems to me so remarkable, that I venture to send this notice of it to your Magazine, in the hope that it may draw forth some record of a similar experience from other observers. Where the insects came from is a mystery to me, as the corner of Connemara where we were settled down, is a far cry from any of the usual haunts of the species.

Kibworth Rectory, Leicester :  
December 7th, 1899.

*BACOTIA SEPIUM*, SPR., IN THE NEW FOREST, WITH NOTES ON ITS CHARACTERS.

BY T. A. CHAPMAN, M.D., F.Z.S.

Mr. Fletcher has just kindly sent me for examination the specimens of a Psychid that are recorded by Mr. Barrett in Ent. Mo. Mag., December, 1895, vol. xxxi, p. 275, as *Fumea betulina*.

These examples are three males, one female, two blown larvæ and cases, one other case with empty female pupa skin, and a male pupa skin, supplying very complete materials for their determination.

They prove to be *Bacotia sepium*, Spr. (= *tabulella*, Bruand).

In pointing out that they are not *betulina*, it seems desirable that I should go into some detail as to the points of distinction between *betulina* and *sepium*, and mention those characters that may be observed in these specimens as they stand, that prove them to be *sepium* and not *betulina*, as my mere *ipse dixit* would be of little weight against the authority of Mr. Barrett, whose work in this group is so distinct an element, leading up to our recent more definite knowledge of the rarer and more obscure British *Psychidæ*.

THE CASE.—These cases are of peculiar form, short and wide, even a shade protuberant beyond the middle, and ending in a blunt rounded extremity, without any previous tapering, carried nearly vertically to the surface, absolutely so when fixed for pupation, as the specimen affixed to its bit of bark shows, in the instance of the empty female case. The case of *betulina* tapers definitely towards the free end, and is more slender and spindle-shaped, though often at some angle to the surface, it is never carried or fixed vertically to that surface, except, as also occurs in *nitidella*, such a position enables it to hang vertically downwards. The clothing of the case is distinctive. *Nitidella* clothes the case with grass straws, making the case look like a bundle of yellow sticks; *sepium* attaches various pieces of blue-grey lichen, well illustrated in two of these New Forest cases, the third has a bit of bark attached; *betulina* never, well, hardly ever, uses either grass or lichen to clothe its case, but bits of bark, rotten wood, brown dead leaves, and so on, often looking very dirty and smoky from the materials used, brighter and pleasanter to appearance when leaf material predominates.

THE LARVA.—The larva of *sepium* has a black head and thoracic plates, relieved on the thorax by only a median whitish line; *betulina* has brownish subdorsal marking, approaching those of *nitidella* larva. In *sepium* the third thoracic plate is represented by only a small scrap on either side, in *betulina* it is complete across the dorsum, as in *nitidella*. The colour of the abdominal segments in *sepium* is sepia; in *betulina* it is a ruddy or pinkish-brown. Their structure is also very different, the abdominal segments in *betulina* are divided dorsally into two distinct ridges, or subsegments carrying respectively the anterior and posterior trapezoidal (I and II) tubercles. In *sepium* there is no such definite division, and the tubercles are in transverse alignment (approximately) with the anterior tubercle (I) external. The

specimens before me suffice to demonstrate all the above points. The position of the trapezoidal tubercles places *sepium* in an advanced position amongst the higher Psychids, whilst the pupal and other structures show that it belongs, perhaps, rather to the tineoid lower section, but approaching the higher; it is in fact a most interesting transitional form.

THE PUPA.—The male pupa shows the anal spikes to be dorsal, as in all the lower Psychids (micro or tineoid); this is easily observed in Mr. Fletcher's specimen, *betulina* has the anal spikes of the male pupa ventral, as they occur in *Fumea* and all the higher Psychids. I have not felt it necessary to injure Mr. Fletcher's fine specimen of the larva case to demonstrate the female pupa case it contains, as the evidence that these were *sepium* is abundant enough without this. Had I done so, I should have found that the female pupa case has no anal spines, here agreeing with *betulina*, *Fumea*, and the higher Psychids, instead of with the lower, as the male pupa does.

THE IMAGO.—A cursory glance is quite insufficient to distinguish the male of *sepium* from that of *betulina*. In both there is a dark shade at the end of the cell, and the nervures beyond give somewhat darker lines. In fresh specimens of *sepium* one may occasionally observe, as Mr. Barrett notes, some suggestions of talæporiad reticulations, these are usually slight and evanescent, and never, I think, occur in *betulina*. The best distinction between the two insects is one that, for obvious reasons of respect for the integrity of the specimens, I have not observed in these examples, that is, that in *sepium* there is usually (but not always) an accessory cell at the apical angle of the discoidal cell. I put this first, as it marks the alliance of *sepium* with the lower Psychids, which all possess this cell, whilst none of the higher do so. Its variability, as in other items of neuration in *sepium*, is no doubt related to the transitional position of the species. Two other characters may, however, be observed in these specimens that are quite conclusive as between *sepium* and *betulina*. One of these is the number of antennal joints—26 in *sepium*, 21 in *betulina*; the other is the length of the spine of the anterior tibia, which in *sepium*, as in the lower Psychids and in the Epichnopterygid section of the higher, is of half the length of the tibia. In *betulina* it is three-fourths the length of the tibia, a length very rare in the group, and here marking the transition from the lower and Epichnopterygid Psychids to *Fumea* and *Psyche* proper, which have very long anterior tibial spurs (except where they have lost them, which does not here concern us).

The peculiar short, square-set, pectinations in *sepium*, which rigidly maintain their positions in the dried specimen, are very different from the long flowing pectinations in *betulina*, which twist about more or less in drying.

The female of *betulina* has a pure white apical brush of wool, and, except a few similar hairs, on the thoracic region, and, perhaps, anterior abdominal, the surface is naked, no scales of any sort being visible. *Sepium* has a very general clothing of ordinary scales, which may be easily seen in this, as in any other dried specimen, and the anal tuft is pale brownish.

Shrivalled though the specimen before me is, two other characters of *sepium*, ♀, as distinct from *betulina* may be made out; first, the long first tarsal joint—in *sepium* the relative lengths of the four joints of

the tarsus are, on the first leg, approximately as 4·1·1·2, and on the third as 3·1·1·2, whilst in *betulina* on all the legs the proportions are as 2·1·1·2; secondly, the specimen has a sharp depression running exactly down the dorsal line, this has occurred in drying, and has been rendered possible by the dorsal plates in *sepium*, ♀, having a weak dorsal line, or being actually divided dorsally into two lateral plates.

Betula, Reigate :

November 17th, 1899.

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REVISION OF THE NOMENCLATURE OF MICRO-LEPIDOPTERA.

BY THE RIGHT HON. LORD WALSHINGHAM, M.A., LL.D., F.R.S., &c.

AND  
JOHN HARTLEY DURRANT, F.E.S., MEMB. SOC. ENT. DE FRANCE.

(Continued from Vol. XXXV, p. 200).

COLEOPHORA, Hb.

COLEOPHORA SPISSICORNIS, Hw.

= § *FABRICIELLA*, de Vill.

*Phalæna Tinea fabriciella*, de Vill., L. Ent. Fn. Succ., II, 527, No. 1077 (1789). *Porrectaria spissicornis*, Hw., Lp. Br., 537, No. 23 (1828). *Coleophora fabriciella*, Stgr. and Wk. Cat. Lp. Eur., 314, No. 2415 (1871), &c., &c.

Haworth's name *spissicornis* must be revived for this species, that of de Villers' is invalid, being homonymous with *Phalæna Tinea fabriciella*, Swederus, Kngl. Svensk. Vet. Ak. nya Hndl., VIII, 277, No. 28 (1787), an Indian Hyponomentid, belonging to the genus *Atteva*, Wkr., of which *Corinea niviguttella*, Wkr., is a synonym.

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OCCURRENCE OF *ZELLERIA PHILLYRELLA*, MILLIÈRE, IN IRELAND.

BY C. G. BARBETT, F.E.S.

Among some insects taken by the Rev. C. T. Cruttwell, of Kibworth, Leicester, during his holiday last summer at Renvyle, near Letterfrack, Galway, I found a specimen of *Zelleria phillyrella*, Millière. Upon seeing this I wrote to Mr. Cruttwell for particulars of its capture, also asking whether by any possibility the species might have been taken *abroad*, and accidentally mixed with the Irish captures? He writes—"I spent over four weeks in Connemara, at Renvyle, a lovely part of the world, full of interesting plants and with considerable variety of surface, but without trees except those in gardens. The weather was fine and warm nearly all the time, and I worked more or



less every day in the vicinity of the hotel. The general result is poor, with the exception of the *Zelleria* about which you ask particulars. I can only say that I beat it out of a stunted oak bush under some rocks at about a stone's throw from the plantation at the back of the hotel. I knew that I had got a good thing, and spent an hour searching and beating all round. There is no doubt whatever about the capture; I took it about 6 p.m. on August 17th or 18th. There was abundance of "London Pride" growing all round, and I thought that this might have been its food-plant. I do not possess any foreign moths whatever."

As this communication set the question of capture quite at rest, I enquired as to whether any species of the food-plant (*Phillyrea*, a South European shrub) is to be found in gardens in the district. This Mr. Cruttwell had not ascertained, but Mr. W. F. de V. Kane now writes, "*Phillyrea* is not uncommon in gardens and shrubberies; *P. angustifolia*, *latifolia*, &c., are favourite evergreens, and *P. Vilmoriniana*, though perhaps tenderer and rarer, is a choice plant in the South and West. As to *Zelleria phillyrella*, it must, I suspect, have been introduced in some species of *Phillyrea*."

This insect, which very closely resembles *Zelleria hepariella*, was originally reared by M. Millière from blossoms of *Phillyrea angustifolia*, and Mr. Stainton's interesting account of his introduction to this larva by its discoverer, on one of the hills near Cannes, and his subsequent capture of imagines in the same place, will be found in the Entomologist's Annual for 1868, pp. 145-6. As this occurred in the spring, Mr. Cruttwell's examples must belong to a second generation,

It is, as already remarked, wonderfully like *Z. hepariella*, but has in the middle of the fore-wings a distinct black discal dot, which is absent in *hepariella*. This character catches the eye at once, but the colour of the fore-wings is not so uniform as in the latter species, there being obscure stripes of yellow-red above the principal nervures near the base, the hind-wings are paler, as is also the head. Yet so near is it to *hepariella* that Mr. Stainton referred the first specimen, which was sent to him in 1866 for examination, to that species. He afterwards fully recognised its distinctness, and described and figured it and its larva in the "Natural History of the Tineina," vol. xi. Here its distribution is given as, besides the South of France, Leghorn and Greece, "so that it is probably distributed over a large portion of the South of Europe." In his "Tineina of Southern Europe" he simply

of the *M. borealis* described by Dr. Reuter remains to ascertain whether this cold European species has made a permanent settlement in the district subjected to the winter climate of the West of Ireland.

Thomas Peckham Esq. F.R.S.  
December 3<sup>rd</sup>, 1878

CONCERNING *TERATOPUS*, *MACULIPLEURA*, RAVEN, WITH  
NOTES ON THE BRACHYPTEROUS CONDITION IN FEMALES  
OF *PSOCIDE*

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

In his "Finnish Psocids" (Act. Soc. Faun. et Flor. Fenn., ix, 1863) Dr. Reuter described (pp. 27, 28 and 13-14) as a new genus and species, a *Psocid* of which a single example had been found in a conservatory at Helsingfors, under the name *Teratopsocus maculipennis*, but he added (p. 14), "Forstän som en *forma brachyptera* generis *Graphopsocus*, cujus veris status reducere."

I quite agree with the conclusions expressed, and am sure it is a somewhat extreme brachypterous form of the ♀ of *Strepsopsocus* (*Graphopsocus*) *cruciatas*, L., and is not very uncommon in England, in the open, probably all through the winter in certain localities.

But these brachypterous individuals do not rigidly confine their characters to those of the example described by Dr. Reuter. I had already alluded to a brachypterous condition in my Monograph of British *Psocida* (Ent. Mo. Mag., iii, 1867, p. 9, foot-note, separate ed., n) with a figure (p. n, fig. 7). This condition was intermediate, and not the more extreme form exhibited in *Teratopsocus*.

In noticing the *Psocidae* of Madeira (Journ. Linn. Soc. Zool., xvi, p. 175, 1872), I say concerning *S. cruciatas*:—"Some of the Madeiran examples are in a brachypterous condition." In England this condition is most frequent in early spring (as early as February in Cornwall), and is, I think, peculiar to the ♀. These Madeiran examples were taken at the end of November, and amongst them it would be possible to match, almost precisely, the neurulation as figured for *Teratopsocus*; but there is no fecundity, the examples exhibiting simply a plastic teratological condition. The allusion to "Cornwall" and "early spring" refers to the fact that I have constantly received living *S. (G.) cruciatas* all through the winter, and Cornwall is no doubt suitable to such a continuance. I have several examples of this condition, found by myself in Somersetshire in August and in October. In the latter month there was frost in the mornings, when they were found, and

the insects were mostly beaten out of freshly cut faggots. Here, as always, the brachypterous condition varied greatly in amount, and it would be possible, I think, to trace a gradation from *Teratopsocus* to the fully-winged form; in the former the wings *in the living insect* are often shorter than the abdomen, but the markings are very conspicuous, because the basal portion, on which the chief markings are concentrated, can hardly be said to be abbreviated, it is the apical portion that is curtailed. In *Graphopsocus*, as in some other *Psocidæ*, the wings of the ♀ are, perhaps, never so fully developed as they are in the ♂.

In my Monograph of 1867, already alluded to, I stated that I had seen brachypterous forms in five species, including *Psocus nebulosus*, Steph., *Stenopsocus cruciatus*, L., and *Cæcilius pedicularius*, L., and that they probably occur in all. This was, perhaps, too sweeping an assertion. But it would certainly be possible to add to the number then given. And the amount of teratological neuration in *Psocidæ*, not necessarily connected with brachyptery, that has passed under my notice during the last thirty years, is enormous; on this I might, if so disposed, have founded genera, species, and (named) varieties *ad nauseam*. It may be termed Nature's snare, but full of significance from a philosophical standpoint.

Let it not be forgotten that there are certain *Psocidæ* in which the ♂ has ample wings, but in which these organs are *normally* reduced to rudiments (or are practically absent) in the ♀.

Lewisham, London :

November, 1899.

## LARGE COLONIES OF ANTS IN NEW ZEALAND.

BY W. W. SMITH, F.E.S.

On March 12th last, I went up to the gorge of the Rangitata River to procure some species of sub-alpine plants, and to obtain a good series of specimens of the several species of ants inhabiting the district.

The weather the following morning was serene and charming, as it generally is in the months of March and April in New Zealand. We were early astir for breakfast, and left our camp at daybreak to enable us to climb to the habitats of the plants we were in quest of before the sun became oppressive. In passing over a talus slope composed chiefly of rough slaty blocks, we turned several of them

over, and found them tenanted underneath by some remarkably large colonies of *Huberia striata*, Sm., and *Monomorium nitidum*, Sm. Although several of the colonies had swarmed, others were crowded with thousands of winged forms ready to migrate and colonize new sites. There are few scenes among social insects more enchanting than the interior of a large colony of ants a few hours before winging their flight to other regions.

The altitude of the slope where we discovered these large colonies is about 2400 feet. As the day promised to be fine, we left them, and continued our ascent of an additional 1500 feet, hoping to find them more active during the warmer afternoon, and to examine the colonies perfectly. We returned to them at 2 p.m., and spent two and a half hours examining the galleries, with a view to observing the habits of already known parasites and economic forms, or discovering new forms associating with them. We found the identical species of Coccids attached to the roots of *Pimelius* and *Carmichaelius* extending, in many directions, through the ramifying galleries which we found a year ago in nests of these species of ants on the Gawlor Downs, 1000 feet lower, and situated twenty-five miles to the north. In excavating their galleries, the ants clear away the soil from around the thicker parts of the roots, and form courts to enable the Coccids to move freely along the roots, and also to enable the worker ants to draw supplies of honeydew or nectar with more freedom to feed their larvæ.

In one large colony we observed fully a hundred individuals of the star-like and delicate cottony-covered *Ripersia formicicola*, Mask., moving freely about the courts, and among the damp roots growing through the site of the nest. There were also numerous clusters of *Dactylopius poæ*, Mask., attached to the thicker roots, but they were of a slaty hue, and slightly larger than the typical reddish-white cottony forms occurring on the plains. *R. formicicola* in the perfect stage moves leisurely about in all parts of the courts and galleries, while *D. poæ* adheres in groups to the roots penetrating the nests. If carefully detached from the root without injuring them, they will move away slowly and awkwardly, and conceal themselves in any nook or shady place.

The colonies were the most populous and healthy, and had constructed the largest galleries and courts of all the many hundreds of nests we have observed and studied during the last twelve years. Several of them were old established colonies, their courts, tracks, and galleries being highly finished and smoothly trodden. The whole

interior of these magnificent colonies, each numbering at least two thousand individuals, exhibited the perfection of cleanliness and order. They contained very few eggs and pupæ, while all the winged forms ready to migrate were remarkably active and well developed. Having somewhat heavy bundles of sub-alpines to carry down the mountains, we very reluctantly left these busy and orderly ant cities, but not before we had captured good living specimens for mounting on cardboard, and put others in spirit tubes for transmission to friends in several parts of the world.

Although admirable work has been accomplished by Huber, Forel, Lubbock, Emery, Farren White, Kirby, and others, on the economy, habits, distribution, and specific structure of ants in the nineteenth century, entomologists of the twentieth century will yet find ample data for working out the methods of distribution and government among all the many distinct and remarkable families of these social insects existing in both temperate and tropical regions.

Ashburton, N. Z. :

September 14th, 1899.

*Batodes angustiorana*, Hw., feeding on grape-pulp.—In the course of a picnic held at Stonehenge on August 18th last, one of the ladies of our party was just beginning to bite a black grape, grown in a house at Bemerton Rectory, close to Salisbury, when a small larva hurriedly crawled out of a hole in it. I at once took possession of the larva and the grape, and an examination of the latter clearly showed that the larva had been burrowing in and feeding on the pulp of it. The larva was brought home, and was supplied with a black grape, a fresh one being introduced when necessary: it lived in a white silk web, by which it firmly attached the grape to the side of the glass-bottomed box, and entered the grape through a hole bored through the side when it wished to feed, which it continued to do on the pulp. Being very small when found, it was some little time before it became full-fed, but it finally pupated in a gallery in its web, and the imago, a rather small male example of *Batodes angustiorana*, Hw., emerged on September 18th. Grape-pulp seems a strange food for a larva that normally feeds on the shoots of yew and various other trees, and one wonders why the preference was not given to the leaves of the vine if the house contained nothing more palatable. The moth clearly belonged to a second brood, produced no doubt by the heat of the grape-house: I have never met with a second brood under natural conditions.—EUSTACE R. BANKES, Salisbury: October 26th, 1899.

*Re-discovery of Nyssia zonaria in the Hebrides*.—In the Zoologist for 1844, p. 686, is a statement by the late Mr. J. B. Hodgkinson, which hitherto has not been very much regarded:—"A friend of mine who lately visited the Isle of Skye, observed a great number of the larva of a Geometer very similar to those of *Abra-*

*grossulariata*; they were feeding in the burdock, on the summit of Ben Beckley, where he shot a rock dove, the crop of which was completely gorged with them. A few of these larvæ have since changed into pupa." And again, in 1845, page 1006:—"I made a communication respecting some larvæ which were found in the Isle of Skye by my friend Mr. Cooper, of Preston. I saw him last week, and learned that a female *Nyssia zonaria* had come out this spring from one of the chrysalides which was uninjured. Now it is a question whether *Nyssia zonaria* is indigenous to the Hebrides or not; and whether those which have been found at New Brighton, Cheshire, have been originally imported among wool, &c., or rushes that have been used to pack up fish with. My friend informs me that the larvæ were in swarms upon the sandhills of Bernarrah and several other islands which he visited."

Evidently this statement was received with perplexity if not incredulity, and Dr. F. Buchanan White, in his valuable "*Lepidoptera of Scotland*," while omitting this species from the List, referred to Mr. Hodgkinson's statement, remarking, "Perhaps some one who has the opportunity will try and solve this enigma by finding and rearing the larvæ in question."

This appeal did not apparently receive any response, and the required confirmation has now been obtained almost by accident. Mr. William Evans, of Edinburgh, who in the midst of much other scientific work, has given me great assistance in working up the *Micro-Lepidoptera* of the East of Scotland, has now, with some of these, sent a fine male *Nyssia zonaria* for inspection. He says, "it was captured in Tiree in the Inner Hebrides in April last (1899) by my young friend Mr. James Baxter, and was sent to me along with some beetles and land shells which he had picked up on the island; it was flying over the sandhills." Mr. Evans has published a brief note on the subject in the "*Annals of Scottish Natural History*," 1899, p. 239. It is a curious and interesting confirmation of Mr. Hodgkinson's statement made 55 years ago.—CHAS. G. BARRETT, Tremont, Peckham Rye, S.E.: *November, 1899.*

*Note on the earlier stages of Sesia bombyliiformis.*—When examining the leaves of *Scabiosa succisa* towards the end of June, 1895, I was so fortunate as to find two eggs of *Sesia bombyliiformis* laid on the under-side of a leaf. Repeated searches since have yielded no more, though the larva has been found frequently. An attempt to obtain eggs from bred moths also proved a failure. I have not been able to find any account of the egg or young larva of this species. The late William Buckler's figures as represented by the Ray Society were both taken in the last moult, and no account of the early stages is given; it may therefore be well to record a peculiar feature in the young larva which greatly astonished me. The egg was nearly round with a slight depression on the top, of a green colour, and so far resembled that of its congener, *S. fuciformis* (which is also found here, on honeysuckle), that I had no doubt as to what it was until a short time before hatching, when the body of the young larva could be plainly seen covered with hairs. This was a surprise, and made me think they might produce a *Bombyx* after all. When they made their way through the egg shell I could hardly believe I had a *Sphinx* larva, as they were covered with small black tubercles, bearing forked black hairs, and, although a sort of horn was present on the 12th segment, it seemed too far forward, and more of a bristle surmounted with two black hairs. It was not till after the first moult that

all doubt was dispelled; there was then no mistake as to the caudal horn, though still terminated with several forked black bristles. Eventually they became like the larvæ I was finding later in the same locality, and in due course produced the imago. The above facts are more striking, as no such difference is observed between the young and half grown larva of *S. fuciformis*. How will students of ontogeny account for this?—W. R. JEFFREY, 37, Bank Street, Ashford: Nov. 13th, 1899.

*Dinarda dentata*: a reminiscence.—The identification of the British examples by Father Wasmann, as quoted by Mr. Champion in the December No., will, as he says, interest British Coleopterists, but the account of the locality and capture in the "Annual" is inexact. One day in September, 1863, Scott and I, after hunting for *Hemiptera* on the heather-clad Addington Hills, arrived at Shirley, on the marginal slope thereof, where there was an old deep sandpit with some water in it, into which beetles and other insects had fallen. Scott went into this pit, and I went forward on to the level ground beyond. There I saw a quantity of *Formica sanguinea* running close together in one direction, and side by side with them, in nearly equal number, *Dinarda dentata*; the progress of many of the latter I soon stopped; Scott then came up and took many prisoners. We saw no nest. The assemblage looked like an excursion from one—a mutual reconnaissance in force—in search of fresh camping ground, but neither in nor in the direction of "the Archbishop's Wood, near Croydon."

This is the true account of the first finding of *Dinarda dentata*, called "the Croydon insect," and though the correction is late in coming, it may yet serve collectors to find the locality, which though altered by lapse of time, may possibly still possess enough descendants of the first *Dinarda* to satisfy them. Mr. Keys, of Plymouth, wrote to me that in September, 1885, *Dinarda dentata* was found by him in some numbers actually running amongst ants—a blackish species (and therefore not *F. sanguinea*)—in their colony beneath a stone on the grassy slope in front of the sea at Whitsand Bay.—J. W. DOUGLAS, 39, Craven Park Road, Harlesden, N.W.: December 9th, 1899.

*Phytosus spinifer* at Scarborough.—During an afternoon visit to Scarborough on August 31st I spent an hour or two in searching for *Coleoptera* beneath seaweed at the base of the cliffs to the south of the town. The only species present in any numbers was *Cafius xantholoma*. One specimen of *Phytosus spinifer* was taken, together with single examples of *Ocypus morio*, *Stilicicus affinis*, and *Aleochara obscurella*.—J. HAROLD BAILEY, 128, Broad Street, Pendleton: December 7th, 1899.

*Homalota puberula*, Sharp, and other *Coleoptera* at Chesham.—A considerable number of *Homalota puberula*, Sharp, were swept from long grass at the edge of a wood in this district by myself during the afternoon of September 21st; the only previous capture hereabouts being one specimen found near Tring in dead leaves last autumn. While searching early in October for *H. clavigera*, Seriba, I turned up a couple of *H. validiuscula*, Kr. Of *H. planifrons*, Sharp, I have one example (a ♀) taken here by sweeping early in the summer. The undermentioned *Coleoptera* I have also taken in this district during the past summer:—*Homalota pexigua*, Sharp, and *H. pilosiventris*, Thoms., under a dead rabbit, *H. villosula*, Kr., in refuse, *H. orphana*, Er. (1), by sweeping, and *H. pruinosa*, Kr.—this species has I fear been

much disturbed in its original locality, the ground having for two successive years come under the plough, I have, however, succeeded in finding it at a fresh spot, a little distance from the old one. *Gyrophæna Poweri*, Crotch, and *Oligota apicata*, Er., both very scarce, in fungus, in September. *Scopæus sulcicollis*, Steph., under stones in chalky pastures. *Medon obsoletus*, Nordm., with the preceding species. *Platystethus nitens*, Sahlb., in refuse near Tring. *Coryphium angusticolle*, Steph., I noticed this insect on the wing in numbers on October 22nd, and many specimens were to be found settled on gate posts, stiles, &c. *Homalium exiguum*, Gyll., scarce, in a dead rabbit, *Hapalaræa pygmæa*, Payk., in fungus. *Euthia plicata*, Gyll.?, *E. scydmaenoides*, Steph., one of each, and *Agaricophagus cephalotes*, Schmidt (2), taken by evening sweeping. *Anisotoma ovalis*, Schmidt, seems to be one of the commonest species of the genus in this neighbourhood; I have captured several in lanes near, during June. Two examples of *Agathidium globosum*, Muls. (*convexum*, Sharp), were taken about a fortnight ago in very rotten leaves. *Olibrus flavicornis*, Sturm, a few, in flowers, also found here in previous years in moss, and once in the hollow portion of an old bone. *Meligethes lidens*, Bris., rather more abundant than usual, in the flowers of *Scabiosa arvensis*. *Anommatus 12-striatus*, Müll., in a piece of rotten sacking. *Mycetophagus piceus*, F., and *Triphyllus suturalis*, F., in fungus on an old beech stump. *Platycis minutus*, F., one specimen, by sweeping in a wood. *Longitarsus piceiceps*, Steph., very widely distributed, and usually attached to composite plants; I have seen it on species of *Matricaria*. *Apion flavimanum*, Gyll., on *Origanum vulgare*. *Gymnetron melanarius*, Germ., and *Ceuthorrhynchus euphorbiæ*, Bris. (1), by sweeping *Veronica Chamædrys*. *Bruchus canus*, Germ., was taken in September, from *Onobrychis sativa*.—E. GEO. ELLIMAN, Chesham, Bucks: November 15th, 1899.

*Variation of Throsicus dermestoides*, Linn.—The females of this species, which (as in *T. carinifrons*, Bonv.) may be readily known from the males by their much shorter antennæ, with a shorter and narrower club, vary greatly in size and shape, some examples being very small and narrow. A specimen of this kind has recently been sent to me for examination by Mr. P. B. Mason, from Sherwood, from the collection of the late A. Matthews, labelled "n. sp.," and of which he had found a description in MS. amongst that gentleman's papers. I have a similar specimen from the New Forest. These insects are certainly nothing but extreme forms of *T. dermestoides*, the structure of the head, eyes and prosternal sutures agreeing perfectly. It may be noted that the smallest examples I have seen of *T. carinifrons*, and of *Melasis buprestoides* also, out of a very large number in each case, are females.—G. C. CHAMPION, Horsell, Woking: December 11th, 1899.

*Coleoptera at Richmond*.—On September 23rd last I secured a fine series of *Stenolophus teutonius*, Sehr., in a damp spot just outside the Park, *Chlanius vestitus*, Payk., and *Anchomenus marginatus*, L., occurred freely with it; visiting the spot a few days later I found the heavy rains had put the place under water, a condition in which it still remains. On September 30th I secured a specimen of *Notiophilus rufipes*, Curt., in the Park under dead leaves, and on October 25th it again turned up at the same place, accompanied by *N. substriatus*, Wat. My garden produced on November 18th a fine specimen of *Platyderus ruficollis*, Marsh.—T. HUDSON BEARE, King's Road, Richmond, Surrey: December 7th, 1899.



*Aculeate Hymenoptera at Stoborough Heath and Wareham, Dorset.*—I spent three weeks this summer (July—August) in a thorough search for *Odynerus basalis*, but, to my great disappointment, without success. In 1895 and 96 I had visited Stoborough in August, and fancied if I could get in a week or two in July I should probably re-discover this species; but it was not to be, *basalis* could not be found, nor did the collecting generally prove good, Wareham yielding far more rarities. Here, in the earthen ramparts of this charming old town, *Mutilla rufipes*, Latr., was found in numbers, the beautiful bee, *Dasygaster hirtipes*, was equally common, and *Myrmica melanocephala*, Fab., *Salix affinis*, v. d. L., *Pompilus rufipes*, Linn., *Megachile argentata*, Fab., and other interesting Aculeates gave an interest to a day's collecting.—G. A. JAMES ROTHNEY, 8, Versailles Road, Anerley: Oct. 21st, 1899.

*Aculeate Hymenoptera at Birmingham, &c.*—Nearly all my collecting this season has been at Moseley, Birmingham. A move from a grand locality like Sutton Coldfield, with its wild Park of 2000 acres, to Moseley, a suburb of Birmingham, was not a cheerful prospect from a collector's point of view, but so far it has proved better than I expected. The south side of Birmingham years ago used to have a fair reputation for Aculeates, but the builder has obliterated most of the best spots, nevertheless, good insects still remain, as the following results will show:—

*Myrmica melanocephala* (2 ♂, 4 ♀). *Salix notatulus* (3). *Pompilus niger* (10), *gibbus*, *unguicularis*, *pectinipes* (the last two new to me). *Diodontus minutus* (common), *tristis*. *Passalæus insignis* (4). *Pemphredon Shuckardi* (common). *Ceratophorus morio* (2), *Mimesa Dahlbomi*; these two rarities are additions to my collection. *Psen pallipes*. *Gorytes tumidus*, Birmingham is an old locality for this rarity. *Prosopis communis*, *hyalinata*, *brevicornis*. *Mellinus arvensis*, the first time I have met with this in the Midlands. *Oxybelus uniglumis* in swarms, could take a dozen at one stroke of the net. *Crabro* well represented—*clavipes*, *palmipes*, *varius*, *dimidiatus*, *cribrarius*, *peltarius*, *chrysostoma*, *interruptus*, *cephalotes*; the last named species, although common in the south, seems rare in the Midlands, as I have never taken it before. *Odynerus spinipes*, *callosus*, *parietum*, *pictus*, *trimarginatus*, *trifasciatus*. *Colletes Daviesaui*, very common. Seven species of *Sphecodes* occurred—*gibbus*, *subquadratus*, *pilifrons*, *affinis* (all four common), *similis*, *dimidiatus*, *puncticeps* (1). *Halictus leucozonius*, *atricornis*, *leucopus*, *Smeathmanellus*, *morio*. *Andrena rosæ* v. *Trimmerana* (common), two males of second brood taken in August, *nigroænea* (in my garden), *humilis*. *Nomada Lathburiana*, *alternata*, *flavoguttata*. *Osmia rufa*, nests in side of house between the bricks, *fulviventris*, an addition to the list. *Chelostoma florissomne* in my garden. Four species of *Psilhyrus* occurred—*rupestris*, *vestalis*, *campestris*, *quadricolor*. *Bombus hortorum* was taken in great variety, and also the vars. *lucorum* and *virginialis* of *terrestris*.

Three days spent in the neighbourhood of Evesham in the middle of August yielded *Psen pallipes*, *Prosopis communis*, *hyalinata*. *Halictus tumulorum*, *morio*. *Crabro vagus*. *Megachile ligneseva* ♂. *Anthophora furcata*. *Bombus sylværum*.

Sutton Coldfield—one ♀ of the rare *Halictus lævigatus* was taken here, and three ♂s of *Crabro interruptus* bred from the same locality.

I am indebted to Mr. Edward Saunders for naming the more obscure species.—RALPH C. BRADLEY, Moseley, Birmingham: November, 1899.

*Hymenoptera and Hemiptera at Harting, Sussex.*—Amongst some insects sent to me by Mr. A. Beaumont to name, I think the following are worth recording, as Harting is a locality in which few entomologists have worked. *Leptothorax acerorum*, Fab., *Tapinoma erraticum*, Latr., *Plociomerus fracticollis*, Schill., *Corizus maculatus*, Fieb., *Cymus melanocephalus*, Fieb.—E. SAUNDERS, Woking: November 25th, 1899.

*A striking instance of neural variation in a Psocid.*—I have elsewhere (p. 7) in this No. alluded to the frequent examples of abnormal neural structure in Psocids. A remarkable specimen exists in Mr. Briggs' collection. The insect is certainly a *Cæcilius* (and probably *C. obsoletus*, Steph.), but in both anterior wings the "area postica" is absent, so that on this character it is a *Peripsocus*; the neururation of one side is otherwise abnormal, but the wings are fully developed.—R. MCLACHLAN, Lewisham: December, 1899.

*Hemerobius limbatellus in Surrey.*—I recently took an opportunity of asking Mr. K. J. Morton's opinion of a *Hemerobius* included doubtfully among the series of *H. subnebulosus* in Mr. Wormald's collection. Mr. Morton returned it as *H. limbatellus*, an opinion since confirmed by Mr. McLachlan. The specimen was beaten from spruce fir at Leith Hill, Surrey, on June 6th, 1869, and is the second recorded British specimen, the other (*cf.* Ent. Mo. Mag., ser. ii, vol. x, p. 152) having been taken at Black Park June 25th, 1873.—C. A. BRIGGS, Rock House, Lynmouth: December 7th, 1899.

*Local and rare Diptera taken in the New Forest, 1899.*—The past season was, as regards weather, very similar to that of 1898, and *Diptera* were again scarce. I was fortunate enough, however, to take the following, in addition to most of the species mentioned in my general list last year (Ent. Mo. Mag., vol. xxxv, p. 95). *Ceroplatus sesoioides*, Whlbg. (1), *Epiphragma picta*, F. (1), *Stratiomys potamida*, Mg. (1), *Dioctria Reinhardi*, W. (1), *Anthrax flavus*, Mg. (4), *A. fenestrata*, Flin. (8), *Thereva annulata*, F. (♂ com.), *Pipunculus sylvaticus*, Mg. (2), *Syrphus grossulariæ*, Mg. (2), *Catabomba pyrastri*, L., var. *unicolor* (1), *Sphegina clunipes*, Flin. (1), *Mallota eristaloides*, Lw. (5), *Callicera ænea*, F. (1), *Macronychia agrestis*, Flin. (1), *Gastrophilus equi*, F. (1), *Tricophicus semipellucidus*, Ztt. (2), *Amanrosoma fasciata*, Mg. (16), *Neotliophilum praustum*, Mg. (1), *Dorycera graminum*, F. (3), and *Urellia stellata*, Fuessl. (1). [From the Rev. E. N. Bloomfield I also received (alive) a nice series of *Tephritis bardanæ*, Schk., bred from heads of *Arctium lappa* found in Norfolk, and he also sent me some galls of *Centaurea nigra*, from which I obtained six *Urophora solstitialis*, L.]. I arranged my summer visit to Lyndhurst especially for *M. eristaloides* and *C. ænea*, and arrived on June 22nd last just as the wild roses and Portugal laurels were coming nicely into bloom, but did not see either species until the 28th, on which day I took two *Mallota* in Brick Kiln Enclosure. The following day I went to Rhinefields, and found that since my last visit the beautiful rhododendrons had been woefully thinned and hacked about, many being chopped down to the ground, and the remainder cut back to a formal line behind the ditch on each side of the drive. It will be many years before the shrubs recover from this rough treatment, and it seemed almost adding insult to

injury to find the woodman with some workmen busy putting up a large notice board bearing the inscription, "Visitors are requested not to injure the trees and shrubs in this drive!" Although the day was perfect, I saw few *Diptera* worth netting until just before leaving, when I took two *M. erystaloides* and a few *Alophora hemiptera*, F. The next day I tried Brick Kiln again, and was rewarded with one *C. anea*, but no *Mallota* came in my way until reaching home, when I took one in the garden on the flowers of *Heracleum giganteum*. This hardy weed-like plant had a thick stem about 8 feet high, which supported a large umbel of flowers over two feet in diameter, and the strong but not unpleasant scent was attractive not only to *Diptera* but insect life generally. Five *Mallota* and one *Callicera* had now fallen to my net in three days, and at this rate I was looking forward to being able to supply my Dipterist friends with specimens, but unfortunately I was taken ill and did not get about again for nine days, during which time both species seemed to have entirely disappeared.—FRED. C. ADAMS, 50, Ashley Gardens, S.W. : *Nov.*, 1899.

## Reviews.

REPORT OF THE GOVERNMENT ENTOMOLOGIST (Chas. P. Lounsbury, Cape of Good Hope) FOR THE YEAR 1898. 8vo, pp. 64, with 9 plates. Cape Town, 1899.

This is an excellent Report, full of details interesting even to those who are not specially economic entomologists; to those who are it is indispensable. The range of subjects is very wide; a large proportion of the pests are undoubtedly introduced. Quite a "trade" is being established in "*Tedalia*," the coccus-destroying Australian Lady Bird, no less than 41 packages having been distributed (at a nominal charge) during the year, some even to Portugal. There is a capital Index, and the plates are characteristic, even if slightly rough.

GENERAL INDEX TO MISS ORMEROD'S REPORTS ON INJURIOUS INSECTS, 1877 to 1898: by ROBERT NEWSTEAD, F.L.S., with preface by Miss ORMEROD. 8vo, pp. 58. London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd. 1899.

A carefully compiled classified list of the subjects referred to in the Annual Reports published during the 22 years that Miss Ormerod has been so disinterestedly engaged on the Injurious Insects of this country, and which must necessarily be in the hands of all who possess these Reports. Miss Ormerod announces that a second series is about to be commenced, and that in it she will have the assistance of Mr. Newstead: she could not have done better.

## Obituary.

*John Brooks Bridgman, F.L.S.*, will be a name known to posterity as that of one of the few who studied the parasitic *Hymenoptera* in Britain during the nineteenth century. Bridgman practised as a dentist at Lynn, and, for a great many years, in St. Giles' Street, Norwich, an address well known to most of us, who have either sent him bred parasites to name for us, or to ask him for particulars of their interesting economy, and in no case was his knowledge withheld from any who

might seek to benefit by it. The love of Natural History probably descended from his father, the late W. K. Bridgman, who studied, among diverse branches, Norfolk *Coleoptera* to some extent. Conchology appears to have been one of our subject's earliest bents, of which he published a list of the Norfolk species in 1872. Later, however, he appears to have entirely devoted himself scientifically to *Hymenoptera*, and when he finally relinquished the study in 1895 he had become an adept. He wrote less than we could have wished upon that subject, which, perhaps above all others, is neglected by the English entomologist, the *Ichneumonidæ*. It was, nevertheless, upon this family that "feelers" were put forth in the "Entomologist" for 1878, and upon which he, in conjunction with Mr. Fitch, gave us his masterly "Introductory Papers." This series, which, unfortunately, was not completed in 1885 (though we understand much of the remaining MS. exists), must form the foundation upon which to work the British species. It lacks part of the *Ophionidæ*, and the whole of the *Tryphonidæ* and *Pimplidæ*. A great number of new British species and many new to science were chronicled by Bridgman in his "Additions" in the Trans. Ent. Soc. Lond. (1881—86), which must always be worked along with Marshall's "Catalogue." Nearer home, he published in the Trans. of the Norfolk Naturalist's Society—of which he was an original Member, a past President (1875—76), and Vice-President at his death—a list of the *Hymenoptera-Aculeata* and *Chrysididæ* of the county in 1879, supplemented in 1882 and 89; of the *Tenthredinidæ* in 1888, suppl. 1890; and of the *Ichneumonidæ* in 1893—94. On July 3rd, 1895, Bridgman presented the whole of his Hymenopterous collections, and about forty volumes bearing upon the subject, to the Norwich Castle Museum. The Aculeates and *Tenthredinidæ* are a fine lot, and the Ichneumons represent, if not the most numerous, at all events the best arranged and most fully named collection in Britain, speaking eloquently of hours of close and untiring study. We regret to say that this assiduous study was too much; having to abandon it, Bridgman appears to have been somewhat at a loss for mental food and took to deep sea fishing; he was, however, attacked with blood poisoning while staying at Scarborough, and returned to Norwich, where he died in his sixty-third year. As a Mason he was a shining light throughout East Anglia; to a stranger, abrupt and somewhat shy; as a friend, extremely kind and generous; as a Hymenopterist, we revere him.—CLAUDE MORLEY (*Supplementary notice*).

*Frederik Maurits Van der Wulp*.—A conspicuous loss from the list of European Entomologists, and especially from the list of Dipterologists, has been caused by the death of F. M. Van der Wulp, which occurred at the Hague on November 27th last. He wrote very extensively from 1857 until the present time, though his health had failed somewhat during the last six months. Through the kindness of the husband of his only daughter, with whom he had lived since the death of his wife in 1895, we learn that he was nearly 81 years old, as he was born on December 13th, 1818. His earliest contribution to Entomology was in 1842, but he wrote no more until 1857, after which he wrote on Netherland *Diptera*, which he caused to be placed on a fairly good basis, as he published a "List of Netherland *Diptera*" in 1859, which he revised in 1864, and of which he issued a new list in 1898. In his earlier writings he contributed a great deal towards the study of the little known groups, *Chironomidæ* and *Mycetophilidæ*; after 1867 he was attracted by the large

collections of North American and South Asiatic *Diptera* to which he had access, and he published many papers on them, more especially interesting himself in the *Asilidæ*, *Devidæ*, &c., but by no means limiting himself to any family. His early writings showed a most distinct development from the distinctions used at that period, and his facile pencil very much aided his descriptions. He never lost his ease of drawing, but during the last few years while he had been working at the *Biologia Centrali-Americana* he may have to a certain extent failed to keep level with the critical distinctions of the present day, especially in the chaetotatic characters. Nevertheless, there cannot be any doubt that his death has caused us the loss of one of our most talented Dipterologists, and this is proved by the fact that he had been elected Honorary Member of many of the European Entomological Societies, while the *Tijdschrift voor Entomologie* probably owed to him its continued existence from its start in 1858. In private life he began as a civil officer in the Dutch Audit Office, from which he retired after 50 years' service, when he was nominated Knight of the Order of Orange-Nassau.—G. H. VERRALL.

## Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *October 16th, 1899.*—Mr. G. T. BETHUNE-BAKER, F.L.S., President, in the Chair.

Mr. R. C. Bradley showed two specimens of a *Solenobia* which he had previously exhibited as *S. Wockii*, to which species they had been assigned by Mr. C. G. Barrett; recently, however, they had been sent to Mr. J. W. Tutt, who thought they were a variety of *inconspicuella*, and who sent them on to Lord Walsingham and Mr. J. H. Durrant, who said that they were certainly not *Wockii*, but did not know to what species to assign them. Mr. Bradley, a case of Brazilian butterflies. Mr. J. T. Fountain, *Lepidoptera* obtained in the Valley of the Wye at the beginning of last August; amongst other species he found *Apatura Iris* not uncommonly, *Thecla w-album* common but worn, *Vanessa polychloros*, *Grapta c-album* common, *Triphæna interjecta*, *Tethea retusa*, *Catocala nupta*, &c. Mr. Colbran J. Wainwright, a short series of *Tephrosia extersaria* from Wyre Forest, where he said the species had been quite common this year, although in previous years only single specimens had been taken by various Members; also a specimen of *Vanessa Atalanta* from Cornwall, and one of *Melanippe fluctuata* from Handsworth, both of which were considerably smaller than the usual examples of these species. Mr. G. T. Bethune-Baker, a number of *Erebicæ*, including many *Blandina* from various localities in Britain and on the Continent, and pointed out that the Scotch showed more red than the Swiss.

In the report of the Meeting of August 21st it was stated that *Leucania straminea* had been bred for the first time: this of course was an error; there is a full description of the larva in Buckler's "Larvæ of British Lepidoptera."—COLBRAN J. WAINWRIGHT, *Hon. Secretary.*

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *October 12th, 1899.*—Mr. A. HARRISON, F.L.S., F.E.S., President, in the Chair.

Mr. F. Bennoch-Carr and Mr. F. M. Bennoch-Carr, of Handen Road, Lee, were elected Members.

Mr. Fromlin exhibited extremely interesting and varied series of *Lepidoptera* captured at Stornoway, including *Melanippe montanata*, *Camptogramma bilineata*, and *Eupithecia*, sp. ? Mr. Montgomery, a series of *Epinephele hyperanthus* reared from ova deposited on July 21st, 1898, and read notes on the appearance, hibernation, and variation of the species in its different stages. Mr. Adkin, two specimens of *Syrichthys malvæ*, var. *taras*, taken in the neighbourhood of Abbot's Wood, with the type and intermediates; a discussion ensued as to its regular occurrence. Mr. A. Russell, a mass of cocoons of *Eriogaster lanestris*, including composite cocoons and a portion of the larval "nest," from Polegate, and a bunch of cocoons of *Saturnia paronia* from Fleet, with a separate cocoon containing pupa, and pupa and imago of a species of *Diptera*. Dr. Chapman, larvæ of *Leioptilus Lienigianus* in the spun-up leaves of Wormwood, preparing for hibernation. Mr. Kaye, bred and captured specimens of *Pseudoterpna pruinata* from Byfleet.

October 26th, 1899.—The President in the Chair.

Mr. Tomlinson, of Kingston-on-Thames, was elected a Member.

Mr. South exhibited, on behalf of Mr. Fowler, of Ringwood, the following varieties of *Lycæna Corydon*:—(1) a specimen with a shining spot on each forewing; (2) a series with the black hind marginal borders replaced by white quadrate spots; (3) a male with traces of orange lunules on the upper-sides of the hind-wings; he also exhibited a long series of *Emydia cribrum*, showing extensive variation. Mr. Harrison, a series of *Grammesia trigrammica*, including several dark varieties approaching var. *bilinea* from Delamere Forest. Mr. F. M. B. Carr, (1) *Dryas Paphia* from the New Forest, a very fine banded *Valezina* form, taken in July, 1898; (2) a dark form of the same species. Mr. Barnett, a bred series of *Cidaria truncata (russata)* from eggs laid by a female captured at West Wickham on June 10th; all were smoky, approaching v. *perfuscata*. Mr. Merrin communicated a paper, entitled, "Colour in Nature." Mr. Claude Morley, F.E.S., communicated a paper, entitled, "Insects and the Balance of Nature: Elementary Notes on Ichneumons."

November 4th, 1899.—The President in the Chair.

A special pocket box exhibition. Mr. McArthur exhibited series of *Triphæna comes*, v. *Curtisii*, from Hoy; *Aporophyla lutulenta*, v. *lunenburgensis*, and v. *sedii*, from Orkney; an extremely dark *Agrotis cinerea* and *Dianthæcia carpophaga*, with snowy ground tint. Mr. Adkin, his long and extensively varied series of *Boarmia repandata*. Major Ficklin, series of *Dianthæcia luteago*, v. *Ficklini*, showing a tendency to the tint of v. *Loui*. Mr. Kaye, long and varied series of numerous *Sphingidæ* collected by himself in Jamaica, Trinidad, and S. America. Mr. H. Moore, specimens of the tropical American bee, *Eulema dimidiata*, and read notes on its relation to the fertilization of the orchid *Catasetum tridentatum*. Mr. Chittenden, a very large number of striking varieties and local species of *Lepidoptera* taken in the neighbourhood of Ashford, Kent, during the last quarter of a century, including *Aporia crategi*, *Deilephila livornica*, *Plusia moneta*, and *Pachetra leucophaea*. Mr. Lucas, two scarce species of dragon-flies, *Æschna mixta*, from Esher, and *Somatochlora metallica*, taken by Mr. C. A. Briggs in Inverness-shire; also three species of *Coleoptera* from Tripoli, *Anthia venator*, *A. 6-maculata*, and *Scarites striatus*, large coast frequenting Carabids. Mr. Colthrup, a very blue

female of *Polygonmatas Icarus*, and a series of very dark *Melanippe fluctuata*. Mr. F. B. Carr, bred specimens of *Lithosia griseola*, and v. *stramineola* from Wicken, *Notodonta trepida* from New Forest, *Drymonia chaonia* from Bexley, and *Iodis vernaria* from Shoreham. Dr. Chapman, seventeen species of the genus *Erebia* taken during some two months spent in Switzerland this year, including *E. epiphron*, *E. Mnestra*, *E. flavofasciata*, *E. glacialis*, *E. lappona*, *E. Christi*, *E. ligea*, *E. athiops*, and *E. Gorge*. Mr. Mitchell, *Locusta viridissima* from Folkestone Warren, the Coleopteron *Prionus coriarius* from Richmond, and a smoky suffused example of *Smerinthus ocellatus*. Mr. Buckstone, exceedingly small specimens of *Pieris rapæ*, *P. napi*, *Hipparchia Semele*, *Polygonmatas (Adonis) bellargus*, *Anthrocera filipendula*, and *Arctia Caja*; the last being one of fifteen similar ones bred from larvae fed on black currant leaves. He also showed numerous aberrations. Mr. Harrison, varied series of *Aporia cratagi*, *Pieris napi*, var. *bryoniae*, *Euchloë cardamines*, and *Leucophasia sinapis*, all from Meiringen, Switzerland. Mr. F. M. B. Carr, short series of *Agrophila trabealis (sulphuralis)* from Tuddenham, *Erastris fuscata* and *Bankia argentula* from Chippenham, *Hydrelia uncula*, and *Earias chlorana* from Wicken, together with various species and varieties.—HY. J. TURNER, Hon. Sec.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: November 13th, 1899.—Mr. S. J. CAPPER, F.L.S., President, in the Chair.

Messrs. Tyerman, Harrison, Ackerley, Tonkin, and Dr. Chaster were elected Members.

Mr. C. G. Barrett, F.E.S. of London, gave an address on "The hairy eyes and abdominal tufts of *Lepidoptera*." In it he showed that, though other characters must be relied upon for families, yet these features might be used to classify genera. Mr. John E. Robson, F.E.S., of Hartlepool then addressed the Meeting on the subject of "Arrangement." He spoke of the value of Stainton's Manual; he thought that no system of Classification could be perfect which was not based on total characteristics. How unreliable external characters often are, he showed by reference to the close mimetic resemblances of many exotic butterflies belonging in reality to widely separated families. Mr. Newstead detailed the interesting life-history of *Selandria atra*, the pear tree saw-fly, as observed by himself, and exhibited a case of specimens illustrating it throughout. To destroy them he recommended the use of Paris green. He also communicated notes on *Piophil'a casei*, the cheese hopper, showing how very tenacious of life it was by the fact of larvae which had been subjected to water, methylated spirit, glycerine, and absolute alcohol, producing perfect insects! The following exhibits were made:—Species of the genus *Oporabia*, with genitalia photographs, by Mr. E. N. Pierce; eleven drawers of *Lepidoptera* taken at the Chester electric lamps, including *A. betularia* (type black and intermediate vars.), *Acronycta alni*, *Ephestia splendidella*, &c., by Dr. Dobie; vars. of *Abraxas ulmata* and *grossulariata*, by Mr. B. H. Crabtree; spring captures in the New Forest, by Dr. Cotton; an ingenious device for setting *Lepidoptera* with greater accuracy, by Mr. Geo. O. Day; a case of *Lepidoptera*, by Mr. J. Collins; Pupæ of *Nemobius Lucina*, by Mr. Prince; a box of insects for distribution, by Mr. John Robson; *Cleora glabraria*, a new record for N. Wales, by Mr. F. Birch.—F. BIRCH, Hon. Secretary.

ENTOMOLOGICAL SOCIETY OF LONDON: *November 15th*, 1899.—Mr. G. H. VERRALL, President, in the Chair.

The President announced the death of Dr. C. G. Thomson, one of the Honorary Fellows of the Society.

Mr. Ernest Charles Bedwell, of 27, Loughborough Road, Brixton, S.W.; Mr. Harry Haden May, of Redlands, Hillbury Road, Upper Tooting, S.W.; and Mr. H. A. Varty, of 61, Queen's Road, Aberdeen; were elected Fellows of the Society.

Mr. J. J. Walker exhibited four examples of a species of *Curculionidæ*—*Cleonus sulcirostris*—taken on red sandy soil at Barr's Hill, near Oxford. These examples, he pointed out, were of a reddish tint, harmonising with the colour of the soil on which they were found, and in marked contrast to that of normal grey specimens, some of which, taken at Deal and Reading, he showed for comparison. The President, specimens of *Chersodronia hirta*, a Dipterous insect, which were found by Colonel Yerbury under sea-weed at Brora in August, 1899. Mr. G. W. Kirkaldy, two species of *Hemiptera* of economic interest, one a Pyrrhocorid—*Dysdercus cingulatus* (Fabr.)—sent by Mr. E. E. Green from Ceylon, where it was found appearing in abundance on the cotton plants, the other a Psyllid—*Aleurodicus Dugesii*, Cockl.—forwarded by M. A. Dugès, who stated that it is attacking the white mulberries in Mexico. Mr. J. H. Leech contributed Part III of his paper on "*Lepidoptera Heterocera* from Northern China, Japan, and Corea."

*December 6th*, 1899.—The President in the Chair.

Mr. Francis Gayner, of 20, Queen Square, W.C., and Mr. F. B. Jennings, of 152, Silver Street, Upper Edmonton, N., were elected Fellows of the Society.

Mr. J. J. Walker exhibited a specimen of *Colias marnoana*, Rogenh., taken, with other examples, by Lieut. Constable, R.N., at Massowah, on the Red Sea; he considered this form to be only a dwarfed race of *C. Hyale*, Linn., and for comparison with it he showed specimens of the var. *nilgherriensis*, Feld., from Central India, and of the var. *simoda*, De L'Orza, from Japan. Dr. Chapman, a series of specimens, selected from various English collections, together with a few foreign examples, in order to illustrate the English forms found within the genus *Fumea*; also specimens of *sepium*, *betulina* and *salicolella*, and remarked that the first of these species was very properly placed by Mr. Tutt in a new genus (*Bacotia*), since it is a transitional form, having as great affinities with *Solenobia* as with *Fumea*; while the other two species, though perhaps not distantly allied to *Fumea*, did not truly belong to that genus, and were well placed by Mr. Tutt in a new genus (*Proutia*). Dr. Chapman then read some notes relating to the genus *Fumea*, and to characters, chiefly drawn from structure, by which the different species may be distinguished. Mr. Malcolm Burr called attention to Dr. Sharp's paper on "*The modification and attitude of *Idolum diabolicum**," recently published in the "*Proceedings of the Cambridge Philosophical Society*" (vol. x, part iii); he exhibited the plate, drawn after nature by Mr. Muir, which illustrates the paper, pointing out that no drawing of this kind, showing a Mantid in its natural colours simulating the petals of a flower, had hitherto been published; also species of *Mantodea* of various genera, to show the different modifications by means of which insects of this group are made to resemble leaves and flowers. Mr. Kenneth J. Morton communicated a paper, entitled, "*Descriptions of new species of Oriental *Rhyacophilæ**."—J. J. WALKER and C. J. GAHAN, *Hon. Secretaries*.



## COLEOPTERA AND LEPIDOPTERA AT RANNOCH.

BY J. J. WALKER, R.N., F.L.S.

A visit to Rannoch, the classic Entomological station of Scotland, had for many years been one of my unfulfilled wishes; and it was therefore with no small satisfaction that I found myself *en route* for the North on July 18th, glad enough to escape from the stifling heat, dust, bustle and smells of Chatham Dockyard to the fresh breezes and delightful scenery of the Highlands.

After a seventeen miles' drive in the post-cart from the little railway station in the middle of the great Moor of Rannoch—surely one of the most forlorn and desolate looking places it has ever been my lot to see—I arrived at Kinloch soon after noon on the 19th, and found excellent quarters at that traditional resort of entomologists, the Bunrannoch Hotel, where I remained until August 9th. My first excursions not only showed me that I was much too late for many of the better insects, but that Rannoch is a really difficult district to collect over, and that every “good thing” taken had to be fairly earned by hard work. Although the whole of the ground looks most promising, and it is difficult to select any one spot as more favourable for insects than the rest, a great many species, especially in the *Lepidoptera*, are restricted to a very limited space, and unless a stranger is guided to these localities, he runs the risk of missing many of the Rannoch specialities altogether. I am therefore much indebted to Dr. H. McCallum, the resident medical man, and a keen Lepidopterist, who introduced me to the head-quarters of several interesting species; as well as to Mr. W. Reid, of Pitcaple, whose genial and instructive company I enjoyed during the first half of my stay.

Any collector visiting Rannoch will find his work greatly facilitated by the use of a bicycle, as the excellent level road extending all round the Loch gives easy access to all the points from which the most productive spots can be best reached. Not being a cyclist myself, nearly all my excursions had to be made on foot; and after rambling and scrambling about over rough country from morning till night, often climbing more than 2500 feet, and turning over several tons of stones in search of beetles, it may readily be imagined that I was not disposed to turn out for sugaring or other night work, so the *Noctue* are practically absent from my list of captures. Rannoch had not escaped the general drought of the past summer, and only one day during my stay could be called even damp; but there was a good deal of dull grey weather with dense mist on the hill-tops, and

boisterous gales from the westward, raising quite a respectable "sea" on the Loch, and preventing anything from flying in exposed places. On several such days, indeed, it was scarcely possible to find a single insect on the move; though on fine days, of which there was a fair proportion, Rannoch fully sustained its reputation for numbers of individuals if not of species of insects. Especially this was the case with the *Diptera*, at least of the representatives of that Order, with whose company one would gladly dispense. The "midges" and *Tabanidæ* were the most ferocious I have ever encountered, and made one's life a burden when collecting in sheltered places; while the abundance and pertinacity of the *Muscidæ* in the Black Wood brought the "plague of flies" of North-West Australia vividly to my recollection.

Many of the most characteristic species of beetles had evidently been "over" for a long time. Thus, I did not see a single *Longicorn* in the open, except one *Strangalia 4-fasciata* brought in by Dr. McCallum on August 1st; there were no *Elateridæ* to be found, except *Cryptohypnus riparius* and *Athöus niger*; practically no *Telephoridæ*, no *Ips*, and no *Cryptocephali* whatever. The sweeping-net produced nothing better than odd specimens of *Malthodes* of two or three species, *Antherophagus pallens*, *Hydrocyphon*, *Anthonomus comari*, &c.; and beating the small birch and alder trees was not more productive, *Anthophagus testaceus*, *Luperus rufipes* and *flavipes*, *Coccinella 16-guttata* (not rare), *Podabrus alpinus*, *Deporäus megacephalus*, and *Polydrusus tetricollis*, being almost the only species obtained in this way. *Dorytomus costirostris* came very rarely off aspen, and *Dascillus cervinus* off the heather, rather commonly.

There was abundance of fallen timber, logs, and stumps of Scotch fir in the Black Wood and elsewhere, as well as many decayed birch trees on the hill sides and along the glens; but nearly all of it was in the most weatherbeaten state, with the bark, when any remained, dropping off from age, and it was rarely that a tree could be found in workable condition. The celebrated saw-mill yard at Dall, in particular, looked as if no work had been done there for years, and all that could be found in it on several visits were the three local species of *Liodes*, which were plentiful in snuff-like fungus on old sawdust and stumps; *Cerylon histeroïdes* and *ferrugineum*, *Ernobius mollis* (very large), *Otiorrhynchus maurus*, and a few *Quedionuchus lævigatus*. This last-mentioned Staphylinid, which, with the exception of *Baptolinus alternans*, was the beetle most regularly found under loose bark, fully lived up to its reputation for activity, but in this respect it was equalled, if not excelled, by *Quedius xanthopus*. Of this species I

took a fine series under the very dry loose bark of a number of felled larch trees on the north shore of the Loch, in company with *Rhizophagus nitidulus* (rare), *Calathus micropterus* (in plenty), &c.; *Q. lateralis* was found, with some rather puzzling forms of *Q. mesomelinus*, under logs in the Black Wood, where *Rhyncolus chloropus* was common in old fir stumps, and *Cis punctulatus* in fungoid growth under fir bark. *Pytho depressus* was not observed in the perfect state, but its curious horny-looking fork-tailed larva was common enough, and I found a few pupæ, which unfortunately did not produce very satisfactory specimens. After a constant and unsuccessful search for that special Rannoch Longicorn, *Acanthocinus ædilis*, I thought myself lucky to find four specimens in a small fir log on my last visit but one to the Black Wood; but the larva, and the very curious pupa, were constantly in evidence. I brought back several of the latter, but they seemed too delicate to bear removal from their singular nidus of wood-fibre under the fir bark; and the two or three perfect insects reared happening to come out together when I was away from home promptly proceeded to devour each other. With the pupæ of *Rhagium indagator*, which were rather common, I had somewhat better success.

In a small saw-pit on the Struan road, a little more than a mile from Kinloch, was some tolerably fresh timber, and one pine log yielded me a short series of the pretty wood-borer, *Trypodendron lineatum*—not obtained without difficulty, as it drills neat round tunnels two inches and more deep, perpendicular to the surface of the wood, and sits in them hinder end outwards, ready to retreat far out of reach at the least alarm. The common *Myelophilus* and *Hylastes* were here in swarms, with a few *Tomicus acuminatus*; and under the looser bark I found *Nudobius lentus* (2), *Leptusa analis*, *Homalium pineti* (not rare) and *pusillum*, *Rhizophagus ferrugineus* and *dispar* in plenty, and one or two *Thanasimus formicarius*. Not far off were the only two recently felled fir trees I could find during the whole of my stay, and by beating the cut-off tops of these I obtained *Cryptophagus cylindrus*, *Ernobius nigrinus*, *Pissodes pini* (common) and *notatus* (rare), *Magdalis phlegmatica*, *Pityogenes bidens*, *Pityophthorus pubescens* (*micrographus*, Brit. Cat.) in plenty, &c. Several of these species, with *Salpingus castaneus* in numbers, were also beaten out of the broken-off top of a large Scotch fir in the Black Wood.

Decayed birch was less productive, but from a half-dead tree near Carie I got one of my best finds, *Epurea silacea*, unfortunately only singly; the same tree yielded *Orchesia micans* (most of which escaped by means of their well-developed powers of jumping), *Triplax*

*russica* in fungoid growth, with numbers of its larva, &c. One *Carida flexuosa* was also found on decaying birch, also *Cis Jacquemarti*, and *Sinodendron* under the loose bark, where I saw one elytron of the rare *Athöus undulatus*.

A *Cossus*-infested birch tree in the Black Wood, kindly pointed out to me by Mr. W. Reid, proved a great attraction for *Cetonia floricola*, of which only a single specimen was taken elsewhere on bracken. On one occasion I saw at least twenty of the *Cetonia* busily imbibing the flowing sap, in a space which could be covered by one hand. *Soronia punctatissima*, larger and darker than southern examples, was very abundant in this tree, with a few *S. grisea*, *Thamiaræa cinnamomea* and *hospita*; and in the "frass" at its foot two or three examples of the dark type-form of *Xantholinus tricolor*, so different from the large light coloured variety I have been accustomed to take at the seaside in the south, were met with.

I should have been greatly disappointed to miss *Trichius fasciatus*, as well as *Acanthocinus ædilis*, and was just not too late for the former species, of which three specimens were seen and two taken flying over heather bloom in the Carie glen on July 29th; the resemblance of this pretty insect on the wing to a small humble-bee was very striking at first sight.

The summit of Meall-a-Phuill or Gharbhavel ("Grayvel")—the traditional locality for the great Coleopterous prize of Rannoch, *Amara alpina*—was too far from Kinloch to admit of my reaching it and returning the same day, and a projected ascent from Camghouran fell through; but I worked hard, without result as far as this beetle is concerned, on all the hills nearer to my head-quarters, including "Beinn-a-Chuil!laich" (2925 feet), "Carn Mearg" (3419 feet), and the "Big Ben" of the district, Schichallion (3547 feet), all considerably higher than "Grayvel." The famous view from the summit of Schichallion was limited by the mist on the day of my ascent to about five yards, and the top of the mountain being scarcely more than a pile of loose frost-riven rocks, very little life, either animal or vegetable, was present; but about halfway down I found a single specimen (unfortunately not quite perfect) of the very rare *Oxyptoda longipes*, Muls., under a stone in a damp grassy place. The usual hill *Carabidae*, etc., were apparently much more plentiful on steep well-drained slopes at about 2000 to 2500 feet elevation than on the actual summits, where the black mountain form of *Carabus catenulatus*, and (rarely) *Patrobus septentrionis* were almost the only species met with. At the more moderate heights I found *Nebria Gyllenhali*, *Calathus melanocephalus*

var. *nubigena* (with the type form), *Bradycellus collaris* and *placidus*, and *Patrobis assimilis*, all fairly common, and more rarely *Cychnus rostratus*, *Pterostichus æthiops* (locally not scarce on the heights above the Allt Druithe burn) and *vitreus*, *Miscodera arctica* (one only), *Cymindis vaporariorum*, *Calodera æthiops*, *Homalota tibialis*, *Ocyppus brunripes*, *Arpedium brachypterum*, *Otiorrhynchus maurus* (nearly over) and *rugifrons* (on Schiehallion), &c. *O. blandus* sometimes occurred on the highest summits, but was much more abundant under small stones on the Loch side within five minutes' walk of the hotel, with *O. muscorum*, rarely. Here, too, *Staphylinus stercorarius* asserted its claims to be regarded as a Myrmecophilous beetle by being found on several occasions in a small nest of *Myrmica ruginodis* under a stone, the ants resenting my intrusion by stinging with a degree of virulence worthy of their tropical relatives.

On the way to the Black Wood, *Serica brunnea* was often very common on the road, with occasional examples of *Carabus glabratus*, *Calathus piceus*, *Amara bifrons*, *Taphria nivalis*, *Geotrupes sylvaticus*, *Adimonia tanacetii*, &c. One or two late specimens of *Cicindela campestris* were observed, and by dint of a good deal of "log rolling" in the Dall sawpit I got a small series of *Trechus rubens* in its old station, in company with *Clivina collaris*. Nothing better than *Bledius subterraneus*, and one or two *Bembidium tibiale*, was to be found in sandy places on the shore of the Loch.

In sheep- and deer-dung were found the usual *Aphodii*, viz., *lapponum* in great plenty, often nearly or quite black, and occurring up to the highest elevations; *fætidus* and *putridus*, both common; *depressus* and *sordidus*; also *Tachinus proximus*, *pallipes* and *flavipes*. Carrion was not often met with, and produced only a few common *Histers* and *Cholevas* (including what is probably *C. coracina*), *Necrophorus ruspator*, also taken flying in the Black Wood, *Philonthus proximus*, *carbonarius* and *puella*. I could not muster up sufficient resolution to attack any of the numerous and thriving nests of *Formica rufa* in the Black Wood and elsewhere, but once found *Myrmedonia humeralis* accompanying the ants which were busy about a dead rabbit.

The water-net was occasionally used, but produced no single species worthy of mention, and very few of even the commoner forms of water-beetles; and a similar want of success attended the examination of *Sphagnum* and other mosses at various elevations.

Turning now to the *Lepidoptera*, eleven species of butterflies were observed during my stay, of which *Pieris brassicæ* and *napi* call for no special remark, except that the ground colour of the females of

*P. napi* was rather more creamy in tone than in southern examples. To one who in all his wanderings had never yet seen a true *Erebia* on the wing, the first sight of *E. epiphron* on July 26th, flitting in a stray gleam of sunshine over the grass and heather on the slopes above the Allt Druithe Burn, was indeed a pleasure. Very few specimens were seen on this occasion, but on the 31st I met with it again a long way up the Innerhadden Burn, this time in fair numbers, but usually worn to a mere shadow, though improving perceptibly in condition as one ascended higher up the hillside. The nature of the ground it frequents, joined to a habit it has of flying uphill when pursued, makes the capture of *E. epiphron* not always an easy matter on a hot day. Its congener, *E. athiops*, was out locally in great abundance and superb condition, among the long grass and bog-myrtle by the roadside, on the north shore of the Loch on August 2nd, when Dr. McCallum and I each took a long series. I found it in equal numbers, but showing evident signs of wear in the males at least, in the better known locality near Camghouran a few days later. *Cænonympha Typhon* was widely distributed in wet heathy places at moderate elevations, but was evidently long past its prime, though enough fresh specimens were taken to furnish a nice series; and *C. Pamphilus*, which was common, attracted attention from its much clearer and yellower tone of colour than that of southern examples. *Vanessa urticæ*, too, was noticeably larger and brighter than in the south, and was common enough along the roads; and *Argynnis Selene* still lingered, in passable condition, on the heaths. *A. Aglaia* was first seen on July 26th, and soon became common, though its active habits, and the rough winds which prevailed just as it was coming out, did not permit it to remain in good condition for many days. The specimens taken were altogether larger, darker, and richer in appearance than those from the Kentish chalk hills, the females especially so. I noticed one or two *A. Aglaia* flying vigorously at a height of nearly 3000 feet. But the most interesting butterfly was without doubt *Lycæna Icarus*. Even on the wing the superior size and brightness of the males, as compared with southern examples, at once caught the eye, and the females were truly magnificent, some of them half as large again as average Kentish examples, and in nearly all cases strongly suffused with bright shining blue, the dark ground colour often reduced to a narrow well-defined border, and the orange marginal spots unusually conspicuous. In many of the females, too, the discoidal spots were plainly marked on the upper-side, and conspicuously margined with white; while quite ten per cent. of both sexes were to be referred to the var. *icarinus*, Scriba, in which the

basal ocelli of the fore-wing beneath are obsolete. A beautiful selected series, chiefly taken in the evening and on dull days at rest on rushes, &c., in a boggy place on the bank of the river Tummel close to Kinloch, was secured; and in the same spot *L. Artaxerxes* was met with sparingly, and was also found flying with *Erebia æthiops*.

Among the *Bombyces*, belated and probably ichneumonid larvæ of *Orgyia fascelina* were now and then seen on the heather, and those of *Lasiocampa rubi* (young), *quercûs* var. *callunæ* (full grown), and *Saturnia carpini*, were fairly plentiful. On the last day of my stay, while I was beating alder for *McLanthia rubiginata* var. *plumbata*, something fell with quite a startling thump on the grass, and proved to be the first larva of *Endromis versicolor* which I had ever seen; it was full-fed, survived the journey to Sheerness, and is now safely in the pupa state. Very small larvæ of *Notodonta dromedarius* were often beaten from the same tree, and those of *Cymatophora* or from aspen, while on birch I found one or two larvæ of *Acronycta leporina*. *Agrotis strigula* (*porphyrea*) flew commonly over the heather, but was invariably too much worn to be worth taking; a few fine examples of *Stilbia anomala* were disturbed during the day in rocky places at Carie and elsewhere, *Plusia chrysitis* turned up in the hotel, and *P. interrogationis* was frequently seen on the moors, usually going like the wind over the roughest places, and only one specimen in tolerable condition was caught.

Of the Geometers, *Ellopia fasciaria* and *Boarmia repandata* were met with in the Black Wood, but in every instance in the last stage of dilapidation. *Dasydia obfuscata* was widely distributed, and in good condition when found, but was decidedly scarce; the first specimen seen being fished out of a pool of water into which it had just fallen, very little to its detriment. Of *Geometra papilionaria* I saw two fine examples, taken by two collectors from Yorkshire who were on a flying visit to Kinloch. *Acidalia fumata* was nearly over, and hard to obtain in good order, but on my arrival the very local *Fidonia pinetaria* was just in its prime in its head-quarters at the Black Wood, but it did not remain long in good condition. The males flew briskly, even on dull days, over the great clumps of its food-plant, the red whortleberry, *Vaccinium vitis-idaea*, from which the more sedentary female might be disturbed. The genus *Larentia* was much in evidence, and included *L. cæsiata*, very plentiful at all elevations except the highest, and very variable in colour and marking; *rufescinctata*, to whose locality I was kindly introduced by Mr. Reid, occurred sparingly on an outcrop of metamorphic limestone on the flanks of Schiehallion,

where the pretty little fern, *Asplenium viride*, grew in plenty in the crevices in which *L. ruficincta* delighted to ensconce itself; *salicata* was represented by one worn specimen, *olivata* was fairly common, as well as *pectinataria*, and *didymata* was a perfect nuisance everywhere. *Emmelesia blandiata* was quite worn out, but *ericetata* was in good condition and common, but rather local in heathy places. Among some alders about a mile from Kinloch, *Melanthia rubiginata* was abundant and fine, the interesting var. *plumbata* occurring in fair numbers with the ordinary form; and the only *Melanippe fluctuata* which I took was a fine example of the dark var. *neapolisata*, Mill., which is apparently not rare at Rannoch. *Coremia munitata* was fairly common on Schiehallion and elsewhere, chiefly along the course of the burns; *Campptogramma bilineata*, *Cidaria russata* and *immanata* were all plentiful, and presented no striking variety, but some exceedingly fine dark and intermediate forms of *C. populata* were taken in the Black Wood and by the Innerhadden Burn, among *Vaccinium*. Dark and finely marked specimens of *Eubolia palumbaria*, *E. limitata* (*mensuraria*) and *Anaitis plagiata* were secured, and on August 7th the pretty *Carsia paludata* (*imbutata*) was first seen on the hills behind Carie, apparently just coming out, in rough places where the *Vaccinium vitis-idea* grew in stunted patches among the heather, and was common enough the next day, although not very easy to catch. *Scopula alpinalis* was not rare rather higher up, especially at Innerhadden, and *Crambus margaritellus* and *dumetellus* were obtained, the former chiefly in the Black Wood; and a large *Scoparia*, apparently to be referred to *S. scotica*, B. White, taken at an elevation of 2500 feet on Schiehallion, concludes my list of captures at Rannoch.

23, Ranelagh Road, Sheerness:  
October 7th, 1899.

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COLIAS EDUSA IN IRELAND IN 1899.

BY THE REV. W. W. FLEMING, M.A.

Mr. Cruttwell's note (*ante* p. 1) respecting the great number of *Colias Edusa* which he observed on the coast of Galway last August is very interesting. The great point of interest is the fact that all the butterflies he saw were males.

Mr. Cruttwell is not the only entomologist who observed this strange fact. The "clouded yellow" appeared in this neighbourhood in some numbers last year; generally speaking it is very uncommon. I captured five specimens, and saw about three times that number.



All that I caught were also males. Mr. Bonaparte Wyse had a similar experience in other parts of this county ("Irish Naturalist," 1899, p. 228), and at Passage West, Co. Cork.

It is difficult to account for such a sudden increase, and I think more difficult to understand why the butterflies that three observers noted should have all been males.

If the butterflies that Mr. Cruttwell and others observed in such unusual numbers reached our shores by migration, where did they come from?

My own idea is that *Colias Edusa* owed its presence in the Co. Galway, and in other parts of Ireland, not to migration, but to some climatic conditions or exceptional circumstances that favoured its rapid increase last year. An exceedingly dry and warm summer, like that of 1899, a probable absence of insect and other enemies, and the fact that other parts of the county might not have afforded such a good feeding ground as the place where Mr. Cruttwell observed them—these things might have caused them to congregate in such numbers in that particular locality. *Colias Edusa* is exceedingly powerful on the wing, and is therefore able to change its quarters very readily. That strip of flowery meadow (mentioned by Mr. Cruttwell) must have proved an irresistible attraction, and a haven of rest to every passing *Edusa*. But why all should have been knights errant seems to me quite inexplicable.

Coolfin, Portlaw, Co. Waterford :  
January, 1900.

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ON A NEW FORM OF *AGRIAS SARDANAPALUS*, BATES.

BY PERCY T. LATHY.

*AGRIAS SARDANAPALUS*, Bates, ab. *HADES* (*ab. nov.*).

Differs from ab. *lugens*, Stgr., in the total absence of blue on the hind-wings.

*Hab.* : Chanchamayo. In coll. H. J. Adams.

A single specimen of this interesting form was obtained, together with typical *lugens*, from a large collection from Chanchamayo in Peru. Dr. Staudinger, in his Revision of the genus *Agrias*, Iris, Band xi, Heft 2, fig., p. 363, says of his ab. *lugens*, that the blue is never entirely absent from the hind-wing. Another specimen from the same parcel closely approaches this form, the blue patch being only represented by a few scales.

Lynton Villa, Sydney Road, Enfield :  
January, 1900.

ON THE LARVÆ, HABITS, AND STRUCTURE OF *LITHOCOLLETIS*  
*CONCOMITELLA*, BANKES, AND ITS NEAREST ALLIES.

BY JOHN H. WOOD, M.B.

These notes are intended to supplement the paper by Mr. Bankes which has recently appeared in this Magazine. It may be as well to state at the outset that the close relationship which is so noticeable in the imagos, and which has placed such obstacles in the way of a ready recognition of the species, extends equally to the larvæ, both as to appearance and economy, so that until we come to consider the male genitalia, we do not reach absolutely trustworthy ground.

## THE LARVA.

Disappointing as the comparison of the special larvæ may be, their *general* life-history on the other hand, is full of interest. We open the first mine that comes to hand, it is fully formed we may be sure, or it would not have caught our eye. There is nothing startling, it is true, about the appearance of the larva—there it rests on the floor of the mine, common-looking enough and well set up upon its legs; but had we opened this same mine in its earliest and inconspicuous state, before the leaf had become arched or distorted, there would instead have met our view an ugly, helpless-looking object, extremely flattened, with a huge thorax out of all proportion to the rest of the body, apparently without legs, and altogether as unlike an ordinary Lepidopterous larva as it is possible to conceive. But to describe it more precisely:—the head, half-buried within the first thoracic segment, and lying in exactly the same plane as the body, points directly forwards; it is small, very flat and thin, owing to the general dorso-ventral compression, triangular in shape, and furnished with large protruding jaws. The thorax tapers rapidly posteriorly; its first segment is gigantic, both as regards length and breadth, and projects widely on each side of the head. The abdomen is rather short, and of nearly uniform breadth. All the segments, both thoracic and abdominal, are deeply divided and much flattened, the usual hairs being short and inconspicuous. The legs, which might readily be overlooked, are merely minute protrudable processes; those of the thorax are particularly insignificant, and quite devoid of any grasping power. The head is pale brown, with the mouth parts darker, and the body white. So general is the white ground-colour at this stage that so far I have met with only a single exception, and this happens to be one of the species we are considering, namely, *concomitella*, in which the colour is slightly yellowish. Markings are usually

absent, not even an indication of the thoracic plate being discoverable; but the rule is not invariable, since there are a few species, such as *coryli*, *corylifoliella*, and *nicellii*, in which the back is ornamented with a series of twelve large, black, square-shaped spots, a type of marking common to many sorts of mining larvæ, Coleopterous as well as Lepidopterous. Removed from the mine, it is a most helpless creature—it has no idea of crawling, all it can do is to shift its ground slightly and in a spasmodic sort of way by an alternate extension and contraction of the segments. Placed on its broad and flat back, it is unable to right itself.

This semi-footless condition is retained until the leaf has been undermined to the full extent required, by which time the larva is ready to lie up for its third moult, out of which it comes, to all appearance, a new creature. It is not only that fully formed legs make their appearance, armed—the true legs with claws and the claspers with hooklets—but the whole aspect is altered. The flattened form has been exchanged for a cylindrical one, the great predominance of the thorax is gone, though the first segment still remains rather the largest in the body, the hairs are long and conspicuous, and the head, plump and of good size, now assumes the ordinary position, with the mouth directed downwards. The transformation is startling, and at the same time ushers in a new set of activities. In place of the arduous work of cutting and wedging a way beneath the skin of the leaf, the larva now turns to and feeds at leisure upon its substance, the mine having been converted into a roomy chamber by the contraction of the silk, which it was the first business of the larva under the new conditions to throw across the separated cuticle or roof from side to side. One more moult remains, the fourth and last. It is with this moult that the various shades of colour and the blackening of the plate and legs are acquired, which serve, so far as they go, to differentiate the species. Thus, there are in all four moults, the first two connected with the true mining life, the third or transformation moult, and the fourth or feeding-up moult.

To come now to our own particular group: the mature larvæ are semi-transparent and yellow, with grey or blackish heads, chiefly due to a broad dark stripe down each cheek, red mouth parts, a grey or blackish tinge on the thoracic plate, and grey-spotted legs. The intestine with its contents is plainly visible, but reduced in the full-fed larva to so narrow a strip by the encroachment over it of the fat-masses that it might reasonably be thought to be the dorsal vessel. The changes rung upon these several characters lie within such narrow

limits that it could serve no useful purpose to describe each of the eight or nine species separately, for it would merely be a case of "a little more" here, or "a little less" there. Nevertheless, they are to some extent distinguishable, and it would be strange were it otherwise. I fancy I could always pick out *sorbi* and *oxyacanthæ* from among their congeners (leaving out of account the continental *cydoniella*, which I have not seen). They are the most colourless of the lot; in both the ground colour is pale yellow, the head very pale grey, the thoracic plate untinged with grey, and the legs unspotted. I well remember Mr. Bankes sending me a supply of his pear mines in the autumn of 1895. On opening some of them I came upon one larva which I felt confident from its general pallor was that of *oxyacanthæ*, and the opinion was amply confirmed the following spring, when among a fine series of *pyrivorella* there emerged a few undoubted *oxyacanthæ*, as ascertained from the male genitalia. Mr. Bankes tells me that Frey, treating of *oxyacanthæ*, describes a very different larva, he says: "The head is distinctly heart-shaped, black, comparatively large. The colour of the body is dirty white, lighter on the last two segments. On the 2nd segment there is a black spot, shining, and divided by a pale line. The alimentary canal is visible, and appears brownish, and the true legs are black." Surely some error must have crept in here, the larva of *Ornix anglicella* having been mistaken for that of the *Lithocolletis*. If the two species just mentioned are the palest, *cerasicolella*, on the other hand, is the most highly coloured form; the head is black, the plate dark grey, almost blackish, the legs distinctly spotted, and the ground-colour yellow. *Spinicolella* is very similar, but the shade of black as a rule is not quite so deep. The special character of *mespilella* and *pyrivorella* is the contrast in colour between the fore-part of the body and the hind-part, the thorax being white and the abdomen yellow. The head is blackish, the plate grey, and the legs spotted, but the colouring is usually some shades lighter than in the corresponding parts of *spinicolella* and *cerasicolella*. Between the two species themselves I can see no difference. *Concomitella* and *blancardella*, the apple species, are also indistinguishable from each other. In the colour of their heads and plates they are lighter than the *mespilella* pair; the legs are only faintly spotted, occasionally even unspotted. Their distinctive character is a tinge of orange in the ground-colour, though I have seen the same kind of tint in *mespilella* when feeding in a yellowing leaf of *Pyrus torminalis*. The ground-colour is probably given by the fat-masses, and these are influenced to some extent by the food. An

interesting point which this brief review of the larvæ has brought out is, that the eight British species seem to arrange themselves in pairs.

#### THE MINES AND COCOONS.

In a state of nature the mines are invariably found on the undersides of the leaves; but on one occasion having sleeved some *mespilella* on a pear shoot, the moths became to some extent puzzle-headed (owing perhaps to the novelty of the food-plant), and deposited a portion of their ova on the upper-side of the leaves, in which position the mines were subsequently found. For their shape and position the mines probably depend much more on the size and character of the leaf than on the particular species of larva. One general law seems to guide the larva, which is, that directly it meets with one of the principal ribs, it takes it for a base line and runs its mine alongside, by this means ensuring that the long axis of the mine is in the direction of the ribs, the importance of which for facilitating later on the contraction of the mine is obvious. Herein I believe lies the secret which will explain most of the diversities of the mines. In large leaves with prominent ribs the mines lie in the interspaces, and according as the interspace is wide or narrow, do one or both ribs act as the guide or boundary; of the narrow interspace and its slender overlong mine the leaf of the cherry (*Prunus avium*) is an example, whilst the wild service (*Pyrus torminalis*) illustrates the wide interspace and shorter and broader mine. On the other hand in a small leaf like the leaflet of the mountain ash (*Pyrus aucuparia*) the midrib becomes the base line, and the mine is confined to one or other lateral half. The ribs, however, do not always determine the matter, for in all those instances in which the mine is situated on the edge of the leaf, the latter becomes the base line. With most of the species this position is accidental, but it is the rule with *oxyacanthæ*; for this insect uses the lobes of the hawthorn leaf, usually only the tips, and follows their outline most accurately. All the mines have the sides well drawn in, and are kept scrupulously clean, the frass being collected into one large heap, placed generally near the centre, but in those of *oxyacanthæ* and *spinicolella* at one end. As regards size, the mine of *oxyacanthæ* is distinctly small, a single lobe of the hawthorn leaf or even one of its leafy stipules sufficing, and so too for so large a species as that of *pyrivorella*, due probably to the close texture of the pear leaf, the mine of *spinicolella* again is small; in the others it is fairly large. But there is plenty of variety, and a collection of *blancardella*, say, might readily be made of size as small as one of *oxyacanthæ* selected on the opposite principle.

When ready to spin up the larva finds the ground already half prepared for it. The frass is out of the way, collected into one large heap, whilst the contraction of the mine by the early drawing in of its sides has narrowed the cavity to the requisite dimensions. All therefore that remains for the larva to do is to spin a diaphragm just in front of the frass heap, line the chamber, so cut off, with silk to make it weather proof, and throw some strands across the front end for the support and guidance of the pupa as it breaks through on the emergence of the moth. Commonly the silk lining is none too abundant, and in pulling a mine open the leafy wall and the silk lining part along the same line, so that there is little appearance of a cocoon as distinct from the cavity of the chamber. In *mespilella* and *pyrivorella*, however, the lining is much thicker, and instead of tearing it peels off from the wall of the chamber and has all the look of a cocoon. Of the greater quantity of silk these two species have at their disposal we have further proof in those occasional instances where, from lying across instead of along an interspace, the mine fails to contract and the chamber remains over wide. If it be one of the apple species, the larva uses up its supply of silk in a vain effort to draw the mine in, and having none left for a special cocoon is obliged to pupate in this roomy and comfortless space; whereas *mespilella* or *pyrivorella* in a like predicament spin a separate and substantial cocoon distinct from the chamber. *Spinicolella* and *cerasicolella* also construct distinct cocoons (Entomologist's Record, x, 168-70). These two species stand so plainly outside the *concomitella* group where lay the problems to be solved, that they did not seem to require the same minute treatment, and I neglected to note the extent to which they make themselves cocoons. This deficiency Dr. Corbett's valuable note has enabled me to supply, yet after all it is only a question of degree, for they all make cocoons, and on identical lines, out of one end of the mine. *Oxyacanthæ* generally lines its pupal chamber with yellow silk, but occasionally with white, which is the colour of the lining in the other species. No other peculiarities that I can discover are shown by any of the species, and in size, position and general structure there is a singular uniformity about the pupal chambers, so different to what we find in some other sections of the genus. The autumnal broods of *spinicolella* and *cerasicolella* hibernate full-fed, those of the *concomitella* group pupate immediately. The moths emerge by the under-side of the leaf, with the exception of *sorbi*, whose rule is to come out through the upper-side.

(To be continued).

ON *PROUTIA SALICOLELLA* (Auct.) = *ANICANELLA*, BRUAND.

BY T. ALGERNON CHAPMAN, M.D., F.Z.S.

As one result of our recent studies of the Psychids, Mr. Tutt has proposed the new genus *Proutia* for *betulina* and *salicolella*, two species hitherto included in the genus *Fumea*. Unlike *Bacotia sepium*, also removed from *Fumea*, which is very remotely, if at all, allied to the latter genus, these two species, in their larval structure and the forms of their cases, are tolerably close to *Fumea*.

They differ chiefly in their antennal structure, which is that of *Bacotia* and *Epichnopteryx*, and not that of *Fumea* and *Psyche*, viz., the antennal pectinations have sensory hairs on all surfaces and are unscaled; they also have the anterior tibial spurs neither so short as in *Bacotia* and the Micro-Psychids, nor so long as in *Fumea*; they also have a more pointed wing than *Fumea*, therein resembling Micro-Psychids.

The female as compared with *Fumea* has more numerous joints to the antennæ (over 11), and the tarsi have a diminished number of articulations, this is also the case, however, in some *Fumeæ*. The two distinctive items in the female moth are, that there are certain transparent spots on the dorsal plates of the abdominal segments, and that the moth always carries with it the pupal head covering, which remains attached to the imaginal head, and the imaginal antennæ are not, as a rule, withdrawn from the pupal antennal coverings.

This is a character that attaches *Proutia* in some degree to *Epichnopteryx*, it is, indeed, so curious and unusual a character that considerable weight in this regard no doubt belongs to it. I have seen several *Fumea* females with the pupal head parts attached, so that *Fumea* has clearly not escaped this tendency, still in *Fumea* it is very unusual, and one might say pathological, as it occurs only rarely and in individuals of species that have no such habit, and there are usually with the head parts some other pupal parts not symmetrically from both sides.

*Proutia betulina*, Zell., is a well known species on the continent, readily obtainable through the usual channels. As a British species the specimens I have seen taken by Mr. Mitford and recorded in magazines and elsewhere are unquestionably *betulina*, and Mr. Whittle has recently found the larvæ in Essex.

When we come to *salicolella* matters are decidedly more obscure. I have not succeeded in obtaining a good continental specimen; one sent me by Staudinger is probably *salicolella*, but it is without an-

tennæ, and he accompanies it with a query as to whether *salicolella* is a good species. I have not succeeded in coming across one of the *salicolella* taken by Mitford, the one in Dr. Mason's collection is, as noted by Mr. Barrett, *betulina*: so the matter would, so far as I am concerned, have remained a blank, had not Mr. Prout bred a male and female this year from cases collected at Epping. Now all I am prepared positively to assert about these specimens is, that they are *Proutiæ*, and are abundantly distinct from *betulina*, and that they agree fairly well with the specimen sent me by Staudinger. I have only seen one other specimen of the same species, this is in Dr. Mason's collection, and is one of four specimens labelled *betulina*, the other three are *betulina*; it is not of Mitford's setting. I see no reason to doubt its being a British specimen.

These *salicolella* differ from *betulina* in being smaller, rather more round winged, a little paler in colour perhaps, and structurally in having 26 instead of 21 joints to their antennæ. The female differs in having the clear spots on the abdominal plates on segments 3, 4, 5 and 6, instead of on 2, 3, 4 and 5 as in *betulina*.

So much for facts: here is a *Proutia* certainly distinct from *betulina*; is it *salicolella*, Bruand?

It is necessary, in order to determine satisfactorily how this matter stands, to deal with Bruand's three species *roboricolella*, *anicanella* and *salicolella*.

Heylaerts identifies *roboricolella* with *betulina*, Zell. This seems to be incorrect, as Bruand states that it makes a case with straws, and that it is the *nitidella* of the Paris Museums and of Godart and Dup. We have in England adopted the name for the darkest specimens of our commonest *Fumea*, and Bruand says it is the commonest of the genus round Paris. So far, then, Heylaerts seems to be in error, and *roboricolella* is not a *Proutia* (*betulina* or other), but a *Fumea*. But, then, Bruand describes the female as having white anal wool. Heylaerts is no doubt right in regarding this character as definitely *Proutian*. I have not seen any *Fumea* female with white wool, as white wool is understood in *Proutiæ*. Some *Fumeæ* have it very pale, but still it is brown or tinted and not white.

There can be little doubt, then, that *roboricolella*, Bruand, as regards the male, represents our commonest South of England *Fumea*. Whether, as regards the female, we are to suppose that Bruand made some error of specimens and got *betulina* ♀ amongst his *roboricolella*, or was not too careful as to the precise tint he should describe as white, I am unable to guess.



When we consider his *anicanella* and *salicolella* I come to a conclusion that differs from that usually accepted, and from the synonymy proposed by Bruand himself. He says his *anicanella* is equal to *betulina*, Zell. and Speyer, but adds "in litteris," so that it seems very probable he had deficient material for collating his names with Zeller's. Speyer, he says, sent him two specimens labelled *betulina*, Zell. Did Bruand fail to compare them carefully, or had Speyer the two species mixed, as may readily happen, and sent to Bruand examples of *salicolella* (auct.), (non Bruand) ?

However this may be, I make no doubt that under the name of *salicolella* he describes the species we know as *betulina*, Zell., and that his *anicanella* is the one that I have before me as *salicolella*, and that we are supposed to know under that name.

There is one difficulty in reversing the names or in leaving them alone, viz., that Bruand distinctly describes the anal tuft of his *salicolella* as *brun-jaunâtre clair*, that of the one ♀ bred by Mr. Prout is nearly as white as that of *betulina*, if not absolutely snowy, therefore, the colour given by Bruand is as difficult to accept for *salicolella* as for *betulina*. Bruand does not appear to have had many specimens of either species, and I incline to think he got some of his female specimens misplaced.

*Betulina*, Zell., is larger, darker, and has more pointed wings than *salicolella*, auct. Bruand makes *salicolella* 1 mm. more in expanse than *anicanella*; *anicanella* he likens to *roboricolella* (*nitidella*); *salicolella* has the wings narrower and longer: he further says that it much resembles *tabulella* (*sepium*), the wings much more lengthened than in *roboricolella*. The resemblance between *betulina* and *sepium* males is very close indeed, and this point alone is almost sufficient to identify *salicolella*, Br., with *betulina*. Another point clearly shown is that *anicanella*, Br., is much rarer than *salicolella*, Br., which again corresponds with the relation of *salicolella*, auct., to *betulina*, Zell., or may refer to *sepium*. The antennæ he says are very lightly pectinated, this character is Proutian rather than specific.

The description of the larva of *roboricolella* is rather of a Proutian than a Fumeid, whilst that under *salicolella* is rather that of *sepium*. I am strongly inclined here to suggest that Bruand got some of his material mixed in relation to these three species. His figure of *salicolella* is certainly not our *salicolella*, but might easily be *betulina* or *sepium*; whilst his figure of the larva is clearly that of *sepium* and not of a *Proutia*.

Bruand's figures of neuration rather support my conclusions, his

three figures of *roborecolella*, *salicolella* and *tabulella* are all probably *betulina*; *roborecolella* certainly is, *salicolella* and *tabulella* might be either *betulina* or *salicolella* (auct.), but neither of them is *sepium* (*tabulella*). Further proof is hardly required to show that Bruand had got his *specimens* here inextricably mixed at the time he prepared for publication; but that he had before him, when he worked them out, four species, and knew them well at some of their stages seems almost equally certain. He does not give the neuration of *anicanella*.

But taking his account of the ♂ imagines as being least likely to be in error, as being also that which must be decisive in a case of doubt, his *salicolella* is *betulina*, Zell., and partially perhaps *sepium*, and his *anicanella* is the one we mean when we talk of *salicolella*, and is the species represented by Mr. Prout's bred examples, by Dr. Mason's example of uncertain but doubtless British origin, and by the remains of a specimen sent me by Dr. Staudinger.

This portion of the synonymy would therefore be —

- BETULINA, Zeller (Speyer?).  
*salicolella*, Bruand.  
*roborecolella*, Bruand (*pars.*)
- ANICANELLA Bruand.  
*salicolella*, auct., *nec* Bruand.
- SEPIUM, Zeller.  
*tabulella*, Bruand.  
*salicolella*, Bruand (*pars.*)

The only alternative I see to this is that *salicolella*, Bruand, is a lost and unknown species, and our *salicolella* is a n. sp., which is highly improbable.

Betula, Reigate:  
 November 27th, 1899.

## HOW TO REAR NYMPHS OF DRAGON-FLIES, &c.

BY JAMES G. NEEDHAM, PH.D.

(Extracted from the *Bulletin of the United States National Museum*, No. 39).

The best way to rear nymphs is to let them rear themselves. Locate them, collect a few from time to time to watch their growth, preserve the young ones for specimens, and do not take any for rearing until about grown. Their development can be gauged by the length of the wing cases. For species that seem common, and that live in accessible places, there is no advantage in early collecting; they will seem to become more common as the season of their

transformation approaches, because, first, they get larger and are more readily seen; and, secondly, they approach the margin of the water and are more easily taken.

The best rearing device is the one that keeps its inmates under conditions most nearly natural. A cage for aquatic insects that hardly disturbs such conditions at all consists of a cylinder of galvanized wire screen, open at both ends, having a loose screen cover with a rim of heavy wire. One end of the cylinder is pushed down into the mud of the bottom in shallow water, the cover is laid on and all is ready. Such a cage merely incloses a small water area with its natural vegetation, and nymphs placed inside live their natural lives and obtain for themselves their accustomed food. Of course the size of the mesh must be adapted to that of the insects to be reared—small enough to confine them and large enough to admit their prey. Fifteen inches is a convenient height.

For burrowing nymphs it will be necessary to set the lower edge of the cage down into the mud of the bottom 2 or 3 inches; this is easily done with a garden trowel.

It is better, owing to danger from freshets, not to plant such a cage in the rapids in the direct course of a stream, but to divert a small arm of the stream behind some sheltering rock or log, place the cage there and build miniature rocky rapids inside it. In quiet waters no such precautions are necessary, but where the rise and fall of the water level is great it may be necessary to move cages sometimes. In general, it is better to hide the cages among vegetation, away from the eyes of the untutored and irreverent. For aquatic insects which pupate on land a cage is easily planted half in the water and half out.

Nymphs placed inside will readily crawl up the sides to transform. Young imagoes should be taken out as soon as convenient after transformation is completed (otherwise some will fall into the water and die before they are mature) and placed in paper bags with their exuviae until dry and well coloured.

Collectors will find it convenient to have cages of this sort made up in "nests" to fit one inside the other, the size of the mesh decreasing with the size of the cage. A nest of a dozen such cages and covers will be found a slight transportation incumbrance.

One may wish to take nymphs far from their natural habitat and to rear them at home with no streams or ponds near. A simple breeding cage that may be used successfully under such conditions consists of a rough wooden kit, or pail, or tub, or half barrel, with a

loose screen cover. It must be rough inside, so that the nymphs can crawl up its sides. It should be half filled with water, the nymphs put in, and some trash with them for them to cling to, the cover added, and the whole set in a place where it will not get overheated and yet will receive the direct rays of the morning sun. Conditions will be less natural in such a cage as this, but if only nymphs which are well grown and require little or no food are put into it, it will be found entirely satisfactory.

A very satisfactory way to rear some of the smallest and most delicate species of dragon-flies and may-flies, species requiring well aerated water, is to place the nymphs in shallow, flaring dishes of unglazed pottery before an open screened window in one's room. The water will need to be renewed daily or oftener, because of the rapid evaporation, but it will keep very sweet; and the imagos emerging will go at once to the screen and stay there, and the danger of their falling into the water before maturing and dying is obviated.

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*TENTHREDOPSIS THORNLEYI*, KONOW, A NEW SAW-FLY  
(BRITISH).

THE BY REV. F. D. MORICE, M.A., F.L.S.

Among a number of *Tenthredinide* which the Rev. A. Thornley, of South Leverton (near Lincoln), has from time to time sent to me for determination, both sexes have more than once occurred of a *Tenthredopsis* which I was unable to identify. A year or more ago I sent a pair of them to Pastor Konow, and he was inclined to think them new, but required more material before pronouncing positively. This I have supplied to him from later "sendings" of Mr. Thornley; and he has now published in Karsch's *Entomologische Nachrichten*, 1899, p. 362, a full description of *Tenthredopsis Thornleyi*, n. sp.

Mr. A. A. Dalglish has sent me the same insect from the neighbourhood of Glasgow; Mr. Thornley's specimens are from his own district; and Herr Konow records it also from Ulm, in South Germany.

*Tenthredopsis Thornleyi*, Konow, is a very darkly coloured and rather small species (long., 9—10 mill.). It seems to resemble a good deal that described by Mr. Cameron in his Monograph as *tristis*, Steph., but the latter is said to have a yellow line on the pronotum, and also on the basal segment of the abdomen, white trochanters, and fuscous hinder tarsi, whereas in *Thornleyi* the pronotum and basal segment of the abdomen seem to be always quite black, the trochanters whitish; but black-spotted, and the tarsi rather conspicuously ringed with white before the apex

(a character which I have also often noticed in specimens of *T. Coqueberti*). Mr. Dalglish has sent me Scottish insects coloured quite according to Cameron's description of *tristis*, and representing, I have little doubt, that species. But all Mr. Thornley's specimens differ from these as stated above, and the females at least show a rather greater uniformity of coloration than is usual in this very variable genus.

Mr. Cameron describes further *T. caliginosa*, Steph., as very like *tristis*, but with the pronotum, the basal segment of the abdomen, and the trochanters, black; in his fourth volume, however, he seems to agree with Konow in sinking this as a variety of *cordata*, Fourer. (now identified by Konow with *litterata*, Geoffr.). In any case *caliginosa* cannot be identical with *Thornleyi*, as the former species has the 3rd antennal joint "much longer than the 4th," while in *Thornleyi* ♂ it is scarcely as long, and in *Thornleyi* ♀ only a little longer.

Another species much resembling the present insect is *T. spreta*, Lep., Steph. (= *obscura*, Knw., olim.); Herr Konow, however, points out that *Thornleyi* is smaller, the head much narrower, the vertex without a central sulcature, the second recurrent nervure not interstitial, the dorsal surface of the abdomen (♂) differently sculptured, and the 5th dorsal segment in the ♂ differently impressed, having two foveæ separated by a sharp carina, which are not membranaceous, and coloured like the rest of the segment.

Brunswick, Woking:

January, 1900.

*Nyssia zonaria* in the Hebrides.—*Nyssia zonaria* (cf. ante, p. 9) is abundant on the "machars" (sandy pastures) along the western coasts of the Outer Hebrides. The larvæ have occasionally a curious habit of climbing to the top of the shoots of *Galium verum* there, and swaying about as if on purpose to attract attention. They seem to feed by preference on *Lotus*.

I took *Anarta melanopa* and *Crambus furcatellus* this last season on one of the highest hills in Harris. I had never found either species in the Hebrides before.—ARTHUR F. GRIFFITH, 59, Montpelier Road, Brighton: January 4th, 1900.

*Argynnis Niobe*, var. *Eris*, taken in England.—As I entertain no doubt that the specimen of this rare butterfly, which I discovered last autumn in the collection of the Rev. A. P. Waller at Bridgwater, was captured in this country, I think it ought to be recorded. Unfortunately, both the locality and date are uncertain. It was taken by Mr. Waller's brother about 1879, either in a wood near Bury St. Edmunds, or in Monk's Wood, Hunts. Mr. Waller thinks he took it at Bury St. Edmunds; he recollects taking fritillaries at that time in both localities, and that he took one that had no silver spots on the under-side; he supposed it to be a variety of *A. Euphrosyne*, but took no steps to identify it. He never collected any-

where out of England, and the whole of his collection was made by himself. It was quite a small one, and a few years ago he gave it to his brother, who also had taken no steps to identify the insect since it came into his possession. I brought the specimen to London, and at the Natural History Museum identified it. I afterwards showed it to Mr. Barrett, who confirmed the identification. The specimen is well marked, set to show the under-side, and, except for the loss of one antenna, is in good condition.—ARTHUR COTTAM, Eldercroft, Watford: *January, 1900.*

[In giving publicity to the foregoing note, we do so with all reserve. Of the *bona fides* of all concerned there is not the slightest doubt. Supposing no error of memory to have occurred, there is still the objection that the insect may have resulted from an imported pupa and escaped.—EDS.]

*Some common Lepidoptera in North Devon, 1899.*—At the beginning of August there were more butterflies on the wing than I have ever seen in this country. *Pieris brassicæ* swarmed everywhere, often flying in clusters. *P. rapæ* was also abundant, but not to such an unusual extent. *Epinephele Janira* was only a degree less prevalent than *P. brassicæ*, nearly all I saw were tattered and torn. *Lycæna Icarus* was also more abundant than usual. *Pararge Aegeria*, which has been getting commoner for several years past, was also abundant, but I attribute this to the growth of some young plantations in a previously exposed country. *Vanessa Atalanta* and *Io* were both common; *V. cardui* scarce. Odd specimens of *Colias Edusa* and *Hyale*, and also of *Melanargia Galathea* (the latter, so far as I know, new to the district), were reported. The swarms of “whites” and “meadow-browns” disappeared in a few days, but the summer will be long remembered by the number of *Macroglossa stellatarum*. *Sphinx convolvuli* only put in one appearance at the tobacco flowers. *Steopteryx hybridalis* was even commoner than usual.—G. B. LONGSTAFF, Morthoe, N. Devon: *December 15th, 1899.*

*Parasitic Hymenoptera, &c., near Ipswich in October.*—When searching for more *Cæcilius atricornis* (*cf.* Ent. Mo. Mag., Nov., 1899, p. 272) I worked the same wood diligently on October 7th, 13th, and 14th, several interesting things were taken:—A few *Lissonota sulphurifera*, Grav., both typical form, and Holmgren's var., “*coxis et trochanteribus rufis.*” This is always, I believe, found late in the year; Gravenhorst took it at the end of September, and I have found it here, through September and October up to November 9th (1895). *Pimpla graminellæ*, Schrank: the posterior coxal punctures are very distinct. The difficult genus *Pezomachus* was, of course, well represented in such a locality, the commonest species being *P. bellicosus*, Först., which I have not before found in Suffolk, with *P. intermedius*, Först., *P. fasciatus*, Fab., and *P. corruptor*, Först. Several other *Ichneumonidæ*, some of which I expect to be ♂♂ of *Pezomachus*, also occurred. *Lagynodes pallidus*, Boh., which I had not taken before, though I have received it from Plymouth, Brockenhurst, Lyndhurst, Southampton, Guestling, Highgate, &c., was common, with the superficially similar *Megaspilus halteratus*, Boh. The only other Proctotrypids I recognised were *Codrus apterogynus*, Hal., of which a couple of ♀♀ occurred on the 7th, and *Diapria conica*, Fab., which was not uncommon. *Blacus armatulus* represented the Braconids, and several of the pretty, brachy-

pteros, *Micromelus pyrrhogaster*, the Chalcids. There were few *Coleoptera* of note, the best, perhaps, being *Psammæchus bipunctatus*, *Psylliodes dulcamaræ*, *Nanophyes lythri* (new to the District), and *Ceuthorrhynchus melanostictus*. *Elachyptera brevipennis* and several other small *Diptera* were by no means rare.

In the same wood on November 4th, 1897, I swept several *Stenus bifoveolatus*, *Psylliodes picina*, *Erirrhinus festuæ*, and numbers of *Aphthona cærulea*, which last is still abundant, together with a single *Pezomachus pedicularius*, Fab., and *Proctotrypes aculeator*, Hal.—CLAUDE MORLEY, Ipswich: October 15th, 1899.

*Sympetrum Fonscolombii*, Selys, in Alderney.—On July 11th Mr. E. D. Marquand sent me a dragon-fly which he had captured in the island of Alderney a day or two previously. I at first thought it was a variety of *Sympetrum striolatum*, but Mr. R. McLachlan kindly informs me that it is a fine mature female of *Sympetrum Fonscolombii*. Mr. Marquand saw about half a dozen specimens, but having a very small net with him at the time, only succeeded in capturing one.

This is the only dragon-fly recorded from Alderney, although the Rev. F. A. Walker saw one on the wing in 1897, which he thought was *Libellula quadrimaculata*.—W. A. LUFF, Mount Pleasant, Guernsey: January, 1900.

[The example is a fine characteristic female, so mature that the ventral surface has become pruinose. Supposing the other examples seen to have been of the same species, it is pretty certain that a migratory swarm had crossed over from the French coast.—R. McL.]

*Psocidæ on the wing: a query.*—Will any observer state how many, and what species of *Psocidæ* he has seen *voluntarily* on the wing? I have often thought over this matter, and can recall to mind only one species, and that nearly the smallest of all winged *Psocidæ*, by which I of course mean *Cæcilius (Pterodela) pedicularius*, L. On calm hot days in autumn this may be seen almost anywhere in countless myriads, rivalling swarms of *Aphides*, the atmosphere appearing full of iridescent specks as the tiny wings catch the sun. As to other and larger species the record seems a blank. Let any one try to induce a winged *Psocid* on a tree-trunk or paling, or in the net, to enter a box or tube, and note the difficulty. It will run with extreme rapidity, it will dodge round slight inequalities of surface, and almost the only means of persuading it to go where you wish is by jerking it into the receptacle by a grass stem or something of that kind. At such times it will, when hard pressed, occasionally take wing, but only for a few inches, and in a downward (or dropping) direction rather than upward. It has been suggested that the flight is nocturnal, but so far as I am aware no proof of this has ever been brought forward. I am alluding to European forms. But is it different in the tropics? Years ago I interrogated Bates as to the habits of the large and brilliant *Thyrsophori*. He said they ran about rapidly and "sunned themselves" on leaves, but he had not seen them on the wing.—R. McLACHLAN, Lewisham, London: October, 1899.

*Carcinops 14-striata*, Steph., in a London bakehouse.—Through the kind intermediary of Mr. F. Milton, Mr. E. C. Bedwell and I recently had an evening's collecting in a bakehouse at Old Ford. The staple *Coleoptera* here were *Alphitobius*

*diaperinus* and *Gnathocerus cornutus*, both of which were in large numbers, while two specimens only of *Tenebrioides mauritanicus* were met with. The baker was so kind as to pull up for us a partly-loosened board forming part of the floor close to the oven, the evil-smelling black soil under which was, he informed us, largely composed of stale "German yeast." In this material I was so fortunate as to find three specimens of *Carcinops 11-striata*, Steph. There is one previous, but very ancient, record of this little Histerid from the London district, namely, "Battersea Fields" (Stephens), and the species is an addition to Mr. H. Heasler's more modern and admirable MS. List of London Coleoptera, compiled for the City of London Entomological Society, which comprises upwards of 1600 species, and is limited to a 10 miles radius from Charing Cross, and to records dating from 1880. It is hoped that this List may be published later in some form, but want of funds at present prevents its being issued as a separate work.—F. B. JENNINGS, 152, Silver Street, Upper Edmonton, N. : *January 17th*, 1900.

## Reviews.

BRITISH DRAGONFLIES (ODONATA): by W. J. LUCAS, B.A., F.E.S. Pp. 356, large 8vo, with 27 coloured plates and numerous text figures. London: L. Upcott Gill. 1900.

We cordially welcome this long-expected book, and hope and believe it will do much to further a knowledge of our very limited dragon-fly fauna. But for the sake of the many we wish it had come before us in a less expensive form. In "get up" it is an *ouvrage de luxe*, large type, wide margins, fine paper, &c., &c., albeit with an ugly binding. On one point the work stands prominently forward, that is in the amount of information (and also figures, mostly original) on the early stages of the insects; we can recall no other faunistic book on the subject in Europe in which this is so much detailed: the eggs are figured for nine species. The preliminary part is good, but the tables for genera and species (pp. 57—61) leave much to be desired, being too much based on colour characters; and we scarcely find any allusion to the genitalia of the second segment in the ♂, which, in *Sympetrum* especially, should have been diagrammatically figured (in the comparison between *S. striolatum* and *S. vulgatum*, p. 73, no mention is made of these, yet they furnish what is practically the one reliable character). Beyond the tables there is no division into families or genera, and the species follow on without breaks. The general plan is as follows for each species:—Synonymy (mainly limited to British works), a copy of the original description, Size, Male Imago, Female Imago, Immature Colour, Variation, Egg, Nymph, Date, Migration, Habits, Distribution. This last (Distribution) seems unnecessarily extended in the case of species found practically everywhere, and will prove embarrassing when a second edition is required. A few words might have been devoted to extra-British distribution, for an intelligent interest is springing up in dragon-flies by tourists and others, and it affects the matter of migration. The descriptions are full and carefully written; the addition of a few more *structural* details here and there would have improved them. And now as to the Plates, for these are likely to be more frequently consulted than the text. They, as a whole, are excellent, and should, save in a few critical cases, enable the collector to determine his



captures with certainty, and they have for the most part been drawn from fresh examples. Those for the *Eschninae* are practically perfect (save for *E. isosceles*, for which only old materials were available). A very trifling outlay would have still further enhanced their value. The *sides* of the thorax should have been figured for *Sympetrum*, *Eschna*, *Agrion*, &c., and figures should also have been given for the dimorphic females of *Ichnura*, and for the whitish form (often the most common) of *Platynemis*. One plate, that devoted to the two species of *Ichnura*, is indifferent: the pale blue (or bluish-white) annulus near the apex of the abdomen (differing in position according to the species), so conspicuous in the living insect, is barely discernible. The figure of the female of *Oxygastra Curtisi* seems to have been taken from a very lightly-coloured individual.

The author admits 39 or 40 British species (he seems to waver in the case of *S. striolatum* and *S. vulgatum*), whereas seven others are alluded to as "Reputed British." Some of these latter probably got into our lists through absence of locality labels; but others have certainly occurred here in one or more specimens (and still more are likely to do so), and it is difficult to draw the line between the rights of such species as *S. Fonscolombii*, of which a large migratory swarm occurred a few years ago, and *S. meridionale*, known only by one or two very old specimens, but which *may* have formed part of a swarm.

The writer of this notice calls attention to the fact that the example of "*Sympetrum vulgatum*" from Desvignes' collection, *cf.* p. 72, is identical with that of *S. Fonscolombii* mentioned at p. 71, and that the error was corrected in *Ent. Mo. Mag.*, xx, p. 253.

The book has been well seen through the press, and the few errors are mainly corrected at pp. 332—333, though some, mostly topographical, remain.

A short chapter on "Preparation" concludes the work. In this we rejoice to see that the author recommends *flat* setting boards with *square* grooves.

We have made no allusion to the sequence adopted for the species. It is not that which we would now follow, but this is a matter of comparatively small importance.

We congratulate Mr. Lucas on having produced a useful work that we hope will soon require a second edition. It does not obviate the necessity for a small *scientific* "Synopsis," nor would the one in any way clash with the other.—  
R. McLACHLAN.

THE HYMENOPTERA OF SUFFOLK. Part i, Aculeata: by CLAUDE MORLEY, F.E.S. With Map. Svo, pp. 22. Plymouth: J. H. Keys. 1899.

Mr. Morley has published under the above title an excellent list of the Suffolk *Aculeata*. Suffolk as a county is always interesting in the eyes of Hymenopterists, as the collecting ground of the Rev. W. Kirby and the few Entomologists who assisted him in gathering materials for his Monograph of the British Bees. We have to thank the Rev. E. N. Bloomfield, as we are told in the first few lines of the preface, for much of the labour involved in the compilation of this list, and no doubt for its original conception. A record of a little more than two-thirds of the entire number of species known to inhabit the United Kingdom is undoubtedly good for one county, and yet among the rarer species, besides those predicted by the author, there are probably several which will be found some day. Among the ants *Ponera*

and *Formicoxenus* are quite likely inhabitants of the county, and the absence of *Formica fusca*, race *cunicularia*, is hard to account for. Among the Fossors *Tiphia minuta*, *Calicurgus hyalinatus*, *Pseudagenia punctum*, *Cerceris quadricincta*, *Crabro signatus* and *Panzeri* are all possibilities. In the *Diptera* there are only seven not recorded, of which *Odynerus levipes* and *melanocephala* are the only species which can be said to be likely to occur. Among the *Anthophila* we should expect *Prosopis Masoni* to turn up, and as *Halictus prasinus* and *xanthopus* appear in the list, their corresponding *Sphcodes*, *reticulatus* and *spinulosus*, may hopefully be looked for. *Halictus breviceps*, *Andrena humilis*, *analis*, *lucens*, and *niveata*, the little new species recently introduced into our list, may reasonably be expected to exist in the county. In the *Apide* the list is extraordinarily full, and *Melecta lactuosa* seems to be the only species which could reasonably be suggested as a possible addition to reward the ardour of collectors. The list is very free from printer's errors, *Didineis unicornis* (should be *lunicornis*) being the only serious one. Mr. Morley may fairly be congratulated on the way he has done his work.—E. S.

PRACTICAL HINTS ON THE FORMATION OF A COLLECTION OF COLEOPTERA :  
by J. J. WALKER, R.N., F.L.S., &c. (Extracted from the "Transactions of the South-Eastern Union of Scientific Societies for 1899." Pp. 18—35, 8vo).

We make no apologies for calling prominent attention to this very useful paper, because there are few, if any, better entitled than its author to write on the subject, and also because it is likely to escape the notice of some of those interested, for it is not all who see the "Transactions" of the recently established "South-Eastern Union," but all Coleopterists beginning work should certainly do so, if they cannot procure a separate copy of the paper. The amount of information crammed into these closely printed 18 pages is very great. Advanced workers will read it with interest; but it is of course mainly intended for the "beginner," and its great feature is its many-sidedness; there is scarcely any point, even of collateral importance, that does not receive attention. The same genuine enthusiasm and geniality in style so conspicuous in all others of Mr. Walker's writings is abundantly evident, with here and there humorous allusions. Such an article as this should be published in pamphlet form, and sold at a low price.

## Obituary.

*Richard Henry Meade, F.R.C.S., &c.*, died at his residence at Bradford on December 23rd, 1899, in his 86th year. He was the son of the Rev. Richard Meade, of Princes Risboro', Buckinghamshire, and was born in 1814. Destined for the medical profession, he was apprenticed at Bedford Infirmary, and afterwards studied at St. Bartholomew's, where he formed a life-long friendship with Sir James Paget, a fellow-student, whom he predeceased by only a few days. He became M.R.C.S. in 1836 and F.R.C.S. in 1845. For a time he appears to have been in practice near London, and also Lecturer on Botany at St. Bartholomew's. But in 1840 he succeeded to a surgical practice at Bradford, which became much extended, and he obtained a high reputation in that branch of the profession in Yorkshire: he also held several important public professional appointments, and for twenty years was a J.P. As a man of high character and distinct personality he will be much missed up north.

As a naturalist he appears to have commenced by writing on *Arachnida* in the "Annals and Mag. Nat. Hist.," in 1854. In 1855 he produced a "Monograph of the British *Phalangidæ* or Harvestmen" and a supplement thereto in 1861; also papers on the spiders of coal mines, &c., some of which appeared in the "Zoologist." Then, from some cause, probably pressure of professional work, he seems to have written next to nothing on entomology or allied subjects for fully ten years. But in the meantime he was amassing material in British *Diptera*, of which Order he had a wide general knowledge. The difficult and obscure *Muscidæ* (in the broad sense) became his speciality, and he was regarded as an authority thereon. Nearly the whole of his writings on *Diptera* appeared in this Journal from 1875 down to last year, when he published his paper on *Cordyluridæ*, which was barely finished before his last illness. He attacked the *Anthomyiidæ*, *Sarcophagidæ*, *Tachinidæ*, &c. A generic paper on North American *Anthomyiidæ* appeared in 1878. In 1897 he published separately "A descriptive list of British *Anthomyiidæ*," which was a second edition of his List in this Journal in 1881-3. We have heard Mr. Meade's work in *Diptera* condemned as not being sufficiently in advance of the time. From its style we think he never intended it to be more than tentative. He cleared the ground for future workers; he acquired a large amount of knowledge in a difficult and little-worked group; and he elected to let his fellow-students have the benefit of it, rather than allow it to die with him: and it should not be forgotten that much of his work was done at an age of more than four score years! Mr. Meade leaves three sons and three (two unmarried) daughters; of the sons one is a surgeon at Bradford, one a clergyman, and the third an officer in the navy.—R. McL.

## Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: November 20th, 1899.—Mr. G. T. BETHUNE-BAKER, F.L.S., President, in the Chair.

Rev. C. F. Thornehill showed specimens of *Lycæna batïca* taken by Mr. Lowe in Guernsey, and said that there had apparently been a large immigration of the species to the island this year, as Mr. Lowe had taken about 80 in his garden, and seen many others; he also showed specimens of *Oporabia dilutata* from Calverhall, Salop, where he said all the specimens were of the same dark leaden colour, with but slight trace of the markings, and were much darker than those he had been in the habit of taking at Burton-on-Trent; and a series of *Cænonympha Tiphon* from Calverhall. Mr. R. C. Bradley, a long series of *Bombus hortorum* taken this year, and showing a wide range of variation, var. *Harrisellus*, in all three sexes from Droitwich, var. *subterraneus*, ♀ and ♂ only from his garden at Moseley, and various intermediate forms from different places. Mr. J. T. Fountain, a number of insects taken during the year at Acoek's Green, near to Birmingham, close to the buildings of the town, including *Leucania comma*, *Agrotis exclamationis* (a variable series), *Anchocelis pistacina*, *Orthosia lola*, *Grammesia trigrammica*, &c. Mr. P. W. Abbott, *Lepidoptera*, all from Wyre Forest, and chiefly taken this year; they included *Agrotis cinerea*, some of the dark form which represents the species there, *Sesia culiciformis*, with one white banded specimen caught last year, and an orange banded one caught this year, with typical ones; *Oporina croceago*, including two specimens which were light brown in colour, no trace at all of the usual orange

colour showing; one specimen of *Neuria saponaria*, a new record for the district; bred series of *Asphalia rideus* ♂, including a so-called black one; a series of *Cymatophora fluctuosa*, which he said he had got for the first time comparatively commonly, never having taken more than odd specimens there before. He also said that he had taken a specimen of *C. octogesima* there this year, which thus completed the list of this genus, all the species of which he had obtained in this one locality; also a bred series of *Sesia sphegiformis*. Mr. J. T. Fountain, a specimen of *Spilosoma menthastri*, which was alive, and had emerged from the pupa on November 17th; also a *Sirex gigas*, ♂, from a colliery at Walsall, where it had emerged from some wood at a depth of 800 yards beneath the surface at the beginning of October. Mr. G. T. Bethune-Baker showed Palæartic *Rhopalocera*, including the genus *Æneis*, and a number of the genus *Satyrus*; there was a series of *Æneis Aëlo*, and various Turkestan species, good series of *Satyrus Alcyone*, *Hermione*, *Circe*, &c. Mr. C. J. Wainwright showed a series of the handsome Dipteron, *Asilus crabroniformis* taken in Cornwall this year, a fine series of *Leptogaster cylindrica* from Herefordshire, where he had found it common, and various other Asilids, &c.

December 18th, 1899.—The President in the Chair.

Mr. Chas. Pumphrey, 5, Park Road, Moseley, was elected a Member of the Society.

Mr. Colbran J. Wainwright showed *Physocephala rufipes* from Cornwall, and other *Conopidæ* and *Syrphidæ*. Mr. P. W. Abbott, a series of *Nola cucullatella* from London, including two very dark ones. Mr. G. T. Bethune-Baker, a number of Palæartic insects of the genus *Satyrus*, *Semele* and vars., &c.—COLBRAN J. WAINWRIGHT, Hon. Sec.

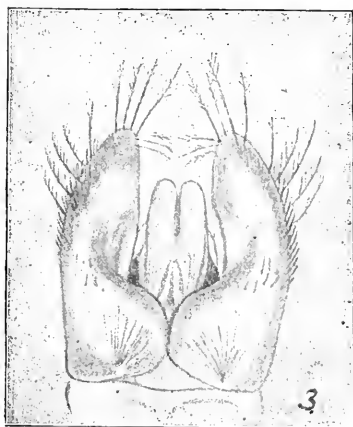
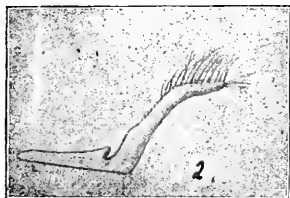
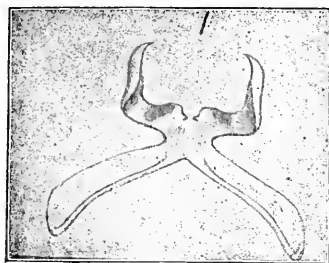
THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: November 23rd, 1899.—Mr. A. HARRISON, F.L.S., F.E.S., President, in the Chair.

Mr. Sich exhibited two specimens of *Platyptilia acanthodactyla* bred from larvæ taken off *Geranium rotundifolium* at Chiswick; *Aglossa cuprealis*, showing extremes in size, and *Cucullia chamomilla*, Chiswick, 1899. Mr. F. M. B. Carr, *Sirex gigas* from Boldrewood, where several others had been seen, and numerous species taken at sugar at Wicken in June, and at Hailsham in August, at both of which times *Lepidoptera* were plentiful. Mr. R. Adkin, on behalf of Mr. Newman, a series of remarkable varieties: *Argynnis Paphia*, suffused with black; *Smerinthus tilia*, specimens with the central band reduced to a triangular blotch, and pale ground colour; *S. populi*, pinkish and dark forms; *Saturnia paronia*, sub-diaphanous, bred the third year in pupa; *Pygava* cross, *curtula* + *pigra (reclusa)* bred, out of 120 specimens only three were males; and aberrant forms of *Arctia Caja*, *Lasiocampa quercus*, &c. Mr. R. Adkin read a paper, entitled, "More Lazy Days by the Sea," being stray notes on a short holiday at Eastbourne. He touched upon many subjects that had come under his notice, including the comparative abundance and scarcity respectively of the commoner species of butterflies, the effect of the unusually warm summer on some of the moths, an immigration of *Pieris rapæ*, &c. Mr. Carpenter stated that he had examined numerous specimens of *T. cardui* in the spring, and found they were invariably females. He suggested, since he found no developed ova in them, that they were infertile, and that had they been paired they would not have emigrated.—H. J. TURNER, Hon. Sec.

*PROSOPIS PALUSTRIS*, SP. NOV., AN ADDITION TO THE BRITISH HYMENOPTERA.

BY R. C. L. PERKINS, B. A.

I have included this species in the ubiquitous genus *Prosopis* with some hesitation, because in nearly all its characters it might quite well be associated with the fifty odd Hawaiian species for which I recently made the genus *Nesoprosopis*. At present, however, I have not been able to examine the characters sufficiently minutely to be sure that it would be correct to place the species in that genus, although certainly in many of the most important structural points it is so exactly similar to *Nesoprosopis* that no doubt can be felt that at any rate it is really very closely allied thereto. The form of the 8th ventral segment with its large erect process, and the manner in which it is given off from the body of the segment, the depressed sides of the face in the ♂, the form of the propodeum, &c., are all noticeable characters in both this and the Hawaiian species. Hitherto the species known to me, which most nearly approached *Nesoprosopis*, was the European *P. cornuta*, but the process of the 8th segment of the ♂ in that species arises in a different manner (the many Hawaiian species never differing in this point), and the genitalia are also very different. So far as the British species are concerned, *P. palustris* is amongst the largest, and cannot easily be confused with any other. The female superficially resembles *P. communis*, but the impunctate



basal segment of the abdomen easily distinguishes it, and the structure of the propodeum is essentially different, being less abrupt posteriorly, and in *P. communis* the posterior elements are much more widely separated by the backward prolongation of the anterior area.

PROSOPIS PALUSTRIS, *sp. nov.*

♂. Black, abdomen shining. Face below the antennæ entirely yellow, and at the sides this colour is continued backwards broadly along the borders of the eyes for some distance above the insertion of the antennæ. Front tibiæ pale outwardly, the middle pair narrowly at the base, the posterior on their basal half. All the metatarsi pale, as well as the prothoracic tubercles. Labrum and mandibles black.

Face moderately long, and with the eyes convergent towards the apex, distinctly and widely impressed on each side, above the antennæ very densely punctured and clothed with short grey hairs. Basal joint of the antennæ about twice as long as wide, its hind margin rounded, and fringed with grey hairs, beneath distinctly but not very strongly arched. Mesothorax and scutellum densely punctured. Anterior area of the propodeum with very strong transverse rugosities, the rest with dense irregular rugosity and clothed with grey hairs. Abdomen with the basal segment very shining, impunctate, or with a faint trace of obsolete punctures, and with a little grey pubescence at the apex laterally in fresh examples. Second and third segments with fine indefinite puncturation, and clothed with short grey inconspicuous hairs, rather longer and more distinct along the apical margins, which are impressed and even very slightly reflexed. Terminal (8th) ventral segment produced at the apex into a long erect process, which is clothed with hairs on the apical portion.

♀. Black, a large triangular space on each side of the face; the prothoracic tubercles, a spot at the base of the front and intermediate tibiæ, and the posterior pair on their basal half, pale yellow or whitish.

Face wider than in the ♂, densely punctured, the space between the eyes and mandibles excessively short, so that there are practically no cheeks. Mesothorax dull, densely punctured, anterior area of the propodeum quite different in sculpture to that of the ♂, being irregularly or clathrately rugose, posteriorly only forming a very narrow line or groove dividing the posterior elements of the propodeum, which are densely and rugosely punctured and clothed with grey pubescence. Basal segment of the abdomen impunctate, glabrous or nearly so, without lateral spots of pubescence at the apex, the following segments clothed with short grey hairs and very finely punctured. Apical segments clothed above and beneath with dark hairs. Sweeping hairs of the front tarsi well developed. Wings more or less infuscate.

Length, ♂ ♀, 6-8 mm.

EXPLANATION OF FIGURES.—Fig. 1, 7th ventral segment of ♂; 2, 8th ventral segment, lateral view; 3, genital armature of ♂.

*Hab.*: Wicken Fen, Cambridge, and in similar localities in Suffolk, frequenting the flowers of bramble, thistles, &c., and burrowing in the dry stems of the reeds. A common local species, appearing at the end of June in company with *P. brevicornis*, and later with *Macropis labiata* at Wicken, all three species being very abundant there, and at the end of July, 1899, these were nearly the only bees to be found in that well known locality.

Cambridge: January, 1900.

THREE LITTLE-KNOWN BRITISH HYMENOPTERA  
(*POMPILUS APPROXIMATUS*, SM., *OSMIA PARIETINA*, CURT.,  
AND *O. INERMIS*, ZETT.).

BY EDWARD SAUNDERS, F. L. S.

*POMPILUS APPROXIMATUS*, Smith, The Entom., x, p. 64, ♀; *bifidus*, Mor., Hor. Soc. Ent. Ross., xxv, p. 190, ♂; *melanarius*, Bold. (*nec* V. de L.), Ent. Mo. Mag., iv, p. 226.

I have had 3 ♂s and a ♀ of a *Pompilus* from Scotland, without further locality, placed with *niger* in my collection for some years, which belong to the above species. I examined Smith's types years ago, and thought they were only a variety of *niger*, the male was unknown, and the characters of the neurulation, &c., seemed to me insufficient to retain it as a species. On working lately at some continental *Pompili*, of the *niger* group I turned up the description of Morawitz's *bifidus*, and found that my Scotch males had bifid claws, and were no doubt referable to it. *Approximatus*, Smith, is no doubt its ♀, and being the older name must stand for the species; the characters to distinguish *approximatus* from *niger* are as follows:—

♂. Head, prothorax, and anterior coxæ more hairy, wings with the 3rd submarginal cell subquadrate; propodeum pilose, especially at the sides, and clothed with a more conspicuous, fine, adpressed, silvery pubescence; inner calcar of posterior tibiæ much shorter, not nearly so long as the metatarsus; 4th tarsal joint only half as long as the 5th claws bifid; apical ventral segment compressed and shaped much as in *niger*, but not densely clothed with short bristly hairs, as in that species.

♀ differs from *niger* in the more hairy head, pronotum, and coxæ, the subquadrate 3rd submarginal cell, the clouding of the wings, which in this species extends beyond the definite dark apical band over about a third of the wings, but so delicately as hardly to obscure its clearness (in *niger* the wings are generally more or less dusky throughout), the pilose propodeum, especially at the sides, the short 4th joint of the posterior tarsi, which is as broad at its apex as it is long, the more developed although inconspicuous spines in the anterior metatarsal comb, and the slightly narrower abdomen in proportion to its length. Long., 7–9 mm.

Two ♀s, Dumfriesshire (Sharp), ♀, E. Cumberland, July (Bold), 3 ♂s and ♀, Scotland, in my own collection, and several females from N. Wales (Nevinson).

*OSMIA PARIETINA*, Curt., = *angustula*, Zett.

For many years, *i. e.*, since F. Smith's work on the British Bees ("Catalogue Brit. Hym. Brit. Mus., i, 1855"), we have known an *Osmia* under this name; it has always been a great rarity, and there was no other closely allied species to confuse it with; it was also a well marked and conspicuous little insect. I never suspected anything

wrong with its determination till the other day, when I was pleased to find among Mr. E. B. Nevinson's captures in North Wales (of which a list is given further on), what I thought was a new species to our list, viz., *angustula*, Zett. Before bringing it forward as new, I referred to Curtis's original figure of *parietina*, and to my surprise found it represented not our well-known species, but the supposed novelty. The continental authors, Schmiedeknecht, Dalla Torre, Friese, &c., have always considered the two identical, but knowing only one in England, which was quite distinct from the continental *angustula*, I am afraid I jumped to the conclusion that our continental friends were wrong; a glance, however, at Curtis's figure with the knowledge that both species occur in this country, removes all doubt as to the identity of *parietina*, and practically adds a new species to our list. Our two species will stand thus:

OSMIA INERMIS, Zett., Ins. Lapp., i, 466.

= *parietina*, Smith, Saunders, &c. (*nee* Curt.).

OSMIA PARIETINA, Curt., Brit. Ent., v (1828), pl. 222.

= *angustula*, Zett., Ins. Lapp., i, 466 (1838).

Of this second species, of which so little is known in this country, the following are the principal characteristics:—

♂ rather dark greenish- or steel-blue, vertex of head and thorax above clothed with pale fulvous hairs, face and sides of the thorax with paler, somewhat whitish, hairs, head and thorax very closely punctured, rather duller than in *caeruleseens*, propodeal area dull, not shining as in that species, wings slightly smoky, abdomen rather less strongly punctured than in *caeruleseens*; 6th segment with rather a wider emargination at the apex, 7th rather more deeply and squarely excavated between the teeth, 2nd ventral segment less largely rounded at the apex; posterior metatarsi very slightly dilated from about the middle, which bears on the under-side a very distinct tooth, that projects, and is distinctly visible, beyond the hairs of the surface; this character and the dull propodeal area at once distinguish it from the ♂ of *caeruleseens*, the dull area and the much more developed metatarsal tooth separate it from *fulviventris*, ♂.

♀ rather narrow and at first sight suggestive of a small *fulviventris*, from which the black ventral scopa distinguishes it at once; head and thorax black, nearly dull, very closely and finely punctured, clothed with short reddish-brown, not very conspicuous, hairs on the upper surface, face and sides of the thorax with paler hairs, those of the clypeus black-brown; clypeus truncate at the apex; mesonotum with a raised central line in front, wings smoky, especially along the costa, propodeal area dull; abdomen shining dark bluish-black, rugosely punctured, basal segment smooth at the apex, and sparsely clothed with pale hairs at the base, the rest finely shagreened at the apex, and clothed with a few pale hairs at the sides, the 4th and 5th more or less clothed with dark brown hairs on the disc, 6th with golden-grey hairs, beneath with a dense black scopa, legs black, clothed with brownish hairs.



From *pilicornis* and *inermis* this species may be distinguished at once by its narrow form, the much shorter and less conspicuous clothing of the head and thorax, and the steel-blue, not black, abdomen. Long, 7—8 mm.

Criccieth, Barmouth, and Towyn, N. Wales. Curtis's specimen came from Ambleside, Westmoreland, and there is a ♀ in the National Collection, mixed with *inermis*, from Perthshire.

I have to thank Mr. Nevinson for the female from which I have drawn up the above diagnosis. The ♂ was taken by my nephew, Mr. F. Saunders, at Barmouth in June, 1884; this specimen has been for some years in the collection of the Rev. F. D. Morice, to whom I gave it in mistake for a ♂ *cærulescens*, it having been mixed in my collection with that species.

St. Anne's, Woking:  
February, 1900.

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NOTES ON CERTAIN *DIPTERA* OBSERVED IN SCOTLAND DURING  
THE YEARS 1898-99.

BY COL. J. W. YERBURY, LATE R.A., F.Z.S., &C.

I respond to the wish that I should give some account of my captures during the years 1898-99. The former records of most of the species mentioned are to be found in "The Scottish Naturalist," and "The Annals of Scottish Natural History," and while calling attention to these, I have supplemented them by giving my own experiences.

*LAPHRIA FLAVA*, L.

The first record of the occurrence of this insect within the limits of the United Kingdom was made by Dr. Vice (The Scottish Naturalist, Vol. 2 [1873-74]), viz., that of a ♀ specimen taken in Strathdon, Aberdeenshire, in August, 1872 or 1873, and the only subsequent record is the following by the Rev. E. N. Bloomfield (Ent. Mo. Mag., 2, vol. ix, 138 [June, 1898]), who reports the capture of a pair at Banchoory, Aberdeenshire, in September, 1889. At a meeting of the Ent. Soc. Lond. held October 5th, 1898, I exhibited a pair taken at Aviemore in July, 1898, and this year (1899) I took another ♀ in the same locality on July 10th; besides the above, a single specimen is to be found in the Edinburgh Museum, taken by Mr. L. Hinxman in the Rothiemurchus Forest, in the year 1895.

The above list (seven specimens) exhausts all the captures I can trace, and it will be noted that all are from localities on the flanks of the Cairngorms. As regards habits I have learnt but little, still it may be worth while to put on record such points as I have noted regarding the three specimens taken by myself:—

i.—a ♂, taken 22/7/98, was sitting on a roughly squared log which formed a foot bridge across a stream near Kinrara.

ii.—♀, taken 30/7/98, on the slope of Cudha Mor above Loch an Eilan, close to the limit of the pine trees; this specimen was flying round me when caught, and made a loud humming noise while on the wing, the note was in quite a different key to that of *Tabanus sudeticus*, and I realized at once that some new insect was flying round me. Alas, this locality has been, I fear, devastated by the recent fire, the locality is probably, however, a hint to the true home of the insect.

iii.—a ♀, taken 10/7/99, found sitting on pebbles in the bed of the Spey.

#### SYRPHUS ANNULIPES, Zett.

So far as I can ascertain only five specimens of this species have been taken in England, and these all in the west country (Herefordshire, Gloucestershire, and Devonshire). Until I met with this species in abundance at Nethy Bridge in August, 1898, the only specimen I had seen was one taken by Dr. Wood at Tarrington, Herefordshire, on 15/8/95, and now in the B. M. collection. The species appears, however, to be very common in Scotland, as, besides the locality referred to above, I found it in numbers at Forres in August, 1899, while Mr. Grimshaw records it in the Annals of Scottish Natural History (on the first occasion [January, 1897] erroneously as "new to Britain") from various places in Perthshire. *Syrphus annulipes* affects thistle and ragwort blossom, and when visiting the former flower (which it seems to prefer) is very shy and difficult to capture, in fact it is a case of striking at it on sight.

#### CRIORRHINA (CYNORRHINA\*) FALLAX, L.

Mr. Verrall recorded (The Scottish Naturalist, vol. 2, p. 200, 1873-74) the capture at Braemar in July, 1873, of the first British specimen of this species (a ♀), and from that date until July, 1898, no second capture appears to have been made; on October 5th, 1898, I exhibited at a meeting of the Ent. Soc., two ♀ specimens taken on the golf links at Kingussie on July 20th, 1898; while at Aviemore during the month of July of the present year (1899), I succeeded in catching five more specimens (4 ♂ and 1 ♀).

The conclusion I have arrived at regarding the habits of this species is, that the flowers of the wild raspberry have an undoubted attraction for it; of the seven specimens taken by myself five were

\* Vide Williston *Syrphida*, N. America, p. 203.

taken actually at these flowers, one was sitting among the raspberry bushes on the ground, and the other was flying over a patch of wild thyme in blossom. Three specimens, as follows, ♂, 10/7/99, ♂, 16/7/99, ♀, 20/7/99, were taken in a space which might literally have been covered with a sheet.

#### XYLOTA CONFINIS, Zett.

A specimen of this species is to be found in Mr. Verrall's collection, and was taken, I believe, at Three Bridges, Sussex, but I cannot trace any report of its capture.

At the meeting of the Ent. Soc. previously referred to, I exhibited a pair taken as follows, the ♂ at Rannoch, 6/7/98, the ♀ at Kingussie, 22/7/98.

During the month of July of the present year (1899), I found the species in some numbers at Aviemore; it affects the dwarf aspen scrub, and is fond of sitting on the leaves basking in the sun. I should have liked to have added *X. abiens*, Mg., to my list of captures, but, unfortunately, some doubt exists as to the correct identification of the Scottish insect—two closely allied but distinct species exist within our isles: the one inhabiting England (Herefordshire, Forest of Dean, New Forest) I have heretofore considered to be *X. florum*, F., the other (the Scottish insect) I identified as *X. abiens*; in Mr. Verrall's collection, however, the specimens are identified in the reverse manner.

Neither of these species agrees satisfactorily with Schiner's descriptions as given in "Fauna Austriaca, Die Fliegen," vol. I, pp. 356, 357, but whether this is due to our English specimens being local races of the two species, tending possibly to unite them together, or to the want of appreciation by Schiner of the true distinctions separating them, I will leave to others to decide—possibly the appearance of Mr. Verrall's long expected volume on British *Syrphidæ* may enlighten us on the point.

#### CYNOMYIA ALPINA, Zett.

The only exact English locality I know of for this species is Shucknell Hill, in Herefordshire. Mr. Bradley, however, reports the species as common at Sutton Coldfield (Warwickshire). In Scotland I found it in fair numbers near Nethy Bridge on 16/8/99, and in July, 1899, it was common round Aviemore. Mr. Grimshaw records the species from Ayrshire (Annals of Scottish Natural History, January, 1897, p. 23), and there is the report of a specimen taken at Old Aberdeen (The Scottish Naturalist, vol. I, p. 18); although this

record is not generally accepted, it appears probable that the identification was correct, and that the insect is not uncommon throughout Scotland.

CEPHENOMYIA RUFIBARBIS, Mg.

Though this species appears to be fairly common in Scotland, Mr. Hinxman (of the Scottish Geological Survey) and myself appear to be the only persons who have met with it alive; as a proof of the abundance of the species in suitable localities I cannot do better than quote as follows from a letter received from the former gentleman in July last year:—"I was on the Western Cairngorms in the Glen Feshie Forest on June 28th, and saw at least a dozen specimens, but only secured one, having other work to do." Personally I have never met with it in numbers, nor has it ever settled on me in the confiding manner it is sometimes said to do. The first record of capture is that made by Mr. Grimshaw (The Annals of Scottish Natural History, July, 1895, p. 155) of two specimens taken in June, 1894, only a few feet above sea level, by Mr. Hinxman in Strath Carron (Ross-shire); as there are specimens in the collections of the British Museum, the Edinburgh Museum of Science and Art, and Mr. Verrall, all taken by Mr. Hinxman, that gentleman must have met with the species in two or more localities since then. As regards the specimens found by myself, the first was taken on 6/7/98 at Rannoch on Meal Druidhe above the Carie Burn, at a height of about 1300 ft., and was flying about rapidly over the heather and bog myrtle, it looked while on the wing like a large burying beetle; the second was taken on the slope of Cairngorm itself, at an altitude of 3000 ft., on 13/7/99, sitting on a slope of disintegrated granite; this specimen must have been taken almost in the same spot as that by Mr. Hinxman, now in the British Museum; another specimen was seen on date mentioned, but not caught, a result partly due to the high wind, and partly to a plague of *Anthomyidæ*, who were round one in hundreds, and quite prevented one's eye following anything else on the wing.

On this occasion I gave up my climb to the top of Ben Mac Dhui, and devoted my day to searching for *C. rufibarbis* on the slopes of Cairngorm instead, but with no further result. *C. rufibarbis* appears to affect the disintegrated granite slopes, where it sits on the ground, in preference to resting on boulders and stones; bright sunshine is, however, an essential condition for a successful hunt for it, and the result is more likely to be satisfactory in the month of June rather than

in that of July. As will be seen from the above records, the species has a wide vertical range from sea level in Ross-shire to 3000 ft. on the Cairngorms.

(To be continued).

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LIST OF THE COLEOPTERA OF ALDERNEY.

BY W. A. LUFF.

In the Transactions of the Guernsey Society of Natural Science for 1897, I published a list of the Insects of Alderney, as far as then known. In this list 55 species of *Coleoptera* were recorded. Through the kindness of Mr. E. D. Marquand, who has taken up his residence on the island for the purpose of completing his work on the Flora of Guernsey and the lesser Channel Islands, I am able to add 84 to this number, making 139 species in all.

The most interesting species are *Rhizotrogus æstivus* and *Cryptcephalus vittatus*, neither of which is on the British list. Several specimens of a black variety of the latter species were taken, which I at first thought were referable to *C. moræi*, a species occurring not uncommonly in Guernsey with *C. vittatus*. The *Rhizotrogus* is perhaps a visitor from the adjacent mainland, it being a widely distributed species in France. *Neerophorus germanicus* and *Meloe brevicollis* are also worthy of special notice.

The following is a complete list of the *Coleoptera* now known to occur in the island. The additional captures made by Mr. E. D. Marquand in 1899 are distinguished by an asterisk. I have to thank Mr. G. C. Champion, F.Z.S., for his kindness in naming many of the specimens.

\**Cicindela campestris*, L., several seen, one captured. \**Notiophilus biguttatus*, Fabr. \**Leistus fulvibarbis*, Dej., rare. *Nebria brevicollis*, F., not uncommon. \**Brosicus cephalotes*, L. \**Panagæus quadripustulatus*, St., rare. \**Harpalus æneus*, F., *H. consentaneus*, Dej., \**H. tardus*, Panz., \**H. anxius*, Duft., common; \**H. neglectus*, Dej. *Zabrus gibbus*, F., taken in 1892. \**Anisodactylus binotatus*, F. \**Pterostichus cupreus*, L., *P. madidus*, F., common. *Amara apricaria*, Sturm, common; \**A. ovata*, F., \**A. tibialis*, Payk., not uncommon; \**A. lunicollis*, Sch., rare; \**A. trivialis*, Gyll., and *A. lucida*, Duft., common. *Calathus melanocephalus*, L., common; *C. cisteloides*, Panz., taken in 1892; *C. flavipes*, Fourc., rare. \**Anchomenus dorsalis*, Müll., common; *A. albipes*, F., taken in 1892. \**Olisthopus rotundatus*, Payk., rare. \**Bembidium littorale*, Ol., common in sandy places on the coast. *Metabletus foveola*, Gyll., common. \**Hydroporus palustris*, L., and \**H. pubescens*, Gyll., several in quarry pools. \**Agabus bipustulatus*, L. \**Helophorus*, sp. (? *æneipennis*, Th.). *Anacæna limbata*, F. \**Sphæridium scarabæoides*, F., and *S. bipustulatum*, F., common. \**Tachyporus hypnorum*, F., common. \**Quedius tristis*,

Grav. ; \**Q. rufipes*, Grav. \**Creophilus marillosus*, L. \**Philonthus æneus*, Rossi ; \**P. politus*, F., \**P. varius*, Gyll. ; \**P. sordidus*, Grav. \**Xantholinus longiventris*, Heer ; \**X. glabratus*, Grav. *Pæderus littoralis*, Grav., common. *Stenus similis*, Herbst, on the cliffs, in 1892 ; \**S. providus*, Er. \**Necrophorus germanicus*, L., one found by Mr. Marquand crushed on a pathway ; \**N. vespillo*, L., under dead moles. \**Silpha tristis*, Ill., and \**S. lævigata*, F., common. \**Choleva intermedia*, Kr., one specimen. \**Carcinops minima*, Aubé, common under stones. \**Saprinus nitidulus*, Payk., \**S. maritimus*, Steph., and \**S. æneus*, F., not uncommon. \**Meligethes æneus*, F., common. *Coccinella 11-punctata*, L., and *C. 7-punctata*, L., common. *Ilalyzia 22-punctata*, L., several on the cliffs. \**Chilocorus bipustulatus*, L., on furze on the cliffs. *Rhizobius litura*, F., common. \**Parus prolifericornis*, F. \**Orthophagus vacca*, L., not rare ; \**O. fracticornis*, Payk., common. *Aphodius fossor*, L., common ; \**A. erraticus*, L., not uncommon ; *A. hæmorrhoidalis*, L., *A. fimetarius*, L., abundant ; *A. punctato-sulcatus*, Sturm, common ; *A. rufipes*, L. \**Geotrupes stercorarius*, L. ; *G. sylvaticus*, Panz., and *G. vernalis*, L., common. *Rhizotrogus solstitialis*, L., common ; \**R. æstivus*, Ol., one specimen captured by Mr. Marquand. *Melolontha vulgaris*, F., taken by the Rev. F. A. Walker in 1897. \**Iloplia philanthus*, Füss., common on flowers on the cliffs in June. \**Lacon murinus*, L., common. *Athous longicollis*, Ol., one specimen in August, 1892 ; \**A. hæmorrhoidalis*, F., common. \**Agriotes lineatus*, L., and \**A. sputator*, L., common. \**Corymbites quercus*, Gyll. \**Melanotus puncto-lineatus*, Pel., not uncommon. \**Microcara livida*, F. \**Drilus flavescens*, Oliv., two males. \**Telephorus bicolor*, F. *Rhagonycha fûra*, Scop., common. *Psilothrix nobilis*, Ill., common. *Anobium domesticum*, Fourer., common in houses. \**Lema melanopa*, L. *Cryptocephalus vittatus*, F., common on the cliffs ; a variety also occurs without the yellow stripe down the centre of the elytra. I have not met with this in Guernsey where the type-form is common. *Timarcha violaceonigra*, De G., common ; \**T. lævigata*, Duft., rare, one specimen only having been captured ; it has never been taken in Guernsey. \**Chrysomela hæmoptera*, L., common on Longy Common. *Phytodecta olivacea*, Forst., one specimen on the cliffs. *Prasocuris junci*, Brahm., several near a small stream on the cliffs. *Sphæroderma testaceum*, F. \**Longitarsus melanocephalus*, All. ; \**L. jacobææ*, Wat., frequent on ragwort. \**Psylliodes chrysocephala*, L. *Cassida nobilis*, L. \**Crypticus quisquilius*, L., abundant on Longy Common. *Opatrum sabulosum*, Gyll., not uncommon. \**Phaleria cadaverina*, F., frequent. \**Cistela murina*, L., common. *Ctenopus sulphureus*, L., abundant on the cliffs. \**Lagria hirta*, L., common. \**Edemera nobilis*, Scop., not uncommon ; \**O. lurida*, Marsh., common. \**Notoxus monoceros*, L., not rare. \**Meloe brevicollis*, Panz., one specimen. *Apion ulicis*, Forst., common on furze ; *A. miniatum*, Germ. ; *A. rufirostre*, F. ; *A. lævicolle*, Kirb. ; \**A. hydrolapathi*, Kirb. \**Otiorrhynchus atroapterus*, De G. ; *O. ovatus*, L. ; \**O. sulcatus*, F., common ; *O. rugifrons*, Gyll., common. *Tanymericus pallidus*, F., several. \**Trachyphtæus scaber*, L., one example, Longy Common, 1897. \**Phyllobius uniformis*, Marsh. \**Philopeton geminatus*, F., not uncommon. \**Sitones hispidulus*, F. ; \**S. humeralis*, Steph. ; *S. suturalis*, Steph. *Hypera punctata*, F., Longy Common ; *H. pollux*, F. ; *H. nigrirostris*, F., not uncommon. \**Barypeithes brunripes*, Ol. *Orchestes alni*, L., not uncommon ; *O. alni*, L., var. *ferrugineus*, Marsh., one specimen. *Mecinus pyraister*, Herbst. \**Ceuthorrhynchus assimilis*, Payk. *Ceuthorrhynchidius troglodytes*, F., common. \**Cæliodes 4-maculatus*, L.

Mount Pleasant, Burnt Lane, Guernsey :

February 5th, 1900.

A GALL-MAKING *COLEOPHORA* [*STEFANII*, DE JOANNIS].

BY THE RT. HON. LORD WALSHINGHAM, M.A., LL.D., F.R.S., &amp;c.

A superficial acquaintance with the genus *Coleophora*, Hb., impresses us with the idea of a uniform habit among its larvæ. We think of them as case-bearers, and it scarcely occurs to us to seek for any other mode of life than that which distinguishes the well-known species occurring in our own country. The publication in the Bulletin de la Société Entomologique de France, 1899, 331-3, of a communication by M. l'abbé J. de Joannis enlightens us as to the peculiar habits of a species of this genus which appears to differ from all its congeners.

This new species, described under the name *Coleophora stefanii*, forms true galls on the stems of *Atriplex halimus*, these galls being made by the swelling of the branch at one side, causing it to assume the form of a large case, such as those made by several of our species; but this gall is not detached from the branch, and continues to throw forth small leaves at its apex during the life of the larva in its interior.

*C. stefanii* is described as being allied to *botaurella*, Mschl., and *serinipennella*, Chr.; it is straw-yellow, having an enlarged basal joint to the antennæ, which are scaled to their middle. The wings are sprinkled with ochreous scales, without paler or darker lines along the veins, and have an elongate blackish-brown spot on the disc at the extremity of the cell—the figure which accompanies the description indicates a second smaller spot half-way between this and the base. The author refers to the peculiar habits of another species, *argyrella*, H-S., which Christoph [Stett. Ent. Ztg., XXVIII, 245-6 (1867)] describes as living in the stems of *Alhagi camelorum*, but spinning two immovable protruding cases formed of frass and grains of the food-plant, within the larger of which it pupates. *C. salicorniæ*, Wk., cuts off a piece of the stem of its food-plant, using it as a case and attaching it to the stem in which it feeds, but this species leaves its case and pupates in the earth. *Goniodoma*, which can scarcely be separated from *Coleophora*, mines and pupates in the stem itself, making no case. Thus it is apparent that more diversity of habit may be looked for in the genus *Coleophora* than has yet been generally recognised, and the process of the gradual evolution of the case-bearing habit seems to be distinctly indicated.

So far as can be judged from the figure and description, *C. stefanii* appears to be very closely allied to *serinipennella*, Chr., and to *squalorella*, Z.; not being acquainted with the former of these species, except from the figure and description [Hor. Soc. Ent. Ross., IX, 36-7, Pl. II, 32 (1872)] I am unable to say in what points they may

be found to differ; the habits of both in the larval stage are unknown, and indeed *serinipennella* was described from a unique specimen, the figure of which greatly resembles *squalorella*.

The new species here noticed was bred by M. de Stefani in July and August from galls found near the coast at Trapani, and at Santa Ninfa inland, in Sicily, and it belongs evidently to the same group as the three species of *Coleophora* last mentioned, which, together with *binotapennella*, Dp., are distinguished by the possession of discal spots.

Merton Hall, Thetford:  
February, 1900.

#### A NEW SPECIES OF *TORTRIX* REPORTED FROM SHETLAND.

BY JOHN HARTLEY DURRANT, F.E.S., MEMB. SOC. ENT. DE FRANCE.

We have lately received from Prof. Kennel, of Dorpat, a *separately* paged copy of a paper, entitled, "Neue Tortriciden aus den Sammlungen der Herren Dr. O. Staudinger und Th. Seebold." This paper was published in the Entomol. Zeitschrift "Iris" Dresden, XII (1899), and consists of 43 pp. and one plate. Forty species of *Tortricidæ* are described and figured; amongst them a strongly marked form from the Shetlands, which Staudinger has been sending out as *Tortrix (Lozotania) musculinana*. Prof. Kennel considers this a variety of *Tortrix musculana*, Hb., but it seems to be a constant form in the Shetlands, and to be at least worthy of a varietal name. Prof. Kennel described *musculinana* from a single specimen; a series of fourteen shows little variation.

*TORTRIX (LOZOTANIA) MUSCULINANA* (Stgr. Nom. Cat.), Kennel,  
Ent. Zts. Iris, XII, 5, Pl. I, 2, ♂ (1899).

The specimen before me under this name I consider to be only a bright, sharply marked variety of *Tortrix musculana*, Hb., with the ♂ of which it agrees in size, wing-shape and pattern, as also in the colouring of the hind-wings and body. The ground colour of the fore-wings is unusually bright, white-grey, here and there with a yellowish tinge, almost as in bright specimens of *Tortrix histrionana*, Froel. Through it goes the broken bounding line of the basal area, the oblique fascia, quite narrow at the costa, then suddenly strongly widened towards the dorsum and a larger, parallel-margined costal spot before the apex sharply indicated in reddish-brown. The latter, margined by two black lines, reaches to vein 4, thence its outer marginal line proceeds to the dorsum, its inner to the central fascia. This is black-brown on the costa and on its basal margin, and at its expansion some more similar lines run through; in addition the wavy lines of the type-form are more distinctly indicated on the light ground-colour. [Translated by J. H. D.].

*Hab.*: Shetland. Without date.

Merton Hall, Thetford:  
January, 1900.



*The forthcoming new edition of Staudinger's Catalogue.*—"Im nächsten Jahre [wohl gegen Ende, 1900] erscheint ein neuer grosser Catalog der Lepidopteren des Palaearktischen Faunengebiets, von Dr. O. Staudinger und Dr. H. Rebel."

This announcement, published in Lepidopteren-Liste, No. 43, will be welcome news to those who have for years been patiently awaiting the issue of the long-promised third edition. Having exhausted the available space on their interleaved copies of the second edition, they have been obliged to gum in extra sheets, some of which are also full to overflowing with MS. notes—such a copy is now before us! The appearance of a new edition will solve a problem which was beginning to cause us serious anxiety.

We shall await the appearance of this new edition with much curiosity. The system of classification employed in the second edition can hardly be maintained. With so many new schemes to choose from, which will be adopted? Or, have Dr. Staudinger and Dr. Rebel still a new one of their own?

Dr. Staudinger was responsible for Part I of the second edition: the accuracy of this part is generally admitted, but Part II, by Dr. Wocke, abounds in errors of commission and omission. The late M. Ragonot published a valuable commentary on the *Pyralidina* and *Tortricina* in 1894, but even he had not the courage to deal with the very numerous species of Linné, Fabricius, Hübner, Bruand, &c., which were entirely ignored by Dr. Wocke. If the second edition is to be merely brought up to date, and issued as a third edition, it will be very valuable as a work of reference, but no Catalogue of the European *Lepidoptera* will be considered satisfactory which does not include references to the omitted names, even if the species are not identified. We think the most difficult part of the work which Dr. Rebel has before him will be the correction of errors of citation and the identification of species, the names of which have been allowed to lapse; the mere intercalation of references and species published since 1870 will be far simpler, but the examination of the publications of small local societies and clubs will be a very tedious undertaking. It is to be hoped that such an inconvenient error as that which necessitated the insertion of p. 393 *bis* will be avoided, and that the corrigenda will be printed in the largest and most conspicuous type procurable, for even now one occasionally meets with *xylostella* (used for *cruciferarum*), *weaveri*, *Urodela*, *Myrmecocela*, *Cochlophanes*, *Paraponyx*, &c., and it has been pointed out that *podalirius* is an older name than *sinon*! We also hope that family and generic references will be given in the new edition, together with their synonymy and types.

We must congratulate Dr. Staudinger on his courage [and "energy"—dare we *whisper* the word?] in undertaking the preparation of this new edition, and in having obtained the collaboration of Dr. Rebel.—WALSINGHAM and J. HARTLEY DURRANT, Merton Hall, Thetford: February, 1900.

*Tapinostola Bondii*, Knaggs, in the north of France.—At the Meeting of the Société Entomologique de France on December 27th last, Mons. G. A. Poujade, of the entomological department in the Musée d'Histoire Naturelle at Paris, exhibited a specimen of *T. Bondii*, taken on June 5th, 1899, at electric light at Chantilly railway station, some 20 miles to the north of Paris. The locality tempts us to suggest that it might have made a railway journey from the coast.—EDS.

*Stilpnotia sulicis* on Hackney Marsh.—Towards dusk on July 18th, 1899, I found this insect in abundance round a row of willows opposite the "White Hart," on the east side of Hackney Marsh. At least a couple of hundred I must have seen flitting round the trees, at rest on their stems or on the grass, and not a few drowned in the stream below. There were innumerable pupæ too among the leaves, and a fair number of full-grown larvæ; of some two dozen pupæ which I brought home very nearly half proved to be ichneumonid.—SELWYN IMAGE, 6, Southampton Street, Bloomsbury, W.C.: January 20th, 1900.

*Crambus hortuellus* common in Holborn, London.—On several nights at the latter end of June, 1899, I noticed a large number of *C. hortuellus* flying round the electric lamp which hangs under a glass roof at the Holborn entrance of the "Inns of Court Hotel." On some nights there must have been from a dozen to twenty flying round at one time. Although there are of course any quantity of gas lamps close at hand, I never saw one of these insects at any of them. The nearest grass in the neighbourhood is in Lincoln's Inn Fields; but this is separated from the entrance to the Hotel by high blocks of buildings at a distance of about a hundred yards.—ID.

*Aculeate Hymenoptera in North Wales.*—During visits to Crickieth in 1898 and Towyn in 1899 I compiled the following list of Aculeates. The ground worked over was so varied that it cannot be considered a complete one, though I hope it may be useful to future workers in these districts. The distance across the sea between the two localities is about 25 miles. My visit to the former place began on July 14th and ended on August 13th, in the latter I spent the month of July. The capital letters after each species denote the place of capture.

*Myrmosa melanocephala*, Fab., C. T. *Tiphia femorata*, Fab., T. *Sapyga 5-punctata*, Fab., C. *Pompilus rufipes*, Linn., C. T.; *niger*, Fab., C. T.; *approximatus*, Sm., C.; *plumbeus*, Fab., C. T.; *gibbus*, Fab., C.; *unguicularis*, Thoms., T.; *pectinipes*, v. d. L., C. *Salius exaltatus*, Fab., C. T. *Agenia variegata*, Linn., C. *Ceropales maculata*, Fab., C. T. *Astata stigma*, Pz., T. *Tachytes pectinipes*, Linn., C. T.; *unicolor*, Pz., C. T. *Trypoxylon attenuatum*, Sm., C. *Ammophila hirsuta*, Scop., C. T. *Pemphredon lugubris*, Fab., C. T.; *lethifer*, Shuck., C. T.; *Shuckardi*, Mor., C. *Mimesa unicolor*, v. d. L., T. *Gorytes mystaceus*, Linn., C. *Mellinus arvensis*, Linn., C. T. *Cerceris arenaria*, Linn., T. *Oxybelus nigrilunus*, Linn., C. T.; *mandibularis*, Thoms., T.; *mucronatus*, Fab., T. *Crabro clavipes*, Linn., C.; *leucostoma*, Linn., C. T.; *palmipes*, Linn., T.; *anxius*, Wesm., T.; *Wesmaeli*, v. d. L., T.; *dimidiatus*, Fab., T.; *cephalotes*, Pz., C.; *vagus*, Linn., C. T.; *cribrarius*, Linn., T.; *peltarius*, Schrb., T. *Vespa vulgaris*, Linn.; *germanica*, Fab.; *rufa*, Linn., C.; *austriaca*, Pz., C.; *sylvestris*, Scop., C. *Odynerus spinipes*, Linn., T.; *pictus*, Curt., T.; *trimarginatus*, Zett., C. T.; *gracilis*, Brullé, T. *Colletes succincta*, Linn., T.; *fodiens*, Kirb., T.; *picistigma*, Thoms., C.; *Daviesana*, Sm., C. T. *Prosopis hyalinata*, Sm., C. T.; *confusa*, Nyl., T.; *brevicornis*, Nyl., C. *Sphcodes gibbus*, Linn., T.; *subquadratus*, Sm., C.; *puncticeps*, Thoms., C.; *hyalinatus*, Schk., C.; *affinis*, Wesm., C. *Halictus rubicundus*, Chr., C. T.; *leucozonius*, Schr., C.; *quadrinotatus*, Kirb., C. T.; *cylindricus*, Fab., C. T.; *albipes*, Kirb., C.; *subfasciatus*, Nyl., C.; *villosulus*, Kirb., C.; *nitidiusculus*, Kirb., C.;

*tumulorum*, Linn., C.; *Smeathmanellus*, Kirb., C. T.; *morio*, Fab., C.; *leucopus*, Kirb., C. *Andrena thoracica*, Fab., C.; *nitida*, Foure., T.; *Gwynana*, Kirb., C. T.; *nigriceps*, Kirb., T.; *denticulata*, Kirb., T.; *albicus*, Kirb., T.; *analisis*, Pz., C. T.; *coitana*, Kirb., C. T.; *minutula*, Kirb., T.; *nana*, Kirb., T. *Pannurgus ursinus*, Gmel., C. *Cilissa leporina*, Pz., C. *Nomada Roberjeotiana*, Pz., C.; *succincta*, Pz., C.; *alternata*, Kirb., T.; *ochrostoma*, Kirb., C.; *Fabriciana*, Linn., C. *Epeolus productus*, Thoms., T. *Cœlixys elongata*, Lep., T.; *acuminata*, Nyl., T. *Megachile maritima*, Kirb., C. T.; *Willughbiella*, Kirb., C.; *circumcincta*, Lep., C.; *versicolor*, Sm., C. T.; *centuncularis*, Linn., C. T. *Osmia parietina*, Curt. (*angustula*, Zett.), C. T.; *aurulenta*, Pz. *Anthidium manicatum*, Linn., C. T. *Anthophora furcata*, Pz., C. T. *Psithyrus rupestris*, Fab., T.; *vestalis*, Foure., T.; *Barbutellus*, Kirb., C. T.; *campestris*, Panz., T. *Bombus venustus*, Sm., C.; *agrorum*, Fab., C. T.; *hortorum*, Linn. (curious variety without a definite black abdominal band, the black hairs of the normal band and the apex and the abdomen and of the legs represented by fulvous brown hairs), C.; *sylvarum*, Linn., C.; *lapidarius*, Linn., C. T.; *pratorem*, Linn., C.; *terrestris*, Linn., C. T.

*Nomada Roberjeotiana* was captured at the burrows of *A. analis*. *Chrysis viridula* and *ignita* were common at those of *Odynerus spinipes*.

Mr. E. Saunders has kindly identified *Osmia parietina* in the above list.—E. B. NEVINSON, 3, Tedworth Square, Chelsea: February, 1900.

*Philanthus triangulum*, Fab., in Kent.—On August 14th, 1898, I took a male of this rare Aculeate at Folkestone. The weather at the time was dry and warm, and Aculeates of many species were numerous, a great contrast to the past year 1899, when the long dry season without any rain rendered many of the best localities here unproductive.—PERCY E. FREKE, 7, Limes Road, Folkestone: Feb. 7th, 1900.

[This is a very important capture, for although the species is common on the other side of the channel, there has been no record of it from this country since F. Smith took it at Sandown. It has been searched for repeatedly at Sandown of late, but without success, and I suppose it is now more than 30 years since the last captures were made. It is a particularly interesting insect, as it has the daring and effrontery to carry off the ordinary hive bee as its prey.—E. S.]

*Cardiophorus equiseti*, Herbst, in Glamorganshire.—I took two or three specimens of this rare species on the sandhills at Candleston, Glamorganshire, on May 17th, 1899. They occurred at the same time as *Limonius cylindricus*, which swarmed for a week or two all along the coast and then vanished. Another curious instance of this momentary abundance was noticed at Pyle, near Candleston, about the same time. *Psammobius sulcicollis* occurs sparingly on this coast every year, and is generally taken crawling over the sand singly. One afternoon in May, however, when the sand was very dry, I was caught on the sandhills in a sharp shower, and whereas two or three hours' work had only produced a score of the *Psammobius*, after the rain it was impossible to walk without treading on them. They came up out of the sand by myriads, and one could have supplied all the collections in England off a few square yards.—B. TOMLIN, Stancliffe Hall, Matlock: February 14th, 1900.

*Trigonogenius globulum*, Sol., in Lancashire.—This little South American Ptinid does not seem to have been hitherto recorded as occurring in Britain. It has been sent me in some numbers recently by Mr. F. Taylor, of Oldham, who finds it living in a corn mill among the refuse of the grain, and climbing up the walls. Probably it is to be met with in many of the Lancashire mills, and its introduction is not of very recent date. I am confirmed in this view by noticing an unnamed and unlocalized specimen in Chappell's collection, which Mr. Schill kindly allowed me to look through lately, and I have been assured of its occurrence in Manchester. *Trigonogenius* is akin to *Niptus*, and hails from Chili, with a var. *globosum* from New Granada, according to Gemminger and von Harold's Catalogue. There are numerous specimens in the South Kensington collection, labelled "Chili."—*Id.*

*Coleoptera of the Liverpool district and in Denbighshire in 1899.*—During the past year, by no means a favourable one for the Coleopterist, but very few species have come under my notice as additions to the "Liverpool District List." My removal, however, from Cheshire to the south may have prevented me from being able to record the discoveries of other more local collectors. Perhaps the most noteworthy addition to the Cheshire fauna has been *Phytosus nigriventris*, Chev., taken by Mr. Burgess Sopp on the shore of the Dee estuary (Ent. Mo. Mag., xxxv, p. 213), and to that of Lancashire, *Diglotta sinuaticollis*, Muls., taken at Fornby by Mr. B. Tomlin (Ent. Mo. Mag., xxxv, p. 290).

At Ledsham *Gymnetron pascuorum* was met with in June, and *G. villosulus* on Hatchemere bog in Delamere, none of the genus having been previously known to occur in the district. Also in Delamere a single specimen of *Hylesinus oleiperda* was swept from beneath ash trees. I may also perhaps mention as worthy of notice, although the species has been recorded before, a specimen of *Aleochara ruficornis*, swept from grass in a ditch near Ledsham. On the coast sandhills *Anomala Frischii* and *Limonius cylindricus* were unusually abundant, and *Cicindela hybrida* correspondingly scarce. At Hatchemere in Delamere *Donacia cinerea* and *D. affinis* were common on the sedge, and *D. discolor* abundant in the flowers of the marsh *Potentilla* (*Comarum*). On this marsh *Rhagonycha testacea* was in profusion on the bog myrtle; and round a small pool in the forest *Poophagus sisymbrii* was swept from the grass, thus occurring for the first time in my experience in the district, although it had previously been reported from Moreton.

A few hours' sweeping near St. Asaph in Denbighshire, in June, where the river Elwy flows beneath the wall of carboniferous limestone in which are situated the well known Cefn Caves, resulted in several interesting additions to the recorded N. Welsh Coleopterous fauna. On watercress, then in full flower, *Psylliodes chalconera* was very abundant, and from brooklime (*Veronica beccabunga*) several specimens of *Gymnetron beccabungæ* and a single *Rhinoncus bruchoides* were swept. By general sweeping were taken *Anisotoma oralis*, *Throsicus dermestoides*, *Apteropoda orbiculata*, *Podagrica fuscipes*, *Crepidodera rufipes*, *Phyllodecta cavifrons*, *Apion subulatum*, *A. immune*, *Sitones suturalis*, *Miccotrogus picirostris*, *Gymnetron pascuorum*, *Ceuthorrhynchidius melanarius*, and abundance of more generally distributed species. A dead *Silpha thoracica* was the first specimen of that insect I had seen in N. Wales. *Melandrya caraoides* was noticed on the wing and in a dead ash tree by the river.

At Rhyl on the Denbighshire coast I was pleased to discover *Hypera fasciculata* at the roots of *Erodium* on the sandhills, and in the same place *Psilothrix nobilis* was exceedingly abundant in the flowers of the sea pink.—W. E. SHARP, 13, Broughton Road, Ealing, W. : *February*, 1900.

*The old British localities for Libellula fulva, Müll.*—The following may be of interest at the present time. Moses Harris, "Exposition" (*L. fugax*) gives no locality. Stephens, "Illustrations," 1836 (*L. conspurcata*, F.) says—"Found, though not very commonly, in the marshes round Bermondsey and Deptford, in June, but abundant in the neighbourhood of Norwich." Stephens described the insect a second time under the erroneous name of *limaculata*, Charp., and of it he said—"Taken in the neighbourhood of Whittlesea Mere in June." Curtis, "British Entomology," 1838 (*conspurcata*, F.), has—"Hedges, lanes, &c., from middle of May to the middle of July, Parley, Glanvilles Wootton and Newnham, Bedfordshire, Mr. Dale; Sprowston near Norwich, and Deptford." Evans, "Brit. Libell.," 1845 (*conspurcata*, F.) says—"It is found during June round London, near Herne Bay in Kent, and at other places."

I think this insect was probably more common formerly than it is now. I have in my British collection six individuals, viz., 4 ♂ (3 immature and 1 nearly mature) and 2 ♀, obtained more than 30 years ago at the sale of an old collection, of which I unfortunately kept no particulars, but of the genuineness of which I have no doubt.

Mr. Lucas, in his excellent new book, hardly does justice to the localities for Dragon-flies given by Stephens and Curtis, and seems to have taken them somewhat at second-hand. *L. fulva* is a case in point.—R. MCLACHLAN, Lewisham, London : *February*, 1900.

## Reviews.

A MONOGRAPH OF THE COLEOPTEROUS FAMILIES CORYLOPHIDÆ AND SPHÆRIIDÆ: by the late Rev. A. MATTHEWS; edited by P. B. MASON: pp. 1—220, with nine plates. London: O. E. Janson and Son, 1899.

Coleopterists are much indebted to Mr. P. B. Mason for the trouble he has taken in editing and causing to be published the late Rev. A. Matthews' MSS. dealing with some very obscure and little-known forms of *Micro-Coleoptera*. The work, as issued, forms a complete monograph of all the species of these very minute insects known to the author, illustrated by numerous structural drawings of each genus made by him in his usual masterly style. Four families altogether are noticed in the work, the *Pseudocorylophidæ* and *Phænocephalidæ*, each represented by a single genus, being treated as distinct from the true *Corylophidæ*. Of the latter, twenty-one genera are enumerated, four of which, *Meioderus*, *Meizoderus*, *Hoplicnema*, and *Lewisium*, are described as new. The *Sphæriidæ* include a single genus only, *Sphærius*. Four of the genera of *Corylophidæ* had been previously described, and three of them figured, in the *Biologia Centrali-Americana* (Col. II, pt. 1), the structural details of these being fully illustrated for the first time in the present work. Mr. Matthews' drawings have been successfully transferred to zinc by Mr. J. Collin, of Newmarket, and occupy eight plates; the other plate (A), added

by the Editor, is devoted to the metamorphoses of *Orthoperus piceus*, Steph. (= *brunnipes*, Gyll.), and *Arthrolips piceus*, Comolli, both after Perris. At the end of the volume (on p. 217), a list of *Corylophidæ* apparently overlooked by Mr. Matthews, mostly from New Zealand and Australia, has been added by the Editor. The present work forms a companion volume to the well-known "Trichopterygia illustrata et descripta" by the same author, a supplement to which is contained, we believe, amongst his unpublished MSS., and which we hope will see the light at a not very distant date.—G. C. C.

PROCEEDINGS OF THE ELEVENTH ANNUAL MEETING OF THE ASSOCIATION OF ECONOMIC ENTOMOLOGISTS (forming Bulletin No. 20, new series, of the U. S. Department of Agriculture, Division of Entomology. Washington. 1899).

For varied information and general utility we have seen no previous Report of the Annual Meetings of this most valuable Association that equals the eleventh. From whatever point of view it is regarded it teems with original observation. Two of the most remarkable articles are Dr. Howard's on the probably successful introduction of the caprifig insect into California, which if really accomplished promises to open up an entirely new industry in that State: and the same writer's adaptation of Porchinski's paper (in Russian) on a remedy for *Tabanidæ*; acting upon the habit these insects have of drinking water from pools, it was resolved to pour kerosene over the surface, which either killed them on the spot by myriads, or caused them to die soon afterwards. But by far the most striking feature of the Report is the Address delivered by the President, Mr. C. L. Marlatt, especially when regarded in connection with his audience; it is sound common sense, and bold in its conception; apparently not altogether relished by his colleagues, some of whom thought it would be open to misinterpretation by the public. It is quite possible that when we can find space we may reprint a portion of this remarkable Address for the benefit of English readers who do not see these American Bulletins.

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## Obituary.

*William Blundell Spence, F.E.S.*—By the death of Mr. W. B. Spence at Florence on January 23rd, in his 87th year, the list of Original Members of the Entomological Society of London is finally extinguished. He was the son of Mr. W. Spence ("Kirby and Spence"), but probably did not inherit his father's taste for entomology, for he published very little thereon; yet there can be no doubt that he assisted his father. Much of his childhood was passed in Italy, and being passionately devoted to Art he settled at Florence very many years ago, and it became his permanent place of residence. Of his personal artistic powers we have proof in a reproduction of a beautiful portrait-drawing of the Rev. W. Kirby in his 90th year, signed by him, and dated "Barham Rectory, Nov. 23rd, 1848."

*Dr. Walter Battershell Gill, M.D., F.Z.S.*—Although probably unknown to most entomologists of the present generation, there remain some who will hear with regret of the death of Dr. Gill on February 6th, aged 77. He was an enthusiastic

Lepidopterist at one time, and formed a very fine collection; but ever-increasing professional work induced him to allow it to be dispersed, rather than to fail from inability to take proper care of it. There remain also some who remember with pleasure the social evenings spent at his residence near the Regent's Park. Most of those who knew him were aware that he was the brother of that well-known and amiable lady-entomologist Mrs. Hutchinson (wife of the Rev. T. Hutchinson), of Grantsfield, Leominster. We assure her of our sincere sympathy and condolence.

*Prof. Emile Blanchard.*—The death is announced, at a very advanced age, of Prof. Blanchard, who until recently was head of the entomological department at the Musée d'Histoire Naturelle at Paris. He was a prolific writer, and appears to have commenced in 1826.

## Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *January 15th, 1900.*—Mr. G. T. BETHUNE-BAKER, F.L.S., President, in the Chair.

Mr. R. C. Bradley showed *Halictus lævigatus* from Sutton, and said that it was not a common species locally. Mr. A. H. Martineau, a box full of Aculeate *Hymenoptera*, chiefly *Pompilidæ*, including amongst other rarities *Agenia variegata* from Selsley, Glos., and Nevin, N. Wales; *Sapyga clavicornis*, a species which was regarded as extremely rare, but which he had found at Solihull and various other Midland localities, and which appeared to be a much commoner insect in the Midlands than had been supposed; also *Calicurgus hyalinatus* from Wyre Forest. Mr. G. T. Bethune-Baker, two drawers of *Satyrus*, including amongst other good species *panirus* and *Parisatus* from Turkestan, *avarantiaca* from the Caspian, and a very fine series of *Abdelkadir* from Algeria. Mr. C. J. Wainwright, *Cheilosia* and allied genera of *Diptera*.—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY—ANNUAL MEETING: *January 15th, 1900.*—Mr. S. J. CAPPER, F.E.S., President, in the Chair.

The election of Officers resulted as follows:—President, S. J. Capper, F.E.S.; Vice-Presidents, B. H. Crabtree, F.E.S., and E. J. Burgess Sopp, F.E.S.; Hon. Secretaries, F. N. Pierce, F.E.S., and Fredk. Birch; Hon. Treasurer, Dr. J. Cotton; Hon. Librarian, F. C. Thompson; Council, Dr. J. W. Ellis, F.E.S., Herbert Massey, F.E.S., Rev. R. Freeman, R. Wilding, H. Locke.

The President then gave an interesting address on his entomological experiences from boyhood.

A vote of thanks to the President was proposed by Mr. H. Locke, and seconded by Mr. R. Wilding.

Mr. H. B. Prince sent for exhibition an interesting case, with the imago, cocoon, and pupal skin of *Cossus ligniperda*, and the hanging puparium of *Ourapteryx sambucaria*, also a box of Sandhill *Lepidoptera*.—FREDK. BIRCH, *Hon. Secretary.*

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY :  
*December 14th, 1899.*—Dr. CHAPMAN, F.Z.S., Vice-President, in the Chair.

Mr. Robson exhibited a bred series of unusually large specimens of *Dianthæcia irregularis* from Tuddenham. Major Ficklin, a specimen of *D. luteago*, var. *Ficklini*, which he presented to the Society's collection. Mr. Lucas, a specimen of *Somatochlora metallica*, a rare dragon-fly taken by Mr. C. A. Briggs, and presented by him to the Society's collection. Mr. Adkin, examples of *Crambus geniculeus* taken in his garden, of a much less robust appearance, and with very faintly indicated markings. Mr. Edwards, long series of the following species of *Erebia* taken by himself in the neighbourhood of Fusio, the Simplon, and Macugnaga: *E. Ceto*, *E. lappona*, *E. Goante*, *E. Tyndarus*, *E. Euryale*, *E. flavofasciata*, *E. Melampus*, *E. Epiphron*, *E. Mnestra*, and a few specimens of *E. ligea*, *E. Pronoë*, *E. Medusa*, and *E. Gorge*. Mr. F. M. B. Carr, a series of insects taken at sugar, including two *Cossus ligniperda*, and about a dozen *Macrogaster arundinis* from Wicken.

*January 11th, 1900.*—Mr. A. HARRISON, F.L.S., President, in the Chair.

Mr. Buckstone exhibited larvæ of *Triphæna fimbria*, some of a light form and some of a dark form, and read notes on their growth, mortality, and pupation. Mr. Turner, (1) a specimen of *Periplaneta americana* from the Zoological Gardens, (2) a var. of *Melanippe fluctuata*, with the central band only represented by a narrow costal fascia, (3) a specimen of *Abraxas grossulariata*, with a large black spot surrounded by a white ring, outside of which the black was nearly continuous. Mr. F. Clarke, a large number of very admirable photomicrographic slides of Insect Anatomy, including a long series of *Orgyia antiqua*, antennæ of species of various Orders, a few of tongues, feet, &c.; a curious water Hymenopteron, numerous ova of various species of *Lepidoptera*.—H. J. TURNER, *Hon. Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON—SIXTY-SEVENTH ANNUAL MEETING :  
*January 17th, 1900.*—Mr. G. H. VERRALL, President, in the Chair.

It was announced that the following had been elected as Officers and Members of Council for 1900—1901:—President, Mr. G. H. Verrall; Treasurer, Mr. Robert McLachlan, F.R.S.; Secretary, Mr. C. J. Gahan, M.A.; Librarian, Mr. G. C. Champion, F.Z.S.; and as other Members of the Council: Mr. C. G. Barrett, Dr. T. A. Chapman, M.D., F.Z.S., Messrs. W. L. Distant, H. St. J. K. Donisthorpe, F.Z.S., F. D. Godman, D.C.L., F.R.S., A. H. Jones, and R. W. Lloyd, the Hon. Walter Rothschild, D.Sc., M.P., and Messrs. E. Saunders, F.L.S., and C. O. Waterhouse. The election to fill the vacancy on the Council and in the office of Secretary, caused by the resignation of Mr. J. J. Walker, R.N., was adjourned to March 7th, the Council having signified their intention to announce at the Meeting on February 7th the name of the candidate they recommend to be elected.

The President delivered an Address, for which a vote of thanks, proposed by Prof. Meldola, and seconded by Mr. Blandford, was unanimously accorded to the President for his interesting Address, and to the President and the other Officers for their services to the Society during the past year; Messrs. Verrall, McLachlan, Gahan, and Champion spoke in reply, and the proceedings terminated.—C. J. GAHAN, *Hon. Secretary*.



ON THE LARVÆ, HABITS, AND STRUCTURE OF *LITHOCOLLETIS CONCOMITELLA*, BANKES, AND ITS NEAREST ALLIES.

BY JOHN H. WOOD, M.B.

(Continued from page 34).

FOOD-PLANTS.

Roughly speaking we may say that *spinicolella* and *cerasicolella* confine themselves to the various species of *Prunus*; *concomitella* and its allies to *Crataegus* and *Pyrus spp.* The only exception apparently is *sorbi*, which in addition to its ordinary food-plant, *Pyrus aucuparia* or mountain ash, is also found not uncommonly on *Prunus padus*, the bird cherry. Mr. Bankes has already abundantly shown that the old idea, that each species is limited to a single and special food-plant, is altogether erroneous. In fact, *concomitella* and *blancardella* are the only two in which this limitation still continues to hold good. What, then, becomes of that further idea, that these insects present a good example of a phytogenetic group, in which the different forms have arisen from one another or from a common ancestor by the use in each case of a different food-plant? Beyond modifying such trivial characters as size and colour, food has probably little direct influence in striking off new forms, and it must be remembered also that in these cases the choice of the food is an instinct of the imago, and therefore one of its specific characters, in other words, the exercise of the choice shows that the insect is already differentiated.

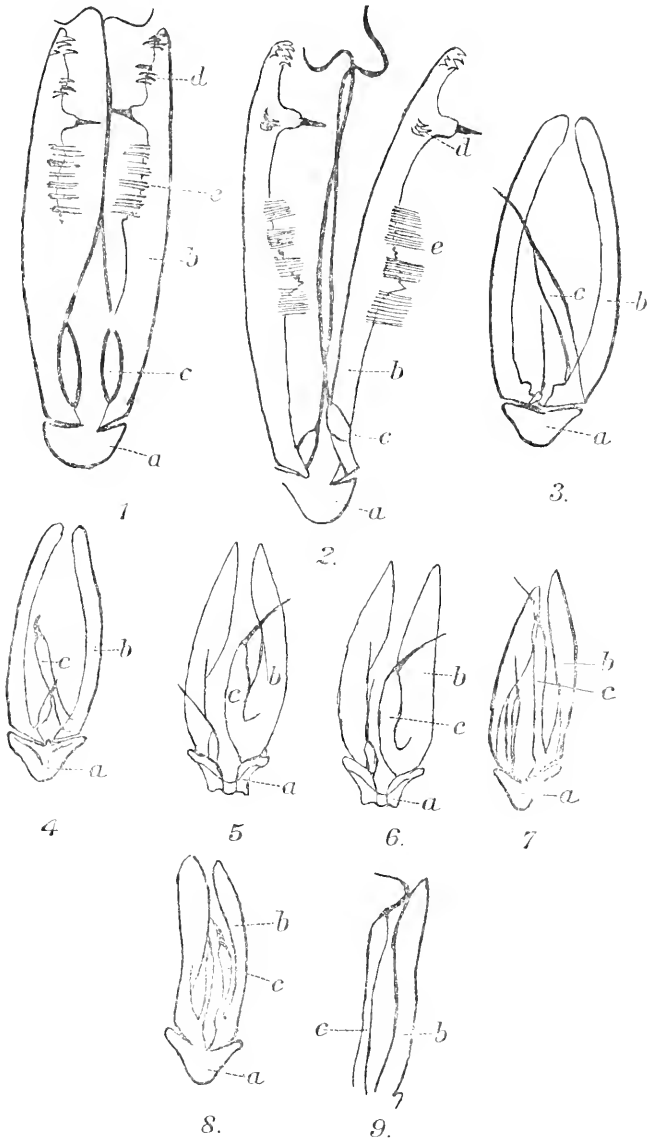
Before leaving this part of the subject a word must be said from the collector's point of view. His desire is to know how he may collect and breed the several species without admixture. *Spinicolella* and *cerasicolella* present no difficulties; from cherry and peach leaves he will breed nothing but the latter, and from different kinds of plum nothing but the former. *Prunus padus*, so far as is at present known, will as certainly produce *sorbi*; *Crataegus oxyacantha*, *oxyacanthæ*; and *Pyrus torminalis* and *P. aria*, *mespilella*; whilst rather low in the scale of certainty comes the pear and its speciality, *pyrivorella*,—*oxyacanthæ* undoubtedly feeds at times upon pear, and its mine might perhaps be identified by its position on the edge of the leaf, did not *pyrivorella* also occupy occasionally the edge instead of its usual place, the middle. There remain mountain ash and apple, and here the difficulties come in. A mine in mountain ash may be one of three species, *sorbi*, *mespilella* or *oxyacanthæ*, placing them in the order of probability. The largest mine of the three is that of *sorbi*; it

takes the midrib for its base line, and occupies the whole of one lateral half of an ordinary sized leaflet, a thick felt being spun across the roof, which in consequence is thrown into unusually strong folds. The mine of *mespilella* also is fairly large and is governed in its laying out by the midrib, but the folds of the roof are less conspicuous. *Oxyacanthæ* makes a distinctly smaller mine than either of the others, and being less under the control of the midrib its position and form are more irregular. A mine in an apple leaf may also belong to one of three species, *concomitella*, *blancardella* or *pyrivorella*. I have never myself met with the last named in apple, but Mr. Bankes who bred it rather freely from this food-plant saw nothing to distinguish the mines from those of the two other species, which in size, form and position are exactly alike. *Blancardella*, however, feeds at a distinctly later date than *concomitella*, and many of its larvæ may be found still quite young at the end of October. Taking advantage of this and of its partiality for the wild rather than the cultivated plant, it is possible to collect it almost unmixed with the commoner *concomitella*. The times of their summer broods are still further apart—at any rate in 1895 I bred absolutely pure broods of both. The mines of *concomitella* were gathered early in June from hedge-row crabs, and produced the moths (very small and pale) at the end of the month; whilst July mines from the same bushes produced *blancardella* (small but full-coloured) in August. Again, in the latter half of April, 1896, I sleeved some bred *blancardella* on an apple tree in the garden. Week after week went by and nothing seemed to come of it; so concluding the experiment was a failure, early in July I used the same branch for a *Tortrix*. Removing the muslin on August 5th to my surprise I found quite a colony of *Lithocolletis* mines; from some cause, however, there had been great mortality among the larvæ when about half-grown, and only two or three had managed to survive, and were then in pupa. It is therefore pretty certain that the eggs, having resisted for weeks the tropical heat, for which the summer of 1896 was so remarkable, hatched somewhere about the end of June, and the commencing mines would doubtless have been discovered at the time of introducing the *Tortrix*, had I but given them a thought.

#### THE MALE GENITAL APPENDAGES.

At last we reach firm ground. In the evidence afforded by these parts, except in the case of *pyrivorella*, all room for doubt as to the rank of these insects vanishes; they must be accepted as good and true species. The appendages are remarkable in two ways. Among

*Lepidoptera* generally, these organs consist of three parts, the lateral



DESCRIPTION OF FIGURES.

Fig. 1, *L. spinicolella*; 2, *cerasicolella* (right clasper turned round); 3, *concomitella*; 4, *blancardella*; 5, *mespilella*; 6, *pyrivorella*; 7, *oxyacanthæ*; 8, *sorbi*; 9, *cydoniella*.

*a*, frame to which all four appendages are attached; *b*, claspers; *c*, spines; *d*, a group of teeth; *e*, group of hairs.

pieces or claspers, and the dorsal piece or uncus. Now, the *Lithocolletes* have an additional or ventral piece, rather broader, but in other respects similar to the dorsal one, and together they form a pair of simple valves very like the glumes of a grass seed in form. Mr. McLachlan tells me that this extra piece is frequently present in the *Trichoptera*, but whether it is possessed by any other family in the *Lepidoptera* I am unable to say. The other peculiarity is a want of symmetry on the two sides, the left clasper being larger than the right, though the disparity is more clearly shown in the pair of large and curious spines (*c*) which spring from the bases of the claspers than in the claspers themselves. It is, however, a most unequal character, as may be seen even in the small group we are dealing with; in one species it may be clear and obvious, in another almost inappreciable, or quite so. The uncus and its fellow or ventral piece offer no differential characters, and have, therefore, been left out in the figures, as they would only obscure the essential parts, which are the claspers. These have been represented attached to the chitinous frame which is common to all four pieces. Preparations in abundance have been made of all the species, except *cydoniella*, of which I was able to procure only a single male; and from dry specimens as well as fresh. Moreover, not satisfied with British specimens, I have in most cases examined continental ones also, and with perfect agreement. Did one form run into another by local variation or otherwise, I must have obtained some evidence of it; but no intermediates exist, each is absolutely constant, so far as anything can be said to be constant in nature. The figures have been drawn under a camera, and to a common scale. The great disparity, therefore, in their size represents faithfully the disparity in size of the organs themselves. An endeavour has at the same time been made to draw them exactly from the same point of view, with the claspers lying on their edges, in the position they would naturally present if the insect were being looked at from above. But to get them to lie absolutely true is not as easy as might be supposed, for one or other clasper, when the cover glass is pressed home, usually gets a slight cant, and evidence of this is present more or less in all the figures, except those of *concomitella* and *blancardella*. It is necessary also when dealing with bred specimens to allow sufficient time to elapse after emergence for the parts to harden, for if this be not attended to, some distortion of the claspers from overdilatation may take place, though the spines which are of stouter material are not so liable to the accident. How possible this overdilatation may be is obvious enough, when it is remembered

that the claspers are hollow organs communicating freely with the general cavity of the abdomen, and containing fluids and fat, and even more highly organized tissues. In fact the appendages, together with the frame that supports them, probably represent the last larval segment, the uncus (one of the chief offices of which is, I believe, to sling the end of the alimentary canal) being the representative of the anal flap, and the claspers the equivalents of the last pair of prolegs.

The first observation suggested by the figures is the extraordinary contrast between the organs of *spinicolella* and *cerasicolella* and those of *concomitella* and the rest. They form indeed two groups scarcely comparable. In the former the size of the claspers is astonishing. Were the whole length, from the first abdominal segment to the tip of the appendages, to be divided into eight equal parts, three would go to the claspers, and the remaining five to the abdomen proper, which will give some idea of their actual size. They are formidable-looking objects; strikingly like a pair of jaws, and as organs of prehension it would be hard to beat them. The inner surface is armed at the end with a few strong teeth, and a single formidable one further back, supported on a raised base; intermixed sparingly with the teeth are some stoutish hairs, not shown in the figures. The spines (*e*) are equally remarkable. A small and insignificant base gives origin to a very long and delicate filament, curiously curled at the end. The curl is suggestive of pliancy and changeability of shape, but in reality the filaments are of hard brittle chitin, and their ends permanently cast in this curious attitude. The use of these strange bodies is highly problematical. It is quite possible they may have no real use, their very asymmetry, which is sometimes extreme (see figure of *concomitella*), favours this view; besides, some of the species in the genus are entirely without them, and it is difficult to believe that pairing with them is less ready and effective. Widely distinct from the others, the two species are perhaps more alike between themselves than are any two in the *concomitella* group, with the exception of *mespilella* and *pyrivorella*. They may, however, be distinguished readily enough by attending to three points:—the first is the position of a small group of teeth (marked *d* in the figures); the next, the grouping of the hairs (*e*), which in *spinicolella* are arranged in small clumps of three to five, and in *cerasicolella* in long lines of seven and eight or more; and the last is the form of the bases of the spines (*e*), which are somewhat elongated in *spinicolella*, and more rounded in *cerasicolella*.

The seven remaining species form too a perfectly natural group,

here the appendages, though by no means small, are far more moderate in size—those of *concomitella* stand out as considerably the largest, and an ordinary pocket lens could at once pick out the males of this species by this character alone. The chief points of differentiation come under three heads, namely, the amount of asymmetry, the form of the claspers, and the form of the spines. The asymmetry resides mainly in the spines, it is most conspicuous in *concomitella*, where the body of the right spine is reduced to a tiny knob; almost equally pronounced in *mespilella* and *pyrivorella*, more moderate in *blancardella* and *oxyacanthæ*, and well on the way to extinction in *sorbi*. To what extent it prevails in the continental *cydoniella* I am unable to say, as I bungled over the dissection and only obtained the left clasper. As a rule the claspers themselves exhibit but little asymmetry, and when they do, it is the breadth of the organ alone that is affected; in *mespilella* and *pyrivorella*, however, the asymmetry is conspicuous, the left clasper being considerably broader than the right.

The claspers are simple, and have no trace of the formidable teeth presented by *spinicolella* and *cerasicolella*, but instead their outer ends are furnished on the inner face with a thick mat of stoutish bristles, which it has not been thought necessary to represent. There is considerable diversity in their shape, and as this can only be properly appreciated when the organs are seen in full, and the figures represent them in profile, I will briefly describe the difference. In *mespilella* and *pyrivorella* they are unusually stout, very wide at the base, especially the left one, diminish rather abruptly about the middle, and thence onward to the end remain of the same size; they are essentially clumsy looking. In *sorbi* they are more elegant and much more slender, widening out gradually towards the distal end, and resembling closely the funguses known as *Clavariæ*. In *concomitella* they are particularly slender, distinctly narrowest about the middle, thence gradually widening, forwards to the distal end and backwards to the foot. In *blancardella* they are slightly dilated at the distal end, otherwise of uniform width down to the foot. In *oxyacanthæ* on the other hand they are pointed at the end and widen by degrees backwards to the foot.

The spines (*c*) are hollow chitinous bodies like the claspers, but of denser material, and are crowned at the apex with a solid spur, they afford excellent characters, and have this advantage over the more yielding claspers, that though they may be easily broken, they are less liable to be pressed out of shape—as the figures display

them clearly, I need enter on no tedious descriptions. The points to be noted are the length of the spine as compared with its clasper, the size and shape of its body, and the size and shape of the spur.

At the time this investigation was undertaken, both Mr. Bankes and myself were under the impression that we had to deal with an assemblage of closely allied forms, but later it became plain that, instead of a single natural group, we had before us *two*, distinguished not only by the imaginal markings, but still more by the form of the appendages, the mode of passing the winter, and the selection of widely separated genera as food. Whether *pyrivorella*, our new species, will stand, time alone will show, for the present it remains a matter of opinion. That I do not perhaps quite share the confidence of my friend in its future must be ascribed to the different standpoints from which we approach the subject. I have examined a score or two of the appendages, and with every desire to prove it distinct from *mespilella*, but to no purpose. So far as I can see, the appendages are identical in the two insects.

I may add that among other continental specimens I obtained so-called *padella*, and a careful examination showed that their appendages differed in no respect from those of *sorbi*, which confirms the opinion that it is nothing more than that species.

(To be continued).

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A CONTRIBUTION TO THE LIFE-HISTORY OF *CATHARIA*  
*PYRENÆALIS*, DUP.

BY T. A. CHAPMAN, M.D., V.P.E.S.

On the top of a hill at Arolla, called I think the Roussette, where snow lies late, and the surface consists of shingly stones, with moss and lichen, but also with a good many alpine plants, saxifrages, &c., whose low growth confounds them with the moss and lichen, I found the larvæ of *Catharia pyrenæalis*, Dup., of various sizes, from the penultimate skin to full grown; pupæ also occurred, and the imago was seen on the wing and captured. The date was Aug. 18th, 1899.

A full grown larva is about half an inch long, of fairly uniform size from end to end, but the head is a little smaller, and it tapers backwards from the 6th abdominal segment, nearly cylindrical, but a little flattened. The colour is dark and smoky but not black, the tubercles are black and shining, I, II and III in the usual positions and of good size, IV is directly below the spiracle and carries two hairs, VI is below this with one hair, on segments 1, 2, 7, 8, are two lower ones,

and on 3, 4, 5, 6, there is one below the prolegs. On 2nd and 3rd thoracic segments the three tubercles above the spiracular line each carries two hairs, on the spiracular level each segment has two tubercles, the front one much the longer and each with two hairs, the 1st thoracic carries a black shining plate, with six hairs on each side and a pale division down the dorsal line, a tubercle in front of, and one below, the spiracle each with two hairs. The hairs are black, the longest rather more than half the larval diameter in length, the longest on 8th, 9th and 10th abdominal. The head is black and shining as well as the anal plate, the bases of antennæ and of mouth parts whitish. Legs black. The prolegs are complete circles, very retractile, with a central corneous point.

The pupa is black with paler incisions, and paler in some degree towards the posterior segments. Its length is about .37—.40 inch when straight, but the abdominal segments 5—10 are usually curved forwards, so that 10 points ventrally instead of backwards, and the cremastral armature is actually directed somewhat forwards. This is a result of the 5th and 6th segments being somewhat narrower ventrally than dorsally. There is a well marked dorsal head piece as wide (nearly) as the prothorax, but only about one-quarter its (antero-posterior) length; it is shortest in the middle line. The prothorax is very narrow outwardly just above spiracle, where its (false) spiracular margin has an armature of very fine bristles; it carries a large bristle (on either side) near middle line, and another close to spiracle. The mesothorax carries four bristles (two on either side) placed in a transverse row near the middle of the segment. The much narrower metathorax has four bristles towards its anterior border, two near the middle and one near each anterior lateral angle. The 1st abdominal segment presents no bristles, nor spiracles nor other markings. The 2nd and 3rd present a dorsal bristle on either side and a supra-spiracular one. The spiracles on these segments have wrinkles round them as in many *Pyralid* and other pupæ, making them look as if the wings had pushed them dorsally, wrinkling the surface in front of them; they are, indeed, so moved to escape being covered by the wings. Abdominal segment four carries its spiracles free, has the dorsal, supra-spiracular, and also subspiracular bristles. All the bristles so far noticed, as well as six on the head not yet referred to, are ordinary bristles. On 5 there are two similar ventral bristles, as also on 6 and 7, but the dorsal and supra- and subspiracular bristles on these three segments have a very special structure. A transverse chitinous ridge stands up, with a face or rather even a cup-shaped hollow directed posteriorly, and from the middle of this arises a stiff spine not obviously (if at all) articulated, and, lying parallel with the surface of the segment, and very close to it, points directly backwards. On 8 the dorsal and supra-spiracular hairs have the same spinous structure, the subspiracular is an ordinary bristle, no ventral hair. In the male pupa 9 resembles 8, but in the female the hairs are more nearly ordinary bristles; 10 forms the cremaster, and is flat antero-posteriorly, forming a flat paddle-like expansion, it has two minute hairs dorsally, laterally a strong bristle on either side. It terminates in four projections, each carrying a strong, thick, but apparently articulated bristle. The segments down to the 4th abdominal have a chitinous surface of cellular reticulation, but 5—9 have a surface of minute sharp points. Ventrally the head carries two bristles on each side (antenna-basal?), and another on either side on the clypeus. The labrum is not marked off from the clypeus, the mandibular processes are large



and well defined by a suture. Below the labrum the labium appears at first without a central suture, which comes lower, before it disappears under the maxillæ. These are wide basally, long, extending nearly to end of wings. The second legs extend exactly to end of wings. The third legs, appearing below end of maxillæ, extend just beyond wings. The antennæ are longer than the maxillæ, but do not quite reach the end of wings. The first legs are much shorter, to three-fourths of the wings. Between them and maxillæ a portion of 1st femur (?) appears. Above the top of second leg is a well developed "eye collar" (end of maxillary palpus). The tips of the wings and appendages extend a little beyond 4th abdominal segment and hang over the 5th or intersegmental membrane, according to attitude of pupa. Hind-wing well seen to middle of 3rd segment, but still shows a minute border round to apex.

This pupa is very interesting, as being one of active habits, although as fully obtect in structure as any other *Pyrale*. The modifications of structure that enable it to move so freely are in no respects remnants of structures that are used to produce such movements in *pupæ incompletæ*, but are developments from an obtect form. The pupa is in a silken tube of several times its own length, which is usually under a stone or amongst lichens and herbage, and has one extremity near the surface and the rest of its length more or less buried. The pupa is able to travel easily along this tube, and especially can very rapidly run backwards to the remotest extremity of the tube. I should imagine it comes to the front of its habitation to obtain the benefit of sun heat, retreating during the night, or on any indication of danger. It does not leave the tube for emergence. The retreat is made rapidly by aid of the great spatular cremastral armature, each straightening of the body followed by curling forwards of the hinder extremity, carrying the pupa backwards nearly one-fourth of its length. The advance is made more slowly, and seems to be effected by the dorsal and lateral spines, which are not homologous with the rows of spines so common in *pupæ incompletæ*, but are modifications of the ordinary tubercles which we are familiar with in larvæ. It is curious that the supra-spiracular tubercles are present, but only one pair of the trapezoidal, apparently the anterior, but this is not easy to feel positive about, whichever they are (I or II) no trace whatever exists of the other pair. It is also noteworthy that on the posterior segments (5-9) the general surface has attained the first stage in the line of development, which appears to have been passed through in *Incompletæ*, in attaining the rows of dorsal spines, viz., the general surface has roughened so that each cutaneous cell instead of being smooth carries a fine point. It is easy to imagine that had the tubercles not developed so as to meet the requirements, an armature

similar to that of *Incompletæ* might have arisen by the further evolution of these points; and had it done so its origin would have been entirely separate from that in *Incompletæ*, and yet might have been indistinguishable from them. The ground for surprise in these matters is, however, after all, not that there are so frequent cases of similar structures having independent origins, but that we meet with comparatively so few, at any rate, so few that we are able to be sure about.

The imagines emerged at various times up to the middle of September.

The eggs are yellow, oval, with the ends more square and truncate than usual in *Geometræ*, but less so than is usual in *Crambus*. The length is about 0.65 mm., the surface is wrinkled with a hexagonal netting, the ribs forming which are rather broad.

Betula, Reigate:

January, 1900.

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#### LEPIDOPTERA OF THE ITALIAN LAKES IN OCTOBER.

BY A. HUGH JONES, F.E.S.

I spent the middle of October on the Italian lakes, a month that one perhaps would not fix upon for an entomological excursion, yet in other respects a more delightful time could not be selected, if favoured with the conditions such as I experienced: brilliant, warm, sunny days, cool nights, and not overcrowded hotels. I arrived at Menaggio, on lake Como on October 11th, a perfect day, and whilst having luncheon in the garden of the hotel my attention was drawn to the numerous butterflies, chiefly the two small common "whites," also *Lycæna bætica* and *Argynnis Latonia*, which were attracted to the flowers still in luxuriant bloom. After a short stay at Cadenabbia I started for Stresa, at the southern extremity of Lago Maggiore. At Stresa I remained a week. I had expected among the moths good results with the electric light. A room constructed outside the Hôtel des Îles Borromées, where I was stopping, was very complete in its arrangements for this purpose, being surrounded on all sides by glass. Only on one occasion, however, did the temperature rise sufficiently for moths to fly, and on that occasion I saw *Margarodes unionalis*, two of which were captured. The most abundant butterfly was *Lycæna bætica*, which flew over the grass and flowers in the gardens of the hotel near the lake side, and the commonest moth was *Plusia gamma*. A visit to the town of Orta, charmingly situated on the lake of that name, resulted in my adding another butterfly, viz., *Apatura Ilia*, to my list.

On October 21st, the weather became colder, and the sky overcast, so I hastened off to Venice, where it continued warm and sunny; in fact during the week I remained there not a cloud was to be seen. Venice is not very suggestive of collecting any insects beyond mosquitos, which we wish to avoid, yet the island of Lido, which is reached in about half an hour by steamer, affords abundant scope for a day or two's collecting. Along the sunny road which skirts the Adriatic, butterflies were quite numerous, chiefly *Colias Edusa* and *Lycæna Telicæna*.

The following is a list of all the *Lepidoptera* I noticed, a somewhat meagre one, but it must not be forgotten that at the same period in England beyond a stray *Vanessa Atalanta* or *Colias Edusa*, scarcely a butterfly is to be seen, and even *Plusia gamma* is absent from our *Petunia* beds.

*Pieris brassicæ*, *rapæ*, and *napi*, var. *napææ*, fairly common and fine.

*Colias Hyale*, Lido, one or two rather worn, October 23rd; *Edusa*, Lido, common and fine, October 23rd; *Edusa*, v. *Helice*, Lido, one specimen.

*Gonepteryx rhamni*, Laveno, October 12th.

*Polyommatus Phlæas*, a large and brilliant form, Stresa.

*Lycæna bætica*, Menaggio, but more especially at Stresa, mostly fine; *Telicæna*, one specimen in the hotel gardens at Stresa—Stresa is probably the northern limit of this butterfly, as Frey does not include it in his list of butterflies of Switzerland; at Lido this species was not uncommon and fine, October 23rd; *Zephyrus*, var. *Lycidas*—I took a male and female of what I believe to be a second brood of this species, the specimens are not fine, and not so large as the earlier brood. In June, 1887, I met with this species (*vide* Ent. Mo. Mag., vol. xxiv, p. 151) at Stresa. North of the Alps, where this butterfly is so local, probably there is only one brood, but at such a warm locality as Stresa a second brood is not surprising; *Icarus*, a few at Stresa, a poor small form, probably a third brood, October 13th.

*Apatura Ilia* (v. *Clytie*?), two specimens at Orta, both of which I was unable to capture, as they were flying high and wild.

*Vanessa c-album*, Stresa; *Antiopa*, October 16th, along the side of the lake between Stresa and Baveno; whilst working among the little willows I dislodged a perfect specimen of this butterfly, which from its torpid condition was on the point of going into hibernation.

*Argynnis Latonia*, Menaggio, Stresa, &c.

*Pararge Megæra*, common and fine, Stresa, October 12th; *Egeria*, var. *Egerides*, Stresa, common, but worn.

*Epinephile Janira*, not uncommon, but worn, Stresa, October 16th; as this species makes its appearance at Stresa early in June, one can only imagine that these specimens are of a second brood.

*Cenonympha Pamphilus*, fine, Stresa, October 12th.

*Sphinx convolvuli*, Stresa, a specimen brought to me.

*Plusia gutta*, Stresa, one specimen at rest on flowers; *chalcytes*, Lido, one specimen taken on the wing; *gamma*, common.

*Margarodes unionalis*, Stresa, two specimens, fine.

*Scopula ferrugalis* and *hybridalis*, at light, Stresa.

Shrublands, Eltham, Kent:

December 28th, 1899.

## A NEW SPECIES OF *ARISTOTELIA* BRED FROM *HYPERICUM*.

BY THE RT. HON. LORD WALSLINGHAM, M.A., LL.D., F.R.S.

### ARISTOTELIA, Hb.

#### ARISTOTELIA MORPHOCHROMA, *sp. n.*

*Antennæ* pale brownish ochreous, narrowly annulate with fawn-brown. *Palpi* pale brownish ochreous, the median joint shaded externally, nearly to its apex, with fawn-brown. *Head* and *thorax* pale brownish ochreous. *Fore-wings* pale brownish ochreous, always more or less shaded with fawn-brown, and with several small fuscous spots upon their surface; one at the extreme base of the costa is succeeded by a second a little beyond it, a third spot lying below the costa at one-third from the base; there are two in the fold, dividing it into equal parts, each of these being slightly posterior to the costal and subcostal spots above them; a strong spot at the end of the cell is preceded by another on the cell at about an equal distance between it and the second plical spot, but in distinct line with the discal and above the plical; around the apex and termen at the base of the brownish ochreous cilia are some fuscous spots, to the number of about four on the costa, and three more diffused on the termen, the latter at about one-third the length of the cilia. *Exp. al.*, 10—12 mm. *Hind-wings* brownish grey; cilia brownish ochreous, but rather greyer than those of the fore-wings. *Abdomen* brownish grey. *Legs* brownish ochreous, the tibiæ shaded with fuscous externally.

*Type*, ♂ (80,067); ♀ (80,043). Mus. Wlsm.

*Hab.*: S. FRANCE—Cannes, larva *Hypericum* sp. (*quadrangulare*?), IV. excl. VI. 1881; 16, IV. excl. 27, V. 1892. ITALY—Rome, larva *Hypericum* sp., 9, IV. excl. 19, IV. 1893. Eight specimens (including that in the Stainton Collection).

This species appears to vary only in the amount of suffusion on the wing-surface, this when excessive always leaving a pale costal spot at the commencement of the cilia. The larva feeds in April in the stems of *Hypericum* (*quadrangulare*?), where it mines downward from the leading shoot, causing the latter to droop and die, the leaves becoming brown, and therefore conspicuous by the time the larva is full-fed; before pupation it leaves the mine and forms a slight cocoon

among adjacent rubbish. When young the larva is of a yellowish amber-brown, but before leaving the mine it becomes bright red, which colour it retains to the time of pupation. It differs from *Aristotelia atrella*, Hw., in that it forms no substantial case or cocoon like that species, moreover the larva of *atrella* causes the whole stem in which it lives to become wilted and withered, while that of *morphochroma* withers only the terminal portion of the shoot.

I first met with this larva at Cannes in April, 1881, and sent a specimen of the imago to the late Mr. Stainton, who wrote:—

“The insect you have sent me (for which many thanks) seems to be *Gelechia senectella*. I had never seen a bred specimen before, and caught specimens are never as fine as one could wish. Your specimen has a spot on the costa near the base which I do not see in any of my caught specimens—still I have no reason to doubt its being the same species. We had previously no clue to its habits.” [Stn. *i. l.*, 5, VII. 1881.]

Eight years later Mr. Stainton wrote:—

“Among some insects I have to determine for M. Constant, I find a *Gelechia*, which seems to me precisely identical with one I received from you in July 1881. You then wrote: ‘I send you herewith a single specimen of a *Gelechia* bred from a larva having exactly the same habits as those of *Gelechia atrella*, but failing to make the same ‘spectacle-case’ cocoon. Do you know the species? Pray keep it.’ I assumed your specimen was from a British larva—but now I feel doubtful, especially as your letter, which was otherwise full of notices of South of France insects, nowhere mentions the birth-place of the new *Hypericum* feeder. The sight of M. Constant’s specimen first raised my doubts as to your insect being British. At the time I referred your specimen to *senectella*, though mentioning it was not in perfect accordance with my previous caught specimens. I am now disposed to wonder how I could ever have thought it *senectella*. M. Constant’s specimen was not bred, so it will be news to him to hear of its habits. For eight years your insect has stood in my British collection—now it has probably to be removed as an impostor and relegated to the European collection.” [Stn. *i. l.*, 3, VI. 1889.]

The specimen referred to in these two letters is now in the British Museum, and is labelled “e. l. *Hypericum*, South France. Lord Walsingham, 5.7.81.” On a label beneath is the following note:—“This specimen stood in my British collection *eight* years as a bred *senectella*. 10.6.89.”

I have frequently searched for the larva since 1881, but the food-plant is not common at Cannes; I, however, met with it again in 1892, and bred two specimens. In 1893 I bred a single specimen from larvæ found in the neighbourhood of Rome.

Merton Hall, Thetford:

February, 1900.

UNDESCRIBED AFRICAN *RHYNCHOTA*.

BY W. L. DISTANT, V.-P.E.S.

## HETEROPTERA.

*PENTATOMINÆ*.*ILERDA SUDANA, sp. n.*

Brownish-ochraceous, thickly and darkly punctate. Head with the lateral margins more coarsely and darkly punctate; antennæ ochraceous, apex of the third joint and more than apical half of the fourth joint dark brownish. Pronotum with the frontal and anterior-lateral margins coarsely and more darkly punctate, similar punctures enclosing a pale ochraceous space at centre of anterior area; space from between lateral angles to base very darkly punctate. Scutellum very darkly punctate, the lateral margins and apex narrowly ochraceous. Corium with the base of lateral margins ochraceous. Body beneath and legs pale ochraceous.

The pronotum is somewhat abruptly deflexed from between the lateral angles, which are shortly, obtusely, and bluntly produced and slightly recurved upwardly; the third and fourth joints of the antennæ are subequal in length and a little longer than the second joint; rostrum reaching the posterior coxæ and slightly piceous at apex. Long., 12 mm.; exp. pronot. angl., 7 mm.

*Hab.*: Central Africa, Niam Niam Country. (Coll. Dist.).

The blunt and comparatively non-produced lateral angles of the pronotum are a salient feature in this species.

*ACOLOBA MALLEATA, sp. n.*

Ochraceous; above coarsely and darkly punctate, beneath much more finely punctate. Head with the margins of the central lobe and the inner margins of the lateral lobes brownish; central basal margin and posterior margins of eyes blackish. Membrane brownish-ochraceous.

Antennæ with the second joint subequal in length, or slightly longer than the third joint; rostrum about reaching the intermediate coxæ; head long, triangular, the apices of the lateral lobes slightly foveate and rounded anteriorly; pronotum with three distinct narrow, longitudinal, levigate fasciæ on disc, the central one complete, the two outermost each broken by a transverse foveate impression on the anterior area; scutellum transversely rugulose. Long., 15 mm.

*Hab.*: S. E. Africa, Delagoa Bay. (Coll. Dist.).

At once separated from *A. lanceolata*, Fabr., by the structure of the head, different colour, relative lengths of the second and third joints of the antennæ, &c.

*LIPLA NATALICOLA, sp. n.*

Ochraceous, thickly and darkly punctate; anterior portion of central lobe of head, lateral margins of the pronotum, a large levigate spot near each basal angle of the scutellum, anterior lateral margins of the corium, connexivum, body beneath, rostrum, antennæ and legs, pale ochraceous; lateral angles of the pronotum both

above and beneath, spots to connexivum at segmental apices, scattered punctures to sternum and abdomen, and a sublateral punctate fascia, and large central spots on basal and fifth and sixth abdominal segments, black.

Antennæ with the second and third joints subequal in length, fourth and fifth joints a little longer, subequal and incrassate; head about as long as pronotum, which has the lateral angles broadly and convexly produced; scutellum broad, subtriangular, its apex rounded; abdomen about as broad as long.

Long., 8 mm.; exp. pronot. angl., 5 mm.

*Hab.*: Natal. (Mansel Weale, Coll. Dist.).

This species is allied in form and structure to the *Cimex depressus*, Herr.-Schäff., which Stål (Mem. Afr., i, p. 153) seems to include in his genus *Iipla*, and where it may remain awaiting the study of further material.

Upper Warlingham, Surrey:

February, 1900.

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MIMETIC RESEMBLANCE BETWEEN  
*PARAGUS BICOLOR*, FAB., A DIPTERON, AND *PROSOPIS*  
*VARIEGATA*, FAB., AN ACULEATE HYMENOPTERON.

BY EDWARD SAUNDERS, F.L.S.

Whilst collecting last August at St. Briac in Brittany I caught a small fly which, for the moment, I thought was a *Prosopis variegata* ♀; it was on *Feniculum vulgare*, on which plant I had taken the *Prosopis*. On examination I found its general form and coloration both very suggestive of those of the *Prosopis*, and to my surprise, on looking at its face, I found, that like the *Prosopis*, it had a lateral milky-white stripe bordering the inner margin of each eye; these stripes, taken together with the general similarity of colour in the two insects, completed a resemblance which was most striking.

*Prosopis variegata* ♀ has the head and thorax black, the following parts, viz., a somewhat triangular patch on each side of the face bordering the eye, the collar and tubercles of the prothorax, the tegulæ and two little spots at the basal angles of the scutellum, being yellowish or creamy-white; the abdomen is red, with the apical segments black; the legs are black, with the bases of the tibiæ yellow.

*Paragus bicolor* ♀ has the head and thorax bronzy-black; the face has two parallel-sided, creamy-white, lines along the margins of the eyes; the thorax in front has some glittering white hairs, which more or less suggest the pale collar of the bee; a small patch of white hairs occupies the position of the bee's tubercles; the scutellum is pale at the apex, and the white halteres are very suggestive of the scutellar spots; the legs are testaceous, not black, but still, as in the bee, the bases of the tibiæ are yellow; the abdomen is narrowly black at the base, widely so at the apex.

After my return home, on looking over some insects taken by my son in Italy in 1895, I was pleased to see another specimen of apparently the same fly, but this proved to be a ♂. On looking at its face I found it was entirely white, just as is the face of the ♂ *Prosopis*, in other respects it closely resembles the ♀, only all the segments of the abdomen are red; the ♂ of the *Prosopis*, on the other hand, has the abdomen as a rule entirely black, although a variety is recorded with the base red.

Mr. Verrall, to whom I am indebted for the determination of the flies, tells me that he has noticed other species of *Paragus* about with small bees, such as *Halictus*, &c., and has always suspected them as being associated in some way.

What strikes me as being so especially remarkable is the great resemblance in the facial markings of the two insects. Any one who has done much collecting among the Fossorial *Hymenoptera* must know well how the inquiline flies that associate with them sit close by their burrows, with the silvery hairs of their faces glittering in the sun, exactly like those of their host; and if there is a real association between the *Prosopis* and *Paragus*, it is certainly noteworthy that here again the likeness should be specially noticeable in the facial markings. That this similarity should occur in both sexes seems to me still more extraordinary.

From many points of view it might be advantageous to the ♀ fly to resemble the ♀ of its host; but how could such a resemblance profit the ♂?, unless possibly it has to hover about the burrows of the bee in attendance on its ♀, in which case its similarity to the ♂ bee might be useful to it in escaping detection: but one feels that such a theory implies great want of perception on the part of the bee, and probably some far less apparent explanation will be discovered to account for resemblances of this sort.

St. Ann's, Woking:  
February 6th, 1900.

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NOTES ON CERTAIN *DIPTERA* OBSERVED IN SCOTLAND DURING  
THE YEARS 1898-99.

BY COL. J. W. YERBURY, LATE R.A., F.Z.S., &c.

(Concluded from page 57).

*CORDYLURA RUFIMANA*, Mg.

The first specimens of this species found in the British Isles, at any rate of late years, were taken by myself at Nethy Bridge on August 4th, 1898; these specimens were identified by me on my



return to London in September of that year, and the identification confirmed by Mr. Austen at the British Museum. Some months afterwards, viz., February, 1899, the first record of the species as a British insect was made by Dr. Meade (Ent. Mo. Mag., February, 1899, p. 31) from a specimen (without locality) given him by the late Mr. Walker.

*Cordylura rufimana* was a common insect at Aviemore in July of the present year, and in company with it were considerable numbers of an interesting variety, which I can only put down to be the *Cordylura rubrifrontata* of Becker. These two forms differ in the presence or absence of the black markings on the hind tibiæ, and it was interesting to find that the ♂♂ were principally of the *rufimana* form, while the ♀♀ were chiefly *rubrifrontata*.

The females of the *rufimana* form were very rare, and though I captured several males of the *rubrifrontata* form, still they were far from common. This species frequents wet marshy places at the edge of pine woods (often even under the shade of the pines themselves), where the vegetation is a compound of heath, bog myrtle, cotton grass, &c., spots altogether unlike the ground frequented by most of the other species of the genus.

#### POGONOTA HIRCUS, Zett.

Mr. Bradley was the first person to record this species as British, having taken specimens in the neighbourhood of Birmingham on July 3rd, 1895.

It is strange that the species should have been so long overlooked, as in July, 1898 and 1899, I found it common on every moorland pool at Rannoch, Kingussie, and Aviemore, while in August it was more or less abundant at Forres (Loch of the Blairs), Thurso, and Nethy Bridge. This species affects the true moorland pools where *carex*, cotton grass, heather, sphagnum, &c., are all mixed up together, and in these spots a chance capture probably gives a clue to the insect's presence, and then sweeping must do the rest.

#### SPATHIOPHORA HYDROMYZINA, Fli.

In August, 1899, this species was in great abundance in the bed of the Thurso river near Thurso; it seems to be widely distributed, though as a rule (in England, at any rate) uncommon. The following are some of the localities in which I have met with it: in Scotland, Kingussie, Aviemore, Forres, and Thurso; in England and Wales, Gravesend, Wicken Fen, and Llangorse; besides these localities there are in the collections of the British Museum, and in that

of Mr. Verrall, specimens from several other places. This species appears in Verrall's list as *Hydromyza Falleni*, in italics, its occurrence in England is, however, now well established. The objection to the name *Hydromyza hydromyzina* (even if the generic name had not been changed) would in these days of *Hyæna hyæna*, *Sula sula*, &c., hardly be considered a valid one.

#### TRICHOPALPUS PUNCTIPES, Mg.

During July, 1898, I found this species in considerable numbers in wet ditches round Ruthven Castle, Kingussie, while during the same month of 1899 it was in still greater abundance round Aviemore, and was common in August, again at Forres and Thurso.

Like most of the small *Cordyluridæ*, this species is only to be obtained (in any numbers) by sweeping, but the trained eye soon recognises, by the nature of the vegetation (chiefly carex) and the surroundings, the places likely to be remunerative; in habits it is somewhat like *Pogonota hircus*, and is to be found in somewhat similar places, while its appearance in life (before the lens is brought to bear on it) is that of that species in miniature. A new genus, *Chætosa*,\* has been proposed by Coquillett for this species, the *Hydromyzina*, however, already appear to be too much divided up, and it will probably be for the best if Coquillett's genus be at once consigned to oblivion.

#### (EDOPAREA BUCCATA, Flin.

Though this species is in italics in Verrall's list, its occurrence in the British Isles is now well established. In the British Museum collection are two specimens taken by myself at Waterville, Co. Kerry, and Kingsbridge, S. Devon; while in Mr. Verrall's own collection are some specimens from the east coast. In Scotland, at Aberlady and Brora, I found the insect common. At these places it affects sand hills on the sea shore, where it sits on the stems of the coarse hard grass so plentiful in such like situations.

This species was recorded as British by Haliday (*Diptera* of Downshire, Entomological Mag., vol. i, p. 168), under the head of *Actora buccata*, its position among the *Phycodromidæ* appears doubtful, and its transfer to the *Sciomyzidæ* in the neighbourhood of *Actora* probable.

#### LIMNIA LINEATA, Flin.

Mr. Verrall's reference to the captures of this insect at Aberdeen

\* Journ. New York Ent. Soc., vi, pp. 160-165.

and Braemar in July, 1873 (The Scottish Naturalist, vol. ii, 1873, 74), is the only record of its occurrence of recent years that I can trace; it is, however, a common, though, perhaps, local insect in Scotland; I found it in some numbers at Aviemore in July, 1899, and rather less abundant in 1898, at Rannoch and Kingussie.

CALOBATA STYLIFERA, Lw.

The occurrence of this species in the Spey Valley is of interest; Lœw described the species from specimens obtained on the shores of Lake Baikal, and I do not know whether there is any subsequent record of its capture anywhere in the vast space between the two localities. During July, 1899, I found this species fairly abundant in clumps of carex in back waters on the banks of the Spey near Aviemore, where the chance capture of a pair "*in coitu*" gave me the clue to its habitat; after that most of the specimens were taken by sweeping.

Army and Navy Club, Pall Mall:

December, 1899.

*Laphria flava*, L., in *Inverness-shire*.—With reference to Col. Yerbury's interesting notes on this fly in this month's Ent. Mo. Mag., I may mention that I have a ♂ specimen which I captured close to Loch Gamhna, Rothiemurchus, on June 17th, 1893. It flew rather heavily past me and settled on a fence, when I had no difficulty in securing it. It was devouring a good sized Dipterous insect. This specimen was recorded by Mr. P. H. Grimshaw in "The Annals of Scottish Natural History" for January last.—WILLIAM EVANS, 38, Morningside Park, Edinburgh: *March 5th*, 1900.

*Laphria flava*, L., in *Scotland*.—Col. Yerbury, in his notes on this species (*ante* pp. 53, 54) seems to have overlooked a record by Mr. Brunetti, in Ent. Mo. Mag., vol. xxv, p. 281, of two examples from Kincardine, taken during the first week in September, 1888. This does not, however, add to the number of known British specimens, as I have every reason to believe these are the two recorded by me in this Magazine for June, 1898. At first sight there would seem a discrepancy, but I believe the parish of Banehory is partly in Aberdeenshire and partly in Kincardineshire.—E. N. BLOOMFIELD, Guestling, Hastings: *March 5th*, 1900.

*Rare Diptera in the Midlands*, 1899.—My collecting last season was almost entirely confined to Worcestershire (principally Moseley). Some good things were taken; a few of them are additions to our Midland List, and will be noted in their places. *Tipula scurra*, Mg., nine specimens of this rare *Tipula* taken, and others seen. *Pedecia rivos*a, L., two. *Empis opaca*, F., this occurred commonly in one field, frequently in pairs. *Paragus tibialis*, Fln., eight. *Orthoneura nobilis*, Fln., three. *Chilosia vernalis*, Fln., very common, about fifty taken. *Syrphus grossulariæ*, Mg., seven in my garden. *Nemoræa appendiculata*, Meq., eight specimens of

this fine Tachinid were taken. *Plagia curvinervis*, Ztt., one, an addition to our list. *Miltogramma conica*, Fln., this very rare Tachinid appeared freely in company with its host (*Oxybelus uniglumis*); its small size, extreme activity, and similarity to its surroundings, made it difficult to capture; about forty taken during many visits (an addition). *Ecotoea fenestralis*, Fln., *Blepharoptera inscripta*, Mg., *Neotiphilum præustum*, Mg., a single specimen of each taken, the last two are additions to our list. A short stay at Evesham produced the following:—*Chrysops relictus*, Mg., one ♂. *Syrphus guttatus*, Fln., three. *Nyctia hallerata*, Pz., nine. *Hydromyza livens*, F., five. Of this last many specimens were seen basking and running on leaves of water lilies in the Avon, but I only succeeded in getting five, as they kept well out of reach, the only result of several strokes being a soaked net. One morning in the public park at Droitwich I was fortunate enough to take four species of *Pipunculus*—*fuscipes*, Ztt., *campestris*, Ltr., *incognitus* and *sylvaticus*, Mg., all found together within a space of a few yards. In the same park *Nemoræa notabilis*, Mg., occurred, basking on laurel bushes, twelve specimens were secured; this species was also confined to a very small space (an addition). A few hours at Wyre Forest late in the season produced *Chilosia soror*, Ztt., one, and half a dozen *Conops ceriiformis*, Mg. The remarkable feature of the season (as it appeared to me) was the almost complete absence of *Tabanidæ*: although the weather was so bright and hot, I only met with two *Chrysops*; *Hæmatopota* and *Tabanus* being entirely absent.—RALPH C. BRADLEY, Moseley, Birmingham: *February, 1900.*

*Hyperetes guestfalicus*, Kolbe, at Dover.—During the Meeting of the British Association at Dover in September last, I collected from off the trunks of old trees (principally limes) in the College grounds certain apterous *Psocidæ*, which proved to be, as suspected, *H. guestfalicus*. This was the only occasion on which I had looked for the insect, and I have no doubt that although it has at present been noticed only at Lynmouth and Dover, it is spread over the length and breadth of these islands.—R. McLACHLAN, Lewisham, London: *February, 1900.*

*Agrion puella*, L., in Scotland.—In Mr. Lucas' recently published book on British Dragon-flies, this species is said to be apparently absent from Scotland.\* It does occur on this side of the Border, however, and I have a specimen I took in June, 1896, near Rosslyn, in the County of Midlothian.—WILLIAM EVANS, 38, Morningside Park, Edinburgh: *March 14th, 1900.*

*Andrena lapponica*, Zett., in Cumberland.—Among some Aculeates kindly named for me by Mr. E. Saunders are both sexes of this species, in all five males and four females; I captured them in the neighbourhood of Carlisle last year. The males were obtained on August 5th, towards sunset, while sweeping low herbage for *Coleoptera* in a secluded lane bordering a large wood. In this wood are acres of a rank growth of *Vaccinium*, at the flowers of which females were taken in Kent in 1895 (*vide* Ent. Mo. Mag., vol. xxxv, p. 263), and it is likely enough that my specimens had some connection with the same plant. The females are from the same locality, though I cannot give the precise date of their capture. When I come to do a little systematic work at this group of insects I expect to find *A. lapponica* a common species, as the specimens here recorded were only picked up casually when collecting *Coleoptera* and, to a lesser extent, *Lepidoptera*. It is not a little curious

\* It is indicated as Scottish by De Selys.—R. McL.

that *A. lapponica* should, as yet, have only been noticed in the extreme north-western and extreme south-eastern counties of England. The Cumberland locality for it has furnished a good many surprises in other Orders, chief among which may be mentioned the Noctuid, *Hydrilla palustris*, which does not occur elsewhere away from the Fens.—F. H. DAY, 6, Currock Terrace, Carlisle: *March 19th*, 1900.

*Argynnis Niobe*, var. *Eris*, taken in England.—With reference to my note (page 41 *ante*), I have since learnt that my statement that the insect might have been taken in Monk's Wood, Hunts, is incorrect. Mr. Waller did not collect there, but in Monk Park Wood, which is about four miles south of Bury St. Edmund's. This removes the uncertainty as to the locality of the capture, which was undoubtedly in Suffolk.—ARTHUR COTTAM, Eldereroft, Watford: *March*, 1900.

*The late Sir James Paget and his brother as Naturalists.*—It is probably not generally known to the present generation that the late Sir James Paget, F.R.S., the celebrated surgeon, was, when a young man, an enthusiast in Natural History. With his brother, Charles John Paget (after whom Curtis named the Trichopteron *Agrypnia Pagetana*), he was joint author of the "Sketch of the Natural History of Great Yarmouth and its neighbourhood," published in 1834, remarkable not only for its extent and accuracy, but also for the youth of the two brothers, one of them (C. J. Paget) being then only 22 years of age. This "Sketch" contains a list of the local Fauna and Flora, very few branches in either being omitted. The list of insects is especially full (for the period). It is true that James Paget was a botanist rather than an entomologist, but there can be little doubt that he assisted his brother in the collecting of insects. In the "Transactions of the Norfolk and Norwich Naturalists' Society," vol. vi, pp. 74-76, Sir James gave a short but most interesting memoir of his brother, who died in 1844, aged 33 years. In this he says that his brother's zeal and industry might be estimated by the extent of the list of insects given in the "Natural History of Yarmouth," which so far as regards that portion was entirely written by him.—E. N. BLOOMFIELD, Guestling Rectory, Hastings: *March*, 1900.

[In the notice of the late Mr. R. H. Meade, published at p. 46 *ante*, allusion is made to the life-long friendship that existed between him and Sir James Paget, who as young men were fellow students. It is quite possible that this friendship had its origin in community of taste for Natural History.—R. McL.]

## Obituary.

*William Gabriel Blatch, F.E.S.*, was born in London in or about the year 1840, and died at Knowle, near Birmingham, on February 25th, 1900. After a brief and very meagre education he was sent to learn shoemaking; finding this occupation uncongenial, he became a pupil teacher in the British School in Colchester; he soon, however, left this to take a situation in the Essex House Idiot Asylum, then superintended by the late Mr. W. Millard. Mr. Millard became his staunch friend, and on his advice he offered himself and was accepted as one of the first of the "Evangelists" sent out into the rural districts of England by the late Mr. Samuel Morley, M.P. He was first appointed to the village of Burton Joyce, Nottingham, and thence removed to Netherbury in Dorsetshire, and subsequently to Gislingham in Suffolk:

at the latter place on one hot summer day he caught a fine specimen of *Vanessa Io*, and the possession of this beautiful butterfly seems to have stirred him to take up the study of insect life and to form a collection. A few years later he turned his attention to the *Coleoptera*, and although he worked at various Orders of insects, besides land and fresh water shells, and all kinds of microscopical objects, he always made the beetles his principal study; no collector could be keener, and he had an unerring eye for a good locality. His methods were very like those of the late Dr. Power, and, like him, when he once found a rare beetle he never rested until he had discovered its habits and secured a considerable series; in one small mossy bank near Knowle he took no less than four hundred and twelve species, or nearly one-eighth of the whole British *Coleoptera* (*cf.* Ent. Mo. Mag., xxvi, 35), and he was instrumental in adding several new species to the British lists, one or two of these being new to science. The writer of the present notice has collected with him on two or three occasions, and has the most pleasant recollections of the time spent in his company. He was especially good at collecting and determining *Homalota* and small *Staphylinidæ*, and enriched the Midland list with a large number of records in this obscure group of insects. Most of his captures will be found recorded in the pages of this Magazine, and the long lists of rare species of themselves prove him to have been a most indefatigable worker. Although, as has been stated, he received a very poor education as a boy, he was extremely fond of books, and possessing a most retentive memory, he was able to instruct himself sufficiently in Latin and other languages to understand the scientific books connected with his favourite subject.

On the foundation, some thirty-two years ago, of the Midland Counties Idiot Asylum, he was appointed Secretary, and held that post, combined with the office of Superintendent, until his death. He was greatly interested in idiocy, and had studied the subject, as far as possible, from all available writings, and did his best to make the lives of the afflicted patients who became inmates of the Knowle Asylum as happy as possible. About twelve years ago, in conjunction with Mr. R. C. Bradley, Mr. Colbran J. Wainwright, and a few others, he founded the Birmingham Entomological Society, of which he became President, and continued such for five years; before that time he had been an active Member of the Birmingham Natural History and Microscopical Society, of which he was, for one year at least, a Vice-President. In 1890 he was elected a Fellow of the Entomological Society of London.

From his youth he had been a great sufferer from indigestion, caused by his going without proper food in order that he might buy books for his studies, and this seems to have injured his constitution: having almost completely run down, and being reduced to little more than a skeleton, he consented to an operation as a last resource, and though every effort was made, the cause of the trouble was not discovered or removed, and he died seventeen days after it had taken place. He left no instructions as to the disposal of his large and excellent collections, which his family are endeavouring to dispose of for the benefit of his widow, who is unfortunately left practically unprovided for.—W. W. F.

*Dr. Ottmar Hofmann.*—To our great regret we have received from the Natural History Society of Regensburg, of which he was Director, news of the death, on February 22nd, of Dr. O. Hofmann, the well-known Micro-Lepidopterist. A more detailed notice will appear in due course.

## Review.

COLLEMBOLA AND THYSANURA OF THE EDINBURGH DISTRICT: by GEORGE H. CARPENTER, B.Sc., F.E.S., and WILLIAM EVANS, F.R.S.E. From the Proceedings of the Royal Physical Society of Edinburgh, vol. xiv. Pp. 221—266, plates v—viii. 1899.

An exceedingly useful paper on a little-worked group, and of far more than local interest, inasmuch, as out of 63 species enumerated "at least 17" are new to Britain, showing that very much remains to be done. The local data are full. Of the plates one is occupied by much enlarged coloured figures, and the others are largely devoted to details.

Mr. Carpenter has also published in the Proceedings of the Royal Dublin Society, vol. ix (1900), an account of seven species collected by Mr. Bruce in Franz-Josef Land in 1896—97, an interesting factor in geographical distribution.

## Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *February 19th, 1900.*—Mr. G. T. BETHUNE-BAKER, F.L.S., President, in the Chair.

Messrs. F. A. Jackson, Edmund Street, Birmingham, and Mr. W. H. Wilkinson, F.L.S., Marchmount, Wylde Green, were elected Members of the Society.

Mr. R. C. Bradley showed the rare Chrysid, *Cleptes pallipes*, which had been taken on a window of his house at Moseley, and the identification of which had been confirmed by the Rev. F. D. Morice; he also showed *Miltogramma conica*, a rare little Tachinid, which he had found in considerable numbers at Moseley last summer. Messrs. H. Willoughby Ellis, and F. A. Jackson, the following beetles from Knowle:—*Anchomenus viduus*, and var. *mæstus*, *Aleochara brevipennis*, *Ptinus fur*, *Corymbites pectinicornis*, and *Sitones cambricus*. Mr. C. J. Wainwright, a box containing the genus *Syrphus*, and allied *Diptera*. Mr. G. T. Bethune-Baker, a drawer of Palearctic Satyrids.—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: ANNUAL MEETING, *January 25th, 1900.*—Mr. A. HARRISON, F.L.S., President, in the Chair.

The Council's Report showed that the Society was in a sound condition in membership, finances, and usefulness.

The following gentlemen were elected as Officers and Council for the ensuing year:—President, W. J. Lucas, B.A., F.E.S.; Vice-Presidents, H. S. Fremlin, M.R.C.S., F.E.S., and A. Harrison, F.C.S., F.L.S.; Treasurer, T. W. Hall, F.E.S.; Librarian, H. A. Sauzè; Curator, W. West; Hon. Secretaries, Stanley Edwards, F.L.S., F.E.S., and H. J. Turner, F.E.S.; Council: R. Adkin, F.E.S., W. J. Ashdown, F. Noad Clarke, Dr. T. A. Chapman, F.Z.S., H. Moore, F.E.S., A. M. Montgomery, and J. W. Tutt, F.E.S. The retiring President then read his Address, discussing at some length the subjects, "Recent Experiments in Telegony," and the "Inter-relation between the Mosquito and Malarial Fever."

Mr. Blenkarn, of E. Dulwich, and Mr. Day, of Carlisle, were elected Members. Mr. Brooks exhibited several specimens of *Acherontia Atropos*, bred by himself, and radiated varieties of both *Arctia lubricipeda* and *A. menthastris*.

February 8th—Mr. W. J. LUCAS, B.A., F.E.S., President, in the Chair.

Mr. Ashdown exhibited and presented to the Society's collections male and female examples of *Gomphus vulgatissimus* from the New Forest. Mr. Montgomery, long bred series of *Chrysophanus Phleas*, and contributed notes on their life history and variation. Mr. Moore, some 150 species of *Coleoptera* collected by Prof. Blatchley in Indiana, including five species of *Calosoma*, an unnamed species taken at an altitude of 14,000 ft. on Mt. Orizaba, Mexico, and a Coccinellid, *Megilla maculata*, which herds in thousands for the winter. Mr. Lucas, a specimen of *Gryllus campestris* from Hastings last year, and a female dragon-fly taken by Mr. Fremlin in the Hebrides, which was probably a variety of *Sympetrum striolatum*. Mr. Adkin, a series of *Melanippe fluctuata* taken at Lewisham in his own garden and in a wood near; the latter were large and dark forms. Dr. Chapman, a large number of microscopic slides of larval and imaginal Lepidopterous legs to illustrate his paper, entitled, "On the Relation of the Larval to the Imaginal Legs in Lepidoptera."

February 22nd.—The President in the Chair.

Mr. J. W. Enoch, of Charlton, and Mr. S. Kemp, of Notting Hill, were elected Members.

Mr. Tomlinson exhibited a specimen of *Eristalis tenax* and pupa from the Kingston sewage works, and suggested that the species may eventually take an important place in the purification of sewage. Mr. Lucas, several species of exotic *Odonata*, to show striking ornamentation of the wings. Mr. Adkin, a series of *Cossus ligniperda*, taken at Lewisham in June and July last, and read a paper, entitled, "Notes on the Pupation of *Cossus ligniperda*." Mr. Colthrup, a sawfly cocoon tenanted by a spider. Major Fiecklin reported the capture of *Macroglossa stellatarum* early in February in the city.—HY. J. TURNER, Hon. Secretary.

ENTOMOLOGICAL SOCIETY OF LONDON: February 7th, 1900.—Mr. G. H. VERRALL, President, in the Chair.

The President announced that he had appointed Dr. T. A. Chapman, F.Z.S., Mr. W. L. Distant, and Mr. C. O. Waterhouse, as Vice-Presidents. He announced the death of Mr. William B. Spence, who had been a Member of the Society since its foundation in 1833, and who was for some years past the only surviving Original Member.

Mrs. M. de la B. Nicholl, of Merthyr Mawr, Bridgend, was elected a Fellow of the Society.

Mr. O. E. Janson exhibited examples of *Achias longividens*, Walk., a remarkable fly from New Guinea, in which the eyes are set at the end of very long stalk-like processes; the specimens showed great variation in the length of the eye-stalks, which in the most fully developed males considerably exceeded the length of the wings. Mr. J. W. Tutt, a series of specimens of *Epunda lutulenta*, including those remarkable variations to which he had referred in his notes on the species read at a



previous Meeting. Mr. Champion, a large number of *Coleoptera* collected by Dr. Chapman, Mr. S. Edwards and himself in July last, at Fusio in the Val Maggia, Macugnaga in the Val Anzasa, and on the Simplon Pass; he called attention to the great variation in colour of one or two common species of the Chrysomelid genus *Orina*, and said he believed that the forms known as *O. cacaliae*, Schrank, *O. speciosissima*, Scop., and under other names, all belonged to one extremely variable species. Prof. T. Hudson Beare, specimens of *Dinoderus minutus*, Fab., obtained from a bamboo basket in his house at Richmond; they were specifically identical with the *Dinoderus substriatus* of Stephens. Mr. H. Donisthorpe exhibited a larva case of *Clythra quadripunctata* taken from a nest of the red wood-ant, *Formica rufa*; he commented upon the unsatisfactory state of our knowledge as to the food-habits of the larvæ of *Clythra*, and said he believed the larvæ fed upon the eggs of the ant. The President remarked that there was a species of *Microdon* of which the pupa case had an obvious similarity to the larva case of *Clythra*, and was, he believed, found in the nest of the same species of ant. Mr. Gahan mentioned, in connection with the genus *Clythra*, that these beetles possess a stridulating organ on the mesonotum, not along the middle as in Longicorns and the *Megalopidae*, but towards the lateral edges, and consisting of two widely separated striated areas over which the edge of the pronotum moves; the stridulating areas were present he said in nearly all the genera of *Clythridæ*, and might almost be regarded as a characteristic of the family. The fact that these beetles stridulate was apparently known to Darwin, who, in the "Descent of Man," erroneously stated that the stridulating area was situated on the pygidium.—C. J. GAHAN, *Hon. Secretary*.

March 7th.—The President in the Chair.

Mr. H. Rowland-Brown, M.A., was elected into the Council and as Joint Secretary in the place of Mr. J. J. Walker, R.N., who had resigned.

Prof. Christopher Aurivillius, of Stockholm, and Prof. Frederick Moritz Brauer, of Vienna, were elected Honorary Fellows: and Mr. W. Drury, of Roequaine, West Hill Park, Woking; the Rev. W. Westropp Flemyng, of Coolfin, Portlaw, Waterford; and Prof. Percy Groom, M.A., F.L.S., of the Royal Indian Engineering College, Cooper's Hill; were elected ordinary Fellows of the Society.

Mr. C. G. Barrett exhibited a series of varieties of *Spilosoma dorsalis* from South Africa, showing variation in some degree parallel with that of *S. lubricipeda* in Great Britain. Mr. G. W. Kirkaldy, several *Rhynchota* of economic interest from the United States, Ceylon, and British Central Africa, among them being the new *Egaleus bechuana*, Kirk., from Africa, which attacks coffee, and *Parlatoria victrix*, Ckll., from Phoenix, Arizona, found on date palms; the last named Coccid was originally introduced from Egypt, and all attempts at eradication had hitherto failed; he also showed a series of thirteen colour-varieties of the oriental Scutellerine *Cantao ocellatus*, Thunb., and examples of *Distantidea vedda* (a new genus and species of *Lybantinae*) from Ceylon, in which the rostrum was very long, extending as far as to the apex of the abdomen. Papers were communicated by Mr. W. L. Distant on "Undescribed genera and species belonging to the Rhynchotal family *Pentatomidae*," and by Mr. G. J. Arrow "On Pleurostic Lamellicorns from Grenada and St. Vincent (West Indies)." Mr. C. J. Gahan read a paper on "Stridulating organs in *Coleoptera*," in which he remarked that one of the best accounts of them

was to be found in "The Descent of Man," but since that work was written several additional instances of their occurrence had been made known, showing that these organs were less uniform in structure and even more wonderfully diversified in position than Darwin considered them to be, while their discovery in the larvæ of certain forms would lead to some modification of the view that they have originated in connection with sex, and primarily serve the purpose of attracting the sexes to one another. He gave a detailed account of their presence on the head, prothorax, mesothorax, legs, abdomen and elytra, enumerating several genera of *Tenebrionidæ*, *Endomychidæ*, *Hispidæ*, &c., in which they had not previously been known to occur, and describing those of certain *Hispidæ* as being the most complex in structure; he mentioned additional instances in which they occur in one sex only, or differ according to sex, and pointed out that, contrary to Landois' opinion, they are frequently present in both sexes of *Curculionidæ*, but in several species the striated area occupies a different position in each sex, being found on the elytra in the males and on the last dorsal segment in the females.—H. ROWLAND-BROWN and C. J. GAHAN, *Hon. Secretaries*.

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#### THE COLEOPTERA AND HEMIPTERA OF THE DEAL SANDHILLS.

BY JAMES J. WALKER, R.N., F.L.S., &c.\*

The south-eastern portion of Kent, of which Dover may be regarded as the centre, has for many years held a very high position in the regard of British Entomologists. Its southern situation and proximity to the Continent, the beautifully diversified nature of the country, and the variety of soil, elevation, and aspect to be met with in a comparatively limited space, with the abundant and most varied flora, have tended to make this district an almost ideal collecting ground. The insect treasures of Folkestone and its famous "Warren" were long ago put on record ("The *Lepidoptera* of Folkestone," by Dr. H. G. Knaggs, 1871, and *Coleoptera*, by the late E. C. Rye, Ent. Mo. Mag., vol. vi, pp. 58, *et seq.*); and the wide stretch of sandy coast which extends northwards from Deal to the mouth of the Stour below Sandwich, has for many years been the resort of our best collectors and observers of insects, and may even now be regarded as one of the most interesting and productive localities in the British Islands. There is scarcely one of the insect Orders which is badly represented, the dragon-flies only excepted, and for bees, two-winged flies, beetles, butterflies, and moths, this area has been celebrated for more than one hundred years; in spite of many obstacles to its ancient primitive condition and wealth of insect life, it is still deservedly popular. It must, however, be stated that many of the rarer species of insects, more

\* Reprinted (with corrections and emendations by the author) from the British Association "Handbook to Dover," 1899.

particularly in the Order *Lepidoptera*, have of late years either disappeared entirely, or exist in sadly diminished numbers. The cause of this disappearance is not far to seek. Summer camping-out stations, and the modern craze for the "Royal and Ancient Game of Golf," which has absorbed so many of our open spaces and ruined them from an Entomological point of view, have exerted their malignant influence to a greater degree at Deal than almost anywhere else, and those who knew the sandhills some five and twenty years ago must lament the destruction of many of the choicest spots for insects. The whole of the central portion of the sandhills being occupied by golf-courses nearly as far as Sandwich, the available ground is now reduced to a narrow strip just inside the shingle beach, and another adjoining the footpath leading past the "Chequers Inn" towards the last mentioned town. It is thus a mere fraction of what it was in the days before the invasion of golf, but partly to make up for this, insects, and especially beetles, seem to a large extent to have become concentrated upon the undisturbed ground, and are thus in some cases more readily obtainable, but on the other hand it is quite possible that many of the rarities will never occur again.

The majority of the *Coleoptera* hereafter mentioned have been taken or noticed by the present writer in about two visits annually of a day each since 1893, and those which are most characteristic, either of Deal or of the south-east coast of England generally, are indicated by an asterisk. Perhaps the most productive method of collecting (so far as the number of specimens is concerned) is by searching at the roots of the dwarf willows and the "Marram" grass (*Ammophila arundinacea*), as well as by rolling back the moss on the sandhills, and turning over small stones, which latter are now not too numerous, except close to the shingle. In this way many interesting *Carabidæ* will be found, notably of the genera *Harpalus* and *Amara*, *H. anxius* and *A. tibialis* usually occurring by hundreds, and *Harpalus attenuatus*, *tardus*, *serripes*, *Amara fulva*, *ovata*, *lucida*, and *plebeia*, being almost always to be found more or less commonly. Of the rarer species of these genera, *H. cordatus*,\* *melancholicus*, and *sabulicola* may be looked for; the first-mentioned, indeed, was long known only from this locality, though it has recently been taken freely at Camber, Sussex, where *H. servus*,\* usually to be found at Deal in some numbers, has also been met with. *Amara curta*\* and *spretta*,\* both very local species, have their head-quarters here, and *A. rufocincta* and *patricia* have also occurred. *Calathus fuscus*, *mollis*, and *fluvipes*, *Taphria nivalis*, and the pretty little *Demetrius unipunctatus*, are found by the methods

mentioned, the last species being especially common at the roots of the "Marram," with *Dromius nigricentris*; while the handsome *Panagæus 4-pustulatus* is usually taken singly (though it has been met with in numbers on more than one occasion), and the very local *Masoreus Wetterhali*\* is almost certain to turn up. Of the *Philhydrida*, *Helophorus rugosus* and *nubilus*, though common, deserve mention from the beautifully clean condition in which they are found; and in the *Staphylinidæ*, among many others, the rare little *Homalota cænsula*,\* *Quedius semicæneus*, *Xantholinus tricolor*, *Achenium depressum*, *Philonthus varius*, var. *bimaculatus*, *P. longicornis*, and the pretty and very local *P. lepidus*\* occur, this last being almost confined to Deal. Of the *Clavicornes*, *Agathidium marginatum*, *Carcinops minima*, and the rare *Scymnus ater*\* are among the numerous species found in the way pointed out, and the bristly *Synceulypta hirsuta* is often common at roots of *Lotus corniculatus* and other low plants. The quaint little Lamellicorn, *Psammobius sulcicollis* occurs in the driest places, and one of the finest beetles of the locality—the large black *Elater*, *Melanotus punctolineatus*—is to be looked for in June; but both this and the last-named are often taken walking on the bare sand. In the Heteromeres section, *Crypticus quisquilius*, *Heliopathes gibbus*, *Opatrum sabulosum*, *Microzoum tibiale*, and *Notoxus monoceros* may all be obtained, often in numbers, and the local *Helops pallidus* is not rare in August, being usually found buried at some depth in the sand. The *Rhyuchophora* obtained in this way include *Otiorrhynchus atropterus* (abundant), *ligneus*, and *ovatus*, *Strophosomus faber*, *Orthochætes setiger*, and *Gronops lunatus*; but the members of this group of beetles are more readily found by searching on and under their known food plants. Thus, under the *Erodium* which grows in profusion upon the more barren places, we find the extremely local *Lixus bicolor*,\* a lovely insect when fresh, and one almost confined to Deal and its vicinity; with it *Hypera fasciculata*, the handsomest of its genus, occurs sometimes in fair numbers, with the smaller but equally pretty *Limobius mixtus*.\* The large grey *Cleonus sulcirostris* is occasionally common at roots of thistles, and in the genus *Apion*, *A. dissimile* may be obtained by searching the Hare's-foot Trefoil (*Trifolium arvense*), *A. confluens* under *Matricaria*, and the rare little *A. sedi* on the yellow stonecrop (*Sedum acre*) near the First Battery. *Ceuthorrhynchus hirtulus* occurs on *Sisymbrium officinale*, *C. resedæ* on the Weld (*Reseda luteola*), and *C. geographifolius* and *asperifoliarum* on the Viper's Bugloss (*Echium vulgare*), the <sup>67</sup>er being also found on the Hound's Tongue (*Cynoglossum officinale*).<sup>10</sup> The Yellow Bedstraw (*Galium verum*)

produces *Chrysomela hæmoptera*, *Sermyla halensis*, and *Cteniopus sulphureus* in plenty, and the prettily marked *Crioceris asparagi* and its larva may usually be seen in some numbers on the asparagus in the garden of the Chequers Inn.

Searching in damp places is also most remunerative, though the best of these, at the commencement of the sandhills close to the site of Sandown Castle, has long been dried up, and several interesting species which used to occur there, such as *Anisodactylus pæciloides*, *Stenolophus elegans*, and others, have not been taken for many years. It was here, too, that *Dyschirius extensus*, Putz\* (*elongatulus*, Daws.), still one of the rarest of our British *Carabidæ*, was discovered as British in 1854, but this has been more recently taken by myself and others under *rejectamenta* in saline spots near the First Battery. *D. impunctipennis*, Daws., may be found abundantly in spring, burrowing in damp spots in the large hollow known to the golfers as "Sandy Parlour;" I have recently met with a very interesting bright chestnut-red, but quite mature form of this beetle, and with it occurs *Bembidium pallidipenne* (a recent addition to the Kentish list of *Coleoptera*), *Bledius arenarius* in abundance, on which the *Dyschirius* preys, and *Aphodius plagiatus*—nearly always of the black form, *niger*, Gyll.—the latter insect having apparently abandoned the usual habitat of its congeners, and taken to burrowing in sandy mud like a *Heterocerus*. *Dyschirius politus*, *nitidus*, and *thoracicus* are also recorded from Deal, *D. salinus* is not scarce in damp saline places, with the large and rapacious *Brosicus cephalotes*, *Pogonus chalceus*, *Dichirotrichus obsoletus*, *Trechus lapidosus* (not common), *Cilleus lateralis*, *Bembidium minimum*, *normannum*, and *varium* (the latter often in the greatest abundance), *Ochthebius margipallens*, *marinus*, *rufimarginatus*, and *punctatus*, *Homalota littorea* and *orbata*, *Trogophlæus halophilus*, *Heterocerus flexuosus*, *obsoletus*, and *sericans*. The interesting genus *Bledius* is represented by *B. spectabilis* and *tricornis*, the latter sometimes occurring by hundreds in sandy mud, and easily detected by the earth thrown out of its burrows; *B. opacus*, not rare in damp sand, and the two rare species, *B. bicornis*, which I have taken at Pegwell Bay, and *B. crassicollis*,\* recently found in some numbers in the Hastings district, though previously to this capture, known only as British from Deal.

The bare hollows on the sandhills form most admirable "traps" for beetles in favourable weather, but as nearly all of them have been converted into "bunkers" on the golf course, the collector, in

searching them, runs a certain amount of risk, either of a knock from a hard ball, or of strong language from the players. Among the numerous species which have been found in this way, two of our greatest British rarities, *Medon castaneus*, taken by Mr. C. G. Hall, and *Anthicus bimaeculatus*, by Mr. A. J. Chitty, may be specially mentioned; and the equally rare *Ceuthorrhynchus pilosellus*, recorded from Deal, was, I believe, also picked up in a sandhole. *Licinus depressus* and *silphoides* are stragglers from the chalk not far distant, as is also the rare *Ceuthorrhynchus euphorbiæ* (*crux*, Wat. Cat.); the beautiful green *Saprinus metallicus* and *virescens* occasionally occur, the first most frequently, and the curious thick-horned *Orthocerus muticus* is sometimes common, with *Serica brunnea*, *Anomala Frischii*, *Hoplia philanthus*, *Adimonia tanacetii*, *Sitones griseus*, *crinitus*, and *humeralis*, *Ceuthorrhynchus punctiger*, and *Rhinoncus castor* in plenty, to name only a few of the species to be met with.

There is now not much scope for the use of the sweeping-net on the sandhills themselves, except in the most favourable weather, when the Marram grass may be profitably swept, but very many good things have been obtained by its use, and pre-eminent among these is *Anisotoma pallens*, Sturm.\* Of this insect I had the good fortune to sweep up three specimens close to Sandown Castle on the evening of September 19th, 1873; it has since been repeatedly sought for in vain by myself and other Coleopterists, and, so far as I am aware, these three examples are the only ones existing in British collections. Both sexes of the almost equally rare *A. furva*, Er., were taken by me on August 28th, 1896, off the Marram grass near the First Battery, and I believe the allied *A. ciliaris*, another great rarity, has also occurred at Deal; *A. dubia*, *punctulata*, and *calcarata*, *Cyrtusa pauxilla*, and *Colenis dentipes*, being at times not scarce. Other species which have occurred by sweeping on the sandhills are *Phalacrus Brisouti*, *Hippodamia 13-punctata* and *mutabilis*, *Antherophagus silaceus*, *Aphanisticus pusillus*, *Adrastus pusillus*\* (the head-quarters of this rare little Elater are near Sandwich, where it was first found by Mr. E. A. Waterhouse in July, 1888), *Malachius marginellus*, *Anthocomus rufus*, *Dolichosoma lineare*, *Cænocara bovistæ*, *Pogonochærus hispidus*, *Lema cyanella*, *Chrysomela marginata*, *Cassida sanguinolenta*, *oblonga*, and *hemisphærica*, *Mordellistena brunnea*, *inæqualis* (a very large form), *Choragus Shepardi*, *Apion pomonæ*, *urticarium*, *cruentatum*, *rubens*, *varipes*, *lævicolle*, *pubescens*, and *Curtisi* (abundant), *Hypera suspiciosa* and *murina*, *Tychius tibialis*, *Sibinia primita*, *Acalles roboris*, *ptinoides*, and *turbatus*, *Cœliodes exiguus*, *Ceuthorrhynchus triangulum*, and *C. Chevrolati*. The

habitat of the two latter rare species, as well as of *Acalles* and *Choragus*, was the bank bounding the sandhills on the inner side, crowned with an ancient thorn edge; but this locality has unfortunately been destroyed, and the Golf Club-house now stands on what was the best part of it.

Any carcasses, whether of small animals such as rabbits, birds, or fish, found on the sandhills invariably repay examination. The rare and beautiful var. *ciliaris* of *Crocophilus maxillosus*, chiefly a northern form, has been found in carrion by Mr. G. C. Champion, and *Aleochara lata*, *Staphylinus stercorarius* and *cæsareus*, *Philonthus splendens*, *Necrophorus humator*, *vestigator*, *ruspator*, *interruptus*, and *vespillo*, *Silpha tristis*, *obscura*, *opaca*, *thoracica*, and *lævigata*, *Hister 4-maculatus*, *unicolor*, *purpurascens*, *neglectus*, *bissexstriatus*, *12-striatus*, and *bimaculatus*, *Gnathonus nannetensis*, *Saprinus immundus*, *rugifrons*, and *maritimus*, may be met with in and about comparatively recent carcasses more or less commonly, while from drier carrion, *Nitidula rufipes* and *4-pustulata*, and *Dermestes tessellatus*, may sometimes be beaten in abundance. Several of the above-mentioned *Histeridæ* (which form quite a feature of the sandhill collecting) may be found under stercoraceous deposits, the sand beneath which often swarms with common *Onthophagi* (*nuchicornis*, *fracticornis*, and *vacca*), and with *Aphodii*, of which *erraticus*, *scybalarius*, *fætens*, *nitidulus*, *sticticus*, and *lividus* may be mentioned; while the local and scarce *Heptaulacus sus*\* may sometimes be taken commonly in this situation in August, and has been recorded (Ent. Mo. Mag., vol. ix, p. 193) by Mr. J. W. Douglas as flying to light in the evening.

The marshy meadows at the back of the sandhills yield their full share of rare and interesting *Colcoptera*, and probably in no other locality in the British Islands is the genus *Donacia* so copiously represented, both in species and individuals, as on the banks of the fresh-water ditches which intersect these marshes. The abundance of these beautiful beetles in June on the aquatic plants (*Sparganium*, *Typha*, *Potamogeton*, *Arundo*, &c.) is quite remarkable, and no fewer than fifteen of our nineteen British species have been recorded from Deal and its neighbourhood. Of these I have taken thirteen species in less than an hour, a score of specimens of five or six species coming up in one sweep of the net; these include *D. versicoloreæ* (on *Potamogeton natans*), *limbata*, *bicolora*, *thalassina*, *impressa* (rather scarce), *simplex*, *vulgaris*, *clavipes* (abundant), *semicupreæ*, *cinerea* (not rare on *Typha angustifolia*), *sericea* (most abundant and variable), *braccata*\* (abund-

ant), and *affinis* (common). Two other species have been recorded from the district, *D. crassipes*, attached to the water lily, and the rare *D. sparganii* from Pegwell Bay (Rev. H. S. Gorham). It is very much to be feared, however, that the disastrous high tide of November 29th, 1897, by flooding the ditches with sea water and killing off the aquatic plants growing in them, has greatly reduced the number of these interesting beetles.

Sweeping on the ditch banks is often very productive in other species, and has yielded *Ilyobates forticornis*, *Calodera umbrosa*, *Megacronus analis*, *Limnichus pygmæus*, *Scirtes hemisphæricus* (very abundant), *Galerucella nymphææ*, *Apthona nonstriata* (abundant on *Iris pseudacorus*), *Crepidodera smaragdina*, *Cassida murraæ* (near Sandwich), *Hypera Pollux* and its beautiful var. *alternans*, Steph. (*Julini*, Sahlb.), *H. suspiciosa*, *Grypidius equiseti*, *Thryogenes nereis*, and *scirrhusus*, *Bayôus alismatis*, *subcarinatus*, and *nodulosus* (the last-mentioned very rare weevil has also been taken by Dr. Sharp and Mr. E. Saunders at Pegwell Bay, with the equally rare *Clavicornes*, *Telmatophilus sparganii*\* and *brevicollis*), *Rhinoncus gramineus* and *perpendicularis*, *Enbrychius relatus*, *Litodactylus leucogaster*, and *Phytobius 4-tuberculatus*, among very many other species of less interest.

Many interesting aquatic beetles frequent these ditches, and may be taken with the water-net; of these perhaps the best is *Laccophilus variegatus*,\* usually rare, but on one occasion taken in abundance by Mr. G. C. Champion. *Cnemidotus impressus*, *Noterus clavicornis* and *sparsus*, *Cælambus parallelogrammus* and *picipes*, *Agabus conspersus*, *Copelatus agilis*, *Rhantus pulverosus*, and (in the *Philhydrida*) *Hydrobius oblongus*, *Enochrus bicolor*, *Paracymus nigro-æneus*, and *Helophorus intermedius*, all occur more or less commonly, and four species of *Gyrinus*, of which *marinus* is plentiful, *elongatus* not uncommon, and the rare *G. Suffriani* is not unfrequently met with. The very local and scarce *Dytiscus circumcinctus*, a few species usually, has been recorded, and in the little pond close to the "Chequers," *D. circumflexus* occurs not uncommonly, with *Agabus nebulosus*, *Rhantus notatus*, and abundance of the curious squeaking *Pelobius Hermanni*.

While searching for beetles, the collector will of course come across very many insects of other Orders, and more especially the *Hemiptera*, and so far as local, rare, and interesting species in this Order are concerned, the Deal sandhills are so productive that we are tempted to enumerate a few of the more conspicuous forms. A favourite resort of several of the rare bugs is under the spreading



leaves or near the roots of *Erodium cicutarium*, where they lie sometimes half embedded in the sand and often quite motionless. As they are frequently of almost the exact colour of the sand or of the *débris* of the leaves they may readily be overlooked unless the collector pauses for a minute or so, when they will be seen to move, wishful to get back under cover. In such localities as this the following have been, and possibly may yet be, met with: *Eurygaster nigra*,\* and the very local *Odontoscelis fuliginosus*,\* *Sciocoris cursitans*,\* and *Pseudophlæus Falleni*, accompanied sometimes by *Neides parallelus*, *Calyptonotus lynceus*, and *Bathysolen nubilus*, the first and last of these being very rare in this country. At the roots of grass under dwarf sallows *Ceraleptus lividus*\* and *Emblethis verbasci*, both quite amongst our rarest species; indeed, the latter was long only known as British from three or four specimens taken in 1873 by Mr. J. G. Marsh and Mr. J. W. Douglas, until recently found by Mr. G. C. Champion in the Scilly Islands. The pretty and very rare little *Pionosomus varius*\* has on two occasions been found under *Erodium* near the First Battery after a lapse of fifty years or more. Off the dwarf sallows the two species of *Plagiognathus* belonging to the section *Neocoris* may be taken, viz., *Bohemanni* and *nigritulus*, and once a single larva of the exceedingly rare *Jalla dumosa* was beaten from a bush of sea-buckthorn. Another rarity in this Order, *Teratocoris Saundersi*, was discovered for the first time on rushes in a damp spot near Sandown Castle, a locality now ruined for entomology. Sweeping has produced its share of good species, *Ælia acuminata*, *Neottiglossa inflexa*, *Strachia festiva* and *oleracea*, *Verlusia rhombea*, *Corizus crassicornis* and *parumpunctatus*; the curious linear *Chorosoma Schillingi* not uncommon at the end of August on the Marram grass, and *Henestaris laticeps* may be found in saline places, with the minute but pretty *Serenthiu læta* in numbers. *Coranus subapterus*, which, unlike most of its tribe, has a pleasant scent, like that of ripe pears, is not scarce on the sand, fully winged examples being occasionally met with. Two other extremely rare and beautiful species of the Order have also been found, *Prostemma guttula* having been taken on the sandhills near Sandwich by Mr. A. Kennedy as long ago as September, 1837, and *Lygæus equestris*, swept up near St. Margaret's Bay upon the cliffs on September 7th, 1886, by the late Mr. C. G. Hall, of Dover.

ON THE LARVÆ, HABITS, AND STRUCTURE OF *LITHOCOLLETIS*  
*CONCOMITELLA*, BANKES, AND ITS NEAREST ALLIES.

BY JOHN H. WOOD, M. B.

(Concluded from page 75).

## BIOLOGICAL ASPECTS.

Perhaps I may be allowed to look for a moment at some of the biological aspects of the appendages, those remarkable organs of the male insect. The point that first strikes one is their extraordinary variety, which is the more remarkable, since being organs of prehension, endowed with a clear and very definite function, it might have been expected that they would have been moulded, like the legs or wings, in a comparatively limited number of forms, each form being common to many individual species. This, however, is totally at variance with the reality; indeed, in very few species are the organs exactly alike, whilst the departures are often so sudden and violent that among the members of some of the large genera one never knows what to expect. It will be said, and I think the impression is a general one, that this exuberance of variation is connected with a similar variation in the other sex, and that there is a mutual relationship between them, the object of which is to prevent unnatural unions. But I doubt it. Insects stand too high in the scale to need so mechanical a restraint; besides, there is abundant proof that they are guided and controlled in the matter by their senses, much as are the higher animals. For let this directing sense be at fault—obscured it may be by the collector's treacle, or confused by the well-known device for procuring hybrids, and unnatural unions occur readily enough, mechanical impedimenta notwithstanding.

The facts, too, are opposed to any such correspondence between the parts in the two sexes. Let me take an example from the genus *Sciaphila*:—in this genus there are two well-known forms of the female abdomen, one in which the end is broad and blunt, the other in which it is fine and pointed, but no two equivalent forms are to be found in the other sex, so that a grouping of the species founded on the parts of the female would not agree with one founded on those of the male. So far as my own investigations have gone, the state of things is as follows:—in *subjectana*, *virgaureana*, *pascuana*, and *chrysanthemana* the male appendages are all much alike, though each differs from the others in a slight and about equal degree, yet the female abdomen of *subjectana* is fine-ended, while in the three other species it is blunt-ended. The male of *sinuana* on the other hand is

quite different, and may be said almost to take a new departure, but no corresponding variation takes place in the female, which conforms accurately to the fine-ended or *subjectana* type. This unexpected independence is not, I believe, confined to a genus here and there, but will be found the almost universal rule, that is to say, each set of organs varies, up to a certain point, irrespectively of the other. Hence the conclusion is inevitable that much of the variation that we find in the male appendages is of a neutral character, neither useful nor hurtful to them as clasping organs.

There is, however, another aspect of the subject: all this amazing fertility of shape is dependent in some way upon the presence of the reproductive glands or testes, for it can scarcely be doubted that could they be removed at a sufficiently early date in the life of the larva, the transformation of the last larval segment into the armature of the imago would not occur, much as the emasculation of the deer prevents the development of its horns. Now, accepting Weismann's division of the individual into the soma and germ-plasm, it seems to me that if we are to conceive an organic whole, some connecting link is required to bring the two into mutual relationship. Such a link the reproductive glands, whether testes or ovaries, can supply. To hold that the production of the spermatozoa or the ova, as the case may be, is the sum and substance of the office of these glands, is to shut our eyes to the immense control they exercise over the development of the soma. Moreover, there is very good reason to believe that these structural functions, as we may perhaps for convenience call them, are quite distinct from their reproductive functions, and even independent of them. The two sets are seldom in full activity at the same time, the former for the most part antedating the latter, and often to a considerable extent. Again, the organs may be capable of discharging one set of functions, and incapable as regards the other. In such cases the failure is usually on the side of the reproductive functions. Examples of undescended testis are familiar enough to the surgeon and the physiologist, in this predicament the organs are small and starved, and utterly incapable of producing spermatozoa, yet all the virile characters of the individual may be present, and that to a full degree of perfection, fertility alone excepted.

The functions then of the reproductive glands are twofold: on the one hand they supply the germ-matter that resides within them with the means of developing and multiplying; and on the other hand they modify and even originate those parts of the soma which are lumped together under the name of secondary sexual characters.

Now, the more minutely we investigate and classify our insects, the more commonly do we come upon instances in which the only coarse and tangible characters by which one species may be distinguished with certainty from another closely allied to it, lie in these secondary sexual structures; in fact the structures constitute for us the specific characters. Hence the conclusion seems inevitable that many of the characters that go to form a species have their start in some primary change in the reproductive glands, and that these organs are not merely passive agents concerned in the nourishment of the germ-matter, but do themselves take an active and creative part in the genesis of species.

Be this as it may, no doubt exists of the close relationship between the primary and secondary organs, and the question arises, by what means or through what channel is it effected? Probably the answer would be that it is due to the agency of the nervous system. Some stimulus or impression, so it is affirmed, is conveyed from the reproductive glands to that part of the nervous system presiding over the development, say of the claspers, in consequence of which the latter take on their proper growth and form. At one time no other explanation was perhaps possible, but recently there has been brought to light a singular and quite unsuspected function possessed by many, if not all, of the glands of the body. In addition to their ordinary secretions, which find their way into the ducts, and may, therefore, be called external, it is now recognised that they produce what are known as internal secretions—secretions which pass back at once into the blood, where they probably act as highly specialized foods necessary to the well-being of the organism. As at present taught, this applies only to the daily wear and tear of the body as a going concern, but I see no reason against a wider application of the principle, and why may we not suppose that in the building up of the structures one part may produce a substance which serves as an essential element in the nutrition of some other part, and without which it could not take up its true and proper development. Thus, in place of a nerve-bond between two correlated parts, it is possible to substitute a food-bond, or, in other words, a chemical one. It may be mere speculation, yet it is in this direction, in the application of chemistry to vital processes, that most hope lies of penetrating some of the mysteries of organic life, nor are considerations altogether wanting in support of it. To revert to the illustration already borrowed from the stag: if the influence be purely nervous, as is commonly believed, the path by which it is conveyed all the way from the testes to the horns over the intricate and interlacing lines of the

sympathetic system is hard to conceive, but substitute a food-bond, and the connection is at once obvious, and easy of comprehension.

The case would be strengthened, too, if we could only show that structure was in the habit of being modified by the nature of the food taken in the ordinary way through the digestive system, but among animals the only instance I can call to mind is that presented us in the development of the queen and neuter bees. The fact is, the animal economy is so self-contained that the ingesta, however varied within certain limits their nature may be, are all resolved by digestion into much the same substances. Plants, however, stand on a different footing; in them environment often masters heredity, instead of heredity overpowering environment, as in the animal, and the cause of this great difference is to be found, I venture to suggest, in the reversed positions of the soma and germ-matter in these two fundamental divisions of the organic world. In the animal the germ-matter is internal, and jealously guarded from all outside influence, except what can reach it indirectly through the containing gland (ovary or testis), whilst the active though less plastic soma is external and in immediate relation with the environment. But in the plant the soma is represented by the woody and hardly living internal skeleton, and it is the germ-matter that is outside and in full contact with the environment, being packed away among the actively growing parts (the liber, &c.), much in the same way as it is in the stroma of the testis or ovary of the animal. And the result, if not the object, is that in the one case the form is stable, and the influence of the environment reduced to a minimum, in the other the stability is lessened and the environment enabled to obtain freer play. This is amply born out by a reference to the practice of those engaged in improving our domesticated races, whether animal or vegetable. In the rearing of his fancy stock the animal breeder depends solely on selection and judicious crossing, but the raiser of plants, besides these resources, can actively control his results by modifying in various ways the general conditions, among which the nature of the soil and all which that implies is the most important. In plants, therefore, we must conclude that structure does largely depend upon food.

Again, the phenomena of gall-formation offer perhaps a still more striking illustration of this dependence. Galls are in reality most extraordinary bodies; their strange forms, so unlike any of the natural parts of the plant, their altered tissues and complex structure, and the power possessed by some of them of growing and maturing after being shed by the parent plant show how profoundly the proto-

plasm has been modified. And yet all this is brought about, as I think will be admitted by those who have given any thought to the matter, by the injection into the tissues of a microscopic drop of some peculiar substance, the product of the insect. That such a substance can give rise to these remarkable changes by merely stimulating or irritating the parts I find it impossible to conceive. My own belief is, that it must in some way play the part of a food, not, however, in the ordinary sense of nourishing, but rather in that of combining and uniting with the protoplasm or one of its constituents, after the manner of a chemical agent, and so altering its molecular constitution and affinities as to change it into something altogether different from what it was before.

Of such a kind is the nature of the food-bond which I would suggest may underlie some of the phenomena of correlation, that is, certain substances are secreted by the controlling organ, which combine chemically with the protoplasm of the correlated part, and endow it with new capabilities.

Tarrington, Ledbury :

December, 1899.

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A NEW *ERIOCRANIA* FROM ENGLAND.

BY THE RIGHT HON. LORD WALSHINGHAM, M.A., LL.D., F.R.S.

3102 (1). *ERIOCRANIA* FIMBRIATA, *sp. n.*

*Antennæ* less than half the length of the fore-wings; pale greyish fuscous. *Head* dull greyish. *Thorax* fuscous, with some greyish hair-seales. *Fore-wings* with vein 9 absent; shining bronzy golden, without markings; cilia yellowish white. *Exp. al.*, 11 mm. *Hind-wings* purple, with a slight bronzy sheen; cilia yellowish white. *Abdomen* fuscous. *Legs* greyish fuscous, the tarsi slightly paler.

*Type*, ♂ (13501), Mus. Wlsm.

*Hab.* : ENGLAND, near Wellington College Station (Berks), 14—21, IV, 1894 (*A. H. Hamm*). Two specimens.

A small, plain, but very distinct species, immediately recognisable by its unicolorous fore-wings and almost white cilia, which form a strong contrast to the colour of both fore- and hind-wings. Its form of neurulation is that of *sparrmannella*, Bose, and its allies, but it can hardly be said to be closely related to any known species—its colouring distinguishing it at a moment's glance.

I am indebted to Mr. A. H. Hamm for the opportunity of describing this pretty and interesting *Eriocrania*, of which he has generously permitted me to keep the type.

It seems impossible to regard it as a variety of any known species, the mere loss of purple or reddish colouring being insufficient to account for its very distinct and peculiar appearance, or for the marked contrast presented by the whitish cilia. The two specimens were beaten from birch trees, in company with *E. salopiella* and *E. sparrmannella* near Wellington College Station, in Berkshire, one on the 14th, and the other on the 21st April, 1894. Mr. Hamm looked for it unsuccessfully in the two following years, and has since had no opportunity for further search.

Merton Hall, Thetford :  
April, 1900.

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*ELLAMPUS TRUNCATUS*, DAHLB.: AN ADDITION TO THE LIST  
OF BRITISH CHRYSIDS.

BY THE REV. F. D. MORICE, M.A., F.E.S.

Mr. R. C. L. Perkins has forwarded to me from the Cambridge University Museum, with the consent of the Curator, Dr. Sharp, a Chrysid for determination, which, from what he tells me, may I hope be safely added to our small British list of that family.

It is an *Ellampus truncatus*, Dahlb., and belongs to Walcott's collection. It is labelled "British—Walcott," but without date or precise locality. Mr. Perkins, however, tells me there is no doubt it is British, and was probably taken near Bristol about 1840. Walcott's collection of *Hymenoptera* contains no professedly foreign specimens, and the only ones in it whose nationality is questionable are a few which he received in exchange from the British Museum collection in 1842. But all these he duly ticketed as received from that source; and if the present insect had come from the British Museum it must have been noticed by Shuckard and Smith. Nor is it at all improbable that *truncatus* should occur in this country, as it is distributed all over Europe—in fact, from Scandinavia to Egypt. I have a Mecklenburg specimen exactly like Walcott's insect, and am quite sure of the identification.

*E. truncatus* is very easily distinguished from any other of our British Chrysid. The form of its post-scutellum is peculiar; this is acutely conical, though not—as in the genus *Notozus*—produced into an overhanging horizontal plate. In our three other species of *Ellampus* the post-scutellum is merely a little convex or gibbous, the elevation being scarcely noticeable, except in the lateral view. In colour, *productus* is not unlike *aneus*, F., bright blue and green; but apart from the different form of the post-scutellum, it may at once be distinguished from that species by the

much more closely punctured thorax, and by the quite different shape of the apical segment. This in *æneus* has simply a rounded margin, notched triangularly in the middle. In *truncatus* the sides are widely scarious, and strongly sinuated inwards before the apex, which projects considerably, and is also abruptly truncated, forming a distinct "apical platform," or wide flattened border to the triangular excision.

In this part of its structure *truncatus* recalls rather *Notozus Panzeri*, F., than our other species of *Ellampus*; and it was on this ground, I suppose, that Dahlbom grouped it with *Panzeri*, &c., in his genus "Elampus," which we now call *Notozus*, while he placed *æneus*, &c., in *Omalus* (= *Ellampus* in the modern sense). However, as the genera are now defined (see du Buysson, in "Species," vol vi, pp. 95, 116), *truncatus* is an *Ellampus*, and not a *Notozus*.

Mr. Perkins has been good enough to send me a list he has made of the Chrysidids in the Walcott collection at Cambridge. This, besides *E. truncatus*, contains all the species I have recorded as British in this Magazine except *Holopyga gloriosa*, F., *Hedychridium integrum*, Dhlb., and *coriaceum*, Dhlb., and *Chrysis osmiæ*, Thoms. The first and the last of these, if indeed they are really British, have still to be re-discovered. Of *coriaceum* I still know only of two British specimens, both taken by myself. But *integrum*, I am glad to say, has of late been found pretty freely by Mr. Perkins in a new locality, viz, Suffolk. There seems some reason to suspect this species of parasitism on *Astutus stigma*, Pz. At least these two rarities have occurred together both to Mr. Perkins in Suffolk and to myself at one particular spot near here, and I have also taken the two kinds in abundance near the Simplon Pass in Switzerland. If this be so, I think it is likely that *H. roscum*, Rossi, is parasitic on our other *Astutus* (*boops*, Schr.), in whose neighbourhood I have several times captured it.

Brunswick, Woking:  
April 2nd, 1900.

#### SOME OLD RECORDS OF THE OCCURRENCE OF CERTAIN DRAGON-FLIES IN SCOTLAND.

BY KENNETH J. MORTON, F.E.S.

When in Dumfries a few weeks ago, Mr. Robert Service called my attention to a small book, entitled "Handbook of Colvend and Southwick" (Dumfries: J. Maxwell and Son, 1895, a second edition, the preface to the first being dated 1873). It is mainly of local interest, but a certain value has been attached to it from an entomological point of view by several lists of insects contributed by the late Dr. Buchanan White.

I understand Dr. White spent two different seasons at Colvend,



which is situated on the Solway in Kirkeudbrightshire, and while it is probable that the results of his collecting, as far as the *Lepidoptera* at least are concerned, may have been made known in some shape or other through scientific channels, I doubt if anything has been published elsewhere on the dragon-flies of the district. I accordingly give his note on these insects in full. He makes no reference to the other *Neuroptera* :—

“This Order has been neglected; but from the nature of the country, Colvend should be a rich field to the Neuropterologist. The following occur :—

<i>Libellula quadrimaculata.</i>	<i>Calopteryx virgo.</i>
„ <i>cærulescens.</i>	<i>Lestes nymphæ.</i>
„ <i>scotica.</i>	<i>Agrion minium.</i>
<i>Æschna juncea.</i>	„ <i>cyathigerum.</i> ”
„ <i>grandis.</i>	

From what I can gather, Dr. White's view as to the probable productiveness of the district is well founded. At least half a dozen lakes still exist, while there are also the partially drained remnants of others, and considerable peat-mosses.

In the *Annals of Scot. Nat. Hist.*, 1899, p. 29, I indicated that a number of species recorded by Hagen (after De Selys) from Scotland had been lost sight of. Two of these were *Æ. grandis* and *O. cærulescens*. Looking at Dr. White's wide knowledge, there can be no reasonable doubt as to the correctness of his identification of two such conspicuous insects, and the record, though getting somewhat old, is decidedly interesting. With regard to *L. nymphæ* the case is rather different, and the question of its occurrence may be left open in the meantime.

In view of the more general interest created in these insects by the appearance of Mr. Lucas' attractive book, it may be desirable to examine more closely into the foundation of these old records of De Selys and Hagen. The former made a journey in England, Scotland, and Ireland, in the summer of 1845, and in the *Annals and Magazine of Nat. Hist.*, vol. xviii, pp. 217—227 (1846), he published a “Revision of British *Libellulidæ*.” The extent of his own observations are, I think, summed up in the following passage :—“I must, however, remark that on visiting, from July 15th to 25th, several apparently very favourable localities in Scotland, and that in very fine weather, I was much surprised not to see there, so to speak, any *Libellulidæ*, except *Æschna juncea* in small numbers, and some *Libellula scotica*, *Agrion minium*, *pulchellum*, *cyathigerum*, and *elegans*, and, moreover,

not in all these localities, which are Tarbet (Loch Lomond), Inverary (Lochfyne), Oban, Foyersfall." He then goes on to compare the Highlands to the Belgian district of the Ardennes, which is also poor in dragon-flies, and produces, like Scandinavia and Scotland, *Cordulia arctica*. The other records appear to have been based on specimens seen in the collections of Dr. Greville, Mr. Wilson, of Edinburgh, and a Mr. Blyth, of Glasgow. I give a list of such species as I have not personally seen from Scotland:—

<i>L. depressa</i> , "Mus. Dr. Greville."	<i>Æ. grandis</i> , "Mus. Dr. Greville."
<i>L. cœrulescens</i> , "Mus. Wilson and Blyth."	<i>C. splendens</i> , "Mus. Wilson."
<i>L. flavicola</i> , "Stephens."	<i>P. pennipes</i> , "I think I am sure of having seen it on the wing at Inverary."
<i>Æ. pratensis</i> , "Mus. Dr. Greville."	<i>A. pulchellum</i> , "Mus. Blyth."
<i>Æ. mixta</i> , "In the south."	
<i>Æ. cyanea</i> , "Mus. Wilson."	

It will be observed that he gives in the list no locality for the last named, although he includes it amongst those that he met with.

It is quite possible that the specimens from some of these old collections might be traced, but they would not likely be of any scientific value when found. In those days they knew these insects by head mark, not by label.

Edinburgh: *March 3rd*, 1900.

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AN EXTRAORDINARY MELANIC VARIETY OR ABERRATION OF  
*ENALLAGMA CYATHIGERUM*, CHR., ♂.

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

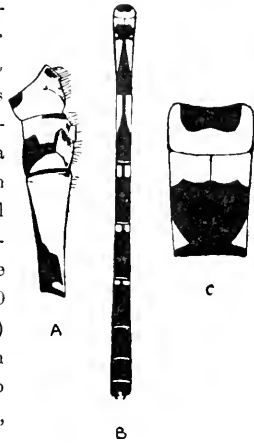
Mr. K. J. Morton recently sent to me for examination a male "*Agrion*" taken by him in Glen Lochay, Perthshire, Scotland, in July, 1898, which he considered a condition of *E. cyathigerum*, but very extraordinary. There can be no doubt that he is right; but the individual is so extremely aberrant that I think it well to give an account of it, and the descriptive notes will be better understood if read in connection with the accompanying figures (drawn for me by Mr. Lucas). The male parts agree precisely with those of *cyathigerum*.

*Head*: the "postocular" blue spots are very small, and the blue line between them very short and fine.

*Prothorax*: the two usual blue spots above (one on each side) are much reduced and scarcely visible; the narrow blue posterior margin is interrupted with black.

(Combined *meso* and *metathorax* normal).

*Abdomen*: it is here that the greatest departure from the normal condition exists, the blue being much reduced. Segment 1 practically normal. Segment 2: the large black capitate or hastiform spot occupies the greater part of the segment above; its base is very broad, and its anterior edge is angulate or sinuate; on each side it has a broad prolongation connected with an irregular line, enclosing a semicircular blue space at the base (see figure). On segments 3 and 4 above, the black occupies the basal half, but apically it is produced into a lanceolate prolongation to the anterior margin; on the side of these segments the blue predominates. Segments 5 to 10 (thus including 8 and 9, which are usually wholly blue) are practically wholly black, but on 5 to 7 there is an apical blue spot (diminishing in size), divided into two by the dorsal crest. The sides of the ventral suture, nearly throughout, glaucous.



That considerable variation exists in the form of the dorsal spot on the 2nd segment in *E. cyathigerum* is well known, and the extension of the black on the succeeding segments is also liable to variation, but in neither case am I aware of anything on record approaching this specimen. Especially noticeable is the fact that segments 8 and 9 above are wholly black.

Perhaps the nearest recorded variation is in specimens from Holland, noticed by Baron de Selys-Longchamps in his "Synopsis des Agrionines," 5<sup>me</sup> légion, p. 91. And *Agrion elegantulum*, Zett. (Ins. Lapp., 1043), should not be altogether forgotten. Neither of the Scandinavian monographers (Johansson, 1859, and Wallengren, 1894) succeeded in identifying this insect, although both admitted it. And De Selys (Ann. Soc. Ent. Belg., xxxi, p. 70, 1887) alludes to it as something "que l'on n'a plus retrouvé et dont les exemplaires communiqués par le Dr. Hagen se rapportent à plusieurs espèces connues, notamment au *cyathigerum*."

Mr. Morton is of opinion that he took his insect at a small elevated mountain loch in company with normal *cyathigerum*, but he did not recognise anything unusual at the time, so the precise spot in Glen Lochay remains slightly doubtful.

*Explanation of figures.*--Fig. A, segments of abdomen 1-3 from side,  $\times 4$ ;  
B, abdomen above,  $\times 2$ ; C, segments 1-2 above,  $\times 8$ .

Lewisham, London: March, 1900.

LIST OF SOME CORSICAN *DIPTERA*.

BY THE REV. T. A. MARSHALL, M.A., F.E.S.

The *Diptera* of Corsica have not received much attention. I propose, therefore, to mention such of my captures in the past season or formerly as I am able to indicate by name, omitting those that are universal, like the house-fly. I expected to find a strong resemblance between the Dipterous fauna of Sicily (as recorded in the Catalogue of Bezzi and de Stefani-Perez, Palermo, 1897) and that of this island, but there appears to be no very close correspondence. A large number of my captures remain at present undetermined, owing principally to the want of some indispensable works, those of Rondani, Loew, &c. In the hope of receiving information as to the specific identity of some of these insects, I should be glad to send them to any one who would kindly examine them, and to furnish him, as far as possible, with duplicates. The occurrence among them of new species is far from improbable.

Tipula vittata, <i>Meig.</i> , and other spp.	<i>Thereva cineta</i> , <i>Meig.</i>
<i>Pachyrrhina luteata</i> , <i>Meig.</i> <i>crocata</i> , <i>L.</i>	<i>annulata</i> , <i>F.</i> <i>Seenopinus fenestralis</i> , <i>Latr.</i>
<i>Pedicia rivosa</i> , <i>L.</i> , rarely seen at Bastelica.	<i>Drapetis brunnipes</i> , <i>Meq.</i>
Limnobiidae, not examined.	<i>Paracrocera globulus</i> , <i>Panz.</i>
<i>Bibio leucopterus</i> , <i>Meig.</i>	<i>Lonchoptera</i> sp.
<i>Dilophus</i> sp.	<i>Dolichopodidae</i> , not ex.
<i>Sciara Thomæ</i> , <i>L.</i> , and other spp.	<i>Bombylius</i> , several spp. not ex.
<i>Rhyphus fuscatus</i> , <i>Meig.</i>	<i>Cyllenia maculata</i> , <i>Latr.</i>
<i>Tabanus</i> , large black sp., six taken.	<i>Toxophora maculata</i> , <i>Wied.</i>
small grey sp., with large head, flying to lamp at night.	<i>Pthiria</i> (n. sp. ?).
<i>Hæmatopota longicornis</i> , <i>Meig.</i>	<i>Anthrax hottentottus</i> .
<i>Pachygaster ater</i> , <i>F.</i> , bred in larva-cage out of the earth, in some numbers.	<i>Pandora</i> , <i>F.</i> <i>Megæra</i> , <i>Meig.</i> <i>varius</i> , <i>F.</i>
<i>Rhopalia vittata</i> ( <i>Walk.</i> ?). On coast at S. Florent; named formerly by F. Walker, but I could never find the de- scription. Allied to <i>Mydas</i> ; but the two specimens have perished, and I have found none since ( <i>Mydas lusitani-</i> <i>cus</i> , <i>Meig.</i> ?).	<i>Ixion</i> , <i>F.</i> <i>Argyromæba etrusca</i> , <i>F.</i> <i>Baccha elongata</i> , <i>F.</i> <i>Melithreptus scriptus</i> , <i>L.</i> <i>Pyrophæna rosarum</i> , <i>F.</i> <i>Syrphus vitripennis</i> , <i>Meig.</i> <i>balteatus</i> , <i>Deg.</i>
<i>Laphria marginata</i> , <i>L.</i> , <i>Vizzavona</i> .	<i>Catabomba pyrastri</i> , <i>L.</i>
<i>Dioctria</i> ( <i>longicornis</i> , <i>Meig.</i> ?).	<i>Chilosia</i> , spp. not ex.
<i>Asilus barbarus</i> , <i>L.</i> , <i>Ajaccio</i> . Other spp. not ex.	<i>Volucella zonaria</i> , <i>Meig.</i>
<i>Leptogaster cylindricus</i> , <i>Deg.</i>	<i>Scricomyia borealis</i> , <i>Fall.</i> , seen several times at Bastelica.

- Eristalomyia tenax*, *F.*  
*Eristalodes tæniops*, *Wied.*, common at Ajaccio.  
*Myiatropa florea*, *L.*  
*Merodon clavipes*, *F.*  
     *senilis*, *Meig.*  
     *spinipes*, *F.*  
     *albifrons*, *Meig.*  
     *funestus*, *Meig.*  
*Xylota sylvarum*, *L.*  
*Syritta pipiens*, *Latr.*  
*Eumerus planifrons*, *Meig.*  
     sp. ?  
*Chrysogaster*, spp. not ex.  
*Paragus strigatus*, *Meig.*  
*Chrysotoxum intermedium*, *Meig.*  
*Ceria conopoides*, *L.*  
*Platyeza dorsalis*, *Meig.*, bred from fungi in cage, numerously.  
*Callomyia speciosa*, *Meig.*  
*Conops 4-fasciata*, *Deg.*  
     *flavipes*, *L.*  
*Myopa atra*, *F.*  
*Æstrus ovis*, *L.*  
*Gasterophilus equi*, *F.*  
*Echinomyia grossa*, *L.*  
     *fera*, *L.*  
     *argentifrons*, *Meq.* Very common; among them is a dwarf specimen, probably from deficient food in larva state (See Coquillett, Revis. of Tachinidæ N. of Mexico, p. 9).  
*Micropalpus tessellans*, *Desv.*  
     *vulpinus*, *F.*  
*Gonia atra*, *Meig.* Common at Ajaccio. one dwarf specimen.  
     sp. like *atra*, but small.  
*Nemoræa*, *Exorista*, &c., not determined.  
*Masicera vertiginosa*, *Fall.* Twenty bred from one larva of *Saturnia pyri*, *L.*  
*Miltogramma punctata*, *Meig.* Haunting burrows of bees at Ajaccio.  
*Ptilocera* sp.  
*Melanophora nitida*, *Desv.*  
     *maura*, *F.*  
     *tetraptera*, *Meig.*
- Many other Tachinidæ undetermined.  
     Coquillett's table makes 153 genera.  
*Ocyptera brassicaria*, *Latr.*  
     *pusilla*, *Fall.*  
*Gymnosoma rotundata*, *L.*  
*Stylogymnomyia nitens*, *Meig.*  
*Phasia crassipennis*, *Latr.*, ♀ = *analis*, *Meig.*, ♂; and var. ♀ *nigra*, *Desv.* Ucciani.  
     *brachyptera*, *Meig.*  
*Alophora umbripennis*, *Meig.*  
     *semicinerea*, *Meig.*  
*Dexia* sp.  
*Homalogaster* (n. sp. ?). Ajaccio, very large.  
*Sarcophaga*, spp. not ex.  
*Stomoxys calcitrans*, *L.*  
     sp. ?  
*Idia lunata*, *F.*  
*Rhynchomyia columbina*, *Meig.*  
*Lucilia lasiophthalma*, *Meq.* Abundant.  
     *flaviceps*, *Desv.* On a dead horse; Ucciani.  
*Pyrellia cadaverina*, *L.*  
*Calliphora cærulea*, *Meig.*  
*Placomyia vitripennis*, *Meig.*  
*Cyrtoneura agilis*, *Meig.*  
*Graphomyia maculata*, *Scop.*  
*Mydæa urbana*, *Meig.*  
*Spilogaster quadrum*, *F.*, and two other spp.  
*Ophyra leucostoma*, *Meig.* On dead horse; Ucciani.  
*Anthomyia vittata*, *Meq.*  
*Hylomyia strigosa*, *F.*  
*Elgiva dorsalis*, *F.*  
*Scatophaga incisa*, *Meq.* *S. stercoraria*, *L.*, is not found here.  
*Dryomyza* sp.  
*Palloptra rivosa*, *Meig.*  
     *inusta*, *Meig.*  
*Trigonometopus frontalis*, *Meig.*  
*Helomyza rufa*, *Fall.*  
     *nemorum*, *Meig.*  
     *similis*, *Meig.*  
*Scioptera vibrans*, *L.*

Dacus oleæ, <i>F.</i>	Piophila sp. Not <i>casei</i> .
Trypeta serratulæ, <i>L.</i>	Opomyza germinationis, <i>L.</i>
tussilaginis, <i>F.</i>	combinata, <i>L.</i>
bardanæ, <i>Schr.</i>	Borborus equinus, <i>Fall.</i>
Urellia stellata, <i>Fues.</i>	Meromyza variegata, <i>Meig.</i>
Sepsis punctum, <i>Fall.</i> , and two more spp.	Chlorops cereris, <i>Meig.</i>
Lanxania ænea, <i>Fall.</i>	Hippobosca equina, <i>L.</i>
eylindricornis, <i>Fall.</i>	Chelidomyia hirundinis, <i>L.</i>
Lonchæa parvicornis, <i>Meig.</i>	

Ucciani, Corsica :

January, 1900.

*Note concerning Rhinocypha fulgidipennis, Guérin.*—This superlatively brilliant little Odonate was first described and figured by Guérin in the "Magazin de Zoologie," vol. i (1831), as *Agrion fulgipennis*, from Cochin China; only the ♂ was known, and it is not stated how many examples had been received. In 1842 Rambur described it as *Rhinocypha fulgipennis* (Névrof., p. 233) from a specimen in Serville's collection, and says he had seen only the ♂. In 1853 De Selys (Synops. Calopt., p. 59, No. 77) diagnosed it under the corrected name of *Rh. fulgidipennis*, and says it is in his collection (probably from Serville's), and he had evidently seen two examples. In the following year (1854), in the "Monographie des Caloptérygines," pp. 200–202, a detailed description is given, after a ♂ from Serville's collection and another from Guérin's. From that time nothing original has been written about the species, and I am not aware that it has been collected by any one since the original consignment prior to 1831, which is remarkable, considering its brilliancy. Through the kindness of Mons. René Oberthür I have just received a ♂, which in all probability represents a third example, but part of the original captures. It was obtained by M. Oberthür at the sale of the late M. Sallé's collection, and was found in a box with insects of other Orders. It bears a label in Guérin's hand (but evidently long subsequent to his original description), "*Rhinocypha fulgidipennis*, Guér., Selys, p. 59, Cochinehinc." It cannot be the specimen, or one of the specimens, from which Guérin's figure was taken, because that figure represents an expanded insect, and this specimen, when received by me, was unexpanded and pinned through the side of the thorax. I place the example on record at M. Oberthür's request, and hope something further will soon be known about so interesting a species.—R. McLACHLAN, Lewisham, London: April 17th, 1900.

*Hemianax ephippiger, Burm., at Brindisi.*—Amongst a few Odonata given to me by Col. Irby, and collected by him in various parts of Europe, I find a ♀ of this species, labelled "Brindisi," which seems worth putting on record. Whether this African species ever breeds in Europe is open to doubt: in any case, quite a respectable number of European records are accumulating, and of course those specimens captured can only form an infinitesimal portion of the number that exist, be they migrants or natives.—ID.

*Note on Halobates in the Indian Ocean.*—Crossing the Indian Ocean to Cape Leeuwin we had the finest weather imaginable, often quite calm, so that I was able to note the occurrence of *Halobates* on many occasions; it could even be called plentiful at a distance of at least 500 miles from the nearest land, but as the ship was going at least 15 knots per hour, it was out of the question to procure any so as to identify the species.—J. J. WALKER, Sydney, N. S. W.: *February 11th, 1900.*

*Chilomenes (Coccinella) lunata, Fab., at Bristol.*—A specimen of this South African ladybird was recently given to me alive by a gentleman who took it from a bunch of grapes purchased in Bristol. As the grapes in question had been imported from the Cape, there is no doubt whatever as to the nationality of the insect; but in view of the fact that it has never been taken in Great Britain before, its capture seems worthy of record. According to the Rev. H. S. Gorham, who kindly identified the insect for me, *Chilomenes lunata* is extremely abundant over almost the whole of the African Continent, from Upper Egypt to the Cape, while it has been recorded from India, Java, and even the Swan River! To these latter localities, of course, it is only an accidental visitor.—THEODORE WOOD, 157, Trinity Road, Upper Tooting, S.W.: *April 3rd, 1900.*

*Notes on Loxocera.*—In Series 2, vol. x, p. 65 (March, 1899), of this Magazine, Mr. Austen describes a "new variety" of *Loxocera*, and gives some interesting notes of the species known to be British. Having looked through the records of *Diptera* in the Ent. Mo. Mag. for several years, and referred to two lists published by Mr. P. H. Grimshaw, in "The Naturalist" for 1898, and two in "The Annals of Scottish Natural History," 1899 and 1900, I can only find one species of *Loxocera* mentioned, viz., *L. aristata*, Pz., taken by Col. Yerbury in Inverness-shire, recorded in Mr. Grimshaw's list for that county ("Annals," 1900, p. 29). May I supplement this paucity of records by a few notes?

In July, 1883, working with Walker's *Insecta Britannica*, I indicated two species taken in the north of Scotland as *L. ichneumonea*, L., and *L. sylvatica*, Mg. ("The Scottish Naturalist," 1883, p. 19). Only recently have I again turned to this genus, and I find that with regard to the former species I was wrong, and it should have been:—

*L. aristata*, Pz.—I have specimens of this species from Aberdeen, June 26th, 1873, Keith; Banffshire, June 20th, 1874; Leicestershire, July 26th, 1885; and from moor, near Princetown, Devon, August 27th, 1883.

*L. sylvatica*, Mg., which Mr. Austen appears to know only from the south-west of England, I have taken in Aberdeenshire June 1st, 1874, also at Muchalls, on the Kincardineshire Coast, June 21st, 1873; and here, in Leicestershire, May 21st, 1884, and May 16th, 1896.

*L. albiseta*, Schr., is said by Mr. Austen to be the commonest of our British species, but I have only two records of it. I have taken it in this county September 8th, 1893, and have received a specimen from Mr. H. Donisthorpe taken at Chiddingfold, 1898.

The latitudes and dates of the above captures approximate very closely to those

given in Mr. Austen's paper, except that *L. sylvatica* is only mentioned by him as from Devon; the dates indicate that it is probably earlier in appearance than the other species.—W. ARMSTON VICE, 19, Belvoir Street, Leicester: *March 29th*, 1900.

*British localities for Hydrilla palustris*.—Mr. F. H. Day, referring (*ante* p. 89) to the capture of *Hydrilla palustris* near Carlisle, says that the species "does not occur elsewhere away from the Fens." He may, therefore, be as glad to be reminded as I was myself, when talking to Mr. L. B. Prout a few days ago, that a specimen of *H. palustris* is recorded in Stainton's Manual, vol. i, p. 216, as having been taken near York, which is far removed from the district known as "the Fens." I am not aware that the insect has been met with near York of recent years, but this is probably due to its not having been persistently worked for in the right way and at the right time, and it would be rash to assert that it no longer occurs there.—EUSTACE R. BANKES, Norden, Corfe Castle: *April 9th*, 1900.

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## Society.

ENTOMOLOGICAL SOCIETY OF LONDON: *March 21st*, 1900.—Mr. C. O. WATERHOUSE, Vice-President, in the Chair.

Mr. R. T. Cassal, of Ashby, near Doncaster; Mr. Neville Chamberlain, of Highbury, Moor Green, near Birmingham; Mr. E. A. Elliott, of 41, Holland Park, W.; Mr. H. Willoughby Ellis, of Knowle, Warwickshire; Mr. J. H. Keys, of 6, Seymour Terrace, Lipson, Plymouth; the Rev. W. J. Leigh Phillips, M.A., of The Cottage, Parkwood Road, Tavistock, Devon; Mr. H. W. Sheppard-Walwyn, M.A., of Glensyde, Bidborough, near Tunbridge Wells; and Mr. C. J. Watkins, of King's Mill House, Painswick, Gloucestershire; were elected Fellows of the Society.

Mr. R. McLachlan exhibited an extraordinary aberration of *Enallagma cyathigerum*, Charp., taken by Mr. Morton at Glen Lochay, Scotland: the remarkable feature consisted in the predominance of black over blue in the colouration of the abdomen. Mr. M. Burr, a macropterous var. of *Xiphidium dorsale*, Latr., captured by Mr. Harwood near Clacton, remarking that the fact of this species presenting a macropterous form was apparently unrecorded hitherto. Mr. W. J. Kaye, *Nyssia hispidaria*, an asymmetrical specimen taken on Wimbledon Common, the left forewing of which was perfectly developed but extremely small, and the left hind-wing slightly more elongated than the right hind-wing. Mr. C. O. Waterhouse, a tube which formed the entrance to a nest of a *Trigona*, sent from Singapore by Mr. H. N. Ridley; it was about fifteen inches in length, of a resinous substance, but more waxy toward the end, which was spoon-shaped; also a portion of the resinous mass formed within the trees by these bees, and stated that one of these masses sent from Penang by Mr. Ridley weighed 15 lbs. The true nest of the *Trigona* consists of an irregular mass of cells filled with honey, quite distinct from the resinous formation. A paper was communicated by Mr. W. H. Ashmead, Assistant-Curator of the U. S. Nat. Hist. Museum, on "The Aculeate *Hymenoptera* of the Islands of St. Vincent and Grenada, with additions to the Parasitic *Hymenoptera*, and a List of the described *Hymenoptera* of the West Indies."—C. J. GAHAN and H. ROWLAND-BROWN, *Hon. Secs.*



ON *SPHEGOPHAGA VESPARUM*, CURT.

BY CLAUDE MORLEY, F.E.S.

Our knowledge of the *Ichneumonidæ* (*sensu stricto*), especially in this country, is so deplorably slight and incertain, that any reliable information that may be forthcoming upon them will be welcomed, if not by this, by a future generation with due thankfulness. There is one species in particular whose most interesting œconomy early attracted my attention, and, by setting it forth in as succinct a manner as may be, I hope to rekindle some embers still smouldering of the transitory enthusiasm felt in the late J. B. Bridgman's most excellent work upon parasitic *Hymenoptera* of twenty years ago.

The first mention I can find of *Sphagophaga vesparum* is in the ever-modern Rev. William Kirby's learned Bridgwater Treatise of 1835. In it he states (II, 334) that soon after August, 1824, Rev. F. W. Hope, upon opening some cells in a wasp's nest, was surprised to find several specimens of an Ichneumon belonging to Jurine's genus *Anomalon*. Hope himself, at a Meeting of the Ent. Soc. Lond. held on June 4th, 1838, brought forward this occurrence as an illustration of compound parasitism, believing, at that time, his *Anomalon* to have been preying upon *Rhipiphorus*, and not directly upon the *Vespæ*, a theory since abundantly shown to be invalid (*vide* Proc. Ent. Soc. Lond., 1838, iii, p. 177). That both insects should occur in the same nests is but natural, since their pabula are identical; no instance, however, is recorded of mutual animosity on either part.

On January 1st, 1828, Curtis published his description of *vesparum*, and followed Hope in referring it to Jurine's genus *Anomalon* (1814), disregarding *Tryphon* of Fallén (1813) with which he possibly was unacquainted. We may at least congratulate ourselves that order is approaching, if slowly, from chaos, when we find him giving as type of the genus *Ichneumon* (*Bassus*) *lætatorius*, Fab., with which we now regard *vesparum* as agreeing only in so far as their mutual reference to the subfamily TRYPHONIDES, an agreement, however, not extending to *Anomalon*, Jur., which falls into the OPHIONIDES. Ratzeburg has described the same insect (Ichn. d. Forst., 1844-52) with some hesitation as a new species, under the name *Tryphon vesparum*. Its position in this genus was also untenable on account of its distinctly petiolate abdomen and its stout, elongate posterior legs; on the latter account probably—or possibly because he considered the abdomen sessile rather than subsessile (which is very curious, since it is distinctly petiolate)—Westwood (Mod. Class. Ins., ii, Synops. 57, 1840) proposed a new

genus, *Sphegophaga*, and this name Marshall has adopted in his laborious Catalogues of 1870 and 1872. Desvignes, in his Catalogue of *Ichneumonidæ* in the Brit. Mus. (1856), termed the genus *Chyronomon*. André (Spp. Hymén. d'Europe, ii, 507) retains Ratzeburg's generic name.

The genus *Sphegophaga*, Westw., has been assigned to its correct position at the end of the *Tryphonides-homalopi*, just preceding the *Tryphonides-prosopi*, by Marshall (Ent. Soc. Cat., 1872): undoubtedly its nearest ally in the Gravenhorstian system is *Sphinctus*, with which it agrees in having the abdomen petiolate, scutellum flat, aculeus not exerted, and the abdomen opaque and punctured; but differs in the explanate apex of the petiole, the absence of the areola, and the robust legs. The position to which Westwood relegated it—between *Scolobates*, Grav. (OPHIONIDES), and *Trogus*, Panz. (ICHNEUMONIDES)—was quite impossible; in so doing he was probably considering, like Ratzeburg, the connection, set up by the abbreviated recurrent nervure, with *Scolobates*.

One species only is known.

SPHEGOPHAGA VESPARUM, ♂ ♀.

*Anomalon vesparum*, Curt. B. E., pl. et fol. excviii (1828).

*Tryphon vesparum*, Ratz. Ichn. d. Forst., iii, 128 (1844-52).

HEAD transverse and somewhat small, black, sometimes with the internal orbits of the eyes yellow from level with the ocelli to the base of the mandibles; *face* somewhat finely, lateral lobes obsoletely, scabrous, slightly elevated longitudinally in the centre; *clypeus* black, with fine whitish pilosity, separated from the face by a deep, broad, semilunar depression, distinctly elevated and slightly emarginate in the centre of the apical margin, laterally finely punctured; *labrum* fulvous, transverse-ovate, the sides attenuated, very pilose anteriorly; *mandibles* not always well developed, black, fulvous in their centres, bifid at the apex, the teeth being of about equal length (Curtis figures the interior much longer than the exterior—perhaps they vary), transverse, subtrigonal, acute at the extremity and pilose externally; *maxilla* membranous, terminated by two dilated lobes, the inner one the smaller, the external pilose; *maxillary palpi* flavous, rather long, villose, submembranous, quinquearticulated, two basal joints robust, of nearly equal length, the remainder slender, the third being the longest and the fourth the shortest; the *mentum* is cup shaped; the *ligula* (labium, Curtis) membranous and semicircular; *labial palpi* flavous, rather long, pilose, robust and quadriarticulate. ANTENNE 5 mm. in length, robust-filiform, setiferous, black, with base of third joint reddish, multiarticulate, second joint the smallest, third the longest, the terminal joint conical and often slightly reddish.

THORAX black; *prothorax* flavous above anteriorly; *mesothorax* finely scabrous, with two indistinct longitudinal prominences in the centre of its apical margin,

bordered before the squamulæ, which are bright flavous, central line dividing the mesopleuræ narrow and somewhat shallow; *scutellum* and post-*scutellum* always fully developed, flat, black, distinctly punctured and somewhat shining; *metathorax* tumidulous, areæ obsolete, transverse ridge strong, though not produced laterally, continued along the lateral margin to sides of the mesothorax, just before this ridge is a row of longitudinal striations,\* spiracles not very large, oval.

ABDOMEN broad-ovate (scarcely more than ovate in the macropterous form), red; first segment black, infusate at the apex; at least seven segments exerted; very thickly and finely punctured throughout, each puncture is furnished with a short whitish hair (not, I think, thicker towards the apex; cf. Curtis), which lends the surface a very smooth and somewhat dull appearance; only the punctures on the first segment are confluent, those at the apex of the second segment are larger; in Mr. Donisthorpe's specimen the 2nd segment on either side the dorsum, and the 3rd on the left side only, is an obvious pore at the apical third, but I have detected this character in no other specimen examined, and it is undoubtedly accidental; distinctly petiolated (Ratzeburg says almost sessile, and Westwood sessile); the petiole bears large spiracles and is generally broadly explanate at the apex, before which it is indistinctly aciculate; 2nd and 4th segments with prominent lateral spiracles, decreasing in size and distance from apical margin; apex generally infusate; underside sometimes with a central fold on the 2nd and 3rd segments; the length of the *terebra* would appear to vary: Ratzeburg says distinctly exerted, Curtis scarcely exerted, but all I have examined agree with Westwood in not reaching the apex of the abdomen.

LEGS robust, especially the posterior pair, and by no means short; red, coxæ and trochanters black, the latter fulvous or flavous at their apices; apex of posterior tibiæ and whole of tarsi fuscous; tarsi quincartillate, first joint half their entire length, claws very small and simple, pulvilli minute. The WINGS in the macropterous form are  $5\frac{1}{2}$  mm. each in length (in the brachypterous only 4 mm.,† with the nervures comparatively stronger), quite transparent, the nervures fuscous, becoming fulvous towards the base; stigma darker; radiæ flavous; areola wanting; exterior discoidal recurrent nervure somewhat pellucid in its centre. Length, 6 mm.

Curtis (Brit. Ent., pl. 198) has beautifully figured the brachypterous form, though the antennæ are very slightly too long; with details of the head, labrum, mandibles, maxillæ, mentum, and the anterior leg. André (Spp. Hymén. d'Europe, pl. xxxiv, fig. 6) somewhat indifferently sketches the macropterous form.

The life-history of *Sphegophaga* is most interesting, if only as a striking example of seasonal dimorphism. The eggs appear to be

\* These were also noticed by Ratzeburg, but they are, I fancy, present in at most the brachypterous form only. I think it probable Ratzeburg's description was taken from a slightly immature specimen; such are not uncommon when taken from the nest. He says the metathorax is wrinkled with feebly demarkated areæ, and makes no mention of the strong transverse ridge. Curtis, on the contrary, says it is deeply sculptured.

† Bignell (Ent. Mo Mag., xxvi, 191) gives the length of the body and the expansion of the wings respectively as 6 mm and 9 mm in the brachypterous, 7 mm. and 13 mm. in the macropterous form. I have not, however, noticed that the latter exceeds the former in the average length of the body. Curtis gives the former at  $6\frac{1}{4}$  and 9 mm.

laid in or on the bodies of the wasps' grubs as soon as the latter are of sufficient strength to maintain the forthcoming larvæ, since Dr. Chapman informs me he has found the parasite in grubs occupying the earliest-made layer of the wasps' nest. That they are, however, confined to no particular part of the nest may be surmised, since M. Roujet, of Dijon, tells us that in a couple of nests four or five thousand cells were occupied by the cocoons of the parasite, besides a great number of larvæ; and Curtis says that clusters of from two to four cells together occupied various situations in the nest. The *Sphegophaga*, having emerged from its egg, subsists upon the adipose tissues of the wasp-grub, until the latter is full-fed, and, having sealed down its operculum, has assumed the pupal state; the parasite then devours the remainder of its host from below, thus being shielded from external attacks, first by the operculum, and secondly by the skin of the dead pupa. Dr. Chapman says (almost in M. Roujet's words): "On removing the silken dome, there is the pupal head of the wasp, but pale and ghost-like."—"Like a lump of transparent jelly," says Donisthorpe.—"On examination the external colour is found to be correct and undisturbed, but instead of opaque-whitish or yellow, with dark eye-marks, the interior is full of a mere watery fluid; further examination shows the greater part of the wasp's thorax to be present in a similar condition, and the remainder of the wasp to be represented by some material (? dermal tissues) pressed up close against this."\*

The LARVA, according to André (p. 508 and pl. xxxiv, fig. 8) is somewhat elongated, slightly curved, pointed at both ends, and rather swollen in the middle; soft, fleshy and white. The head, which is narrower than the anus, is also white, and shows only somewhat indistinct traces of labrum and mandibles. It is blind and apodous, only possessing some transverse fleshy ridges on the back of the abdominal segments, evidently intended as a means of locomotion around its cell, since they are true dorsal prolegs. The length of the adult larva is 9–10 mm., and its diameter in the centre about 3 mm.

Curtis noticed that about one-third of the wasp's cell was filled with exuviae, and a similar case obtains in the cocoons in my possession from which *Sphegophagæ* have emerged. Having devoured the grub, the parasite fortified itself by building a very strong cocoon at the bottom of the cell, obviously calculated to resist the attacks of the wasps when they come to prepare the latter for a new occupant, and this precaution would be especially necessary to those likely to pass

\* What interested Dr. Chapman most was the way in which the parasite cleared out the tissues of the pupal head and replaced them with fluid, without in the slightest degree disturbing the form of the parts. This fluid is, however, gradually absorbed by the parasite, and the grub's skin becomes quite dry and of an inconsiderable size; the former probably goes to sustain its often long pupal existence.

the winter within the cocoon, in order to nullify the furious onslaughts when the *Vespa* are seeking to eject the remaining grubs, &c., at the autumnal exodus. That they are unable to dislodge this cocoon is certain, since wasp's eggs, even partially-grown larvæ, have been discovered in cells already half filled with a parasite's cocoon.

The Cocoon is oblong, hexagonal-cylindrical, rounded at the bottom, and with the operculum very flat or even slightly concave; the longitudinal carinæ, however, are only present near its apex in those specimens I have examined—which were, I think always, those of the autumn brood, and not (as figured by André, xxxiv, 7) continued throughout the cocoon's entire length. It is, nevertheless, probable that the length of the carinæ increase with the amount of solidity acquired, and would, therefore, be more conspicuous in those of the spring brood. Rouget says when the larvæ attack ♀ *Vespa* they are able to consume only three parts of the grubs, and their cocoons are proportionately broader and shallower, because these cells are larger. In the ordinary cells it is about 6 mm. in length and  $3\frac{1}{2}$  mm. in diameter. Stone found that each cocoon had a beautifully delicate gold-coloured lining, in which the insect is enwrapped; I cannot, however, find this in my examples, whose inside is of the same dull white as the outer. The parasite emerges through a clean-cut circular orifice bored in the centre of the hexagonal operculum.

There are two emergences (at least) during the year, but it appears to have been by no means satisfactorily settled, whether these are distinct broods or only sexual emergences. Curtis says only part of a single brood emerged in September, these being "probably females," and the other part, as we are told in the Addenda, produced ♂♂ at the end of the following April. "Is it not probable that they (the ♂♂) would have lived till the ♀♀ of another brood appeared in the following July?" he asks; and on another occasion he records a ♂ bred at the end of May. Mr. Bignell (Ichn. of S. Devon, p. 41) appears to consider the spring emergence to belong to the same generation as that of the autumn, since he says, "others remain over until the following May." On the other hand, Hope found the imagines in August; Wood may have been mistaken in thinking he found ♀♀ already emerged in July (*cf.* Curtis); André, however, says the second and more numerous brood appears in September, and that the transformation to the nymph takes place before the winter. If this be so, there would appear to be two distinct broods. Perhaps it is sometimes single- and at others double-brooded; in any case, Curtis's theory is not tenable, I think, since in that case the ♂♂ of one brood would fertilize the ♀♀ of the next, which is contrary to the laws of Nature. It is most probable that part of the brood hibernates within the nest and part, like the majority of the CRYPTIDES, survive the winter among dead leaves, moss, and other foreign hiber-

naeula. It has been advanced that the heat of the wasp's occupation may tend to "force" part of the brood, and after the autumnal exodus of the wasps the remainder cannot at once attain maturity, through the fall of temperature; but I should require strong proof before relying on so artificial an agency. Perhaps there is no fixed time of emergence, as the following instances suggest. The duration of the insect in the cocoon, at all events, appears by no means coincident with the pupal existence; larvæ have been found within the cocoon as late as August 24th. We may, I think, grant that, usually, the spring emergence produces that of the autumn, and that the cycle is thus completed in about three months; on the other hand, Bignell records (*Ent. Mo. Mag.*, xxvi, 191) a specimen received early in September, 1889, which was still in the larval condition on June 6th following; and Stone (*Zool.*, xx, 7974, and *Proc. Ent. Soc.*, 1862, 77) tells us that, upon himself opening cocoons, found in 1859, he released quite mature and healthy imagines in March, 1862—after an incarceration of three years! He continues: "The moment the top of the cocoon was removed, it marched out, stretched its legs, passed its fore feet rapidly over its head and antennæ, for the purpose apparently of removing any superfluous moisture"—this was extremely probably the case, since the anterior tibiæ are distinctly clothed on the inner side with a short whitish villosity—"cleaned its abdomen, and smoothed out its wings by means of its hinder feet, and was then prepared for immediate flight. . . . On opening the cocoons, a strong smell of something akin to formic acid was emitted."

Specimens of the spring emergence are fully winged and present no conspicuous points of divergence from average *Tryphonæ*; but the examples of the later one possess but very short wings, and of use only, like those of *Agrothereutes*, &c., in aiding propulsion by little hops. Mr. Bignell's explanation, which is at least plausible, is that the autumn emergence takes place in the wasp's nests, and the insects consequently find the natural pabulum around them, and no need for sustained flight exists, though that they are extremely vivacious, which is, perhaps, necessary to avoid foreign attacks, Wood points out; it is doubtful, I think, however, if the wasps would molest them under natural circumstances. The spring emergence, on the contrary, is hatched in an empty nest, and must seek pastures new for the deposition of its progeny. This theory is, moreover, borne out by the fact that nearly all specimens taken abroad appertained to the spring emergence.

Even this species, so appropriately called *Chyromon* by Des-

vignes, is not exempt from hyperparasitism. Sixty-five years ago Kirby wrote (*lib. cit.*): "Upon another examination no more of these insects (*Sphegophagæ*) appearing, he (Hope) discovered that they had been pierced, in their chrysalis state, by a minute species belonging to the family *Chalcididæ*, of which he found no less than twenty specimens flying about in search of their prey." Might these not have been Braconids, of which Mr. Donisthorpe gave me a specimen, unfortunately in too bad a condition for determination, bred from *Sphegophaga* cocoons? Hope persists in the family, however, "a species of *Anomalon*, which is the prey of one of the minute *Chalcididæ*" (*Proc. Ent. Soc. Lond.*, 1838, p. iii). Stone is interesting, though too vague to follow: " . . . Cocoons of *Anomalon vesparum*, intermixed with which were those of a much smaller species of *Ichneumon*" (*sensu lato*, probably), "which made its appearance in the perfect state a few days afterwards" (*i. e.*, after August 24th, 1864). "I am not aware that an ichneumon of this size has been described as an inhabitant of wasps' nests; it may, therefore, possibly prove to be new" (*lib. cit.*, 1865, p. 65).

They sometimes, perhaps often, breed in the same nests with *Metæcus* (*Rhipiphorus*) *paradoxus*, L., which is, however, confined to those of *Vespa vulgaris*, L., while the *Ichneumon* is found with two or three different species, as pointed out by Smith. Hope found *Sphegophaga* in the nest of *Vespa rufa* (Kirby); R. Wood bred it from wasps' nests, presumably from near Manchester, and Blackwall at Cump-rall Hall (Curtis); v. Siebold bred it from *Vespa vulgaris*, in Germany (Ratzeburg); Roujet, abundantly from *Vespa germanica*, Fab., presumably near Dijon (André); Bignell, from "the common wasp," in South Devon (*Ich.*, *l. c.*); Bridgman records it from Norwich (*Tr. Norf. Nat. Soc.*, v, 627), and there is a fully winged ♀ in his collection; Chapman has twice bred it from *Vespa vulgaris* at Hereford (*l. c.* and *in lit.*), and there are three brachypterous ♀♀ from him in the Bridgman collection, one of which is very small and, from the colour of the abdomen, probably immature, and one of its antennæ is slightly longer than the other, though both are complete. In the British Museum collection are two brachypterous and one fully winged specimens; of these two, including the last, which was "bred from nest of *Vespa rufa*," and is very probably one of those five specimens bred by Fred. Smith (*cf. Proc. Ent. Soc.*, 1862, p. 77) from a Yorkshire nest of this wasp (*v. Brit. Foss. Hymen.*, 1858), are from the Desvignes collection; the third being from that of Stephens, who, curiously enough, does not mention the species in his "Illustrations." My own

specimen, together with its cocoon and hyperparasite, were found by Mr. Donisthorpe, and recorded by him in the Ent. Rec. x, 306, from Chiddingfold.\* Mr. Beaumont swept a macropterous ♀ from herbage at Boxhill, on May 13th, 1893.

It is premature to conjecture the general frequency of the species in Britain, but this would, doubtless, to a great extent depend upon that of its hosts in any particular year. Thus we find (Proc. Ent. Soc. Lond., 1865, 62) that in 1864, a strong wasp-year, Mr. S. Stone opened, at Cokethorpe Park, one hundred and ten wasps' nests, including those of *Vespa germanica*, F., *vulgaris*, L., *rufa*, L., *sylvestris*, Scop., and *crabro*, L., only two of which contained *Sphegophaga*; these were opened on August 19th and 24th, in both cases occupied cocoons only were present, and in both cases, too, as well as previously in 1859, the host proved to be *Vespa vulgaris*.

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HOPE .....	Proc. Ent. Soc. Lond., p. iii (177) .....		1838
WESTWOOD .....	Mod. Class. Insect., ii, Synops. 57 .....		1810
DESIGNES .....	Cat. Ich. Brit. Mus., 47 .....		1856
RATZEBURG .....	Ich. d. Forst., iii, 128 (Descript.) .....	1844—	52
SMITH .....	Brit. Foss. Hymen., 218 .....		1858
STONE .....	Zoologist, xx, 7974 .....		1862
WESTWOOD .....	Proc. Ent. Soc. Lond., p. 77 .....		1862
(STONE) .....	Proc. Ent. Soc. Lond., 62, <i>et seq.</i> .....		1865
MARSHALL .....	Ich. Brit. Catalogus, 19 .....		1870
MARSHALL .....	Cat. Brit. Hymen., 79 .....		1872
ANDRÉ .....	Spp. Hymén. d'Eur. (Descript. larva and pupa) ...		1881
BIGNELL .....	Ent. Mo. Mag., xxvi (2 ser. i), 191 .....		1890
BRIDGMAN .....	Tr. Norf. Nat. Soc., v, 627 .....		1894
DONISTHORPE .....	Ent. Rec., x, 306 .....		1898
BIGNELL .....	(Ich.) Tr. Devon. Ass., xxx, 498 .....		1898

Ipswich: *February*, 1900.

P.S.—In a box of *Ichneumonidæ* sent for determination by Mr. A. H. Hamm, of Oxford, I find a fine ♂ of this species which has the orbits of the eyes, the anterior margin of the mesothorax narrowly, and the whole of the lateral margin, bright flavous. It is fully winged, and was taken at Wellington College, Reading, on June 2nd, 1898. It should have been noticed that Marshall used "*Specophaga*," which is the more correct form.—C. M., *April 26th*, 1900.

\* Since writing the above, Mr. C. O. Waterhouse has kindly shown me many more cocoons, taken at the same time, from which he had bred a macropterous ♀ *vesparum*, together with several specimens of the undetermined hyperparasitic Braconid. These are in the British Museum.



SUPPLEMENTARY NOTES ON *LITHOCOLLETIS PYRIVORELLA*, BNKS.

BY EUSTACE R. BANKES, M.A., F.E.S.

I am now breeding *Lithocolletis pyrivorella* from under-side mines on leaves of wild apple, cultivated apple, and cultivated pear trees, collected at Salisbury, October 25th—November 21st last. The species has not previously been recorded from the county of Wilts. The mines on cultivated apple, on which the larva has never before, to my knowledge, been found, and on cultivated pear, occurred not uncommonly in our garden in the Close, there being no wild pear or apple anywhere near, while those on wild apple were found in hedgerows far away from any gardens. On one small wild apple bush nearly every leaf contained a mine of *pyrivorella*, but by November 21st the birds had already pecked holes from the upper-sides of the leaves into many of the mines, and devoured the owners.

In my original notice of *pyrivorella* I stated (Ent. Mo. Mag., Ser. 2, x, 253) that I had no note about the cocoon: this now proves to be *distinct*, and small, spun of white silk, inside the mine of course, and towards one end of it.

In my description of the imago (*op. cit.* p. 252) the thorax and tegulæ were described as "striped with white." This phrase requires further explanation. There is no white stripe down the middle of the thorax, which, however, often shows a median white spot, or dash, posteriorly, but a horseshoe-shaped white line curves from its apex, which lies just behind the middle of the head, down on each side across the anterior part of the thorax and across the tegula: when the insect is at rest, the white basal streaks on the fore-wings appear as prolongations of the two sides of the horseshoe. While on the subject of the imaginal markings, it may be as well to record an interesting aberration that occurred in a series of about 300 specimens, bred in April, 1890, from mines collected on pear trees in Corfe Castle Rectory garden. The individual, which is a female, has, on each fore-wing, the first and second dorsal white teeth united so as to form an arch: in addition to this, the first and second costal teeth, on the right fore-wing only, unite into a white blotch along the costal margin.

*L. pyrivorella* is exceptionally constant in size, colour, and markings, no matter from what food-plant it is bred, and owing to the difference in size and the very marked difference in colour, there is no fear of its being confused with *mespilella*, Hb., to which it is closely allied. My friend, Dr. Wood, has found that there are no tangible

differences between either the larvæ, or the male genitalia, of these two species: in the case of the larvæ this is not surprising, for the same is true of *concomitella* and *blancardella*, but it is so in the case of the genitalia, which, as a rule, in this group show well-marked distinctions. It is clear, however, that, although marked differences between the genitalia are proofs of specific distinctness, the absence of such does not prove the specific identity of forms when the weight of positive evidence supports the view that they are really distinct.

In my experience, *pyrivorella*, which is an exceptionally early species, is much earlier than *mespilella*. On the only occasion on which I have reared spring broods of both, side by side, from mines kept under precisely the same conditions from the time they were gathered in the previous autumn, *pyrivorella* began to emerge on March 28th, while the first *mespilella* did not appear until April 27th, and almost identical dates for each have been obtained from other broods reared in separate years. This spring, which is a late one, several *pyrivorella* were found already out on March 24th, although the mines had been kept in cold outhouses throughout the winter, except for a few weeks, when they were in a cold room facing north. The imago follows the general rule, and emerges through the thin lower wall of the mine, instead of through the upper-side of the leaf as does *sorbi*, Frey, leaving the pupa-shell protruding, for about three-quarters of its length, near one end of the mine, sometimes the end towards the midrib, and at others the end away from it. The males, as a whole, emerge before the females.

I have observed that the virgin females of *pyrivorella* may be found "calling" the males at any time between 6 and 10 a.m., but most frequently between 7 and 8.30 a.m. When so engaged they sit with the abdomen turned up as far as possible straight into the air and the anal appendages protruded, the wings motionless, but just sufficiently parted to allow of the abdomen to pass upwards between their dorsal margins, and the antennæ held free of the sides and quivering. I failed to discover how long pairing lasts.

*L. pyrivorella* is rather subject to the attacks of parasites, and I have bred from its mines three distinct species of "ichneumon-flies," but these have not yet been identified.

Norden, Corfe Castle :

April 14th, 1900.

DESCRIPTION OF THE LARVA OF *METZNERIA LITTORELLA*, DGL.

BY THE RIGHT HON. LORD WALSLINGHAM, M.A., LL.D., F.R.S.

*Long.*, 6 mm. Ivory-white, with a slight yellowish tinge; head blackish; prothorax with two brown chitinous plates, separated in the middle, the separation wider on the middle of the segment than before or behind the middle; anal plate very small, brown; no lateral chitinous plates or spots on the thoracic or abdominal somites; the chitinous portion of the thoracic legs is obsolete, their origin represented only by very minute tubercular exeresences in the middle of a somewhat tumid base, capable of movement to assist locomotion; the abdominal legs are also obsolete.

The larva feeds on the seeds of *Plantago coronopus*, where it may be found in the months of September and October, forming a slight gallery between the seeds and stem, and always making an opening communicating with the interior of the stem on which the seeds are fixed, into this it retires with the head upward. It is presumable that it pupates within the stem, but I have not found it below the level of the seed-heads. *Excl.* 6, V, 1900.

The larva is obviously similar to that of *Metzneria*, to which genus I should refer *littorella* rather than to *Ptocheuusa*.

The imago occurs somewhat plentifully from May 6th to 29th (and perhaps later) on the cliffs near Ventnor, where it was originally found by the late Mr. S. Stevens half a century ago, and frequently sought for by himself and others without success in succeeding years. Owing to its retiring habits it may easily be overlooked unless dislodged by smoke, or other means, from the *Plantago*.

The capture of topotypes proves the correctness of the synonymy *littorella*, Dgl., = *quinquepunctella*, H.-S., for I have myself met with it in the South of France at Cannes, 28, IV, 1890, and in Corsica at Ajaccio, Corté and Vivario, 3—27, V, 1896.

The possession of these foreign specimens, of which I had a perfect recollection, enabled me at once to recognise the first worn specimen which I captured in the Isle of Wight on May 13th, 1898.

Merton Hall, Thetford:  
May, 1900.

A REMARKABLE NEW MIMETIC SPECIES OF *MANTISPA* FROM BORNEO.

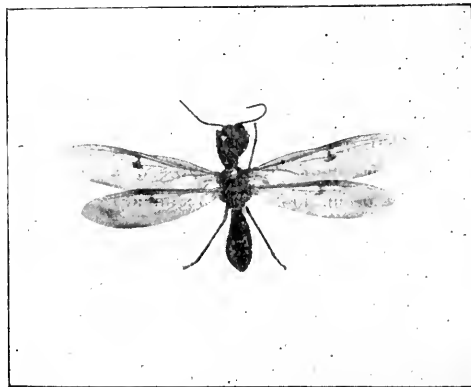
BY ROBERT McLACHLAN, F.R.S., &amp;c.

*MANTISPA SIMULATRIX*, *n. sp.*

Body reddish-fulvous; antennæ (at extreme base excepted), posterior tibiæ (excepting at base), and eyes, black; an obscure triangular mark on the second abdominal segment above; abdomen greyish-white beneath. Antennæ stout, longer

than head and prothorax united, about 55-jointed, the joints flattened, perfoliate,

crowded, scarcely separable in the apical portion, first joint pyriform. Head deeply excavated above, with a blunt longitudinal median carina. Prothorax comparatively short and stout; anterior portion of pronotum, occupying more than one-third of its entire length, very much dilated, as broad as the head without the eyes, the anterior margin nearly circular; this dilated portion is followed by a constriction; the posterior portion cylindrical, with two



rather indistinct transverse ridges. Anterior femora much dilated, without markings, their inner edge with one long and four or five smaller teeth, between which are denticles. Wings long and narrow, subacute; colour shining fulvous, paler (almost colourless) at the base of the inner margin; the long narrow pterostigma, and the costal region generally, darker; a long darker clouding on the apical portion of the inner margin, more conspicuous in the posterior, and in these wings in addition there is an ante-apical discal cloud placed on the gradate veinlets: in both pairs of wings the inner end of the pterostigma is clouded with blackish-brown, which is continued on the 1st intraradial veinlet, and extends into the discal area in a dilated and irregular manner: neuration reddish; thirteen costal veinlets in the anterior wings; the three intraradial cellules long and narrow, the 2nd shorter than the 1st and 3rd, which are subequal, the 3rd very narrow: radial sector with thirteen closely placed branches, mostly slightly curved at each end in opposite directions, the resultant narrow cellules being slightly dilated at each end.

Length of body, 20 mm. Expanse, 46 mm. Greatest breadth of anterior wing, 5 mm.

*Hab.*: Matang, Borneo, August, 1899. One ♀.

A very fine and remarkable species without any very near ally.

The type may be seen for the present in the Hope Collection, University Museum, Oxford. It will ultimately be deposited in the Sarawak Museum, to which it belongs.

“The species is probably extremely rare. The single specimen at present known, constituting the type, was captured in August, 1899, at an altitude of 2500–2800 feet on Mt. Matang, near Kuching, Sarawak, Borneo. It closely resembles a reddish-ochreous Braconid which is common on Mt. Matang at any elevation above 1500 feet. In the fresh state the sides and ventral surface of the abdomen of the *Mantispa* are pure white, so that when seen in profile the some-

what bulky body appears to be reduced approximately to the size of the body of its model, which also has the ventral surface of the abdomen coloured white."

[These notes are from a forthcoming paper by R. Shelford, B.A. (Cantab.), Curator of the Sarawak Museum, "On some Mimetic Insects and Spiders from Borneo and Singapore," kindly supplied by Prof. Poulton, F.R.S.]

Lewisham, London :  
March, 1900.

## A REVISED SYNOPTIC TABLE OF BRITISH CHRYSIDS.

BY THE REV. F. D. MORICE, M.A., F.E.S.

The following corrected Table embraces all the species at present known to me as certainly, or nearly certainly, indigenous in these islands.

1. Abdomen somewhat concave beneath, its dorsum showing three segments only in either sex—2.  
Abdomen convex above and below, dorsum showing four segments in ♀ and five in ♂ ..... Genus *CLEPTES*.  
Prothorax with a transverse punctured line near and parallel to its basal edge, ♀ vertex and mesonotum fiery-crimson ..... *pallipes*, Lep.  
Prothorax without transverse basal line as above, ♀ vertex and mesonotum black ..... *nitidula*, F.
2. Post-scutellum not produced into a long tongue-like plate—3.  
Post-scutellum produced into a long tongue-like plate. Abdomen rather elongate, its extreme apex suddenly truncated and triangularly excised from beneath ..... *NOTOZUS Panzeri*, F.
3. Abdomen elongate, a transverse row of fossulets near its apex, beyond which row the dorsal surface of the segment drops to a lower level...  
Genus *CHRYSIS*—13.  
Abdomen ovate or nearly round; no fossulets on apical segment, which is convex to its apex—4.
4. Abdomen not incised at apex—8.  
Abdomen distinctly incised at apex ..... Genus *ELLAMPUS*—5.
5. Post-scutellum merely a little convex—6.  
Post-scutellum acutely conic; edge of third abdominal segment membranous, its sides much undulated, its apex truncated and excised as in *NOTOZUS*. (Insect wholly blue and green) ..... *truncatus*, Dlb.
6. Mesonotum very smooth and shining. Abdomen blue or green ..... *æneus*, F.  
Mesonotum punctured, not smooth and shining—7.
7. Apical incision long, triangular or lancet-shaped. Abdomen more or less golden ..... *auratus*, L.  
Apical incision wide but very short, inconspicuous. Abdomen blue or dark green ..... *cæruleus*, Dlb.

8. Prothorax distinctly longer than mesonotum. Upper basal nervure in superior wing hardly incurved ..... Genus *HEDYCHRUM*—12.  
 Prothorax not longer than mesonotum. Upper basal nervure bent sharply inwards, forming a distinct angle—9.
9. Radial cell open at apex. Claws of tarsi with several teeth along the lower edge, a large one close to apex ..... *HOLOPYGA gloriosa*, F.  
 Radial cell closed at apex. Claws of tarsi with one small tooth only on lower edge, at some distance from the apex ..... Genus *HEDYCHRIDUM*—10.
10. Abdomen pale rosy-testaceous, like pink coral, not metallic, hardly shining; thorax wholly green or blue.....*roseum*, Rossi.  
 Abdomen very brilliant, metallic, colour deep; thorax not wholly green or blue—10.
11. Thorax somewhat smooth; its puncturation remote; abdomen with long scattered hairs at apex.....*integrum*, Dhb.  
 Thorax closely punctured, abdomen merely pubescent at apex.  
 (a) Thorax coriaceous, dull; post-scutellum deep blue.....*coriaceum*, Dhb.  
 (b) Thorax coarsely and unevenly punctured, brilliant; post-scutellum brassy...  
*minutum*, Lep.
12. No part of thorax fiery-red or golden .....*nobile*, ♂, Scop.  
 Pro- and mesothorax fiery-red or golden .....*nobile*, ♀, Scop.
13. Whole insect dark blue or green; apex of abdomen distinctly but very obtusely tridentate .....*cyanea*.  
 At least one abdominal segment wholly, and another partly, red or golden above; apex not tridentate—14.
14. Thorax with, at least, some definite dorsal space entirely golden or fiery-red—15.  
 Thorax with, at most golden touches here and there, general effect dark blue or green—17.
15. Scutellum and prothorax fiery-red; apical segment of abdomen blue, or blue and green—16.  
 Scutellum blue; prothorax only touched with gold at apex; last segment of abdomen red, with a black or greenish apical margin; apex distinctly but obtusely quadridentate.....*succincta*, L.
16. Large, finely and evenly punctured; prothorax and second abdominal segment long; pubescence very short; apex of abdomen very indistinctly angled at sides, almost rounded .....*viridula*, var. *ornata*, Smith.  
 Smaller, much more coarsely and irregularly punctured; prothorax and second abdominal segment shorter; pubescence long and conspicuous; apex of abdomen distinctly but obtusely quadridentate.....*viridula*, L.
17. Basal segment of abdomen deep blue in both sexes, a large patch of the same colour extending over the second segment in the ♂, abdomen strongly quadridentate .....*fulgida*, L.  
 Whole abdomen (above) fiery-red or golden—18.
18. Apex of abdomen distinctly and often sharply quadridentate—21.  
 Apex of abdomen rounded, without teeth—19.
19. Pubescence very short and inconspicuous; second abdominal segment with extremely close, fine and uniform punctures; cheeks between eye and mandible short .....*neglecta*, Shuck.

Pubescence long and abundant ; second segment less closely and finely punctured, punctures of two distinct sizes intermingled ; cheeks long—20.

20. Punctures of first abdominal segment conspicuously larger and coarser than those of second, general effect of abdomen somewhat opaque and rugulose ; a large insect with long, pale pubescence ..... *pustulosa*, Ab.

Punctures of first and second segments not strikingly dissimilar ; abdominal surface rather brighter than in *pustulosa* ; insects rather smaller than that species.

(a) Hairs on apical segment, at least in part, black ; fossulets nearly obsolete ..... *hirsuta*, Gerst.

(b) Hairs on apical segment white ; fossulets distinct ..... *osmiæ*, Thoms.

21. Abdomen (beneath), and legs, with fiery-red reflections ; whole insect more densely hairy ; puncturation finer and more even ; metathoracic spines more curved and sharper ..... *Ruddii*, Shuck.

Abdomen (beneath) seldom, and legs never wholly, fiery, rather green or blue ; pilosity thinner ; puncturation very variable, but probably always coarser than in *Ruddii* (often very much so), and becoming remote towards the apex of segment 2 (which is usually very brilliant), always closer again on segment 3 ; metathoracic spines more stout and triangular..... *ignita*, L.

Brunswick, Woking :

April, 1900.

#### *ELASMOSTETHUS FERRUGATUS*, FAB., IN WALES.

BY W. E. SHARP.

A specimen of this Hemipteron, so far unrecorded as British, was taken by my friend, Mr. E. J. Burgess Sopp, in July last near Bangor, North Wales, and forwarded to me unset in laurel with other *Hemiptera*, &c.

As I was unable to refer the insect to any British species, I submitted it to Mr. Saunders, who identified it as *Elasmostethus ferrugatus*, Fab., a Pentatomid of European distribution, and in this reference Mr. Distant (who has also seen the specimen) concurs.

The insect was swept from low herbage in the Ogwen Valley not far from Bangor ; it may of course have been an introduction, but the nature of the locality where it was captured does not lend itself to such a supposition, the vegetation of the whole district being entirely natural, nor do the Pentatomid *Hemiptera* in view of their habits and life histories appear to be at all probable subjects for accidental introduction.

Ledsham, Hanwell, W. :

May, 1900.

[I hope more specimens may be taken of this very distinct species. Such a conspicuous insect should not remain as a solitary specimen, now a locality for it is indicated, and a few more examples would more satisfactorily decide its right to a permanent place in our fauna; there is no reason why it should not occur in Britain, as it has been found nearly all over Europe, and is, so far as I know, always more or less rare, and taken only in few specimens at a time. It may be easily recognised, as it somewhat resembles an *Elasmotethus interstinctum*, only the angles of the pronotum are produced into strong black spines.—E. SAUNDERS].

*Peribalus vernalis*, Wolff, in Slindon Woods, Sussex.—The right of the above species to appear in our list has rested up to the present time on two records: one of a specimen taken at Weston-super-Mare, which was formerly in the collection of Mr. G. R. Crotch, and was given to me by him; the other of a specimen taken at Borrowdale, Cumberland, recorded by the Rev. T. A. Marshall. Lately whilst at Bognor I had the pleasure of looking over the *Hemiptera* taken by Mr. Guermontprez, and amongst them was surprised to see an individual of the above rarity. Mr. Guermontprez tells me that he took it himself, and it bears a label, "Slindon Woods on hazel, Sept. 13th, 1899." The captor knows the exact locality where it occurred, and recognised it as a rarity when he captured it; he tried hard for more, but without success. It is to be hoped that further captures may reward his efforts this coming season. It is curious that two very rare Pentatomids should turn up in the same season.—EDWARD SAUNDERS, St. Ann's, Woking: May 3rd, 1900.

*Spring Butterflies in Dorset and Devon*.—Spring Butterflies in these regions have appeared about the usual dates of their first emergence. I saw *Lycæna Argiolus* at Sturminster Newton about April 20th; and *Anthocharis cardamines* here on May 1st; the former is plentiful here at the present time. Of *Vanessa* I have seen only *urticæ* and *Io* hitherto.—A. E. EATON, Seaton, Devonshire: May 2nd, 1900.

*Diplodoma marginepunctella*, Stph., in Dumbartonshire, N.B.—Among some *Lepidoptera* lately received for identification from Mr. J. R. Malloch, I found an exceptionally fine and perfect specimen of *Diplodoma marginepunctella* that was taken by him at Bonhill, Dumbartonshire, in June, 1898. This capture is of special interest, because, although the species has occurred in various localities in England from the south coast up to Cumberland, and also in Ireland, I am not aware that it has ever been recorded from, or taken, in, any part of Scotland. In my own experience, and that of the majority of those who have had the good fortune to meet with *D. marginepunctella*, it is a decidedly scarce and local insect, although so widely distributed.—EUSTACE R. BANKES, Norden, Corfe Castle: May 5th, 1900.

*Occurrence of Xenolechia athiops*, Westw., in Scotland in April.—I can find no record either of the occurrence of *Xenolechia athiops* in Scotland, or of its appear-



ance in April. It therefore seems worthy of mention that three specimens of it, together with many of *Philedone prodromana*, Hb., were taken at Bonhill, Dumbar-tonshire, N.B., by Mr. J. R. Malloch on April 21st last. Of these three specimens I have before me two, one of which is a much worn male, while the other, which Mr. Malloch has kindly given me, is a female in fine condition. One is not surprised at *athlops* being met with in Scotland, because a species that is so well known as a frequenter of the moors in the extreme north of England might naturally be expected to occur on the other side of the border, where its food-plant, *Erica cinerea*, is equally common, but it has not, to my knowledge, been previously taken there, and Meyrick, in summarizing (H.B. Br. Lep., 583) its recorded distribution in Britain up to the year 1895, gives its range as only from "Cheshire to Northumberland." Since then its capture at Reading has been announced, under the generic name *Gelechia*, in Ent. Mo. Mag., Ser. 2, vi, 196 (1895), but it seems, as a rule, to be absent from the midland and southern moors. It has also been recorded, under the name "*Lita athiopiella*," from Dorset by Mr. C. W. Dale, in Lep. Dors., ed. 2, 57 (1891), but I hope my friend Mr. Dale will forgive me for stating, in the interests of science, that neither this species, nor sundry others that are included in his work, has any right whatever to a place in our county list, as I propose to show in the Catalogue of the *Lepidoptera* of Dorset that I am preparing for the "Victoria History" of the county.

The date of the appearance of the imago seems to be somewhat earlier than is generally supposed, seeing that (in this very backward spring) Mr. Malloch took three specimens (one being *much worn*, as though it had been out some time) on April 21st, at a considerable elevation, as far north as Dumbar-tonshire, while no author, whether British or continental, to whom I have referred, gives it as being out before May, and those who specify the date more precisely mention either "the middle of May," or "the end of May," as being the time when it *first* appears. I see, however, from Ent. Ann., 1862, p. 129, that "T. W." (presumably Thomas Wilkinson, of Scarborough) took one specimen early in May, 1861, and seems to have hoped to find others then. Mr. Malloch, who previously met with a worn individual of *X. athiops* at Bonhill on May 15th, 1897, thinks that other examples might have been secured on April 21st had not the wind been so strong.—ID.: *May 13th*, 1900.

*Carabus auratus*, L., near *Exmouth*.—I have very great pleasure in recording the capture of what appears to be an authentic British example of this great rarity. It was sent to me for identification by Miss Hilda Ferrand, of Exmouth, who informs me that it was taken either in June or September, 1898, by her father on the Haldon Hills, which run from the mouth of the Exe to Dartmoor, and average from 800 to 900 feet in height. Mr. Ferrand remembers capturing the insect perfectly well, but as neither he nor his daughter had the slightest idea of its value, it remained in the collection of the latter until a few weeks ago, in company with a number of other unrecognised species.—THEODORE WOOD, 157, Trinity Road, Upper Tooting, S.W.: *April 23rd*, 1900.

*Harpalus serripes*, Schönhk., inland.—Mr. B. S. Harwood has recently sent me specimens of this species to name from Dartford Heath, where he has found it in

numbers during the present month. I have not seen any record of this common coast insect from an inland locality, and the present capture therefore is worth noting.—G. C. CHAMPION, Horsell, Woking: *May 12th*, 1900.

*Stylops melittæ*, Kirby, at Woking.—Males of this species have again been seen this year on the wing in my garden, and four captured, on various days between April 24th and May 5th. The weather, however, has been very unfavourable so far, but few mornings having been warm enough for them. Last year specimens were seen in the same spot between May 7th and May 13th. Oddly enough, neither last year nor this, has a Styloped bee been caught, though many *Andrenæ* have been taken and let loose again. Mr. A. J. Chitty tells me that he also found a ♂ *Stylops* in his garden at Faversham on May 2nd, the same day that one was captured here.—ID.

*A bituberculate form of Homalota vicina*, Steph.—Amongst a batch of some twenty *Homalota vicina*, Steph., caught in the spring of 1899, but not examined until December last, I have found four males with a tubercle on the third segment of the hind body, in addition to the usual one on the second segment. This supplementary tubercle is quite equal in prominence to that of ordinary examples characteristic of the species, whilst the tubercle on the second segment in these specimens is much larger than usual. The beetles were taken in rotting straw which had been used as a thatch for a large stock of mangolds for feeding cattle on a dairy farm, and stored out of doors in a sheltered corner of a field. There was also a considerable quantity of damaged mangolds amongst the *débris*, which added greatly to its attraction for insect life. Mr. Newbery is of opinion that this bituberculate insect should be ranked as a variety; Mr. Champion, on the other hand, is disposed to regard it as a "very well-developed form" only. Are there any similarly bituberculate specimens in the collections of other workers at the group which have hitherto passed unnoticed?—J. H. KEYS, (, Seymour Terrace, Lipson, Plymouth: *May 14th*, 1900.

*Stenus opticus*, Grav., ♂c., at Plymouth.—A single specimen of *Stenus opticus* has occurred to me whilst searching a manure heap in a marsh near Plymouth. It is an interesting addition to our local list of *Coleoptera*, most of the recorded captures being from the fens. The *Stenus* was probably only wintering in the manure, which I may observe was fairly dry where it was obtained. Three examples of *Chlænius vestitus* also came from the same heap. I was much astonished to see them in such a situation. Another rather curious capture this month also is that of *Trox scaber*, within a mile of Plymouth Guildhall, in a field behind some extensive stables. I took a dozen, and might have had many more, if time permitted, by cutting grass around the edges of a manure heap. I was told that, within living memory, a dead horse had been interred in the field, and this doubtless accounts for the *Trox*. I have never seen the beetle alive in the district before, although I think that my friend Mr. J. J. Walker told me he had once taken it at Whitsand Bay.—ID.

*Pyrochroa serraticornis*, Scop., in numbers in a conservatory.—On April 28th I was visiting some friends at Felpham, near Bognor, and was told that a red beetle

was very abundant in their conservatory. I was very much surprised to find that the beetles in question were *Pyrochroa serraticornis*, about the last species that one would have expected to find in such a locality. I suppose the warmth of the conservatory brought them out earlier than usual, and that they must have been introduced in wood in their larval condition.—EDWARD SAUNDERS, St. Ann's, Woking: May 12th, 1900.

*Mutilla europæa* and *Polistes gallica*, L.—Mr. G. C. Champion sent me last year a ♀ of *Mutilla europæa* which he and Mr. S. Edwards had taken crawling on a nest of *Polistes*, attached to a rough stone wall by the roadside, at Fusio, Val Maggia, Ticino, last July. I do not remember having seen *Mutilla* recorded as being parasitic on *Polistes*, and its presence on the nest of that wasp certainly suggests the probability that its visit was of a parasitic nature.—ID.

Concerning a remark in Mr. Morley's paper on *Sphogophaga vesparum*.—I desire to demur to Mr. Morley's footnote on p. 120, where he states as definitely as if he had seen it done, that the fluid of the "ghost" of the wasp is "gradually absorbed by the parasite." This seems to me to be not only unlikely, but so impossible, that the idea becomes untenable. The wasp remains ("ghost" *mihî*), if left undisturbed by the wasps, will doubtless dry up and shrivel as recorded by M. Rouget, is a question, probably, of days, or at most a week or so. Still more rapidly if the wasp comb be placed in a dry room, which I rather fancy is the condition of M. Rouget's observation, since he notes that in the nest the wasps clear out the "ghost," and that eggs are laid on the cocoon of *vesparum*, as in any other cell. During the same period the larva of *vesparum* in its cocoon is probably also shrivelling a little, since that is a very usual occurrence in *Hymenoptera* after spinning up, especially in parasites such as *Chrysis*, &c. (see Ent. Mo. Mag., vi, 157). Whilst the "ghost" is shrivelling therefore, *vesparum* is in no want of fluid. But, whether or whenever, it wanted it, it could not get it. We may conclude it does not want it, since its cocoon is as dense as any I know, and almost impermeable. This density is no doubt designed to protect the larva all the winter amongst the *débris* of the wasp's nest, not so much against living enemies, as against any excess or defect of moisture that is certain to occur. The "ghost" is remarkable for its cleanness when removed from the cell, the cell with *vesparum* cocoon at its base, is perfectly clean and dry, and the truncated end of the "ghost" is as dry and closed up as any other part of it. I should as soon expect a man to eat a good dinner through the wall of a fireproof safe as for *vesparum* to absorb any of the "ghost"ly materials. It is further very possible that the "ghost"ly fluid contains excrementitious matter of *vesparum*.—T. A. CHAPMAN, Betula, Reigate: May, 1900.

*A few localities for certain Psychodidæ collected in England (Wicken Fen, Chippenham Fen), Scotland (Ariemore and Guisachan, Inverness-shire), and Ireland (Kilmaerenan, Donegal).—Pericoma nutua*, Etn., Kilmaerenan, July 10th, 1891; Guisachan, June 19th and 20th, 1899. *P. nubila*, Meigen, Wicken Fen, July, 1892, common; Chippenham Fen, August, 1892, common. *P. trivialis*, Etn., Kilmaerenan, July 10th and 27th, 1891. *P. ocellaris*, Meign., Ariemore, 1899; Wicken Fen, July, 1892; Chippenham Fen, August, 1892, common. *P. notabilis*, Etn.,

Wicken Fen, July, 1892, common. *P. morula*, Etn., Wicken Fen, July, 1892; Chippenham Fen, August, 1892. *P. caliginosa*, Etn., Wicken Fen, July, 1892. *P. fusca*, Macquart (?), Wicken Fen, July, 1892.

*Psychoda phalenooides*, L., Wicken Fen, July, 1892. *P. alternata*, Say (*sex-punctata*, Curt.), Wicken Fen, July, 1892. *P. humeralis*, Meigen, Chippenham Fen, August, 1892.

The above *Psychodidae* have been collected by me and submitted to the Rev. Alfred E. Eaton, who has kindly named them for me. He says that of the species from Aviemore, Guisachan and Kilmaerenan two occur commonly in hilly parts of Somerset and E. Devon, but *P. mutua* is local on those hills, and does not figure in many collections. The species of *Psychodidae* from the Fens are not all the species that are likely to be found there should the time of collecting be extended a month or six weeks earlier and later; most of them are plentiful in marshy districts, but *P. caliginosa* is local, more so than *morula*.

The English and Scottish specimens will be placed in the Edinburgh Museum of Science of Art, and the Irish specimens will go to the Dublin Museum of Science and Art.—JAMES J. F. X. KING, I, Athole Gardens Terrace, Kelvinside, Glasgow: May, 1900.

*Aeschna carulea* in Ross-shire.—Lately, when looking through some of my captures that had been laid aside, I found a female of *Aeschna carulea* taken at Loeh Rosque, near Loch Maree, Ross-shire, on July 8th, 1890. This so far is the most northerly record for the species in Britain.—ID.

*The late Mr. R. H. Meade's Collections.*—We understand that these collections have been presented to the Yorkshire College at Leeds. We place this prominently on record inasmuch as a not inconsiderable number of *types* are included amongst the *Diptera*.—EDS.

*A proposed Supplement to Scudder's "Nomenclator Zoologicus."*—We hear with great satisfaction that the Council of the Zoological Society has entrusted to Mr. C. O. Waterhouse, F.E.S., of the Entomological Department of the British Museum (Natural History), the preparation of what will practically amount to a Supplement to "Scudder," consisting of a collective alphabetical arrangement of the Lists of Genera published in the annual Zoological Records since 1879, together with generic names omitted in "Scudder" (and they are not few). Of the enormous utility of such a work there cannot be two opinions. In order to render it as complete as possible all workers are requested to communicate to Mr. Waterhouse any terms known by them to be omitted in "Scudder," or in the vols. of the Zoological Record.—EDS.

## Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: March 21st, 1900.—Mr. G. T. BETHUNE-BAKER, F.L.S., President, in the Chair.

Mr. Charles Carey Woods, Edmund Street, Birmingham, was elected a Member of the Society.

The President referred to the death of Mr. W. G. Blatch, who was the first President of the Society, filling that office from the commencement in 1888 till February, 1894.

Mr. P. W. Abbott showed long series of several species of *Lycanids*, particularly a very fine set of *Alexis*, including a nice series from Ireland, with blue form of the female; also some of the white bordered form of *Corydon* taken by Mr. T. H. Fowler on the Dorset coast. Mr. G. T. Bethune-Baker, many fine *Lycanids*, including some of the blue form of the female of *Alexis* from continental localities, also a remarkably small form of the species from Algeria, almost as small as *minima*; also the beautiful red-bordered form of *bellargus* = *ceronus*, &c. Mr. C. J. Wainwright, the genus *Eristalis*, and other Syrphids. Mr. A. H. Martineau, some *Aeuleates* collected by Mr. C. J. Wainwright, including the very rare *Crabro pubescens*, one male specimen from the New Forest; he said that less than a dozen specimens at present were known from the whole of Britain. Mr. R. C. Bradley read a paper upon Mosquitos; he gave a full account of the various genera in all their stages, and then referred to the recent interesting discoveries of their connection with malaria; he showed various specimens representing all the genera, chiefly British forms. A discussion followed, in which various Members gave their personal experiences of the biting habits of these insects at home and abroad, and also discussed the origin of the habit, &c. Mr. G. H. Kenrick believed the habit had originally begun through these insects sucking the juices of plants; Mr. Neville Chamberlain said he believed people after a time became indifferent to their bites, becoming as it were inoculated; this was his own experience in the Bahamas, where at first he suffered badly, but afterwards was quite indifferent.—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY:  
*March 8th*, 1900.—Mr. W. J. LUCAS, B.A., F.E.S., President, in the Chair.

Mr. Harwood exhibited a species of *Blatta* from the Eastern Counties, which was apparently new to Britain. Mr. Adkin, a bred series of *Eugonia autumnaria* from Bournemouth. Mr. Colthrup, a specimen of *Euchelia jacobææ*, with the red areas unusually pale, a very beautifully marked variety of *Eurhhypara urticata*, and very small examples of *Pieris rapæ*, including a yellow variety. Mr. Lucas, living specimens of the immature stage of *Blatta australasiæ* from Kew, and a case containing examples of the whole of the British cockroaches, with drawings of several species. Mr. Main, living specimens of *Blatta americana* from Silvertown. Mr. Edwards, living specimens of *Phyllodromia germanica*, male, female, and immature. Mr. Moore, numerous exotic species of cockroaches. Mr. Tutt, a long and varied series of *Epunda latulenta* taken at Mucking, Essex, by the Rev. E. Burroughs in 1898—9, and gave notes as to the occurrence and variation of the species. Mr. Lucas read a paper, entitled, "Cockroaches: Natives and Aliens," illustrating it with numerous lantern slides.

*March 22nd*.—The President in the Chair.

Mr. Mac Gree, of Lillie Road, S.W.; and Mr. J. Platt Barrett, of Margate; were elected Members.

Mr. Montgomery exhibited specimens of a second generation and a partial third brood of *Coremia designata*, and gave notes on their life-history and variation. Mr. F. N. B. Carr, a varied series of *Hibernia leucophaæria* from Lec.

*April 12th.*—Mr. F. NOAD CLARKE in the Chair.

Mr. G. B. Browne, of 43, Southbrook Road, Lec, was elected a Member.

Mr. Edwards exhibited a living specimen of *Scorpio europæus* sent by Dr. Chapman from Cannes; it fed readily upon cockroaches. Mr. Sieh, living larvæ and cases of *Colcophora lineolea* from Chiswick. Mr. Clarke, photo-micrographs of the ova of (1) *Eugonia fuscantaria*, showing clearly the serrated edges; (2) *Geometra vernaia*, in piles as deposited; and (3) *Neuronina popularis*. Mr. Colthrup, specimens of *Bombyx quercus*, v. *callunæ*. Mr. Tutt gave an interesting account of the Lasiolepidid moths to which he had recently been devoting his attention; he showed that they formed a clearly definable section, and contained numerous easily distinguishable, although closely allied, subsections and genera; the various points of view, of ovum, larva, pupa, and imago were taken into consideration, and contrasted and compared with allied groups, as well as *inter se*.

*April 26th.*—The President in the Chair.

Mr. Rowden, of Kingston Hill, was elected a Member.

Mr. Buckstone exhibited specimens of *Triphaena fimbria* bred from ova; the larvæ had been fed exclusively on cabbage. Mr. Turner, Longicorn *Coleoptera*—(1) *Saperda populnea*, taken by Mr. Day at Carlisle; (2) *Rhagium bifasciatum* from the New Forest; (3) *Clytus mysticus* from Brockley; (4) *C. arietis* from Lewisham; together with larvæ of (1) *Callimorpha dominula* from Deal, where they were comparatively scarce; (2) *Bombyx quercus* from Deal, on garden rose; (3) *Pericallia syringaria* from Bexley. Mr. Moore, a Kafir necklace said to be made of the "eggs" of a white ant, *Termes bellicosus*; these so-called "eggs" are the pupæ of a Coccid of the genus *Margarodes*. Mr. Lucas, a specimen of the Dragon-fly, *Sympetrum vulgatum*, a male, taken by Mr. Hamm, of Oxford, at Torquay on August 15th, 1899; this is the second authenticated British specimen. Mr. Adkin, a fine bred series of *Eugonia fuscantaria* from Lewes ova, and stated it was easy to breed when sleeved. Mr. Clarke reported that he had received ova of *Gonepteryx rhamni* which had been found deposited on the stems of the buckthorn. Mr. Harrison reported having seen a Dragon-fly, *Libellula quadrimaculata*, on the wing at Easter.—H. J. TURNER, Hon. Sec.

ENTOMOLOGICAL SOCIETY OF LONDON: *April 4th, 1900.*—Mr. G. H. VERRALL, President, in the Chair.

Mr. J. W. Carter, of 25, Glenholme Road, Manningham, Bradford; Mr. L. L. Feltham, of Johannesburg, South Africa; and Mr. H. Fortescue Fryer, of The Priory, Chatteris, Cambs.; were elected Fellows of the Society.

Mr. M. Jacoby exhibited specimens of the genus *Sagra* from Eastern Asia. Mr. M. Burr, three species of *Pseudophyllidæ*, two new species of *Capnoptera* (females), and *Capnoptera quadrimaculata*, Westw. (female), collected in the Siamese Malay States, by Mr. N. Annandale. One of the specimens illustrated the peculiar methods of offence adopted by the insect when alarmed. Between the head and

the pronotum a scarlet hood was visible, the inflation of which bladder-like organ always indicates fear or anger. The other specimens showed the natural position of the head and pronotum. Mr. H. J. Elwes communicated a paper on "Bulgarian *Lepidoptera*," and made some remarks on the more notable species which he had taken in the Balkan Peninsula during the months of June and July, 1899. The number of species of *Rhopalocera* captured was 120, which, with a further 20 recorded by Haberhauer and Lederer, brings up the total to 140. The mountains visited were an extension of the Rhodope range, where the climate was particularly rainy, a great number of ferns flourishing everywhere, in contrast to the drier Balkans, where the number of species of *Rhopalocera* is not less than 200. Some interesting forms, but no new species, were encountered. A variety of *Colias Myrmidone* occurred, much larger and brighter than the Austrian, and more nearly agreeing with the Ural, form; and whereas in Austria the white aberration is exceedingly rare, in this locality it predominated. Meanwhile, the orange forms clearly resembled *Colias Heldreichi*. The form of *Cænonympha Davus* met with showed an affinity with the Asiatic, and not the European, form, and was almost precisely similar to specimens taken in the mountains of Armenia by Haberhauer. The form of *Argynnis Pales* was intermediate between that found in Greece and the central European Alps, while a form of *Erebia*, var. *Gorgone*, was taken similar to that in the Pyrenees—a curious instance of interrupted distribution.—C. J. GAHAN and H. ROWLAND-BROWN, *Hon. Secs.*

#### MEMORANDUM FROM THE EVOLUTION COMMITTEE OF THE ROYAL SOCIETY.

1.—The Committee appointed by the Council of the Royal Society to promote investigation of facts relating to Variation, Heredity, Selection, and other phenomena connected with Evolution, are desirous of instituting a collective investigation into the progressive melanism of certain moths, particularly *Geometridæ*.

2.—It is well known that in certain districts, especially within the British area, dark forms of several species of moths have recently appeared and become increasingly abundant. There is reason to believe that these dark forms are in some cases extending into other districts, and even to the European Continent.

3.—It is to be regretted that no systematic or statistical records of these phenomena have been kept, and it appears to the Committee that if such a record be now instituted and continued for a period of years, it cannot fail to have considerable scientific importance.

4.—The matter is one that may conveniently be made the subject of collective investigation, and the Committee will be glad to hear from any entomologist who may be willing to contribute now, or hereafter, particulars as to the condition of these species in the district or districts with which he is personally familiar. The returns should relate as far as possible to specimens *found in a wild state*, whether as imagines, or pupæ, larvæ or eggs. Information respecting specimens bred from wild parents must be kept distinct.

5.—It is thought desirable that the enquiry should for the present be confined to the following species:—*Acidalia aversata*, *Amphidasys betularia*, *Boarmia re-*

*pandata*, *Camptogramma bilineata*, *Gnophos obscurata*, *Hemerophila abruptaria*, *Hybernia progenmaria*, *Phigalia pilosaria*, *Acronycta psi*, *Agrotis corticea*, *Aplecta nebulosa*, *Polia chi*, *Venusia cambrica*, *Xylophasio polyodon*.

6.—The Schedule in which it is suggested that the returns should be made is enclosed herewith (**Schedule A**). It is desired that the return for each species be made on a separate Schedule, and the Secretary will be glad to furnish a supply of these Schedules to any one who may be willing to assist.

7.—Since confirmatory evidence is of special value, the Committee are desirous of receiving returns made independently by different persons for the same district. It is of course hoped that returns may be obtained for districts in which the dark forms are still unknown.

8.—The Secretary will be glad to examine and prepare descriptions of any illustrative specimens lent to him for that purpose, and in suitable cases arrangements will be made for photographing such specimens.

9.—**HISTORICAL EVIDENCE.** As the changes in question have largely taken place within living memory, it is hoped that those who have personal knowledge of the facts may be induced to put them on record in such detail as is still possible. Much information of a historical character is of course already printed in the scientific journals, but a more detailed account of the facts would be of great value. With this object a special Schedule (**B**), marked "Historical," will be issued to those who will fill it up.

10.—On publication full acknowledgment will be made of all help received. All communications should be addressed to the Secretary of the Evolution Committee, W. BATESON, Esq., F.R.S., Merton House, Grantchester, Cambridge.

May, 1900.

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## FURTHER NOTES ON SOUTH AFRICAN LEPIDOPTERA.

BY FRANCES BARRETT; EDITED BY C. G. BARRETT, F.E.S.

[In the following notes the original observations, extracted from letters received from my sister, are within inverted commas. My own remarks thereon are within square brackets.—C. G. B.]

*Chærocampa Æson*, Cr.—"These were reared from caterpillars found by a neighbour on his arum-lilies, in a little flower house, and sent down here. Fortunately, food being scarce, they soon spun up, or rather half buried themselves. The caterpillars were of a juicy green, and had a horn on their tails."

*Deilephila Schencki*, Mösch.—"I have secured another beauty, at sunset, flying round the peach blossoms. It looked like a living flame as its wings quivered among the pink bloom. I only wish that you could have seen it alive. Some more have been caught around the flowers of the *Plumbago*; this pretty tender bush has no thorns, but generally supports itself on a friend that has them!"

[This is indeed a beautiful species—of the size of *D. galii*—its fore-wings longitudinally striped with ruddy-brown, olive-brown, and pale ochreous, with a row of white lines down the middle; hind-wings rose-pink, with a black hind border



and white cilia; body ruddy-brown, with a complete silvery-white line down the middle of the back from head to tail, and pink and white stripes on the long shoulder-lappets. I know of no hawk-moth equalling it in loveliness.]

*Deilephila capensis*, L.—“I have been thinking about this species. Those that came to the orange trees at night behaved differently to the other hawk-moths. Generally I get them only at dusk, just for a little while, and then they vanish; if I take out a light they are not about; but these (*D. capensis*) came late in the evening, and were inexpressibly beautiful, glancing about among the orange flowers, their eyes like living coals.”

*Acherontia Atropos*, L.—“The young people have caught two ‘Death’s-heads’ fighting the bees in the windows of a big room, where, unfortunately, the latter have obtained a footing. The combs are high up among the rafters, and the window sills and floor get thickly sprinkled with dead bees.” [Later.] “I have been asking about the fight of the Death’s-heads with the bees in the long room, which happened while I was away. Arthur noticed a commotion among the bees, and looking up at the top of the window saw them flying round and apparently trying to sting the largest of the Death’s-heads which I sent. He says that it made a cry something like a beetle’s note (E. says that the Spanish flies make a similar cry when you hold them by the back). After a while the fight ceased, and the moth settled on the lower part of the window. We do not even know whether it was stung, for Arthur bottled it for you. The smaller Death’s-head was found at the bees’ nest in the other wing. It was just settled against the window-frame quite quiet, the bees only buzzing about. The honey there sometimes runs down the wall.” [Later.] “We have found more, always at or near the bees’ nests, which are so high that we cannot see what is going on in the dim obscurity of the gables. Those which are found by day are quietly settled in the window frame, with the bees buzzing round in a rage. One was settled under the bees’ nest at night when I went in with a light; there was also a bat flying round, and presently there was a contest with the bat which should get it, till it fortunately took shelter in the net. Another flew round a room where we had an entertainment one night, finally settling on one of the boys, and uttered its cry when he took it into his hand. The cry is very interesting.”

*Lophouron magnificum*, Rothschild.—“Last night I caught a beautiful little hawk-moth by watching a flowering bush in the old mission garden until I had a chance, and then making a dash for it. These flowering bushes grow among the prickly pear, in which it is impossible to net anything. The only opportunity is when the moth ventures to an outside twig, about which it is very shy. I have caught the same species about the blossoming peach trees, along with that ruddy-brown beauty (*Deilephila Schencki*), also at the orange blossom, and Arthur found one by day on a mulberry leaf, which he secured with little trouble.”

[This is a charming little species, about the size of *Chærocampa porcellus*, but more of the shape of *Smerinthus tilie*, its fore-wings pale grey-brown, with a large dark olive costal triangle, in which is a white spot, also some irregular olive dorsal markings or even a complete central band; the hind-wings yellow at the base, rich red at the apex, and with a large semi-ocellus of grey and blue at the anal angle; thorax pale grey in the middle, olive-green on each side. It has been quite recently discovered, and named by the Hon. Walter Rothschild.]

*Lophura pylas*, Cr.—“Harry has caught a beautiful little hawk-moth with his hands. We had been watching it while Arthur ran for a net, when it dashed from a rose tree to the ground, as if to hide itself, but Harry secured it!”

*Sphingomorpha Monteironis*, Butler (*ante* Vol. xxxiv, p. 240). [My correspondent has devoted a great deal of attention to this species, and its special method of damaging the fruit. She says:—“I have been having a most wonderful harvest of moths. The figs have spoiled with the damp and heat, and lie rotting on the ground, and even those still upon the trees are mostly uneatable. At night the trees are swarming with ‘fruit-moths’ and numbers of other species. Last night I went down just at dusk, taking my lantern, and had the good fortune to find a large fruit-moth at work in the middle of a fig-tree, so intent that it did not notice either me or my light. It was on the side of a fig, with its trunk boring into the fruit, and seemed to be sucking. If it had gone to the top it would have found a little opening in the ripe fig, or if the weather had been damp, perhaps a crack in its side, but this fellow was *boring* with its trunk. A large portion of our fruit, and especially of the peaches, is spoiled by rotting on the trees, and the only visible cause is a tiny spot on the outside, evidently the mark of a perforation.” [Later.] “It was charming under the trees by lantern light, and one night in particular I remember, when I caught the large moth with *eyes* (*Caligramma Latona*), the air seemed full of moths, and the heavy fruit-moths banged at my light, coming again and again to the charge. I must tell you that the fig, if over-ripe, or if the weather is at all damp, bursts, and the smaller moths can generally find a place to suck at; but the fruit-moth seems to prefer to pierce a fresh place, even on cracked fruit, leaving a little spot like a pin prick, but from that spot the fruit quickly decays; the peaches especially get a little rotten spot, and drop off at the slightest touch. I have often wondered that the moth could pierce the rough rind of a not very ripe St. Helena peach, but they spoil them when they are quite green. I am *certain* that they pierce the fruit to suck the juice *only*, the trunk being used for this purpose. I have watched many; they will let me hold a light quite near to them.”

[It will be understood that the somewhat reiterated statements above have reference to questions put by myself.]

“The large, heavy, variously marked moths [*Achæa Lienardi*, Bdv.] feed with the ‘fruit-moths,’ often upon the same fig, but are shy, and I cannot watch them so well. There are so many other species that it is hopeless to sort them out, but they feed at the fruit, either that upon the tree, or on that fallen underneath, and I think that they find a broken place in the skin. I wondered about *Audea ochripennis*, but though it was common with *Monteironis* for a little while at the fermented figs upon the ground, as well as on the trees, it was shyer, and did not seem to come to the peaches.”

[Other species at the fruit were indeed numerous:—*Audea catocala*, rarely; *Serrodus inara*, in two or three varieties; *Ericcia unangulata*, *Trigonodes obstans* (more plentiful recently at flowers), *Pseudophia Tyrhæa*, not commonly; *Ophiura melicerta*, *O. harmonica*, rarely, *O. mormoides*, *O. griseimargo*, Hpsn., *Maxula capensis*, once, *Dysgonia Faber*, *Polydesma umbricola*, *P. umbrina*, *Anophia fatilega*, rarely, *Agrotis segetum*, *A. biconica*, *A. spinifera*, *A. munda*, *Mentaxya amatara*, *M. rimosa*, rarely, *M. decipiens*, in plenty, *M. atosignata*, *Axydia dividens*, *Euplexia conducta*, *Laphygma exigua*, *L. orbicularis*, *Eulaphygma abyssinica*,

*Carudrina obtusa*, *Leucania Loreyi*, *L. tacuna*, Feld., *L. torrentium*, *L. monosticta*, *Churia iconica*, *Cosmophila sabulifera*, *C. erosa* and its variety *xanthyndyna*, *Oresia argyrosigma*, *O. emarginata*, *Deva natalensis*, *Prodenia littoralis*, and many more, some of them apparently quite new.]

[From a much more recent letter.] "These, *Achæa Lienardi* and *Serrodus inara*, are so wonderfully abundant this year as to cause general comment and notice in the papers. They are mostly obtained from the peaches, and they spoil the fruit in the same manner as the 'fruit-moth.' It also is here, but is not so abundant as last year. The beautiful bronze moths with jagged edges, *Oresia argyrosigma*, are like them in their habits at the fruit; indeed, one often catches them together off the same peach."

[The fine parcel of these moths, to which the present letter refers, has, I fear, gone down with the "Mexican."]

*Gonometa postica*, ♂, Wlk.—"I have a creature with a yellow body which came out of a chrysalis brought from Amshaw. I scarcely expected anything, for it had been shut up in a tin for a long time, and when it emerged it caught its feet in some wadding and beat itself about. The cocoon was found on a tamarisk tree."

[This is one of the very few species in which the male is dwarfed, and distorted as to its wings, while the female is well developed, large and handsome, and the extraordinary appearance of the specimen in question is not due wholly to the wadding. Its cocoon is very coarse and hard, larger than that of *Lasiocampa quercus*, and its outer surface covered all over with the short, stiff, prickly hairs of the larva. It is fastened, down its side, to a stick, something in the same manner as that of *Odonestis potatoria*. The end is thrust widely open on the emergence of the moth, without the removal of a lid, and so remains, showing a perfectly round orifice.]

*Gyanisa maia*, Klug.—"Arthur has found a beautiful big flat moth under a tiny bush, probably just emerged, for they dug and found fragments of a chrysalis, which I send. The moth was spreading itself out on a cloudy day, perhaps drying its wings." [The fragments of the very large pupa-skin were quite dirty on the outside, showing that to all appearance this grand species, closely as it resembles a large *Saturnia*, forms no silken cocoon, but pupates nakedly in the earth!] "Arthur has caught two more, one in a doorway, the other at the foot of a tree, with the chickens pecking at it, which attracted his attention. It always seems to sit with its wings outspread. I have found another in the open veldt. They had been digging a little child's grave, and when we went down to the funeral I saw a little boy stamp violently on something in the grass, and looking closer I found this moth, and brought it home in my handkerchief." [Some of these specimens arrive in wonderfully fine condition, considering the treatment that they seem to have received.]

"I have reared two specimens from some very beautiful caterpillars that a native servant brought me. They were light green, with longitudinal rows of alternate silver and gold spikes all along the sides and back. The spikes looked like real gold and silver ornaments. They were found on *Mimosa*. I was thinking whether I could figure them, when they buried themselves." [From a larva subsequently found my correspondent sends a drawing of this noble creature. The spikes are fleshy tubercles, in dorsal and subdorsal rows, and the golden, and especially silver, metallic markings, are very wonderful.]

*Eutricha pithyocampa*, Cr.—“These three I reared from a great group of hairy caterpillars, which E. found all clustered together on a rose bush. I got several others from other places, and had a large tin full, but the fowls got at it and I only saved three. It was provoking, for I had fed them for weeks. I found that they clustered together in the same manner when they wanted to change their skins. The caterpillar is three inches long, very prettily marked with brown, black, and white, but is chiefly remarkable for the soft hairy fringe of long greenish greyish-white hairs all round it, sweeping the surface upon which it rests. I think that the black on the body consisted of black hairy tufts, but am writing from memory. I intended to paint one, but was too busy when they were full grown. The very large heavy moth (♀) is the fruit of a shooting excursion. Harry was out late shooting crows, and this moth fell from a *Euphorbia* tree; he marked the slight flutter of its wings, and where it fell, found it on a piece of fallen bark, got a pin and also some nicotine out of the pipe of his dusky henchman, pinned his trophy to the piece of bark and brought it home in triumph undamaged, except that the nicotine has made a black mark on the back of the thorax.”

[All these are of a redder tint and coarser texture of scales than is usual in this fine species of *Eutricha*, and the transverse lines are slightly more wavy and diffused, yet I think not more so than would indicate a local variety. This insect is in no way connected with the European *Cnethocampa pityocampa*.]

[From a very recent letter.] “I have now had the caterpillars from many sources. They have a way of congregating, generally on the stump of a rose bush, or on a tree, when they want to change their skins, I obtained most of them that way. One fine lot of them were under the bend of the stem of a wattle tree; another lot were found when small in a dead aloë-stump. Sometimes I think that a wet or stormy afternoon drives them to such a situation. The favourite food is rose, or else the white thorny acacia; I have had single caterpillars from *Mimosa*, which much preferred the other diet; and a lot found very young upon maiden-hair fern also chose rose as soon as they could get it. They are not very easy to feed up; one lot took a bad turn when nearly full grown and died off; they had been feeding about five months. There is considerable difference in size, those which have been fed up from tiny larvæ being very much smaller than those found full-fed and ready to spin. Some of the last large ones had a pretty tinge of purple at intervals along the back.”

[With this information was a figure of the full grown larva, which shows the dense prostrate lateral fringe of depressed blue-grey hairs, extending on each side to more than the breadth of the larva; the head orange-yellow; the second segment white at the top, with a broad, bright red band across the hind edge, and large black blotches on the shoulders; remainder of the body bright red, except the dorsal region, which is broadly but irregularly white, and has a large black blotch each upon the third, fourth, and eleventh segments. The half grown larva is umbreous, with the lateral fringe short and of the same colour, a row of white spots down the back, and black-brown spots between them and on tufts at the sides. Dead and dried larvæ sent at the same time attest the correctness of the drawings; pupæ are sent also, which are dark red-brown, with abundance of very short, lighter red bristles upon the back of the thoracic and abdominal regions; and cocoons, which are large and rather loose and soft, of pale yellow or pale greenish-brown silk, spun up among the leaves of the food-plant, and often fixed firmly to the twigs.]

*Orgyia discalis*, Wlk.—[A pretty species, of the size and proportions of *O. antiqua*, fore-wings dark red-brown, shaded with pale ochreous; hind-wings pale orange, bordered in front with black.] “This I caught flying in the middle of the day in bright sunshine, but I have sent others which came at night to a light at a window.”

*Pelochita vitrea*, Plötz. (see *ante*, vol. xxxiv, page 238).—“The *Soldier*-moth flew out of one of the fig-trees, and I netted it flying *away* from the light. I never knew them to be attracted by a light, but they frequent the ripe figs at night.”

*Epiplema albida*, Hpsn.—“I have caught several of these little moths near the dam. They settle curiously, all bunched up, the fore-wings rolled, the back of the body and the hind-wings elevated.”

[This is one of the very small species in the grand Family *Uraniidæ*. The extremely curious method of holding its wings when at rest, referred to above, is well exemplified at South Kensington, where several of the specimens are shown with the fore-wings rolled into a cylinder, and the hind separated as far as possible from them and clasped to the body. There seem to be two forms of this and some of the allied species, with the ground colour dirty grey, and white, respectively, both being found in India as well as in South Africa.]

*Ectropa ancillis*, Wallgrn.—“This moth is the fruit of much perseverance. Early this morning I spied something behind a cobweb on the window at the end of the chapel, but could not see whether it was a moth or a leaf crinkled up and lodged there by the wind. On going to see I perceived a stick outside the door, and knew it for the sign of one of the early morning meetings in which the natives delight, and of course forbore to scandalize them by appearing suddenly at the window. So after breakfast I looked again, the natives were gone, the moth was not. I could just reach it with the net under the cobweb, which—shame to say—stretched right across the window, still uncertain whether it were a leaf or not I touched it, it fluttered, then dropped straight down. Then I searched in the grass at my feet without success and almost gave it up, when at a closer look something feebly tried to kick itself into better hiding. Then I rejoiced greatly, and so I think will you.”

[I do! It is a curious light brown creature, one of the *Limacodidæ*, its fore-wings four-sided, as long as they are broad, its hind rather longer.]

*Ditrachytera verruciferella*, Ragonot.—[One of the *Phycididæ*]. “I had a chase after this little fellow, it started up before me just at sundown, and settled almost immediately on a twig of *Mimosa*, sitting close like a part of the branch. I could not net it because of the thorns, so tried the bottle, and failed; it flew and settled as before, and I tried again, and missed, but at the third time I caught it with a snatch, regardless of thorns, on an adjoining tree. It had a very pretty way of elevating a little tuft on its shoulders, which made it exactly resemble a knot of the tree.”

*Apiletria acutipennis*, Wlsm.? (or possibly a new species in this genus).—“These curious moths are sent because they behaved so strangely. They sat about, apparently as though conversing, on a tree trunk at dusk, or danced round on the tips of their toes, and fairly *waited* to be caught! If disturbed, they flew round and settled again close by. This happened on several nights on a tree in the old

mission garden, and also on a gum-tree trunk quite away by the other garden. They would be there on one night, but miss the next, and on a subsequent night there again, and performing these strange evolutions. The larger ones, which seem to be of the same species, were caught singly, flying in the same neighbourhood." [Later] "I am glad that you are noticing those queer little moths that settled on the tree trunks to perform their war-dance. They were so curious that Arthur noticed them also, and asked me to tell you about them. It was just at dusk that they would begin their antics, and you might disturb them, and go on netting, but still they would return to their chosen spot, but always only the smaller ones. They had the appearance of quivering on the tree-trunk on the tips of their toes. I believe that I saw them once in Annshaw on a blue-gum trunk doing just the same, and tried to tell you about it. I thought then that they had just emerged, and were drying their wings, but do not think so now, because we watched them fly and return persistently, and on several evenings, in separate places, and on two kinds of tree. The larger ones I have met with flying singly in returning to the house, perhaps a hundred yards away."

[This insect is one of the *Tineina*—the larger ones mentioned being the females—yet could hardly give one at first sight the idea of a *Tinea*. The male is  $1\frac{1}{4}$  inch in expanse, and the female  $1\frac{3}{4}$  inch, and larger than *Melissoblyptus anellus*, to which it bears in shape a great resemblance. The fore-wings of the male are pointed, hollowed beneath the tip, with very oblique hind margin, brownish-grey, striped longitudinally with ashy-white; hind-wings very long, twice as long to the apex as their breadth, greyish-white with a faint purple flush; cilia long. Female half an inch larger, the fore-wings broader and more blunt or rounded behind, grey with minute longitudinal darker lines, and a short distinct white discal streak; hind-wings broader, dark grey; whole surface very glossy, antennæ in both sexes simple and small, but thickened at the base; palpi small, widely divergent. In Lord Walsingham's hands for determination, and, if necessary, description.]

*Eretmocera latissima*, Wlsm.—"We have again caught Lord Walsingham's tiny moths close to, and upon, the dog-bush I told you of before"—*Exomis oxyrioides*—"it is a common weed here. I searched the place another day, and again found one specimen, but it was sitting upon wild asparagus." [Later.] "The little *latissima* is a thing of joy; so far as I can trace it flies only by day, and prefers bright sunshine, and just dances round a bush in blossom, looking like a red gleam. The only way to secure it is to strike at once, since it is too small to be netted off the bush. It visits tiny blossoms on bushes or plants, but never seems to visit the flowers of fruit trees."

[My correspondent, while at Annshaw, farther soath in the colony, searched the *Exomis* often and with great care in the hope of discovering something of the habits, and of the preparatory states of these most lovely crimson atoms—which possess antennæ formed almost as in the *Sphingidae*—but she found only that the minute yellow blossoms greatly attracted the moths, while no indication of the larva was discoverable, and that with this species are to be found *E. scatophila* in larger numbers, and its yellow variety (?) *E. moribunda*.]

Buntingville, Umtata,

Transkei, S. A.

NOTES ON *PEZOMACHUS*.

BY ERNEST A. ELLIOTT, F.E.S.

*Pezomachus* is certainly a most difficult subject. Prof. Foerster's Monograph is still the standard work; but, although a great improvement upon Gravenhorst, it now in the light of modern discoveries requires some considerable revision to bring it up to date.

Foerster dissected the Gravenhorstian genus *Pezomachus*, and divided it into nine genera. Two of these may at once be eliminated, namely, *Pterocormus*, the only species of which, *Pt. means*, has proved to be a semi-apterous, or rather brachypterous, form of the female *Ichneumon latrator*, and *Agrothereutes*, since *Agr. Hopei* is now shown to be the female of *Cryptus pygoleucus*; and the other species, if indeed they are not mere colour varieties, will certainly find their mates in the same genus.

Starting with the idea that no member of the *Pezomachus* group could possibly possess fully developed wings, Foerster at once separates from it three species, namely: *longipennis*, *fulveolatus*, and *Mangeri*, to which he gives the generic name of *Catalytus*. The first named has the most fully developed wings and a partly black mesothorax; while the others only differ from it in having less developed wings, and the mesothorax entirely red; hence it may very probably prove that they are all one species. Again, the wings differ greatly in different individuals, and there is absolutely no generic character to separate them from *Aptesis*. Mr. Bridgman described a *Catalytus* as a new species of *Aptesis*, under the name of *Apt. Foersteri*; and a specimen of the same has been recently sent to me labelled *Aptesis? hemiptera*.

*Aptesis* and *Theroscopus* are only separated by the length of the wings, and the more or less complete development of the metathoracic areæ, which latter character seems also unreliable, as Mr. Bridgman's *Ther. niger* has the thorax of an *Aptesis*, thus showing that there is no clear distinction between these genera. All these three, *Catalytus*, *Aptesis*, and *Theroscopus*, might be united under one name, and would also include Mr. Marshall's *Oresbius*, which is distinguished only by its unicolorous antennæ.

After the wings, Prof. Foerster takes the length of the aculeus, *Cremnodes* having this organ less than half the length of the first abdominal segment, while in the other genera it is usually more than that length. This character does not appear to be constant, and certainly in the case of *Pez. Neesii* it varies from being barely visible

beyond the apex of the abdomen to nearly half the length of the first segment. In fact, there are at least fourteen species of *Pezomachus* in which the aculeus does not attain to half the length of that segment, and this feature cannot be safely relied upon even for the separation of species, although Foerster uses it freely in his analytical table.

Both the transverse ridge and the tubercles on the first segment appear to vary in different individuals of the same species, not, perhaps, to any great extent, and yet sufficiently to cause confusion when the identification is made to depend mainly upon them.

Colour is a notoriously bad guide to species in this family, and yet there appear to be certain well defined limits of variation. Here, as in the Coleopterous genus *Aphodius*, there seems to be a tendency among most of the normally black species to develop red in some parts, and for this colour to vary greatly in extent where normally present. In *Pez. intermedius*, for example, the thorax and the first abdominal segment range from entirely black to entirely red, the normal type being apparently that in which each has the base black and the apex red. Where the abdomen is red-yellow and black, the extent of each colour is subject to considerable variation, the second and third segments being most commonly affected. Even where, as in *Pez. zonatus* and *fasciatus*, the abdomen remains red, with a black band, or bands, always on the same segments, these bands may cover the whole segment, or be reduced to thin lines. On the legs the most common variation consists of an increased amount of brownish tint, especially on the femora and tibiæ. The colour of the head appears to be nearly constant, only varying slightly in the amount of red, where this colour occurs in conjunction with black.

Of all the organs the antennæ seem to me to be least subject to colour variation. The scheme of colour on these organs may be divided into four main groups, namely:—1st, unicolorous red or red-yellow, varying only in the intensity of the colour, and possibly in the apex being more or less distinctly darker; 2nd, unicolorous black, in which I find no variety; 3rd, having the base red and the apex brown or black-brown—in this group the intensity of the colour, the extent of the red base, and the more or less abrupt transition from one colour to the other might form good sub-divisions; and 4th, black or black-brown, with the apex of the 2nd and the base of the 3rd red or red-yellow. As far as my observations on *Pezomachus*, Fst., extend, I have found no case of variation in the antennæ among individuals of the same species, except in the intensity of the colour; though Mr.



Brigman mentions a specimen of *Apt. vestigialis* in which the 6th and 7th joints of the antennæ were only partly, instead of entirely, reddish-brown, and 6-11 white above only instead of ringed. I incline to consider the presence or absence of a rudimentary scutellum one of the first points for a division of species in this genus (*Pezomachus*, as limited by Foerster), next to which I would place the sculpture of the abdomen, and then the length of the antennæ, the relative length of the individual joints, and the colour. I believe that these, with the shape of the 1st abdominal segment, will enable us to obtain a more satisfactory and natural grouping of this difficult genus, and when worked out, it will doubtless facilitate identification of specimens.

It seems possible that the genus *Pezomachus* may eventually disappear, being entirely absorbed into other genera having winged males; and even the known apterous males may yet prove to be only varieties of winged species.

41, Holland Park, W.:

May, 1900.

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*PLECTROCNEMIA BREVIS*, McLACH., AN ADDITION TO THE  
BRITISH *TRICHOPTERA*.

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

The Rev. A. E. Eaton has just placed in my hands three males of a *Plectrocnemia* taken by him at Seaton, South Devon, in May, 1898, which are to be referred to *P. brevis*, new to Britain.

This species was originally described by me nearly thirty years ago in this Magazine, vol. viii, p. 145 (1871), from examples taken by Mr. Stainton at Sedrun in Switzerland; and a further and more detailed description (with figures) appears in my "Monographic Revision and Synopsis," p. 396, pl. xli. Of the two already known British species of the genus it could only be mistaken for *P. conspersa*, Curt., but, as already pointed out, it is smaller on an average, the anterior wings more evenly irrorated, and practically without the longitudinally-oblique darker markings usual in *conspersa*; the inferior appendages *very much shorter, and very obtuse*, the penis very strong and curved downward between the inferior appendages, &c. It is an interesting addition to our fauna. Up to now I had only seen it with certainty from Switzerland. In addition to the original locality (Sedrun), Dr. Ris records it from more than one other Swiss locality: I have specimens from him from near Zürich.

When I last wrote on the species I had not seen the ♀. According to an example from Dr. Ris it is, as usual, rather larger than the ♂: the plates or appendages of the 8th ventral segment are short-oval, very much shorter and smaller than in *P. conspersa*, thus correlated with the short inferior appendages of the ♂.

Lewisham, London:

June 8th, 1900.

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ODONATA OF EAST SUSSEX.

BY THE REV. E. N. BLOOMFIELD, M.A., F.E.S.

The principal source of the following list is "*Libellulinae* observed in Sussex, chiefly in the neighbourhood of Lewes," by W. C. Unwin, "Naturalist," 1853, pp. 71—73. Another list, also by Mr. Unwin, is given in Mrs. Merrifield's "Sketch of the Natural History of Brighton and its Vicinity," 1864. This list is almost the same as the preceding, Mrs. Merrifield having included, in her Brighton district, Lewes on the east, and Shoreham, &c., on the west.

The only other records, so far as I am aware, are in the "Natural History of Hastings and St. Leonards and the Vicinity," with its Supplements, and Mr. Lucas' "British Dragon-flies." I have, however, been favoured with notices from Messrs. G. T. Porritt, F.L.S., E. A. Butler, F.E.S., M. Burr, F.Z.S., and E. Connold. Mr. McLachlan, F.R.S., has sent me a notice of two species taken near Rye in August, 1898, by Lieut.-Col. Irby, and Mr. Butler has furnished me with the observations of Miss R. M. Sotheby, which are embodied in the Hastings List, First Supplement, 1883. To these I can add a few of my own.

Mr. J. H. A. Jenner, F.E.S., of Lewes, has in his collection some of Mr. Unwin's specimens, among them are *Cordulia ænea*, *Gomphus vulgatissimus*, *Cordulegaster annulatus*, *Anax imperator*, *Brachytron pratense*, and a few commoner species.

*Sympetrum striolatum*, Charp.—Very common near Lewes (*Unwin*), Eastbourne and Hailsham, common (*G. T. P.*), Hastings district, common. *S. sanguineum*, Müll.—"I took this distinct species at Kingston, near Lewes, in September, 1849, and in 1851" (*Unwin*), Hollington (*E. A. B.*), Guestling (*E. N. B.*), near Rye (*Irby*). *S. scoticum*, Don—Once at Ore (*E. A. B.*).

*Libellula depressa*, L.—Plentiful on the Downs (*Unwin*), Abbott's Wood, and adjoining lanes, abundant (*G. T. P.*), Hastings district, rather common. *L. quadrimaculata*, L.—On the Downs, rare (*Unwin*), Abbott's Wood, common (*G. T. P.*),

Bopeep (*E. A. B.*), Guestling, scarce (*E. N. B.*); var. *præumbila*, Abbott's Wood (*G. T. P.*), Guestling (*E. N. B.*). *L. fulva*, Müll.—One on the Downs; at first it was supposed to be a variety of *L. depressa*, but on close examination proved to be this species (*Unwin*).

*Cordulia ænea*, L.—One near Horsham, June, 1846 (*Unwin*), once in Hastings district (*E. Connold*).

*Gomphus vulgatissimus*, L.—One on the Downs in 1846, and another in Love Lane, Lewes, in 1851 (*Unwin*). *G. flavipes*, Charp.—Taken by Stephens near Hastings, August 5th, 1818; this specimen is in the British Museum—a casual immigrant.

*Cordulegaster annulatus*, Latr.—Brighton district, rare (*Unwin*), Hastings, once (*E. W. Andrews, R. M. S.*), one near Bexhill (*E. Connold*).

*Anax imperator*, Leach.—Once near Uckfield (*Unwin*).

*Brachytron pratense*, Müll.—Of frequent occurrence near Lewes, pretty constant in its colour and markings (*Unwin*), Abbott's Wood and adjoining lanes, common (*G. T. P.*), Ore (*R. M. S.*), Hastings (*W. H. Bath, Lucas*), Bexhill, locally common (*E. Connold*).

[*Æschna mixta*, Latr.—Near East Grinstead, Sussex (*M. Burr, Lucas*); Mr. Burr informs me that this was really taken in Surrey.] *Æ. cyanea*, Müll.—Uckfield and Newick (*Unwin*), Battle (*G. T. P.*), common in Hastings district. *Æ. grandis*, L.—Not uncommon near Lewes (*Unwin*), Guestling (*E. N. B.*), Hastings district, not common (*E. A. B.*).

*Calopteryx virgo*, L.—Very common on the banks of the "Cut," and the river Ouse towards Barcombe Mill (*Unwin*), Hollington (*E. A. B.*), Guestling (*E. N. B.*), Battle and Crowhurst, locally common (*R. M. S.*), Horsham (*H. J. Turner, Lucas*), Sedlescombe, in plenty (*E. Connold*). *C. splendens*, Harr.—Frequenting the same localities as the preceding species (*Unwin*), on the Rother at Bodiam (*E. N. B.*).

*Lestes sponsa*, Hansem.—Brighton district (*Unwin*), Winchelsea marshes (*Lucas*), near Rye (*Irby*), Pett (*E. N. B.*), Shoreham (*H. J. Turner, Lucas*).

*Platycnemis pennipes*, Pall.—Once on the Downs near Lewes in July, 1849 (*Unwin*).

*Pyrrosoma nymphula*, Sulz.—Abundant round Lewes (*Unwin*), Abbott's Wood (*G. T. P.*), St. Leonards (*E. A. B.*), Guestling, common (*E. N. B.*), Shoreham (*H. J. Turner, Lucas*).

*Ischnura elegans*, Lind.—Very frequent near Lewes (*Unwin*), Guestling and Pett (*E. N. B.*), var. *rufescens*, Steph.—Kingston and Landport, near Lewes (*Unwin*).

*Enallagma cyathigerum*, Charp.—Brighton district, rare (*Unwin*).

*Agrion pulchellum*, Lind.—Of frequent occurrence near the Winterbourne and elsewhere round Lewes (*Unwin*), Hastings District (*E. Connold*). This species would seem to be usually rare: the notices in the Hastings List and in Mr. Lucas's book are due to erroneous information, as I am informed by the observers themselves. *A. puella*, L.—Very common in the Lewes levels (*Unwin*), common in woods and lanes near Hailsham (*G. T. P.*), Hastings district, common.

## NEW CORSICAN AND FRENCH MICRO-LEPIDOPTERA.

BY THE RT. HON. LORD WALSLINGHAM, M.A., LL.D., F.R.S., &c.

(Continued from Vol. XXXIV, p. 172).

## PYGOLOPHA, Ld.

## 913 (1). PYGOLOPHA RHODOPHANA, H.-S.

The larva feeds on *Clematis* sp. (*vitalba*?), burrowing in the long shoots and making a hole at one end of the burrow through which it comes out to feed upon the leaves; among these it spins a light web and is sometimes found among the leaves thus drawn together, but its retreat in the stem is always open and in this it pupates, the moth emerging from the hole in the side of the stalk. I met with twelve or fifteen of these larvæ near Corté on June 10th, 1899, and bred three specimens from July 14th to 25th.

In placing *rhodophana* in the genus *Pygolopha*, I rely upon the position of vein 2 in the fore-wings. This would have justified its inclusion in the *Phaloniadæ* (*Conchylidæ*) until Meyrick limited the family to genera with vein "2 from posterior fourth of cell," instead of adopting Heinemann's phrase, "out of the last third," as used in his definition of the genus *Conchylis*.

## ISCHNOSCIA, Meyr.

§ *GUENEA*, Mill. Ic., III. 437 (1874). = *ISCHNOSCIA*, Meyr. HB. Br. Lp., 783 (1895).

When reviewing Mr. Meyrick's work [Ent. Mo. Mag., XXXI. 286 (1895)] I sunk *Ischnoscia* as a synonym of *Guenea*, Mill., being unaware that the latter name was invalid through homonymy. Bruand, Cat. Microlép. Doubs, 77 (1847) proposed the name *Guenea* for a heterotypical conception, the types of which were *Gelechia pinguinella*, Tr., *Endrosis lacteella*, Schiff., and *Rhinosis flavella*, Dp. It is obvious that *Ischnoscia*, Meyr., must be adopted in lieu of § *Guenea*, Mill. *Guenea*, Bruand (1847) *Lep.*, is omitted from Scudder's Nomenclator.

## 1427 (2). ISCHNOSCIA CARBONIFERA, sp. n.

*Antennæ* somewhat stout, longer than the fore-wings; pale greyish fuscous above, ochraceous beneath. *Maxillary palpi* folded; whitish. *Labial palpi* short, porrect, the median joint with bristles at its apex above; pale ochreous, shaded externally. *Head and face* rough; cinereous, with an ochreous tinge. *Thorax* fuscous, mixed with ochraceous. *Fore-wings* narrow, elongate; pale ochraceous, with numerous blackish spots from the base to two-thirds, a large blackish patch, or fascia, at two-thirds, and a black spot at the apex; a blackish spot at the base

of the costa is followed by a larger costal spot before the middle, succeeded by another on, or before, the middle of the fold, and a black shade lies on the middle of the dorsum before the transverse blotch, or fascia, which crosses the wing at the end of the cell; cilia greyish. *Exp. al.*, 9 mm. *Hind-wings* narrower than the fore-wings; shining grey; cilia pale leaden grey. *Abdomen* greyish fuscous. *Legs* smooth; pale greyish.

*Type*, ♂ (84091), Mus. Wlsm.

*Hab.*: CORSICA, Corté, 15, VI, 1899. Unique.

The species appears to differ from any described form, and although having somewhat the appearance of the *ræstlerella* group is generically as well as specially distinct.

#### CAUNACA, Wlgrn.

##### 1622 (1). CAUNACA INSULELLA, *sp. n.*

*Antennæ* white, with a blackish ring occupying three joints at about half their length, another of the same width midway between this and the apex where two joints are also blackish. *Palpi* porrect, with a long tuft on the median joint stretching to more than the length of the head beyond it, this is white above and beneath, but dark olive-brown externally; the short white terminal joint, which is scarcely curved, rises obliquely upward from near the base of the longer tuft. *Head* and *thorax* white, the latter margined with dark olive-brown. *Fore-wings* dark olive-brown, somewhat diluted beyond the middle; with white markings, a streak along the costa from the base to a little beyond one-third; a similar streak from the base of the dorsum, diverted upward at about one-third, and reaching the costa obliquely at about its middle, is slightly angulated outward beneath the costa; beyond this is a costal spot almost, or quite, connected with an irregular ante-tornal blotch on the dorsum, which throws up a projection at its outer end to meet the costal spot; between this and the apex are two white inverted costal streaks, the first short, the second longer and sometimes produced outward from its lower extremity to the middle of the termen, a black spot lies at its outer edge, at the angle formed by this diversion (in some specimens all the markings beyond the oblique transverse median streak tend to be more or less fused together beyond the end of the cell); cilia at the apex olive-brown, along the termen white, tessellated with olive-brown. On the under-side the white markings are not noticeable, except on the costa and in the cilia. *Exp. al.*, 14–15 mm. *Hind-wings* grey, the cilia scarcely paler. *Abdomen* grey. *Legs* grey, with pale tarsal spots.

*Type*, ♂ (84023), Mus. Wlsm.

*Hab.*: CORSICA, Vizzavona, 11–12, VI, 1899. Eight specimens.

(*To be continued*).

#### LIFE-HISTORY OF *VANESSA GONERILLA*, FABR., OF NEW ZEALAND.

BY AMBROSE QUAIL, F.E.S.

In his recently published work, "New Zealand Moths and Butterflies," Mr. G. V. Hudson gives an elementary description of the

life-history of this insect, with no details of structure in the larval and pupal stage, but he has excellent figures of larvæ and pupæ as well as the imago.

Having little to do on December 26th, 1899, except look for larvæ, I paid some attention to this prickly subject, and after an hour or two obtained some half dozen pupæ and a fair number of larvæ from the shrub nettle (*Urtica ferox*); these larvæ varied in size, from  $\frac{3}{16}$  inch to about  $1\frac{1}{2}$  inches just before pupation. Hudson says the larva "constructs a small tent by fastening together several of the leaves of the food-plant." This it certainly does when large and near pupation, for in such manner does it shroud the pupa (just as the English *V. Atalanta* does), but when younger it sometimes turns down the end of one leaf, but more often, in the middle of the leaf, a portion is divided except at the midrib and the edges drawn together (not unlike the manner of *Vanessa urticæ* on a nettle leaf).

Hudson says:—"Egg, deposited on nettle leaf, is barrel-shaped, ornamented with a series of longitudinal ribs, meeting at a central spot on top. Pale green, with ribs white. Young larvæ first hatched dusky yellow with spines." My material is as follows. Larvæ vary somewhat in colour, but the small to about half grown ones appear quite oily as though dipped in grease; this disappears in the larger specimens.

*Length*,  $\frac{3}{16}$  inch. *Colour*, dark brown, with black elevated tubercles bearing a number of pointed setæ. No mid-dorsal line, but on abdominal segments there is an interrupted subspiracular line of whitish (or yellowish) colour; all over the skin there are many minute hairs perceptibly only under one-fourth lens (these are not white).

*Length*, 1 inch. *Colour*, skin black, with innumerable minute white tubercles, each with a white hair, these give the skin a lighter dusted colour, they are most numerous as transverse series, but are really scattered all over the skin of head, thorax and abdomen, dorsal, lateral and ventral area. A subdorsal series of yellow spots from mesothorax to 8th abdominal. A pale yellow supra-spiracular line on thoracic segments, marked only on abdominal segments by small spots posterior to the spiracles, and a rather broad subspiracular line extends from prothorax to 9th abdominal of yellow colour. Ventral area (below subspiracular line) is medium brown, with darker mid ventral line, abdominal feet yellow, thoracic legs black, pale at joints. The spiny tubercles consist of a pale coloured base, upon which are a number of pointed bristles (these also are thorny under  $\frac{1}{4}$  inch) which surround a central bristle, each of these bristles rises from thicker, dark chitinous, cigar-shaped stems, which are rooted in the aforementioned pale coloured base.

These examples may be regarded as typical; as regards structure they are most difficult to describe, owing to the numerous secondary tubercles, but so far as I could see there was only one point of difference in structure between small and larger specimens, and this will be mentioned in my description of the larger specimen.

*Shape.*—Prothorax and 9th abdominal segments very much reduced, being very much smaller than the segments between them. Middle segments are the largest.

*Structure dorsally*, under 1 inch objective.—Head covered with an almost countless number of elevated dark tubercles of various sizes, each with a single hair, they appear to be arranged in definite transverse series. The suture of the lobes is free from tubercles of any kind. The minute white tubercles are very numerous. Prothorax, much reduced, appears more like a subsegment of the mesothorax; it has dark sublateral tubercles with single hairs and minute white tubercles, none on mid-dorsal line. Meso- and post-thorax have sublateral spiny tubercles, one each side, seven or eight bristles on one base, numerous white tubercles, none on mid-dorsal line. First and each succeeding abdominal segment (except 8, 9 and 10) have a spiny tubercle on mid-dorsal line, anterior to the sublateral spiny tubercles; 8 has a kind of hump with small hairs instead of elevated bristles; 9 is without the mid-dorsal spiny tubercle, but has the sublateral spiny tubercles (one each side), these are not so well developed as the sublateral spiny tubercles on 10.

*Structure laterally.*—Head: the ocelli are very prominent, elevated, round and dark; antennæ comparatively small, terminated by a bristle, two small points, and a minute jointed process. Prothorax with an anterior transverse series of single haired tubercles. The spiracle is placed well down the segment just above (?) supra-spiracular line; below the spiracle are several tubercles larger than the majority of single haired tubercles, and above the base of the legs is an elevated spiny tubercle. Mesothorax: there are three spiny tubercles on anterior edge (one above the other) above the pale spiracular area, below are several rather prominent single haired tubercles arranged longitudinally on the second spiracular line, and below these is the spiny tubercle above the legs. Post-thorax as mesothorax except that the spiny tubercles are more central than anterior. On the first abdominal segment the mid-dorsal spiny tubercle being anterior to the posterior trapezoidal spiny tubercle, the supra-spiracular spiny tubercle is below the latter, and immediately above the spiracle; below is a dark round scar, and a subventral tubercle with three or four hairs (not so distinctly an elevated spiny tubercle); 2nd, the round scar is here a spiny elevated tubercle; 3, 4, 5, 6 have abdominal feet, with the subventral tubercle on base; 7, 8 correspond to 1 and 2; 9 is very much reduced, and appears more like a subsegment of 10, it has only the sublateral spiny tubercles already mentioned (of course numerous secondary tubercles are present as elsewhere), 10 has in addition to the sublateral spiny tubercles a great many tubercles of various size. The spiny tubercle below spiracle is really the anterior subspiracular, as in the smallest specimen examined the posterior subspiracular was present on each abdominal segment, being a rather large black tubercle (not elevated) with apparently only one hair, this was the only perceptible difference between large and small, as this posterior subspiracular tubercle could not be traced in the large one.

*Structure ventrally* (under  $\frac{1}{4}$  inch).—Hooks of the abdominal feet consist of about three alternate rows of hooks on inner side only, representing a rough crescent. The claspers have two or three hooks only on posterior edge.

The pupæ are attached to the under-side of one of the leaves which form part of the tent, sometimes the leaves forming the tent are severed at the stalk end, and sometimes none are severed, being

merely pulled together by the silken thread; probably it depends to some extent upon the age of the leaf and the resulting resistance it offers to being pulled into necessary shape. The quantity of silk employed in forming the pad for cremaster varies in different individuals.

The pupæ of *Vanessa gonerilla* are variable as to colour and markings. I select two extremes, the last, however, is probably normal.

*Length*,  $\frac{3}{16}$  inch. *Colour*, black from front of head to about 2nd abdominal segment, from which to extremity the colour is brownish dorsally, paler laterally. On the dorsal points of meso- and post-thoracic segments, and on 1st and 2nd abdominal segments, are small metallic spots. The whole of the black surface however has a lustre.

*Length*,  $\frac{7}{8}$  inch. *Colour*, greyish-brown to middle of 4th abdominal segment, and on the remainder of the abdominal segments brown at either side of a pale grey mid-dorsal line, which latter runs from the prominent mesothoracic point to the terminal segment on dorsal surface. From the subdorsal points (posterior trapezoidals?) to the spiracles the lateral area of the abdominal segments is grey, fading off to speckled brown on the ventral surface. Several rather large white spots on dorsal surface of head and prothorax, and all the segmental points are more or less metallic, largely so on the "posterior trapezoidal" points of the post-thorax and 2nd abdominal.

*Structure*.—The black specimen is not so robust as the greyish specimen, in other respects there is no appreciable difference. It is difficult to distinguish the eyes, but these appear to be placed on the dorsal surface, the antennæ passing round the posterior edge of the eyes curve downwards and meet the proboscis at the tips of the posterior pair of legs, and terminate at the level of the wing margins on the anterior edge of the 4th abdominal, the proboscis is prolonged to the anterior edge of the 5th segment.

Ventrally, anterior to the eyes, are the two pointed "nosehorns," and on each leg case, about the middle, is a small pointed prominence. The margin of wing cases extend well into the "waist" of the pupa. There is a lateral pointed prominence at the base (?) of the wing case, and a post-thoracic lateral prominence also. The most prominent point on the dorsal surface is the mesothorax centre, anterior to which on either side is a small point (metallic), and posterior to it are the (posterior trapezoidal?) tubercles of the post-thorax. The 1st abdominal segment forms the "girth" waist, and is the most slender part of the middle of pupa, from this the other abdominal segments swell to four, and then gradually curve down to the anal extremity; on 1st abdominal the points are reduced to a minimum, but on 2 to 7 the (posterior trapezoidal?) points are prominent, but are not present on 8, 9, 10; the mid-dorsal points are very much smaller and not present on 8, 9, 10; above the spiracles on 1 to 7 are minute points (supra-spiracular of larva), the spiracles are present on 4 to 8 abdominal, and on these segments also there are black points ventral to the spiracles (anterior subspiracular of larva), on one of which I could distinguish a single bristle. The details of the cremaster armature are too obscure for me to describe.

Palmerston North, New Zealand:  
January, 1900.



NOTE ON *CHRYSOMPHALUS DICTYOSPERMI*, A SCALE-INSECT FROM CANNES.

BY PROF. T. D. A. COCKERELL, F.Z.S.

I have just received from Lord Walsingham some specimens of *Chrysomphalus dictyospermi*, sent to him by Lord Brougham and Vaux, with the statement that the scale is infesting ivy and orange at Cannes. The form of the species sent is that described by Berlese as *C. minor*, but I am quite unable to separate it from *C. dictyospermi* var. *jamaicensis*, Ckll.; and it appears to be also quite identical with the female *Diaspis pinnulifera*, Maskell, from Fiji, though the male scale referred to that insect belongs to something else. The synonymy will therefore be:—

*CHRYSOMPHALUS DICTYOSPERMI* (Morgan), var. *PINNULIFERA* (Maskell)

*Diaspis pinnulifera*, Mask., Trans. N. Zealand Inst., xxiii, 1890, p. 4, ♀ (not ♂). *Aspidiotus dictyospermi*, var. *jamaicensis*, Ckll., Canad. Entom., xxvi, 1894, p. 129. *Chrysomphalus minor*, Berlese, Riv. Pat. Veget., iv, 1895, p. 340.

The occurrence of the insect in the neighbourhood of Cannes has already been recorded by Dr. Paul Marchal in Bull. Soc. Entom. France, 1899, p. 291.

*C. dictyospermi* (including varieties *pinnulifera*, *arecæ*, and *mangiferæ*) is probably a native of tropical Asia, but is now very widely distributed, and infests many plants. I copy a few records from my card-catalogue to illustrate these facts: Campinas, Brazil, on leaves of *Hedera helix*, coll. F. Noack; on rose, Tabasco, Mexico, coll. Townsend; on orange, Oaxaca and Cuantla, Mexico, coll. Koebele; on peach, Oaxaca, Mexico, coll. Koebele; on *Areca lutescens* in greenhouses, Columbus, Ohio, coll. J. S. Hine; on *Pandanus* in greenhouse, Santa Fé, New Mexico, coll. Ckll.; on *Pinus*, Oaxaca, Mexico, coll. Koebele; on *Areca catechu*, Trinidad, West Indies, coll. J. H. Hart; on *Ficus* in greenhouse, Denver, Colorado, coll. Gillette; on rose, Castleton Gardens, Jamaica, coll. Campbell; on *Cycas revoluta*, Kandy, Ceylon, coll. Green. All these records relate to specimens seen by me.

N. M. Agr. Exp. Sta.,

Mesilla Park, New Mexico, U.S.A.:

March 30th, 1900.

*Larval habits of the species of Goniodoma, Z.*—In his interesting note on “A gall-making *Coleophora*,” Lord Walsingham says (*ante* p. 59) that “*Goniodoma*, which can scarcely be separated from *Coleophora*, mines and pupates in the stem itself, making no case.” I feel sure, however, that he will forgive me for pointing out that this account of the larval habits of *Goniodoma*, except as regards the place of pupation (for one seems justified in assuming that “mines in” also implies “feeds in”), is hardly in accordance with the recorded observations which are briefly set forth below. I believe there are only three species, all European, recognised as belonging to the genus *Goniodoma*, viz., *auroguttella*, F. R., *millierella*, Rag., and *limoniella*, Stn. Stainton, in *Ent. Mo. Mag.*, xxi, 60 (1884), preferred to include *limoniella* in *Coleophora*, but Meyrick, in *HB. Br. Lep.*, 640 (1895), rightly relegates it to *Goniodoma*.

1. *auroguttella*, F. R. Stainton, *Ent. Ann.*, 1874, p. 32, says that this species “feeds on seeds of *Atriplex*, using an empty seed as a case,” and Wocke, in *Schmet. Deutsch. Tin.*, 613 (1876), gives a similar account of its habits. Examples of its case may be seen in the Frey and Stainton (continental) collections.
2. *millierella*, Rag. Constant, *Ent. Mo. Mag.*, xxi, 235 (1885), tells us that he has bred this species from cases found on the flowers of its food-plant, *Statice virgata*, and that the larvæ of all the imagines so reared by him must certainly have pupated in their cases, without having ever entered any stems. The case is composed of a flower calyx.
3. *limoniella*, Stn., as recorded in *Ent. Mo. Mag.*, xxi, 60 (1884), uses an empty “flower” (*i. e.*, flower calyx) of *Statice limonium* as its case, and feeds on the flowers of this plant, not boring into the stem until it is full-fed. On entering the stem, it closes the hole with silk, and the case, which is, of course, left outside, generally falls off afterwards.

These observations show that all three species of *Goniodoma* are *case-bearers*, and feed *outside* the stems. Whether *millierella*, *in nature*, pupates in its case, or inside the stem, as do its congeners, has, so far as I am aware, not yet been ascertained.—EUSTACE R. BANKES, Norden, Corfe Castle: *April 19th*, 1900.

*The sugar-cane borer moth.*—At the present time quite a library of literature on the sugar-cane borer (*Diatraea saccharalis*) exists. The latest effort is a small pamphlet of 21 pages by Mr. H. Maxwell-Lefroy, the newly appointed Entomologist to the Imperial Department of Agriculture for the West Indies, published by the Commissioners on May 1st, 1900, and evidently intended for distribution amongst the planters in the various islands. Of course it is impossible to go into much detail in so limited a space, but Mr. Maxwell-Lefroy has contrived to give a succinct life-history of the moth. The chief remedial measures recommended are searching for and destroying the patches of eggs which are laid on the leaves (taking care to avoid blackened eggs, which contain parasitic *Hymenoptera*), and catching the female moths, which are said to live for only two days. The whole life cycle may be completed in 42 days, but usually lasts 50. We are not told how many broods there are in a year, but presumably they are almost continuous. We think this is the author's first production since he entered on his duties, and cordially accord him a few words of encouragement.—EDS.

*Protective resemblance in Rumia cratagata, L.*—Upon the evening of June 8th I noticed what I thought was a variegated leaf of *Cratægus oxyacantha*, but a closer examination revealed the variegated portion to be produced by an example of this insect which was clinging closely to the under surface of the leaf, with a considerable portion of the lower surface of the apex of its left primary projecting beyond the tip. The contrast was so perfect, and the effect produced so exact, that the insect was probably aware of the effectuality of its concealment, for it made no effort to escape, notwithstanding a continual moderate shaking of the bush; its safety evidently consisted in its absolute stillness. I think this fact is of some interest, since it affords an example as to how a conspicuous insect may conceal itself from its enemies during the day-time.—A. D. IMMS, Linthurst, Moseley, near Birmingham: *June, 1900.*

*Xenolechia athiops, Westw., and Adela cuprella, Thnb., in Scotland.*—With reference to Mr. Banks' note on page 132 *ante*, it may be worth mentioning that a good many years ago I took *X. athiops* on a moor near Carluke. The specimen is in beautiful condition, and although I have no record of the date of its capture, and therefore may be wrong on the point, I have an idea that it was taken with *Acalla mixtana*. It was named for me by Mr. Barrett. Another example, apparently of the same species, was taken by me in the Edinburgh district near Bavelaw at the foot of the Pentlands; the date I believe to be May 20th, 1897. *Adela cuprella* is stated by Meyrick to be very local. I once saw it flying about shallows at Rowardennan on Loch Lomond, on the first days of May, and I have now before me three examples in good condition which were then taken.—K. J. MORTON, 13, Blackford Road, Edinburgh: *June 4th, 1900.*

*Xenolechia athiops, Westw., in Scotland.*—On May 13th, 1895, I met with this moth in some abundance on the Pentland Hills in this county, as recorded in my notes on the *Lepidoptera* of the Edinburgh District, published in the *Annals of Scottish Natural History* for 1897, pp. 89—110. I mention the fact in view of Mr. E. R. Banks' statement in his note in this month's *Ent. Mo. Mag.*, p. 132 (recording the capture of specimens in Dumbartonshire on April 21st last), that he can find no record of the occurrence of the species in Scotland. On May 5th this year I took another specimen near Midcalder, also in Midlothian. Considering the phenomenally fine weather we had in Scotland on and about April 21st (the thermometer rose to 75° in the shade in some places), and the fact that things are usually earlier in the west than in the east of the country, it does not surprise me to hear that the insect was out in Dumbartonshire by that date.—WILLIAM EVANS, 38, Morningside Park, Edinburgh: *June 12th, 1900.*

*Lycæna argiolus in South London.*—I am delighted to see, this spring, that this charming little butterfly maintains itself, and even seems to be spreading more widely in South London. I saw it in April flying over my neighbour's abundantly blossoming plum trees, and in the present month in my own garden, in dry weather, more than once, refreshing itself by settling down on the damp ground after I had been watering.—CHAS. G. BARRETT, Tremont, Peckham Rye, S.E.: *May 30th, 1900.*

*Papilio Machaon* at Hythe, Kent.—It may be of interest to your readers to know that on Trinity Sunday, June 19th, shortly after 6 p.m., I captured in our back garden at Hythe, Kent, a specimen of the swallow-tailed butterfly (*Papilio Machaon*), which persisted in settling on a tuft of *Phlox*, right in front of us. Hythe is, I suppose, twenty-two miles from France, and the wind was S. and warm. The Warren, Folkestone, is seven miles off, and Romney Marsh is one mile, though I have never noticed many butterflies of any kind there. I may add that as I had no proper means of securing the insect, I was relieved when it escaped and flew off towards the Marsh.—W. II. MANDY, 28, Paternoster Row, London: June 18th, 1900.

[From the locality this example may have been a casual immigrant, and from that cause very interesting. Or it may have been bred from a pupa from one of our own fens, and allowed to escape, either intentionally or accidentally.—EDS.]

*Deilephila livornica* at St. Austell.—A specimen of this rare insect was taken at Gorran, St. Austell, Cornwall, on the 3rd inst. It was sent for identification by the Editor of the Agricultural Gazette to Miss Eleanor A. Ormerod, LL.D., who has very kindly given the specimen to me.—R. NEWSTEAD, Chester: May 23rd, 1900.

*Colias Edusa*, &c., in South Devon.—“What in the name of fortune is that?” was the exclamation evoked by the unexpected sight of a pale tinted ♀ of *C. Edusa* careering over a fallow field near the sea at Branscombe yesterday. Curiosity satisfied by close inspection, I looked around for more, and within a quarter of an hour and a distance of 300 yards, had seen half a dozen, both ♂ and ♀, all in prime condition. There were also some *Pyrameis cardui* about, not in the least worn; and one of them was ovipositing on nettle (*Urtica dioica*). *Tanessa Atalanta* began to be seen last week in this neighbourhood.—A. E. EATON, Woodlands, Seaton, Devon; June 13th, 1900.

*Mutilla europæa* and *Polistes gallica*, L.—In April, 1895, Dr. A. Chobaut told me at Biskra that in France he had bred *M. europæa* from a nest of *P. gallica* (cf. *ante* p. 135), but without observing its transformations or habits in the larval state.—ID.

*Notes on the habits of Ichneumon sollicitorius and Scolobates varipes in New Zealand.*—On March 20th Mr. W. Bickerstaff, a local resident, called my attention to numbers of “wasps” frequenting the castor oil plants (*Ricinus communis*) growing in his garden. On visiting his beautiful gardens I found these stately plants inhabited by considerable numbers of *Ichneumon sollicitorius* and *S. varipes*. As the castor oil plant is generally supposed to be shunned by insects, I was anxious to ascertain what attracted the *Ichneumons* to them. I soon, however, detected that they were busy feeding on the thin, transparent oily fluid secreted by the raised glands situated near the base of the petiole close to the axils of the large peltate leaves. When the insects alighted on the leaves they appeared to walk instinctively along or down the petiole to the glands, the antennæ meanwhile moving vigorously. If the gland cups had been emptied by previous visitors the larger species (*I. sollicitorius*) would move up or down and around the main stem until a gland was met with

containing the coveted fluid. When engaged sucking the fluid the insects became so absorbingly interested (if I may so express it) that I was able to pick them off the plants and box them quietly. Although these *Ichneumon*s are comparatively common during the summer on the flowers of many species of both indigenous and introduced plants, they are generally of very active habits, and are not easily seized between the finger and thumb. Both species are well figured by Hudson in his "Manual of N. Z. Entomology," who also states that their larvæ are parasitic on several species of native *Noctuæ* and *Syrphus ortus*, the latter being the host of *S. varipes*. In calm weather I frequently see these insects searching vigorously among the low vegetation throughout the summer for *Noctuæ* larvæ wherein to deposit their eggs. I observed that these insects, after regaling themselves on the secretion from the glands, generally crept up the stem and concealed themselves in the large unexpanded flowers, where they remained motionless. Are these plants known to be thus attractive to any species of *Hymenoptera* or other insects in other countries?—W. W. SMITH, Ashburton, N. Z.: April 2nd, 1900.

*On the oviposition of Ranatra linearis.*—Some time ago I found several specimens of *Ranatra linearis*, Linn. (one pair in cop.). Last week I had the pleasure of observing the female engaged in ovipositing in a floating leaf of *Alisma*, the edges of which were tightly grasped by the 2nd and 3rd legs, while the 1st were held close together high up in a line with the body, which slanted down from the head at about an angle of 30 degrees, the head being an inch above the leaf. The ovipositor was extruded, and the tip pressed by a downward and forward movement into the leaf, until forced through, when it was partially withdrawn, opened, and an egg placed in the hole; the long lateral filaments sprung open as the ovipositor was withdrawn, moved along about a quarter of an inch, and the process of boring the hole repeated, the long respiratory tubes resting in the fork of the last laid, which was pressed home until the tip of the egg was just level with the surface of the leaf. The eggs are also laid in half decayed stems of *Alisma*, and sometimes, though not so frequently, in healthy green stems. I have several times bred *Prestwichia aquatica* (Lubbock), from eggs of *Ranatra*.

From the same ponds—near Epping Forest—I obtained a number of beautiful nymphs of the local dragon-fly, *Erythromma najas*, which has been emerging during the past week, June 2nd to 9th.—FRED. ENOCK, 13, Tufnell Park Road, N.: June, 1900.

*Agelastica alni*, Linn., at Deal.—Stimulated by a perusal of Mr. J. J. Walker's very interesting paper on the Sandhill *Coleoptera* of Deal in the last and current numbers of this Magazine, Mr. E. C. Bedwell and I decided to pay an early visit to the locality, in the hope of meeting with some of the rarer species mentioned therein. We accordingly went down on May 6th, on which occasion the weather was fine and warm, and the result of the journey amply justified our expectations: our "bottle" including such things as *Harpalus servus*, *Lixus bicolor* (scarce), and *Saprinus metallicus*. In traversing the narrow streets of the town to get to the sandhills, I was fortunate enough to find, crawling or lying on the pathways, four specimens of *Agelastica alni*, Linn., and Mr. Bedwell subsequently took one at the edge of a sandpit amongst the sandhills, and one in a street on our return in the evening.

*A. alni* has not, so far as I am aware, been taken in this country since the time of Stephens, who recorded it from "near London, Exeter, and Bristol." As to whether the specimens found by us were indigenous I am, of course, not in a position to say, and can only speculate as to how they arrived in the streets of Deal.

We made a second journey on May 27th to look for *A. alni*, but although the day was bright and hot, we found no more specimens. I was, however, personally well rewarded by picking up on a path a specimen of the now very scarce and extremely local Elaterid, *Melanotus punctolineatus*.—F. B. JENNINGS, 152, Silver Street, Upper Edmonton, N. : May 29th, 1900.

[I have taken *A. alni* on the dunes on the opposite coast at Calais, so there seems no reason why the insect should not occur at Deal.—G. C. C.]

*Compsochilus palpalis*, Er., &c., at Woking.—I captured a specimen of *Compsochilus palpalis*, Er., on the wing, in a lane near here yesterday evening, just before a thunderstorm; 25 years having elapsed since I had seen the insect alive, in another part of this county. On the evening of June 10th an example of *Trechus rubens*, Fabr., was caught under similar circumstances; this species also had not previously been seen by me in the district. Mr. Saunders tells me that he once took a specimen of it on the wing at Chobham. The only other insects met with this year in the neighbourhood at all worthy of note are:—*Harpalus consentaneus*, Dej., one specimen (a common coast-species not previously met with by me inland, but recorded already from Woking); *Melandrya caraboïdes*, Linn., *Xyleborus dryographus*, Er., and *Euconus denticornis*, Müll., on the wing towards evening; *Carabus arvensis*, Fabr., on the heath; *Strangalia nigra*, Linn., *Phyllobrotica quadrimaculata*, Linn., *Ceraleptus lividus*, Stein, by sweeping. At Guildford I have again taken *Philopodon geminatus*, Fabr., in a sandpit; also *Eysarcoris melanocephalus*, Fabr., on *Umbellifera*, and *Conostethus roseus*, Fall., in plenty at the roots of plants in a sandpit.—G. C. CHAMPION, Horsell, Woking : June 13th, 1900.

*A reply to Mr. Keys' note on Homalota vicina, Steph.*—In a letter recently received from my friend M. A. Fauvel, of Caen, he makes the following remarks on Mr. Keys' note on this insect (*antèa*, p 134):—"I hasten to tell you that I have seen a single specimen of *Atheta vicina*, Steph., which has the abdomen tuberculated, as in the four examples found by Mr. Keys. This specimen is in the collection of M. Carpentier (of Amiens), who found it at Boves (Somme); the tubercle of the second segment is very stout, that of the third segment being one-half smaller, and placed at the base of this segment. I regard this as an excessive sexual development of the male, and not as a variety." Mr. Keys' examples agree exactly with M. Fauvel's description.—ID.

## Review.

THE INSECTS OF ALDERNEY: by W. A. LUFF. Reprinted from the "Transactions of the Guernsey Society of Natural Science" for 1899, Svo, pp. 23.

This is a second edition of the List noticed by us in this Magazine for 1898, p.

163. Thanks mainly to the exertions of Messrs. E. D. and E. P. Marquand, the former List is more than doubled, and 519 species in all Orders are enumerated. No doubt many more remain to be added. It is somewhat curious that over 80 species found in Alderney have not been discovered in Guernsey, although the latter island has been so persistently worked by Mr. Luff and others, and probably the only way in which to account for this is the nearer proximity of Alderney to the French coast. No comparison is made with Jersey. We venture to suggest that when a third edition is prepared, the addition of a map of the island would be useful.

## Society.

ENTOMOLOGICAL SOCIETY OF LONDON: *May 2nd*, 1900.—Mr. W. L. DISTANT, Vice-President, in the Chair.

Mr. A. A. Dalglish, of 21, Prince's Street, Glasgow, was elected a Fellow of the Society.

Mr. W. L. Distant exhibited the cocoon, measuring nearly three and a half inches each way, of a Coprid beetle—probably belonging to the genus *Helicopriss*—found at Pretoria in the Transvaal. The Rev. Theodore Wood, a specimen of *Carabus auratus*, L., taken in either June or September, 1898, by Mr. Ferrand, of Littlefield House, Exmouth, on the Haldon Hills, in the neighbourhood of that town. Mr. McLachlan, an example of *Rhinocypha fulgidipennis*, Guérin, a brilliant little dragon-fly of the sub-family *Calopteryginae*, a native of Cochin China, which, so far as he knew, had not been captured since prior to 1830. It had been in M. Guérin's hands, and Mr. McLachlan had received it from M. René Oberthür. Mr. T. A. Chapman, various specimens illustrating *Acanthopsyche opacella*; fresh females showing the six nearly complete rings of silky wool with which she is clothed; specimens preserved *in cop.*, showing the exact position of the male moth in the female case, and the position of the two moths in relation to the female pupa case. It was incidentally mentioned that the inflation of the male abdomen with air was observed to be the main force employed in advancing the male abdomen into position, and that observation of the immature wing threw considerable light on the real neuration in this species. Mr. Barrett, specimens of *Heterocera* destructive to the fruit crops of South Africa. Among them *Sphingomorpha Monteironis*, Butl., known as the Fruit Moth in Cape Colony—a bold and powerful insect, with a sucking tongue strong enough to pierce the sound skin of a peach or fig. It seems a matter of indifference to the moth whether the fruit has fallen, or is on the tree, ripe or unripe. With regard to the two species, *Achea Lienardi* and *Serrodus ivara* they have been extremely abundant, and have been seen at apparently uninjured fruit, so that it seems they are capable of equal destruction, and this is the more probable, as all the species alike are provided with somewhat saw-like teeth toward the tip of each section of the sucking apparatus. Several others, feeding mainly on damaged fruit, were also taken with the aforesaid species (*vide anté*, pp. 142, 143.—Ebs.). Mr. Jacoby, *Callomorpha Wahlbergi* from Africa, and *Spilopyra sumptuosa* from Australia. A paper was communicated on "New Palearctic Pyralidæ," by Sir George F. Hampson, Bart.—C. J. GAHAN and H. ROWLAND-BROWN, *Hon. Secretaries*.

AN EXCURSION TO EGYPT, PALESTINE, ASIA MINOR, &c.,  
IN SEARCH OF *ACULEATE HYMENOPTERA*.

BY THE REV. F. D. MORICE, M.A., F.E.S.

In the spring of last year (1899) I had the good fortune to make one of a travelling party of insect-hunters conducted by the famous Thuringian naturalist, Dr. Otto Schmiedeknecht. In eighty days we travelled only too rapidly over many hundred miles of sea and land, from one interesting country to another—Egypt, Palestine, Syria, Asia Minor, and so back by Constantinople to Vienna. There our party dispersed, and I remained to work out my captures with the help of Herr Kohl and the splendid collections and library of the Hof-Museum.

From most points of view, and especially the entomological, our tour was a decided success. Yet there were certain drawbacks. Several localities from which much had been expected proved more or less disappointing. The weather was not always propitious—we started, I think, rather too early in the year. And visiting such a succession of new places, we naturally lost some time in casting about vaguely to discover the richest hunting grounds, and had hardly learnt our way about one district before we had to quit it for another, and begin over again. Still, on the whole, I for one was more than satisfied with my journey. Quite apart from entomology it was full of ever-changing delight and interest, and it will be long before I have exhausted the materials for contemplation and study which I have brought home in four large “Doppel-kasten,” packed choke-full with Aculeates, Saw-flies and Chrysidids.

I may say here that these materials are in truly splendid condition, thanks mainly to my friend Herr Friese, who persuaded me to abandon cyanide and use only “pure sulphuric ether without alcohol.” *Hymenoptera* so killed not only preserve absolutely their natural colours, even those delicate yellows which cyanide and ammonia almost always turn to brown or red, but die in natural positions—not cramped and distorted like the victims of the other methods—and are even so obliging usually as to open their mandibles and extend the whole cibarial apparatus so that it can be examined without any “preparation” of the specimen. These advantages and the perfect cleanness of specimens killed by ether seem to me much more than enough to repay the slight extra trouble and expense involved in using it. The one objection to ether is its rapid evaporation, but this can be met by carrying a small phial in the waistcoat pocket, from which a few fresh drops can be supplied to the collecting



bottle from time to time as required, and this should always be done as a *coup-de-grace* to finish off any possible survivors in the bottle when one returns from an expedition. Then if the bottle be kept well corked and unopened for an hour or so the result is almost sure to be satisfactory.

Our party comprised almost as many nationalities as persons. France was represented by M. Maurice Pic, the well-known Coleopterist. Other Coleopterists were Dr. Lysholm from Norway, and Herr Wegener from Hamburg—the latter, to our great regret, was unable to remain with us after we left Egypt. Rittmeister v. Hartlieb, of Munich, collected specimens of all Orders, but professed himself to be a tourist rather than a naturalist. He was our oracle on all local curiosities and sights, and carried at all times quite a library of guide books, whose contents he assimilated with extraordinary diligence and success. Dr. Schmiedeknecht, our chief, was at home in almost every branch of Zoology and Botany, but devoted himself chiefly to the *Hymenoptera*. This brought him into frequent companionship with myself, as I was an Hymenopterist pure and simple. Similarly, M. Pic and Dr. Lysholm generally worked together. But as a rule we started together on all expeditions, and gradually broke up into little groups or units as our work proceeded.

I am sorry that I am not qualified to speak of the results achieved by our Coleopterists, but I believe they were considerable. I may mention that M. Pic has published in the "Revue Scientifique du Bourbonnais" (July, 1899) a list of over sixty Xylophilides and Anthicides taken during our trip, with description of six new species. He gives also, in a tentative manner, asking for criticism, certain impressions he has formed as to the general entomological merits of the districts visited. Egypt he considers poor—especially so, as compared with Algeria. He notes that Egyptian forms tend to re-appear near Jericho, and that the insect fauna of Beirut strongly resembles that of Cyprus. And of Broussa (south of Constantinople in Anatolia) he remarks that it is like a corner of Old Europe transplanted and acclimatised in Asia.

These impressions correspond a good deal to my own experiences. But I think he is rather hard on Egypt. We left it too soon to judge it fairly, and we were curiously unlucky there in the point of weather. No doubt much of Egypt is disappointing to an entomologist familiar with such a paradise of insects as Algeria. Upper Egypt, especially, or such parts of it as we were able to visit, with a muddy soil producing little vegetation except barley and palm trees, has probably

at no time a varied or copious fauna. Yet certain districts, and especially the edge of the deserts round Cairo, will compare (I believe), if visited at the proper time, not unfavourably even with Biskra itself in entomological interest. Specimens may be less abundant, but I question whether species are so. Such was my experience a few years ago, and even this year I found our work near Cairo amply remunerative. It was when we went further and penetrated to Luxor and Assouan that we fared worse.

I will now give a sort of abridgment of the diary I kept, so far as it deals with matters entomological.

We left Trieste on March 8th in bitterly cold weather, reached Alexandria on the 12th, and at once took the train to Cairo. M. Pic began business directly we landed, capturing I know not what *Coleoptera* big and small in the Alexandria Railway Station. The rest of us, I believe, and certainly I myself, first took the field next day (March 13th). We all went by train to Marg, a few miles east of Cairo, and there dispersed as they thought fit. Dr. Schmiedeknecht and I walked slowly back towards Cairo, keeping near the railway and searching the fields and embankments beside it. It was a dull, windy day, yet we were delighted with our captures, which included such "rara et rarissima" as *Nectanebus Fischeri*, Spin., and *Masaris vespiformis*, F. I had met with neither of these when I was in Egypt before, but during the present tour both turned up repeatedly, and I believe we have brought back more specimens of both than were to be found before in all the museums of Europe put together.

The next two days gave me no opportunities for collecting. On March 16th we were at Luxor, and visited the Tombs of the Kings, the ruins of Thebes, &c. During the day we did a little collecting in the intervals of archæology, and I found a curious tiny wasp—probably a new species of *Quartinia*—pretty freely on *Senecio*. March 17th, we visited Karnac. March 18th, Thebes again, and the famous Memnon statue, near which *Senecio* occurred again and more of my little *Quartinia* (?). On both these days we picked up specimens now and again, as opportunity arose, and some of them proved interesting. But there was so much to see and do, apart from entomology, that the latter fell somewhat into the background.

March 19th we spent on the railway, faring slowly to Assouan in what was by no means a *train-de-luxe*. There we stayed a few days, visiting the islands of Elephantine and Philæ, the new Barrage, the First Cataract, and so forth—all very interesting, but entomologically almost wholly unproductive.

March 24th, another long and tedious railway journey brought us northwards again to Medinet-el-Fayûm, a lively bustling town intersected by a canal, and the centre of a rich agricultural district. Here we found tolerable quarters for some days in a roughish hotel kept by a Greek. We made excursions in various directions by train or donkey, and found several good "localities"—especially Siala where there is a railway station on the edge of the desert, and the wild surroundings of the Hawara Pyramid. Here *Zygophyllum coccineum* and other desert plants grew pretty freely, and attracted many rare and curious *Hymenoptera*. Altogether the district would, I doubt not, have well repaid a longer stay than we could make in it. In the hotel at Medinet a live insect was brought to me by one of the inhabitants. It was a *Sirex gigas*, Lin. (♀), a curious find in such a place, but no doubt imported in timber. *Cephus tabidus*, F., is common in the Fayûm, but I met with no other Sawflies there or elsewhere in Egypt.

March 29th. We returned to Cairo, and thence took train for the Baths of Helouan, where we remained about a week, and I augmented my collection considerably.

March 31st. We had a sort of pic-nic, organized by Dr. Dinkler of Cairo, on an island in the Nile, which is rented by a sporting club to which he belongs. This island is known to the Doctor's friends as Adelen-Insel—having been so named in playful compliment to Mme. A. Dinkler, his wife, and this name is immortalized in some recent German works on Egyptian *Hymenoptera*. It will not, however, be found in maps or official directories. Here, on his previous visit, Dr. Schmiedeknecht discovered the beautiful little genus and species, *Eremiasphecium Schmiedeknechtii*, Kohl: and, although the day was exceedingly cloudy and unpropitious, I had the great good luck to secure one ♂ and one ♀ of the precious insect.

We feasted Homericly with our kind entertainers on an entire roast lamb, immolated and cooked in our honour. Returning across the river in the evening we were delighted with the spectacle of an enormous flight of pelicans, who descended on the river in a dense mass, looking actually like a huge island, and then rose majestically and moved off in a compact phalax towards the north.

April 1st. In clover fields by the Nile I found many Andrenidæ, and quite a number of *Nectanebus*. This latter insect skims rather slowly over and among the flower-heads. It is very conspicuous in its appearance, and is easily captured.

April 2nd. We visited the Great Pyramid. In an old brick or rather mud wall close to the Sphinx, Dr. Schmiedeknecht had found

on his last visit the first recorded ♂ of *Paracælioxys rufiventris*, Spin., living parasitically with *Megachile mucorea*, Friese. We made for the place, under his direction, and were rewarded with many specimens (♂ and ♀) of both insects, and also with plenty of *Megachile flavipes*, Spin., and *Cælioxys farinosa*, Smith, and of a dark blue *Chrysis (electa)*, Walker).

April 3rd. On donkeys to the Saccakra Pyramids, but the day was windy and cloudy, and *Hymenoptera* hardly appeared at all. On the way, however, near the Statue of Rameses, M. Pic lighted on such a tempting hunting-ground for *Coleoptera* that he then and there dismounted, and we saw him no more till the end of the day, when he re-appeared laden with spoils, and escorted by an admiring retinue of juvenile natives. As for the rest of us, we had given up entomologizing for that day, and devoted ourselves to gaining such instruction in ancient Egyptian zoology and field sports, as is to be found in the wonderful *relievi* which decorate the Tomb of Ti.

April 4th. This was my last collecting day in Egypt. I revisited the old ground between Marg and Matariyeh, and again had tolerable success, though the weather was still unfavourable. *Masaris* and *Nectanebus* both re-appeared, and I noticed that the former showed a marked partiality for *Echium*. I saw a ♀ enter a simple burrow in the flat sand. The *Masaridæ* are believed to be parasitic, but very little has been recorded as yet of their habits.

Next morning we left Cairo for Port Said, and there embarked for Jaffa.

April 6th-10th. We were at Jerusalem, but I shall say nothing of all we did and saw there, except as entomologists.

Spring was but just beginning. The days were bright and sunny, but the nights intensely cold, so that we shivered round the stove in our hotel (Frank's). Yet wherever we went it became evident that the district abounded in entomological treasures, though we were a little too soon to reap the perfect harvest. Near Bethany, and on the Mount of Olives, numbers of rarities and several novelties were to be found. Among my own best finds were a new and most interesting species of *Parnopes*, which M. du Buysson will soon describe, if he has not yet done so, and a remarkable new *Osmia (mirabilis)*, Friese), which turned up also later on Mount Lebanon. Dr. Schmiedeknecht took on the Mount of Olives three ♂♂ of a magnificent new red *Andrena (melittoides)*, Friese), and we both found another new but less remarkable *Andrena (unicincta)*, Friese) in the same locality. An excursion on April 8th to Bethlehem, and thence by wild hill paths to

the monastery of Marsaba in the desert, produced an entirely new set of interesting captures, among them a magnificent *Eumenes*, which I think is new.

April 11th. We drove to Jericho—not the site of the original city, but the modern village a few miles away from it—passing the half-way-house called the “Khan of the Good Samaritan.” There is not, and perhaps never was, any other house on the road likely to have received the wounded traveller and his “neighbour.” In the courtyard may still be seen a fragment of Roman pavement which may be a relic of the original building, especially as it is not pointed out to strangers, nor ticketed like the sham religious antiquities which so disgust one in Jerusalem.

During the halt here I rambled out for a few minutes and discovered a new *Ammobates*, and a specimen—I believe the second that has been recorded—of the splendid *Chrysis Kohlii*, Moes. And then returning to the courtyard for a last look at the pavement I met and secured the only specimen I have ever found of the great *Sphex hirtus*, Kohl, a black monster with brilliant yellow wings.

In the descent towards Jericho we had finally taken leave of winter, and leapt as it were into summer at a bound. The great depression in which lies the Dead Sea, many hundred feet below the level of the Mediterranean bed, has, as is well known, a climate, a flora, and a fauna quite unlike that of the rest of Palestine. Just as many elevated districts are more or less “arctic” in these respects, so this absolutely unique depression tends to a “tropical” character. The heat at Jericho itself is tremendous, reminding one of Egypt during the “Khamsin,” and one is truly thankful for a delightful cool stream which rushes through the village, with sheltered places among the rocks where one can bathe in comfort and privacy.

April 11th-17th. All this week we remained at Jericho. On the 14th we visited the Dead Sea and the Jordan. Entomologically the former produced only masses of dead locusts, but at the Jordan I found in abundance both sexes of *Ceratina parvula*, Smith, the ♂ having been previously unknown. It is the smallest bee I ever saw. Though my net was an extremely fine one, the little wretches wriggled through its meshes with ease; but they were luckily so abundant that I secured a tolerable series notwithstanding. At the same place I had the good luck to discover both sexes of two other species of *Ceratina*, of which the ♂♂ only had been known before, viz., *mandibularis*, Friese, and *bispinosa*, Handlirsch.

Throughout our stay at Jericho we were continually turning up

new wonders in the fields and gardens round, and added quite a number of bees, both parasitic and otherwise, to the Palearctic list. These have been described by Friese in recent numbers of the "Entomologische Nachrichten," and I will only mention one extraordinary capture of my own—a unique specimen—an *Eriades (fasciatus, Friese)* with yellow-banded abdomen, all the other numerous species of that genus being unicolorous, black or fuscous throughout.

Like M. Pic I was struck by the similarity between the insects of Jericho and those of Egypt. Among the conspicuous species common in both districts are *Xylocopa æstuans*, Gribodo, and *Vespa orientalis*, F., var. *ægyptiaca*, André. *Xylocopa hottentotta*, Smith, is also a Jericho species, and I suppose from its name that, too, must belong to the African fauna, though I never found it in Egypt. The *Sphegidæ* were only just beginning to appear when we left Jericho, so I cannot say how far the correspondence extends also to these.

April 19th. We returned to Jerusalem, and thence next day to Jaffa. Our steamer was to leave for Beirut on the 20th, and in the interval I searched some promising looking sandhills on the coast. Here were multitudes of locusts, but little else. However, what *Hymenoptera* I did find were "fit though few." *Chrysis osiris*, Buyss, was visiting snail-shells tenanted by a new *Osmia (ligulicornis, Friese)*, and I also took a ♀ variety of the handsome and little-known parasitic bee, *Paradioxys pannonica*, Moraw.

April 21st. We landed at the important and beautiful city of Beirut or Beyrouth (I could never make out the proper spelling, and should use, if it were not too pedantic, its time-honoured name of Berytus). Here, as at Jaffa, we found at first a most plentiful scarcity of *Hymenoptera*. The famous pinewoods above the town produced nothing whatever. Still, rarities and even novelties began to appear before we left. In a lane near the Damascus Railway Station I noticed both sexes of a tiny bee visiting a blue *labiate*. Its choice of a food-plant told me it could hardly be a *Halictus*, but probably a *Dufourea*. So it proved to be (*D. cæruleocephala*, Moraw., of which the ♂ only had been described). Along the coast southwards extended first clover fields and then sandhills. The former produced a new variety (*syriaca*, Friese) of *Meliturga præstans*, Gir., a species known only from the neighbourhood of Vienna. On the sandhills grew scattered plants of *Echium*, and these were visited by an extremely pretty and agile *Podalirius*, of which with some difficulty I secured both sexes. It seems to be near *gemellus*, Moraw., but is perhaps more probably a new species.

April 24th-27th. A visit to Damascus was extremely interesting, but added little to my collection. I took, however, on the window of the railway carriage, a queer little *Anmoplanus*, which is either the unknown ♀ of *A Kohlii*, Schmiedekn. (an Algerian species) or entirely new.

April 28th. We drove from Beirut to Brumana by a good road, ascending in zig-zags up the side of Lebanon. Brumana is a large village with Italian rather than oriental surroundings (pine plantations, vine terraces, fig trees, and so forth), with a splendid view of the sea and of Beirut itself in front, and the mountains towering in all directions behind. Near this place and the neighbouring hamlet of Beit-meri, Dr. Schmiedeknecht and myself made several very interesting captures, and our Coleopterists, who ranged over a rather wider area, were I believe equally successful. Here it was, on a series of terraces by the high road, that we found perhaps the greatest curiosity produced by our whole tour—a number of specimens (unluckily all females) of *Exoneura libanensis*, Friese, the only palæarctic species yet discovered of a genus founded long ago by Frederick Smith on a specimen from Australia. It has the general appearance and seemingly the habits of a *Ceratina*, but differs widely in neuration from that or any other genus. Here, too, I got my first *Xylocopa Olivieri*, Lep., and a beautiful little new *Eucera (cærulescens)*, Friese), which Dr. Schmiedeknecht presently encountered again at Smyrna.

Our holiday was now drawing to its close, and we crowned it with a delightful voyage along the whole coast of Asia Minor from Beirut to Constantinople.

May 5th-14th. The steamer made halts of varying lengths at sundry points along the coast, and we were thus enabled to sample the insect fauna of Alexandretta (May 7th), Mersina (May 8th), Rhodes (May 10th), and Smyrna (May 12th), at all which places we met with as much success as could be expected from such flying visits.

At Alexandretta, and I think also at Mersina, we were astonished and amused at the multitudes of huge tortoises which swarmed in every roadside ditch and watercourse, and the grotesque manner in which they disappeared as we approached. A big tortoise sitting on the back of a bigger, and both executing a simultaneous "header" down a steep bank into a stream, is about as comical a sight as can be imagined, and though tortoises are not insects, notwithstanding the railway porter's views, I hope I may be pardoned for this digression anent them.

At Constantinople all of us, except the indefatigable M. Pic,

abandoned entomology in favour of sightseeing. On the 16th, however, we crossed the Sea of Marmora for two more days on Asiatic soil at Broussa, a health-resort among the hills of Anatolia, under the Bithynian Olympus. Here we used our nets and bottles for the last time. A few of the Lebanon insects re-appeared, but on the whole both fauna and flora seemed European rather than Oriental in character, and almost commonplace after our more exciting experiences in the regions we had left behind.

A complete list of our captures would be a long one, and may probably never be compiled. Even of my own I am still quite unable to offer one, many species being still unidentified. I may mention, however, that all my bees, and some of Dr. Schmiedeknecht's, have been examined by Herr Friese, and that he has already described some fifty new species from among them. I have also several new Chrysidids, which M. du Buysson will shortly publish. The *Diploptera* and the few *Sphegidæ* in my cartons I am slowly working out myself, and I am pretty sure that there are novelties in both. Only of Sawflies I seem to have taken nothing that was not known already.

This, for a tour of eighty days, on many of which collecting was impossible, is I think a pretty satisfactory record.

Brunswick, Woking:

March, 1900.

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ODYNERUS TOMENTOSUS, THOMS., A SPECIES NEW TO BRITAIN,  
AND SOME REMARKS ON THE WALCOTT COLLECTION  
OF ACULEATE HYMENOPTERA.

BY R. C. L. PERKINS, B.A.

I have recently carefully examined the Walcott collection of British *Aculeata*, which was presented to the University Museum at Cambridge after the death of the collector. Walcott, as is well known, collected chiefly in the neighbourhood of Bristol, but unfortunately very few of the specimens bear any note of locality, which largely decreases the value of his collection. Some specimens are ticketed with the date of capture only, and Walcott appears to have been particularly active from 1839—1842. The earliest date observed by me is September, 1838, when he captured a female of the rare fossor, *Didineis unicornis*. It is clear, therefore, that a large part of the collection was made more than half a century ago; yet, in spite of this, so admirably has it been preserved that for the most part the specimens appear as fresh and bright as if they had been quite



recently captured. The smaller and less conspicuous genera of bees he apparently paid comparatively little attention to; *Prosopis* and *Halictus*, for instance, have but few varieties represented. The series of species of *Andrena*, on the other hand, is nearly perfect, but it is clear that Walcott excelled as a collector pure and simple, for even in the case of this, which one may well suppose to have been his favourite genus, the species were much confused. Most of the numerous species added to our lists since the time of Smith's latest work were contained in the collection, but mixed with other species, e.g., *Odynerus reniformis*, *Sphcodes spinulosus* and *S. rubicundus* amongst the finer species, and others which are no doubt less rare but easily overlooked, such as *Andrena ambigua*, *A. niveata*, *A. lapponica*, several *Sphcodes*, *Pompilus* and *Salix*, &c., &c. A female of *Megachile versicolor*, Smith, was rightly determined and one or two other examples were included with *M. centuncularis*. A fine ♀ of *M. pyrina*, Smith, nec. Lep., bears a label indicating that it was captured by Pelerin in the New Forest, and it is quite probable that two of the localities cited by Smith, namely, Bristol and Southampton, were based on this specimen. Of *Osmia inermis* there is a series of examples in splendid condition, and amongst these I found a fine fresh-looking ♀ of *O. parietina*, Curt. *Stelis octo-maculata*, Smith is represented by five specimens only, a sixth example placed with these being a small *S. phæoptera*, Kir. From this fact it would seem that this little bee was by no means common at Bristol, and this accords with my own experience in Suffolk, where last year I was only able to take five specimens, although its host (*Osmia leucomelana*) was very abundant. It is perhaps worthy of note that there is a single specimen of the variety of *Andrena nitida*, which has the scopæ and anal fimbria fulvous, but it is not in very good condition. It shows no trace of stylopization, which Saunders suggests may be the cause of this variation.

The fossorial *Hymenoptera* were much more correctly determined than the bees, so much so that I suspect they had been examined by Shuckard at some time, the *Pompilidæ* only being a good deal mixed up.

The *Eumenidæ*, on the other hand, were in great confusion, but all the species of *Odynerus* were represented, excepting only *O. basalis*. Sm. Under the names, *O. 3-marginatus* and *O. pictus*, were a series of examples of a species new to our list, *O. tomentosus*, Thom. It belongs to the subgenus *Odynerus* (proprie dictus) of de Saussure, for which section he had previously used the pre-occupied name, *Leionotus*. *Odynerus tomentosus* is at once distinguished from any other of our

known species by the subgeneric characters, the ♂ having the antennæ formed as in the subgenus *Ancistrocerus*, but in neither sex is there a raised transverse line between the two faces of the basal abdominal segment. The British examples show little or no variation in colour, having four abdominal bands in either sex, the basal one not dilated at the sides, and the superficial appearance is very like that of *O. pictus*. Immediately beneath the post-scutellum the propodeum has on either side a short tooth or projection. The Rev. F. D. Morice, who most kindly identified the species and compared a Bristol with Continental examples, informs me that only three species (the other two being *O. pubescens* and *O. innumerabilis*, which are marked with yellow on the post-scutellum) have the propodeum formed as in *O. tomentosus*. In his "Synopsis" Mr. Saunders remarks that he has an example of *Leionotus* without locality label, which may be British, but he does not mention the species. There is no doubt that Walcott's specimens are British, and they were probably taken near Bristol. Some of the examples bear labels marked May 28th, 1841, and on the same day also *O. pictus* was collected, so they were probably found together.

Raglan, Mon. :

May 5th, 1900.

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*HELCON ANNULICORNIS*, NEES, CONFIRMED AS BRITISH.

BY CLAUDE MORLEY, F.E.S., &c.

On July 5th, 1899, I took a ♀ example of this distinct Braconid in Brantham "Dale," Suffolk. It was slowly walking along, and systematically tapping with its antennæ, a thin dead twig of ivy, encircling a new oak rail, the uppermost of a fence recently erected between two low-lying meadows, through which a small stream flows from Bentley to the river Stour. The spot is quite a mile from the nearest cottage and there is no timber yard for a much greater distance.

The species was thus first described by Nees ab Esenbeck (Hymen. Ichn. Affin. Mon. [1834] i, 231), who only knew the ♀ :— "Ater nitidissimus; abdominis sublinearis primo segmento acute bicarinato; pedibus rufis, coxis trochanteribusque anterioribus tibiis tarsisque posticis nigris, his medio albis; femoribus posticis unidentatis. Fem. annulo antennarum albo." Marshall says the length of the ♀ is five lines and of its wings nine lines. My example is only just over four lines and its wings are nearly eight lines.

The œconomy of the genus appears to be somewhat obscure, and Nees' notes are quoted by Haliday (Ent. Mag., iii, 144), who also mentions the occurrence of our species in Germany:—" *Metamorphosin* in larvis Coleopterorum xylophagorum subvie verosimile est. *Erminæ* in truncis cæsis putridisque plerumque inveniuntur, obamulantes, et terebra sua aditus ad larvarum habitacula pertractantes." In the CR. Soc. Ent. Belg. (1882, cvi), M. Fromont remarked upon *Helcon carinator*, Nees, as parasitic upon *Leioptus nebulosus* and *Callidium variabile*.

Stephens first records it as British and figures both sexes (Illustrations, Mandib., vii, Suppl. 4, plate xxxvii, figs. 3 and 4). He says: "I possess a fine pair of these remarkable insects, taken, I believe, in South Wales, and in the collection of the Entomological Club are several examples of both sexes, which, if I mistake not, were captured near Leominster by Mr. Newman." I fancied this collection passed to the British Museum, but a careful search revealed only one very poor ♀, under the name *Ancylus* (Hal.) *annulicornis* labelled "*Helcon* Dsvgn. 6852," with both antennæ broken, set high on a thick, broken, verdigrised pin, evidently from Desvignes' collection, and probably of Continental origin.

Marshall, in his 1872 Catalogue, duly accredits it as British, but in Trans. Ent. Soc. Lond. (1899, 185) says of the genus:—"The large black species of *Helcon* are found in the forests of Central Europe, usually on the trunks of trees or fallen timber, where the females crawl slowly in search of the burrows of longicorn beetles. Kawall, in Courland, bred *H. ruspator*, L., from the larva of *Strangalia quadri-fasciata*, L. It is almost certain that Great Britain possesses no indigenous species, and that the occurrences of the following (*i.e.*, *H. annulicornis*) in some numbers on one occasion was the result of their accidental introduction;" and adds, "It is certain no more specimens have since appeared in this country." There is a ♀ in his collection ex coll. F. Walker; and Mr. Fitch has specimens from that of Kaltenbach.

I can nowhere find a record of the host of *Helcon annulicornis*, but I should suspect it, from the state of its environment when found in the present instance, to be *Grammoptera ruficornis*, F., or *Pogonochærus hispidus*, Schr., since these are the only longicorns Kaltenbach instances as feeding upon *Hedera helix* (Die Pflanzenfeinde, 1872). Of these, the latter (= *P. dentatus*, Fourc.) is not very common in Suffolk, being recorded only from about Bury and Bentley Woods, and there generally found among *Coniferae*. But the

former is, of course, abundant throughout the county, and I bred it on May 1st, 1898, from larvæ in ivy stems taken at Barham on January 7th, which became pupæ on March 30th. If, however, it be parasitic upon so ubiquitous a host, it appears curious that it should for so long have been overlooked.

Ipswich :

May 28th, 1900.

ON *TINEA* (*MEESSIA*) *VINCULELLA*, H.-S., AND ITS EUROPEAN ALLIES, WITH DESCRIPTIONS OF NEW SPECIES.

BY THE RIGHT HON. LORD WALSLINGHAM, M.A., LL.D., F.R.S.

1425 (1). *TINEA* (*MEESSIA*) *RICHARDSONI*, *sp. n.*

= *Tinea* \**vinculella*, Rdsn., Ent. Mo. Mag. XXXI, 61—5 (1895) :  
Pr. Dorset N.H. and Antiq. Field Club, XVI, 81—7, Pl. [VII]  
2, 2a—d (1895)<sup>1</sup>; [? Meyr. HB. Br. Lp., 792 (1895)<sup>2</sup>]

*Antennæ* brownish fuscous above, whitish beneath. *Palpi* whitish. *Head* blackish brown above, face pale ochreous. *Thorax* blackish brown. *Fore-wings* dark bronzy blackish brown; a slightly oblique, silvery white fascia at one-fourth, of about equal width throughout, sometimes slightly curved outwards, nearer to the base on the costa than on the dorsum; an outwardly oblique silvery median costal streak pointing towards the apex of a silvery dorsal spot beyond the middle; equidistant between the costal streak and the apex is another silvery costal spot, usually lunate (inwardly convex), sometimes detached from the margin and merely oblique; cilia dark bronzy brownish, their outer half white towards the apex, the dorsal spot also sends out some white scales through them. *Exp. al.*, ♂ 9, ♀ 7 mm. *Hind-wings* and cilia shining, dark grey. *Legs* dark greyish, the hind tarsal joints and spurs slightly paler.

*Type*, ♂ (53074); ♀ (53077), Mus. Wlsm.

*Hab.*: ENGLAND, Dorsetshire—Portland VI—VII<sup>1</sup>; Is. of Purbeck ex 14—29, VI, 1896 (*Bankes*). *Larva* lichens on rocks, VIII—X, sometimes living two years<sup>1</sup>. Eight specimens.

Referring to notes made when I first saw this species I find the following:—

“MS. 322. *Tinea* ——?”

“*Tinea vinculella*, Rdsn., Portland (*Bankes*' Coll.) is not *vinculella*, H.-S., nor *vinctella*, H.-S., nor *leopoldella*, Costa (= *oberthürriella*, Mill.).

“*vinculella*, H.-S., DOES occur in England *teste* a good Dorsetshire specimen in *Bankes*' Coll. (Wlsm., XII, 1895).”

Further examination has confirmed the impression here conveyed.

I find the species well distinguished from *vinculella*, H.-S., firstly by the black upper surface of the head, and secondly by the dark upper surface of the antennæ (on which I can distinguish no annulations as described by Richardson), whereas in *vinculella* the antennæ are conspicuously annulate with black, or dark brown, and very pale ochreous; moreover, the form of the case is somewhat different. In the true *vinculella* the middle and the two extremities are more dilated than in that of *richardsoni*, which has a smaller case rather less flattened and but slightly bulging at either end. It will almost certainly be found that in Continental collections there are other species mixed in the series of *vinculella*.

I have at this moment six species before me, and perhaps seven, belonging to this group, without including *vinctella*, H.-S., which I have never seen, and with which Zeller (Lin. Ent., VI) admitted he was unacquainted, except from the figure, although he subsequently labelled two specimens in his collection with this name.

The true *vinctella*, as figured and described by Herrich-Schäffer from a single specimen in Fischer von Röslerstamm's collection from the Prater, Vienna, had the cilia of the fore-wings injured, and remains at this time practically unknown, although referred to by some authors—from *argentimaculella*, Stn., the absence of white specks around the apex and termen distinguish it without doubt.

- (1). *argentimaculella*, Stn.: Zeller had eight specimens, seven of which are apparently right, agreeing with Stainton's description (the remaining specimen is now described as *pachyceras*, sp. n.). I have a series from Machin and seven specimens in the Christoph collection.
- (2). *vinculella*, H.-S.: Zeller had two specimens, both labelled *vinctella*. These agree with others in my collection sent out by Staudinger as *vinculella* and with specimens in the Christoph collection. The heads of all are rather darker yellow than in Herrich-Schäffer's figure.
- (3). *sp. ?*: Zeller has one specimen labelled *vinculella* which he minutely describes (Lin. Ent., VI, 173—4), but which cannot be the true *vinculella*. It agrees with nothing that I know.
- (4). *vinctella*, H.S.: Zeller himself said that he did not know this species (Lin. Ent., VI, 174, *Anmk*); he described it from Herrich-Schäffer's fig. 274, and I am not acquainted with it, but should hesitate to follow Zeller in regarding it as a possible variety of *vinculella*.
- (5). *richardsoni*, n. sp.: the Purbeck species, which has been called

*vinculella*, differs in the black crown of the head, in the antennæ being uniformly blackish above, white beneath, also in its narrower markings. It is quite distinct from *vinculella*, which has yellowish annulate antennæ, and equally so from *argentimaculella*, which has additional spots around the apex and termen, a greyish fuscous head with whiter face and uniformly pale greyish fuscous antennæ.

- (6). *mensella*, n. sp.: distinguished from *vinculella* by its black head and by not having annulate antennæ.
- (7). *pachyceras*, n. sp.: differs from *vinculella* in the structure of the antennæ.
- (8). *leopoldella*, Costa (= *oberthüriella*, Mill.): a small and distinct species.

1425 (2). TINEA (MEESSIA) MENSELLA, *sp. n.*

*Antennæ* simple; pale greyish fuscous. *Palpi* dependent; whitish cinereous. *Head* blackish above, face whitish. *Thorax* blackish, the ends of the tegulæ white. *Fore-wings* blackish; a small white patch at the base of the dorsum; a nearly straight oblique white fascia at one-third; an obliquely placed pair of white marginal spots at two-thirds, and an equally large white costal spot before the apex; cilia brownish fuscous with blackish specklings along their base, the extreme tips of the apical cilia white. *Exp. al.*, 6.5 mm. *Hind-wings* and cilia brownish fuscous. *Abdomen* greyish fuscous. *Legs* greyish fuscous, spurs and hind tarsal joints slightly paler.

*Type*, ♂ (84299), Mus. Wlsm.

*Hab.*: CORSICA, Ajaccio, 7, VI, 1899. A single specimen in good condition taken on the dinner table in the hotel.

The markings on this species are very clear white and as wide as in *vinculella*, H.-S., but the wings are somewhat narrower, the head and antennæ at once distinguishing it from this species by their different colouring. It approaches much more closely to the single specimen described by Zeller, *Lin. Ent.*, VI, 173—4 (1852)—wrongly identified as *vinculella*, H.-S.

1425 (3). TINEA (MEESSIA) PACHYCERAS, *sp. n.*

*Antennæ* (1), very stout, slightly flattened; whitish, with faint brownish grey bands above. *Palpi* dependent; whitish. *Head* dirty whitish, with a scarcely perceptible ochreous tinge above. *Thorax* greyish brown. *Fore-wings* brown, with a somewhat bronzy sheen, with white markings; an oblique fascia at one-third, inclining to be bent outward below the middle, and rather wider towards the dorsum than towards the costa; an elongate, scarcely oblique, white triangular costal streak beyond the middle, reaching downward to about the lower angle of the cell and pointing towards a smaller white dorsal spot; before the apex is another white costal spot; cilia brownish, sprinkled along their base with brown; the markings

are faintly visible on the under-side, especially on the costa. *Exp. al.*, 8 mm. *Hind-wings* and cilia brownish grey. *Abdomen* with the genital appendages large and widely developed; brownish grey. *Legs* brownish grey, hind tarsi whitish.

*Type*, ♂ (Zell. Coll.), Mus. Wlsm.

*Hab.*: HELVETIA (*Schläger* 1856), Zell. Coll. [? ITALY]—Lago Maggiore, 5, VI, 1866 (*Sievers*), Christoph Coll. Three specimens.

The insect has a somewhat more hirsute appearance than *vinculella*, H.S., for which it might easily be mistaken were it not for the very stout and differently formed antennæ which at once distinguish it. A specimen in the Zeller Collection from Helvetia was placed in the series of *argentimaculella*, Stn., and two specimens in the Christoph Collection were erroneously placed in *vinculella*, H.-S.

Morton Hall, Thetford:

July, 1900.

BLASTOBASIS SEGNELLA, Z., A EUROPEAN SPECIES WRONGLY INCLUDED IN THE AMERICAN LISTS, AND OPOGONA DIMIDIATELLA, Z., A JAVAN SPECIES, INSERTED WITHOUT JUSTIFICATION IN STAUDINGER'S CATALOG.

BY THE RIGHT HON. LORD WALSLINGHAM, M.A., LL.D., F.R.S., &c.,  
AND

JOHN HARTLEY DURRANT, F.E.S., MEMB. ENT. SOC. DE FRANCE.

### BLASTOBASIS, Z.

#### 2303 (2) BLASTOBASIS SEGNELLA, Z.

*Blastobasis segnella*, Z., Verh. Z.B. Ges. Wien, XXIII (1873), Abh., 296—7, Pl. IV, 35 (1873)<sup>1</sup>; Chamb., Bull. U.S. GG. Surv., IV, 132 (1878)<sup>2</sup>.

*Type*, ♂. Mus. Wlsm.

*Hab.*: S.E. RUSSIA—Sarepta, 10, VIII.<sup>1</sup>

This species was described by Zeller in a paper, entitled, "Beiträge zur Kenntniss der nordamericanischen Nachtfalter, besonders der Microlepidopteren," and was, perhaps not unnaturally, included by Chambers in his Index to the described Tineina of the United States and Canada. This was, however, an error, for Zeller wrote, in reference to the habitat of this species: "Es wurde nebst mehreren von Christoph bei Sarepta am 10 August gefangen." *Blastobasis segnella* must be removed from the North American Catalogue, and included in that of Europe.

## OPOGONA, Z.

## 2961. OPOGONA DIMIDIATELLA, Z.

*Opogona dimidiatella*, Z., Bull. Soc. Imp. Nat. Mosc., XXVI, 507—8, Pl. IV, 13—16 (1853) <sup>1</sup>; Stgr. and Wk., Cat. Lp. Eur., 335, No. 2961 (1871) <sup>2</sup>.

*Type*, ♂. Mus. Wlsm.

*Hab.*: JAVA (*Tengström*) <sup>1</sup>. [HYRCANIA <sup>2</sup> (?)].

This species, described by Zeller in a paper, entitled, "Drei Javanische Nachtfalter," is included in Staudinger and Wocke's Catalog, with the locality "Hyre"—on what evidence is not apparent—the identification is *most* improbable, and there seems no justification whatever for its inclusion in the European Catalogue. Although we have seen various other species from Malaysia, *dimidiatella* has not been recognised among them, and the type is still unique. In the Christoph Collection there is a single specimen labelled *dimidiatella*, taken at Wladiwostok, 31, VII, 1877, but, as might have been expected, this is quite distinct from Zeller's species.

Merton Hall, Thetford:

June, 1900.

BERÆA ARTICULARIS, PICT., AN ADDITION TO THE BRITISH TRICHOPTERA; WITH FURTHER NOTES ON PLECTROCNEMLA BREVIS, McLACH.

BY THE REV. A. E. EATON, M.A., F.E.S.

Fancying that they appeared in the net to be slightly different from the commoner species of *Beræa* (*pullata* and *maurus*, Curt.) of this part of England, I secured some specimens of *B. articularis* on June 25th, at a site on Haven Cliff frequented by *Pericoma decipiens*, Etn.

Both of these species appear to be extremely local in this neighbourhood. *P. brevis* (*cf. ante* p. 149) until now has been taken only at Seaton Hole. At the foot of the lowest part of the Upper Greensand Cliff a spring trickles forth and forms a patch of marshy ground overgrown thickly with *Equisetum maximum* and planted with osiers that do not thrive, with a little *Eupatorium cannabinum* interspersed. After sunset, when the *Equisetum* becomes beaded with moisture, the *Plectrocnemia* comes out for flight. A year or two ago *P. brevis* used to frequent sites where the *Eupatorium* grows beside the foot-path leading to Seaton along the shore.



At the mouth of the Axe, behind the last building, a foot track leads right up Haven Cliff, skirting some wet ground that is moistened by a dribbling spring which issues from the brow of the under-cliff where the foot-track passes. This wet grass slope is the site for *B. articularis*.

Seaton, Devon: July, 1900.

[*B. articularis*, like its allies, is a small black insect, very likely to be overlooked; details, so far as my knowledge then extended, are to be found in my "Monographic Revision and Synopsis." Its distribution is apparently wide, and it has been recorded from one Scandinavian locality. In 1891 Wallengren placed *Beræa* and *Bereodes* in a distinct Family, *Beræidæ*; to this I see no objection. Furthermore, he placed the three Scandinavian species of *Beræa* in named Sections, viz., *Beræa* for *B. pullata*, Curt.; *Ernodes* for *B. articularis*, Piet.; and *Dophnea* for *B. maurus*, Curt. I venture to think this subdivision will be adopted, or more probably that each will rank as a genus.—R. McLACHLAN].

NEUROPTERA COLLECTED IN THE UPPER PORTION OF  
STRATHGLASS IN 1899.

BY JAMES J. F. X. KING, F.E.S.

In 1880 I was fortunate enough to take a few specimens of *Somatochlora metallica* (see Ent. Mo. Mag., vol. xix, p. 8), and as the species had not been again found in this country, Mr. Briggs suggested that we might spend a holiday in Strathglass with the intention of looking for and capturing it. The arrangements of the trip were left to me and I selected the village of Tomich as headquarters. There are practically no houses west of this, if we except Guisachan House, the residence of Lord Tweedmouth, and those of his servants. I arrived on June 15th and remained until August 25th. Mr. Briggs joined me on July 8th and stayed for a few weeks.

Our object being the capture of *S. metallica* much time had to be devoted to it, with the result that captures among the other *Neuroptera* were not as numerous as in 1880, as I then only devoted about eight days to the dragon-fly, whereas during this last visit I may say that nearly forty were given over to this one object. On the whole the weather was very good, although we had not the intense heat which prevailed during 1880. Unfortunately some of the worst weather was during Mr. Briggs' visit.

PSEUDO-NEUROPTERA.

PSOCIDÆ.

*Atropos divinatoria*, Müll., common in buildings.

*Clothilla pulsatoria*, L., with the last.

*Psocus fasciatus*, F., at the Plodda Falls, July 15th.

*Stenopocus cruciatus*, L., common, a large number having the wings much abbreviated.

*Cæcilius obsoletus*, Steph., common where firs were growing.—*C. fuscopterus*, Latr., common at the Dog-fall.—*C. perlatus*, Kolbe, and *Burmeisteri*, Brauer, fairly common on spruce and other firs; middle of July.—*C. piceus*, Kolbe, a few specimens are probably referable to this species.

*Elipsocus flaviceps*, Ste., common.—*E. unipunctatus*, two specimens, Beaully Road, July.—*E. cyanops*, Rost., not uncommon about middle of July.

#### PERLIDÆ.

*Chloroperla grammatica*, Poda, common.

*Isopteryx tripunctata*, Scop., and *torrentium* were both taken.

*Teniopteryx Risi*, Mort., not uncommon.

*Nemoura variegata*, Oliv., and *cinerea*, Oliv., common.—*N. inconspicua*, Pict., was in great abundance wherever there were trickling surface springs.

*Leuctra* sp.?

#### EPHEMERIDÆ.

*Leptophlebia Meyeri*, Eaton, this species was very common upon the higher moorland. In my 1882 list I recorded *Lep. marginata*, L. This seems to have been an error, as all the specimens which I now have I find to be the above species.

*Ephemerella ignita*, Poda, fairly common.

*Cloëon simile*, Eaton, common at Glasslettre, Loch-en-Ang, &c.—*C. rufulum*, Müller, in Glen Cannich.

*Baëtis scambus*, Eaton, one specimen in the Beaully Road.—*B. rhodani*, Pict., the Gull Loch, near Tomich, and in Glen Cannich.—*B. pumilus*, Burm., Plodda Falls and in Glen Cannich.

*Rhithrogena semicolorata*, Curt., common near Tomich, at the Gull Loch, Knockfin Loch and Glen Cannich.

*Heptagenia sulphurea*, Müller, in Glen Cannich.

*Ecdyurus venosus*, Fab., Knockfin, Plodda Waterfall.—*E. lateralis*, Curtis, Plodda Waterfall.

*Cænix* sp.? was seen at the Gull Loch, but not collected.

#### ODONATA.

*Leucorrhinia dubia*, Van d. Lind., was seen south of Tomich, where Mr. Briggs caught one on July 10th.

*Sympetrum striolatum*, Charp., not uncommon.—*S. scoticum*, Don., very common towards the end of August on all the high moorlands.

*Libellula quadrimaculata*, L., this species was in great profusion at every little moorland pool.

*Somatochlora metallica*, Van d. Lind. This species was first sighted on June 16th, flying in a little corrie near Tomich; it was very difficult to capture then as it flew so wildly and the nature of the ground did not allow of pursuit. On this day I went to the locality where I had taken it in 1880, but could find no trace of it, and for about fourteen days I constantly visited the locality, but without success. My idea is that when the species emerges it wanders away from its birth-place till

fully mature, when it returns. Its habit is to fly for long distances near the margin of the loch, keeping out about two or three feet and parallel to the edge, the speed is fairly swift and to catch the insect the net must be wielded rapidly. They continue their flight backwards and forwards as long as the sun is bright, but when the sun goes down they fly off and settle amongst the heather. If one's eyes are keen enough the insect may be captured at rest, although it is very easily startled. Mr. Briggs and I found the insects at various lochs, but always in more or less small numbers. After Mr. Briggs left I was very fortunate in getting one fine day's work at Loch-en-Ang, where I found the species in some numbers, but the day was what might be described as an ideal one, with little or no wind.—*S. arctica*, Zett., was taken near Tomich in June at a very low level, and in August a few were seen flying in a little shady nook near a hill-top in Glen Affrick.

*Cordulegaster annulatus*, Latr., as usual, very common everywhere.

*Æschna juncea*, L., common in August.—*Æ. carulea*, Ström., a few of this species were seen and captured in Strathglass and in Glen Affrick.

*Lestes sponsa*, Hans., common at Glen Cannick, Loch-en-Ang, and Loch Glassletre. This was taken by me in Glen Cannick in 1880, but I seem not to have recorded it.

*Pyrrosoma nymphula*, Sulz., common.

*Enallagma cyathigerum*, Charp., common everywhere.

#### NEUROPTERA-PLANIPENNIA.

*Sialis lutaria*, L., common.—*S. fuliginosa*, Pict., not uncommon at Knockfin.

*Sisyra fuscata*, Fab., common with the last and also at the lochs south of Tomich.

*Hemerobius marginatus*, Steph., very common by beating birch trees everywhere.—*H. nervosus*, Fab., odd specimens were taken at Knockfin, at Plodda, in Glen Cannick, &c., but the species was by no means common.—*H. orotypus*, Wallengr., Dog-fall and towards Glassletre.—*H. nitidulus*, F., out of Scotch firs at Loch-en-Ang.—*H. pini*, Steph., one specimen was taken above Guisachan House.

*Chrysopa alba*, L., *C. flava*, Scop., and *C. vittata*, Wesm, all sparingly at Plodda and Knockfin.

*Coniopteryx tineiformis*, Curt., not uncommon.

*Panorpa germanica*, L., common.

#### TRICHOPTERA.

*Phryganea striata*, L., was not uncommon at various lakes, where it was easily disturbed and flew wildly.—*P. varia*, F., was not uncommon at Knockfin.—*P. obsoleta*, McLach., occurred all over the district in numbers.

*Limnophilus rhombicus*, L., at some of the higher lochs.—*L. marmoratus*, Curt. might be obtained at all the lochs, both in Strathglass and Glen Affrick.—*L. borealis*, Zett., this species was taken at Loch Bingley and also at the lochs around Cougie. It was just coming out towards the end of August; it is a very late species.—*L. lunatus*, Curt., not uncommon at the lochs.—*L. ignavus*, McLach., was taken near the Dog-fall in Glen Affrick.—*L. centralis*, Curt., as usual, very common; one specimen which I took had a long foot stalk to the third

apical cellule in both hind-wings.—*L. vittatus* with the last species.—*L. auricula*, Curt., common at Plodda, Loch-en-Ang, and other localities.—*L. griseus*, L., was well distributed over the district; specimens were taken at Loch Bingley, Glasslettre, Loch-en-Ang, at the lochs round Cougie, and also at the Dog-fall in Glen Affrick.—*L. luridus*, Curt., was fairly common in similar localities to those frequented by the last species.—*L. sparsus*, Curt., very common everywhere.

*Asynarchus cænosus*, Curt., was obtained at Loch Bingley.

*Stenophylax stellatus*, Curt., and *S. latipennis*, Curt., at various lakes.—*S. pernustus*, McLach., one species was taken at the Dog-fall.

*Halesus radiatus*, Curt., along with the last, and also at the Dog-fall.

*Sericostoma personatum*, Spence, very common at Knockfin, &c.

*Silo pallipes*, Fab., by beating near the river.

*Crunæcia irrorata*, Curt., not uncommon at Plodda, Loch-en-Ang, and the Dog-fall.

*Lepidostoma hirtum*, Fab., common everywhere.

*Beræa maurus*, Curt., this species might have been taken in hundreds in its own localities, several of which I visited along the roadsides where there was a constant flow of moisture caused by small springs. In one such locality, in a wood above Tomich, in June, I have had from ten to twenty in my net with a single sweep; till then I had never seen the species so plentiful, although we look upon it as common.

*Molanna palpata*, McLach., common at all the lochs.

*Odontocerum albicorne*, Scop., as the last.

*Leptocerus fulvus*, Ramb., Loch-en-Ang, &c.—*L. aterrimus*, Steph., fairly common in suitable localities.—*L. bilineatus*, L., at various lakes.

*Mystacides azurea*, L., and *longicornis*, L., fairly common.

*Triænodes bicolor*, Curt., common at all the lochs south of Tomich.

*Æcetis ochracea*, Curt., common with the last species, and also at Loch Glasslettre.

*Hydropsyche instabilis*, Curt., at all the higher lochs.

*Philopotamus montanus*, Don., at all the lochs commonly, and in great profusion in Glen Cannich and at the Dog-fall. A pale form was observed, but not the var. *scoticus*.

*Dipterona felix*, McLach., occurred with *B. maurus* in June in the wood above Tomich.

*Wormaldia occipitalis*, Piet., and *subnigra*, McLach., not uncommon along the river, also at Knockfin and the Dog-fall.

*Plectrocnemia conspersa*, Curt., was taken on the hills south of Tomich.

*Polycentropus flavomaculatus*, Curt., common everywhere.—*P. Kingi*, McLach., at Knockfin and in Glen Cannich.

*Holocentropus dubius*, Ramb., in Glen Cannich.

*Cyrnus trimaculatus*, Curt., common at Knockfin.—*C. flavidus*, McLach., not uncommon at Loch-en-Ang.

*Tinodes wæneri*, F., common everywhere.

*Psychomyia pusilla*, Fab., common, Knockfin, Plodda, and in Glen Cannich.

*Rhyacophila dorsalis*, Curt., common, as usual.

*Glossosoma Boltoni*, Curt., common everywhere I looked for it.—*G. vernale*, Pict., occurred at Plodda.

*Agapetus fuscipes*, Curt., and *comatus*, Pict., fairly common all over the district.

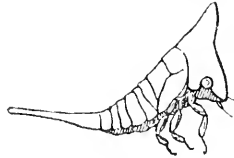
1, Athole Gardens Terrace,  
Kelvinside, Glasgow:  
May, 1900.

NOTE ON THE ATTRACTIVE PROPERTIES OF CERTAIN LARVAL  
*HEMIPTERA*.

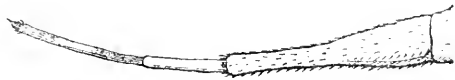
BY E. ERNEST GREEN, F.E.S., GOVERNMENT ENTOMOLOGIST.

Dr. Sharp, in his magnificent work on insects, refers (part ii, p. 577) to the statement by Belt that certain species of *Membracidae* were attended by ants for the sake of a sweet excretion; but considers it doubtful if the insects in question really belonged to that group of *Homoptera*. It may, therefore, be of interest to record some personal observations on Membracid larvæ in Ceylon. I have frequently watched the larvæ of various species of *Centrotus* being assiduously attended by ants. The larvæ are gregarious, usually frequenting the succulent shoots of plants, and have an extensile organ at the extremity of the

body, from which the coveted fluid is emitted. This organ (see figure) is distinctly 3-segmented. In the species from which the accompanying drawings were made, the small terminal segment was of a



crimson colour; the penultimate segment black, with a broad white median band; and the basal segment (of the extensile part) white. When the insect is undisturbed, this organ is withdrawn into the long conical segment which apparently terminates the body, but is extruded immediately upon application by the attendant ants.



Though this inter-relation between ants and larval *Homoptera* is found very generally throughout that suborder, it is not of such frequent occurrence amongst the *Heteroptera*. I have, however, recently observed the fact in a species of the Scutellerid genus, *Coptosoma*, a colony of which was being tended by a species of *Cremastogaster*. I did not observe any extensile organ in this case.

Royal Botanic Gardens,  
Peradeniya, Ceylon:  
June 6th, 1900.

EXPERIMENTS ON THE COLOUR-SUSCEPTIBILITY OF  
THE PUPATING LARVA OF *APORIA CRATÆGI*, AND ON THE  
EDIBILITY OF ITS PUPA BY BIRDS.

BY F. MERRIFELD, F.E.S.

This pupa is remarkable for the difference between the markings of the pupal and imaginal wings. The imago has no dark markings on its wings, except that the nervures are darkened, and towards the terminations of these nervures on the outer margin they spread out so as to cause the white colouring between the nervures to terminate in a curve. On the pupal wing the nervures are not darkened, but there is a row of black spots stretching obliquely across the fore-wings, with often a few more black spots between them and the base, and on the outer margin there is a row of black spots; when the markings of the marginal wing, as emergence approaches, begin to show through the pupa-case it is seen that the enlarged dark terminations of the nervures correspond in situation, not with the black marginal spots of the pupal wing, but with the interspaces between these spots. The ground colour of the pupa varies from bright greenish-yellow to whitish-grey, and the black spots on the wing-cases vary greatly in number and in size, in some cases being nearly absent.

In pupating, the larva, unlike that of *Pieris brassicae*, which I can hardly get to pupate on any but a flat surface, prefers a rounded one, such as the twigs of the hawthorn or other tree on which it feeds, and has a tendency to be gregarious, four or five often pupating in very close proximity. From the choice of situation, under the shade and shelter of the foliage they are not much exposed to view, though in a strong light they are very conspicuous, and I do not find that the colour varies greatly according to that of the object against which they pupate. Yellow or orange surroundings tend to the production of the yellow ground colour. As regards this ground colour I find little difference of effect between white and black or dark surroundings, in all these cases it is very variable inclining rather to grey than yellow; but as regards the black spotting, there is more of this in those that had black or dark surroundings than in those with yellow, orange, or white surroundings.

As there appeared little likelihood that the colouring and markings of the pupa of this species would have any protective effect, seeing that under all circumstances it would be a conspicuous object to any enemy approaching closely to it, there seemed reason for trying whether it was relished or rejected by insect-eating birds, and Dr. A.

G. Butler most kindly tried the experiment last May and June on a number of the pupæ which I sent him for the purpose, and has informed me of the results, which he has authorized me to make public. They may be summed up as follows :—

The pupæ are either refused, or, after tasting, rejected—often with signs of disgust—by the Pied Wagtail, the Woodlark, the Crested Mynah (*Acridotheres cristatellus*), the Brazilian Hang-nest (*Icterus jamaicaii*), which is fond of *P. rapæ*, the White Wagtail, the Virginian Cardinal Bird, the Brambling and the Chaffinch. A Pekin Nightingale (*Liothrix luteus*) in one case refused the pupa at first, but probably ate it later, in another case one of these birds tasted and then dropped it. A Weaver Bird probably ate one, and a Scarlet Tanager one with great relish. In one case a Satin Bower Bird (*Ptilonorhynchus holosericeus*) refused to look at it, in another one of these birds apparently ate it, as the pupa disappeared. A blue-bearded American Jay (*Cyanocorax cyanopogon*) ate them, as did the English Jay. Of the above-mentioned birds, Dr. Butler says that the Satin Bower Birds are greedy insect-feeders, and that the Virginian Cardinal Birds are most excited when offered cockroaches, spiders, or meal worms ; also that the Wagtail is usually greedy after insect food.

It will be observed that none of the birds of the Palæarctic region to which this pupa was offered, except the Jay, ate it, but it appears to have been accepted by the Weaver Bird, which inhabits Western and Southern Africa, the Scarlet Tanager, a bird visiting the United States from the south during the summer months, and the Australasian Bower Bird. The pupæ of *P. brassicæ* and, I believe, also those of *P. rapæ*, are eaten by all insectivorous birds ; in both of these species the colouring of the pupa has been shown to be considerably affected by the colour of the surroundings of the pupating larva. I do not propose to draw any large general inferences from these experiments, but they show that the pupa of *Aporia cratægi* is unpalatable to many insectivorous birds, and if so it may be of some advantage to wear a livery that comes near to the utterance of the famous motto, “Nemo me impune lacessit.”

24, Vernon Terrace, Brighton :  
July 9th, 1900.

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*Plusia moneta* at Waltham Cross.—On Saturday evening, July 14th, I had the pleasure of taking a specimen of *Plusia moneta* flying over honeysuckle about 9.30. There is some *Aconite* near, but it does not seem eaten, though the moth cannot have flown very far.—W. C. BOYD, The Grange, Waltham Cross : July 16th, 1900.

*Notes on Lepidoptera at Lowestoft.*—On Sunday, the 17th, I was at Lowestoft, and was surprised to see two *Macroglossa stellatarum* busy among the flowers. It did not occur to me to think whether they were hibernated specimens; but there was nothing to suggest it. In the afternoon on the cliff I watched for some time a very fresh looking *Pyrameis cardui*. Must one regard that as hibernated? I never saw either in June before. A white atom floating across as we sat in the garden proved to be *Elachista biatomella*. I found a newly emerged *Arctia villica*, crushed and damaged.—FRANCIS JENKINSON, 10, Brookside, Cambridge: *June 29th*, 1900.

[We think it probable that the fresh looking examples of *P. cardui* noticed recently had hibernated in this country, and were not immigrants.—EDS.].

*Diplodoma marginepunctella*, *Stph.*, in *Scotland*.—In the June No. of this Magazine (*ante* p. 132) Mr. E. R. Banks records the capture of this moth in Dumbar-tonshire in 1898, under the impression that no previous record of its occurrence in Scotland exists. I would, therefore, point out that it is included in the late Sir Thomas Moncrieffe's excellent list of the *Lepidoptera* of Moncrieffe Hill, Perthshire, published in "The Scottish Naturalist" more than twenty years ago (see vol. v, p. 24, of that Journal).—WILLIAM EVANS, 38, Morningside Park, Edinburgh: *July 14th*, 1900.

*Nepa cinerea*, *L.*, in *Scotland*.—With reference to Mrs. G. W. Kirkaldy's record, in this Magazine for 1899 (p. 49), of the occurrence of the "Water Scorpion" at Methven Bog, Perthshire, in August, 1898, perhaps I may be allowed to call attention to the fact that the species is included in Stewart's list of Edinburgh insects published in 1809 (Wernerian Society's Memoirs), and in Don's Forfarshire list, 1813 (Headrick's Agriculture of the County). The insect is, I feel sure, not uncommon in Scotland. In the Marshes on the Braid Hills, close to Edinburgh, it used to be common (I first met with it there about 35 years ago), and I have also taken it several times in the Union Canal near here. It has also occurred to me at Portobello in 1895; at Luffness (East Lothian) in 1898; and at Oban in 1894.—*Id.*

*Note on the habits of Machilis maritima*, *Leach*.—During the middle of July, 1899, I observed great numbers of this Thysanuron about the rocky cliffs bordering the sea shore, between Aberystwyth and Clarach. When disturbed they were to be seen gliding swiftly over the surface of the bare rock, the latter being frequently at an almost perpendicular angle; they seem to travel only for a short distance, and then to take up their resting position, *i. e.*, by insinuating themselves in some narrow chink. It was found that they were by no means easily aroused, for they often forced themselves deeper into the cranny in which they were lying, clinging remarkably tenaciously, and then darting out suddenly. One or two examples were seen hurriedly traversing some adjacent boulders on the shore, but their great stronghold was the face of the cliff itself. Lubbock (Monograph of Collem. and Thys.) makes very little mention as to the habits of the species, but it is well known that the usual habitat for this species is *under* rocks and boulders. Sharp (Ins., pt. i) states that in more Southern Europe species are met with very commonly on the perpendicular



faces of very large rocks or stones, and mentions their extraordinary agility in locomotion. I am not aware of a similar habitat as the Southern Europe species of the genus having been recorded for *maritima*.—A. D. IMMS, Linthurst, Oxford Road, Moseley, Worcestershire: *July, 1900.*

*A probable case of migration in Leucorrhinia dubia, 1<sup>st</sup> d. L.*—In the "Field" for June 23rd last, "J. C." records an occurrence at Scarborough of considerable scientific importance. He says that along the north and south foreshores and cliffs the visitors were surprised by a large number of small dragon-flies (subsequently identified as this species) which frequently attached themselves to people's dresses, greatly to the alarm of many timid individuals. He further states that the general impression is that the flight came over the sea, and that one or two keen observers declare that they saw them approach the shore from that source.—ID.

*The habitat of Thaumatonera inopinata, McLach.*—In this Magazine for June, 1897 (2nd series, vol. viii, pp. 130, 131), I described under the name of *Thaumatonera inopinata*, from a mutilated example, the locality for which was unknown, a remarkable new genus and species of *Calopteryginae* obtained at a sale. From collateral evidence I ventured to suggest that the insect perhaps came from China or Japan. I have this moment received information from my excellent friend and colleague Mons. René Martin (of Le Blanc) to the effect that he has seen a perfect specimen in a collection from Chiriqui (Panama). My hazarded suggestion has proved very wide of the mark, but I rejoice in the fact that the real locality is known.—R. MCLACHLAN, Lewisham, London: *July 13th, 1900.*

*Dragon-flies in the Island of Alderney: including Lestes barbara, F.*—There are only three species of dragon-flies that I can personally verify for certain as occurring in Alderney, namely, *Sympetrum flaveolum*, L., and *Lestes barbara*, F., both of which may be found in considerable numbers round a pond on Longy Common, and of which I have captured accordingly several specimens. The third species is an *Aeschna* (*sp. ignot.*), seemingly dark and dusky, but of which I have only noticed two or three specimens, in each instance too far away to determine the kind, and in one case flying high up and quickly across the field and out of sight. The one locality in the Island for dragon-flies is the above-named pond. The ♂ of *Sympetrum flaveolum* is to be found in comparison of the ♀ in the proportion of ten to one at least. Away from the said pond I have literally only seen two other dragon-flies in Alderney—one flying over one of the fields flanking the Longy Road not far from the Strangers' Cemetery, and which may have been an *Aeschna* or else *Sympetrum flaveolum*; I was not near enough to pronounce with certainty. The other was seen in 1897 flying down over one of the valleys near the old lime kilns, and appeared to me then to be *Libellula quadrimaculata*, L.—F. A. WALKER, Belle Vue Hotel, Alderney: *July 7th, 1900.*

[*Lestes barbara* was for long in the British List on the authority of one example said to have been taken in Ireland. Mr. Lucas, in his recent work, relegates the species to the "Reputed British." But Mr. Lucas includes the insects of the Channel Islands as "British," therefore *L. barbara* should no longer be only "reputed," supposing Mr. Lucas' views to find common acceptance, which they do not. On this

point I may probably have a suggestion to make hereafter. *L. barbara* is distinctly Mediterranean in its habits, but is abundant near Paris. I have seen one of Dr. Walker's Alderney specimens.—R. McLACHLAN].

*Pipunculus incognitus*: a correction.—In the April number of this Magazine (p. 88 *ante*) I recorded among others, *P. incognitus*. This is an error, it should be *geniculatus*, Mg. In Mr. Verrall's new arrangement of the *Pipunculidæ*, *P. geniculatus* is given as a synonym of *incognitus*, hence my mistake. *P. incognitus* I believe is not known as British at present.—RALPH C. BRADLEY, Lyndhurst, Mayfield Road, Moseley, Birmingham: July 8th, 1900.

*Chortophila buccata* parasitic on *Andrena labialis*.—Whilst watching on June 18th last a strong colony of *Andrena labialis* on a sand cliff, I noticed that each bee as it approached its home was met and followed by one of the numerous flies which were lying in wait on a sand bank below. The bee so shadowed seemed unwilling to enter its nest, and would sweep to and fro in front of the cliff, the fly following about a foot behind, always pursuing the exact course of the bee's windings like an animal hunting by scent. After a time the bee would enter its nest still pursued by the fly, which would run a very short distance down the mouth of the hole, and then returning settle not far off. Though I repeatedly saw a fly make a dash at a bee, for a long while each attempt was a failure; at last, however, I witnessed one that succeeded, the pursuing fly making a dart alighted on the back of a bee and clung firmly. The bee, in its efforts to free itself, blundered against the bank and rolled a short distance without shaking off the fly, which soon after released the bee and being captured proved to be a *Chortophila*, either *buccata* or *unilineata*, the females are hard to distinguish. This method of ovipositing is well known as regards the Tachinid, *Miltogramma punctata*, but may have been hitherto unnoticed in any species of *Chortophila*; for though several species are abundant in this neighbourhood, and others not uncommon, the late Dr. Meade, in his list of British *Anthomyiidæ*, sets them all down as uncommon or rare, and Schiner's experience of them seems to have been the same.—A. PIFFARD, Felden, Boxmoor, Herts: July 9th, 1900.

*Mending broken insects*.—When setting insects their legs, antennæ, &c., are, as all entomologists well know, apt to break off. I find the rubber solution supplied for repairing pneumatic tyres an excellent adhesive for fastening them on again. The leg, or whatever it may be, is held in the forceps and the broken end just tipped with the solution. On placing the broken parts together they will be found to *at once* adhere, and the rubber not becoming immediately *hard* allows them to be arranged in any position.—T. A. GERALD STRICKLAND, 28, Elm Park Gardens, S.W.: July 11th, 1900.

*Hydradephaga and Hydrophilidæ taken during the present season*.—As I have been working the water net very regularly since Easter, and with some success, perhaps a few notes on the results may prove interesting.

On April 28th, at Horsell, in ponds on the heath, I secured *Rhantus bistriatus*, Berg., *Agabus chalconotus*, Panz., *Hydroporus Gyllenhalii*, Schiödte, and several other of the commoner species of the latter genus.

During May the following amongst others turned up in Richmond Park in

ponds :—*Pelobius tardus*, Herbst, *Rhantus pulverosus*, Steph., *Enochrus bicolor*, Gyll., *Philhydrus nigricans*, Zett., and *P. coarctatus*, Gredl.; at Wimbledon in the same month *Agabus paludosus*, F., and *A. didymus*, Ol., were found in the brook (both also were common in June), and *Cymbiodyla ovalis*, Thoms., in a pond, while on May 5th a small pond near Chobham, Surrey, produced *Berosus luridus*, L., and *Hydrochus angustatus*, Germ., in great profusion; I have found *angustatus* common in Richmond Park also.

At the end of May I secured from a pond near Oxshott *Hydroporus granularis*, L., *H. umbrosus*, Gyll., and *H. obscurus*, Sturm, and a few days later (early in June) the two latter again turned up fairly commonly, accompanied again by *granularis*, and by *H. neglectus*, Schaum, and *H. tristis*, Payk., but all these three were very scarce. From the Black Pond at Esher on the same day I obtained *Rhantus exoletus*, Forst., *Ilybius ænescens*, Thoms., and *Philhydrus minutus*, F., the latter being very abundant.

Richmond Park produced in June *Helochares lividus*, Forst. (*punctatus*, Sharp); I found commonly all over the district, *Cælamбус inæqualis*, F., *C. versicolor*, Schall., *Dytiscus punctulatus*, F., *Agabus femoralis*, Payk., *Limnebius nitidus*, Marsh., *Octhebius pygmaeus*, F., and *Hydrochus elongatus*, Schall.

A day at Deal on June 9th, working the ditches in the Marshes, brought in *Halipilus obliquus*, Er., *Hydroporus pictus*, F., and *H. lituratus*, F., *Cælamбус parallelogrammus*, Ahr. (in great profusion), *Rhantus notatus*, Berg., *Hydrobius oblongus*, Herbst, *Philhydrus testaceus*, F., and *Octhebius bicolor*, Germ.

At Camber, near Rye, I secured on May 20th (thanks to Mr. Bennett) a few specimens of that very local insect, *Bidessus unistriatus*, Schr.; he discovered it there a few days before, as in Mr. Champion's experience it occurred in shallow clear water; here also I took *Berosus spinosus*, Stev., and *affinis*, Brullé, the latter being very common.

In mossy pools on the hills above Kinloch Rannoch on June 26th I obtained *Agabus guttatus*, Payk., *congener*, Payk., and the var. *Solieri*, Aubé, of *bipustulatus*, L., with *Hydroporus morio*, Dej., and *Philhydrus melanocephalus*, Ol., besides a few other more generally distributed species.

During the past few days I have obtained in Richmond Park *Hydroporus pictus*, F., and *lituratus*, F., in the Wimbledon brook, with *Halipilus cinereus*, Aubé.—T. HUDSON BEARE, King's Road, Richmond, Surrey: July, 1900.

## Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: June 18th, 1900.—Mr. A. H. MARTINEAU in the Chair.

Mr. R. C. Bradley showed a piece of wood with borings, taken from a paling at Selsley, Glos., at Whitsuntide, from which he was breeding beetles of a species of *Clytus*, which had been noticed to be common in the neighbourhood of the paling. Mr. A. D. Inms, two unusually small specimens of *Euchloë cardamines* (♀ ♀); one from Hall Green, near Birmingham, measured only  $1\frac{1}{4}$ " in expanse; the other from Hay, South Wales, measuring  $1\frac{1}{3}\frac{1}{2}$ ". Mr. A. H. Martineau, a series of the uncommon ant, *Leptothorax acervorum* from Selsley, where he had found a small colony; also a black variety of *Formica rufa*, taken on April 22nd last in the company of ordinary specimens at Haywood.—COLBRAN J. WAINWRIGHT, Hon. Sec.

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY.—On a recent Saturday the President (Mr. S. J. Capper, F.E.S.) gave a garden party at his residence, Huyton Park, to the Members of this Society and other Entomological friends. Amongst those present were Mr. F. N. Pierce, F.E.S. (Hon. Secretary), Dr. Ellis, F.E.S., and Messrs. C. H. Walker, Henry and A. Capper, F. P. Marratt, R. Wilding, J. Roxburgh, O. Harrison, H. Tonkin, C. Dalmer, W. A. Tyerman, and Rev. A. W. Carter, &c. (Liverpool); B. H. Crabtree, F.E.S. (Vice-President), Dr. Bailey, R. Tait, Jun. (Manchester); R. Newstead, F.E.S., and J. Arkle (Chester); Dr. Gaskell and Dr. Cassall (Doncaster); J. Murray (Carnforth); Dr. Cotton, W. Webster, and F. C. Thompson (St. Helens); the Rev. R. Freeman (Prescot); W. Kentish (Birmingham); W. H. Holt, H. Locke, W. Halls, and H. B. Prince (Birkenhead); T. G. Mason (Lytham); and the Revs. G. E. Cheesman and W. M. Jones (Huyton).

Mr. Capper has been President of the Society since its foundation twenty-three years ago, and wished to give the Members an opportunity of inspecting his collection of British *Lepidoptera*, and his educational collection of all Orders of insects. The collection of British *Lepidoptera* occupies considerably more than 100 large drawers, and was displayed on tables. The collection, which is acknowledged to be almost unique as to the varieties and aberrations it contains, has been formed during the past sixty years, and was added to considerably by the addition of the late Alfred Owen's collection. Miss Capper, as hostess, assisted her father in entertaining the guests.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: May 10th, 1900.—Mr. W. J. LUCAS, B.A., F.E.S., President, in the Chair.

Mr. ADKIN exhibited a series of *Cabera exanthemaria*, showing variation in the relative positions of the transverse lines.

May 24th, 1900.—The President in the Chair.

Mr. Clarke exhibited a sawfly cocoon of a most delicate fibrous structure. Mr. Enock then gave a series of interesting notes, illustrated with admirable lantern slides, on various incidents in insect life, including: (1) a long series of slides showing all stages in the closing of the wings in the earwig; (2) a series showing the gradual unfolding and growth of the wings in *Papilio Machaon*; and (3) all stages in the emergence and hardening process of *Eschna cyanea*.

June 14th, 1900.—The President in the Chair.

Dr. Chapman exhibited bred specimens of *Orygia antiqua* from S. of France, and noted that the black markings were much intensified. Mr. Turner, specimens of the Coccid, *Pulvinaria ribesiae*, the White Woolly Scale, from his own garden, and read notes on its occurrence. Mr. Enock, a living female of *Ranatra linearis*, with its ova, which are deposited in leaves and stems of water plants, and are attached to a curious Y-shaped body; also living nymphs of *Erythromma najas* and *Ischnura elegans*. Mr. Clarke, microphotographs of the ova of several species of *Lepidoptera*, including *Cyaniris argiolus* and *Hadena genistæ*. Mr. Lucas read the Report of the Field Meeting to Oxshott, and illustrated his remarks by a large number of lantern slides of well known spots in the district.—H. J. TURNER, Hon. Sec.

NOTE ON THE *PHTHOROBLASTIS JULIANA*, CRT., OF  
STAUDINGER'S CATALOG.

BY THE RIGHT HON. LORD WALSHINGHAM, M.A., LL.D., F.R.S.

## PAMMENE, Hb.

1194. *JULIANA*, Crt.1194 (1). *NIMBANA*, H.-S.

These two species are included under the name *Phthoroblastis juliana*, Crt, in Staudinger's Catalog, and I find that Zeller regarded them as mere varieties of one species. In 1869 Dr. Knaggs sent to Prof. Zeller a specimen which I had given him. The following extract from the reply received sets forth his opinion on the subject:—"1a, ♀ variety of *Phthoroblastis juliana*, the passages from which to it I have caught myself on beech trees; a constant mark of this species is the three black lineolæ on yellow ground placed before and contiguous to the first metallic-blue transverse line. The white costal strigulæ are in this specimen thronged together; but even in that the species offers some variability. *Nimbana*, H.-S., belongs to *juliana*, as a slight deviation, and Heinemann (Wickler, pp. 200—1) seems to me to be quite wrong in describing the species in its varieties as two species *juliana* and *nimbana*." *Zell.*, i. l., 29, VI, 1869.

The specimen sent was one of a series of about forty bred by me from hibernating larvæ and pupæ found in silken cocoons under a small, dark, button-like moss on the trunks of beech trees near Little Kimble (Bucks). These showed little or no variation, nor did I find in that locality any specimen approaching the normal form of *juliana* in the pattern of its markings.

Moreover, in localities where *juliana* is abundant, I am informed that it shows no tendency to vary in the direction of *nimbana*.

These two species should certainly be regarded as distinct.

Mr. Meyrick, in his Handbook of British Lepidoptera, 515—16 (1895), removed these two species from the genus *Phthoroblastis*, Ld., to *Carpocapsa*, Tr.

In the same work he describes the structural characters, *Cydia*, Hb. (= *Carpocapsa*, Tr., Meyr.): "♂ with longitudinal groove below cell" (in hind-wings) "including a hair-pencil." This character is not possessed by either *nimbana*, H.-S., or *juliana*, Crt.

He describes the neuration of *Pammene*, Hb. (= *Phthoroblastis*, Ld.), l. c., 505, as being characterized by the hind-wing in the ♂ having "7 running into 8 soon after origin." This character is possessed by both the above species, which must therefore be restored to their former positions as above.

Merton Hall, Thetford:

June, 1900.

874 (1) *PHALONIA SABULICOLA*, WLSM., N. N.,  
= *Conchylis* † *erigerana*, Wlsm., Ent. Mo. Mag., XXVII, 3—4 (1891).

BY THE RT. HON. LORD WALSHINGHAM, M.A., LL.D., F.R.S.

The names *erigeronana*, Riley (1887), given to a species of *Conchylis* feeding in galls on *Erigeron canadensis* in Texas, and *erigerana*, Wlsm. (1891), used for a distinct species of the same genus feeding on *Erigeron acris* in England, cannot both be maintained. It is open to doubt whether either of these names is rightly formed from the Greek original, ἑριγέρων (which is *masculine*), but as both were intended to convey precisely the same meaning, they would, if corrected, necessarily become homonymous. I therefore propose to substitute the name *sabulicola* for the species described by myself, thus avoiding any form of repetition.

I may add that this species feeds on the flowers of *Erigeron canadensis* as well as on those of *E. acris*, and that the former is gradually supplanting the latter in this neighbourhood, where its young growth is often so abundant as to strongly affect the colour of the landscape.

Merton Hall, Thetford:  
August, 1900.

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#### NOTES ON *PSYCHE VILLOSELLA*.

BY W. C. BOYD.

Whilst at Bournemouth early in June I was fortunate enough to secure a good number of cases of *Psyche villosella*: and as most of those who have been successful, to this extent, have afterwards experienced difficulties both as to the male and female insects, I think a few hints may not be unacceptable.

When I first began collecting at Bournemouth in 1885, Mr. McRae informed me that he had bred many *P. villosella*, ♂, and yet had scarcely a decent specimen in his cabinet, because the scales on the wings are so loose that if once the insect begins to fly it is certain to be utterly ruined. He told me he had got up as early as 5 a.m. in the hope of getting satisfactory specimens, but in vain. I therefore resolved that whenever I got any cases I would have the glass-topped boxes examined pretty frequently, and with the aid of my eldest daughter, I soon discovered that the usual time of emergence is from

4 to 7 p.m. Stray specimens may appear as early as 7 a.m. or as late as 10 p.m., but I have never known one emerge during the rest of the twenty-four hours, *i. e.*, between 10 p.m. and 7 a.m. They often sit on the top of one of the cases. The boxes containing the cases should therefore be examined frequently during the day if the collector desires good specimens for his cabinet. As a proof of this I may mention that out of nineteen *P. villosella*, ♂, bred this season, only two were rubbed, and one of these came out during the journey from Bournemouth.

After I had bred seven or eight specimens there came out two or three cripples. Thinking that possibly the pupæ had got a bit too dry, I laid the cases for a night in an ordinary damping box, with the result that the remainder came out all right. The above remarks apply, I believe, also to *P. opacella*, but I have not had so many opportunities of observing its habits.

With regard to the females the difficulties are entirely different. They obviously cannot get rubbed, but how are they to be preserved? When Mr. Barrett was preparing his paper on this genus in 1894, he told me that he had not been able to find a single specimen of *P. villosella*, ♀, in any collection from which it was possible to make a description. Last year, with the aid of information kindly given me by Dr. Sorby, F.R.S., I made some experiments, which seemed quite successful, but I did not like to say anything about it until I was able to compare the "perfect" insects then preserved with fresh specimens, and I am now able to say that the usual 4 per cent. solution of Formalin gives a result which is perfectly satisfactory, the insects retaining both shape, size, and colour in a way that I had hardly dared to anticipate. The best way to mount them seems to be in a small glass tube to contain the insect and solution.

There are two well marked forms of case which may be roughly described as the Fusiform and the Cylindrical. Mr. McRae told me that from the former he always bred males, and from the latter always females. I think this observation is correct as to the fusiform case, from which I have never yet bred a female; but I have occasionally bred a male from a cylindrical case, say about four altogether.

The Grange, Waltham Cross :

July 11th, 1900.

[Formalin has latterly been employed for preserving the apterous females of *Psychidæ* in several quarters, and with the best results.—Eds.]

ON THE SPECIES OF *AMNOSIA*, WESTW.

BY PERCY T. LATHY.

Some little confusion appears to have been caused among the species of the genus *Amnosia*, owing to the majority of Lepidopterists having identified *A. Martini*, Honrath, as the Sumatran form; if this were correct, the name *Martini* would have to be sunk as a synonym of *Eudamia*, Grose-Smith, which has priority, while the form from Borneo would retain the name of *baluana*, Fruhst. De Nicéville and Martin, Journ. As. Soc. Bengal, vol. lxiv, part ii, No. 3, 382 (1895), treat the species in this manner.

The types of *A. Martini* are now in the possession of Mr. Adams, and on examining them I find that they are from Borneo, consequently it is to the Bornean form that the name *Martini*, Honrath, applies, and, therefore, *baluana*, Fruhst., will have to sink as a synonym of it.

De Nicéville and Martin, *l. c.*, say that Honrath based his species on white ♀ ♀ of *A. Eudamia*; this, however, is incorrect, as in the original description of the former species it is distinctly stated that the female is in two forms, one with a brownish-yellow, the other with a milk-white band; the type belongs to the former.

Appended is a list of the species contained in this genus, together with a key by which they may be distinguished.

*A. decora*, Doubl. and Hew., Gen. D. L., t. 51, fig. 4 (1850). *Hab.*: Java.

*A. Eudamia*, Grose-Smith, Forbes, Naturalist's Wanderings, p. 275 (1885).  
*Hab.*: Sumatra.

*A. Martini*, Honrath, Berl. Ent. Zeit., xxxvi, Heft ii, p. 439 (1891).

Syn.: *A. baluana*, Fruhst., Ent. Nachr., xx, p. 302 (1894). *Hab.*: Borneo.

*A. decorina*, Fruhst., Ent. Nachr., xx, p. 303 (1894). *Hab.*: Nias.

## KEY TO SPECIES

(MALES).

A. Hind-wing below with four submarginal ocelli.

(a) Diagonal band of fore-wing blue, and of equal width.....*A. decora*.(b) Diagonal band of fore-wing silvery-blue, and wider in centre...  
*A. Eudamia*.

B. Hind-wing below with five submarginal ocelli.

(a) Fore-wing below with a wide curved subapical lilac fascia...*A. Martini*.(b) Fore-wing below with indistinct straight lilac fascia.....*A. decorina*.

(FEMALES).

A. Hind-wing below with four submarginal ocelli.

(a) Diagonal band of fore-wing bordered with blue .....*A. decora*.(b) Diagonal band not bordered with blue .....*A. Eudamia*.

B. Hind-wing below with five submarginal ocelli.

(a) Discal line of hind-wing below touching second ocellus ...*A. Martini*.(b) Discal line of hind-wing below well separated from second ocellus...  
*A. decorina*.



In one female from Sumatra in Mr. Adams' collection the middle ocellus of the hind-wing is present, but very small; should there, however, occur examples in which this is well developed, the position of the diagonal band of fore-wing will serve as a distinguishing character, this being placed more obliquely in *A. Martini* and *A. decorina* than in *A. Eudamia* and *A. decora*.

There is also an aberration of the female of *A. decora*, in which the diagonal band of the fore-wing below is broken at the middle median nervule. I have seen only two specimens of this form, one in the collection of Heer Van de Poll, and the other in that of Mr. Adams.

Lynton Villa, Sydney Road,  
Enfield: June, 1900.

#### ON SOME TERATOLOGICAL SPECIMENS OF *LEPIDOPTERA*.

BY SIR GEORGE F. HAMPSON, BART., F.Z.S., &c.

The following notes on Teratological specimens of *Lepidoptera*, recently acquired by the British Museum, are published partly because some of the forms are of great interest, and have not yet been described, and partly to indicate the lines on which the Teratological collection of insects of all Orders lately started as a separate collection by the British Museum is to be formed, and for help in the formation of which the Museum authorities would be extremely grateful to any of the Entomological public who have interesting specimens which they are willing to add to it. The collection is designed to exhibit all forms of "occasional sport," whether of structure or colour, as opposed to normal, sexual, or geographical variation within ordinary limits, the specimens being arranged in their families and genera so as to show which group and species are most liable to form sports, and as far as possible the limits of this tendency.

##### ARCTIADÆ.

*Diacrisia rubida*, Leech, ♀. The fore-wings represented by small scales, the whole of the rest of insect fully developed and normal. From Leech Coll. W. China.

*Parasemia plantaginis*, Linn. (1), ♀. Left hind-wing with the medial part of termen strongly excised: (2) ♀. Hind-wings with the orange areas suffused with black. From Coll. S. Stevens.

##### NOCTUIDÆ.

*Triphana hyperborea*, Zett., ♀. All four wings with the termen excised, especially the wings of left side. From Coll. S. Stevens.

*Catocala nupta*, Linn. Hind-wings with the red areas suffused with black.  
Wandsworth. J. Chapman.

#### LYMANTRIIDÆ.

*Lymantria dispar*, Linn. (1), ♂ bred by Mr. Enoch, 1867, v. Entom., xi, p. 170, and fig.: both hind-wings with the apical area excised, to the discocellulars on left side, nearly to them on right side: (2) ♀ with the left antennæ of a male and that side of frons brown. From Coll. S. Stevens.

#### SPHINGIDÆ.

*Mimas tilia*, Linn. Right fore-wing with the medial band reduced to a dentate spot at lower angle of cell. From Coll. S. Stevens.

#### GEOMETRIDÆ.

*Pseudopanthera macularia*, Linn. (1), ♀. Fore-wings with the spot beyond the cell and the one above it on costa elongate: (2) ♂. Left side with medial streaks on costa, and in discal and submedian folds: (3) 1 ♂, 2 ♀, the dark blotches obsolete except the antemedial, medial, and postmedial spots on costa. From Coll. S. Stevens.

*Boarmia abietaria*, Hüb. 3 ♂, 1 ♀, melanistic. From Coll. S. Stevens.

*Boarmia repandata*, Linn. (1), 2 ♂, 3 ♀. Fore-wings with medial black band: (2) ♀. Left side with male antennæ: (3) 1 ♂, 6 ♀, melanistic. Coll. S. Stevens.

*Boarmia glabraria*, Hüb., 2 ♂. Fore-wing with the basal and terminal areas partially suffused with black. From Coll. S. Stevens.

*Abraxas grossulariata* (1) ♂. Left fore-wing with the termen excised below apex: (2) ♀. Right fore-wing with the termen excised; right hind-wing with the termen excised towards tornus; left fore-wing considerably shorter than hind-wing: (3) ♀ albinistic, the black markings more or less reduced: (4) ♀, wings tinged with orange: (5) 8 ♂, 5 ♀, more or less melanistic; the more interesting being a female with the postmedial orange band of fore-wing almost obsolete; a male with the terminal area of fore-wing and two males with the terminal area of both wings nearly covered by confluent black markings; a male with both wings strongly irrorated with fuscous; a male with the wings black, except a medial band on fore-wing and the basal area and some subterminal streaks on hind-wing; a male with the wings fuscous-black, with the black and orange markings faintly visible. All from Coll. S. Stevens.

#### LYCÆNIDÆ.

*Lycæna Icarus*, Rott. Hermaphrodite: the right side male, the left female; the right clasper and ovipositor present. From Coll. S. Stevens.

#### ZYGENIDÆ.

*Chalcosia venosa*, Wlk. ♀, mesothorax on left side giving rise to three fore-wings, the 2nd very small and contorted, the 1st and 3rd about one-half natural size. Coll., E. E. Green, Ceylon.

British Museum (Nat. History):

August, 1900.

SOME NOTES ON THE BRITISH SPECIES OF THE  
GENUS *NORELLIA*.

BY COL. J. W. YERBURY, LATE R.E., F.Z.S.

Having during the past three years devoted some time to the British species of the genus *Norellia*, it may be useful to draw attention to some of the conclusions I have arrived at, particularly as these conclusions are opposed to some generally accepted ideas on the subject.

While in Scotland during the year 1898 I took several female specimens of a *Norellia* which agreed so perfectly with Becker's and Meigen's description of *N. striolata* that I had no hesitation in referring them to that species; this identification was confirmed later on by Mr. Austen (one of my female captures stands at the present time under the head of *N. striolata* in the B. M. Collection), and has apparently since been followed by Mr. Grimshaw, who records (Ann. Scott. Nat. Hist., Jan., 1900, p. 28) a specimen taken by me at Aviemore as belonging to this species. To my surprise, however, I found that all the male specimens taken on the same dates and in the same places with the above females belonged to *N. flavicauda*, and that no males at all agreeing with the description of *N. striolata* ♂ had been captured. This result struck me as being so strange that I determined to get together a long series of the genus from various localities for further examination. With this object I amassed during 1899 some eighty specimens representing the so-called species, *spinimana*, *flavicauda*, *nervosa*, and *striolata*. This long series showed a complete gradation from the form (*spinimana*) with a bright reddish-yellow thorax bearing two fine black lines, through the form (*flavicauda*) in which the lines have become broader and lighter coloured (brownish-drab), eventually coalescing and leaving only the points of the shoulders and the scutellum of the original red, on to the form (*nervosa*, Meade, *nec* Meigen) in which the brownish-drab colour covers the whole disc of the thorax and swallows up even the shoulder points and the scutellum. As the distinctions given in Becker's table (Berl. Ent. Zeit., xxxix, 1894, p. 124) for the separation of these four species depend mainly on the colour and striping of the thorax, and as my specimens showed no definite points for division in that respect, but appeared to merge the one into the other, I was forced into the conclusion that our English specimens were all forms of one species. I was so impressed with this idea that when at Newmarket last September I asked Mr. Verrall to examine all my specimens to see

whether he could find any structural characters by which to separate the forms. This he kindly consented to do, and passed all my specimens (supplemented by those in his own collection, making a series of between 90 and 100 specimens) in review under a strong power of the microscope; his report was that he could detect no structural character by which to separate them, and that he thought it highly probable that my conclusion as to the specific identity of all these specimens was correct.

[Mr. J. E. Collin, of Newmarket, who has recently examined the species of *Norellia* in Mr. Verrall's Collections, sends me the following notes:—

"I believe every true species of *Norellia* has the genital plates of the male (those processes at the end of the fifth ventral segment which are always plainly visible) of a different shape to those of its allies, at least the following species all differ in that respect:—*spinimana*, *striolata*, *liturata*, *spinigera*, and *alpestris*, and I consider that a close examination of that character will decide the limits of variation in the species *spinimana*. The exponents of the genus in Mr. Verrall's British Collection consist of three species, *spinimana* (several of which were Col. Yerbury's captures), *liturata*, and a single male *spinigera*.

"*N. spinimana* differs from the other two in being larger and in having five pairs of dorso-central bristles on the thorax, while I believe there are always more (generally three) strong bristles or spines underneath at the tip of the posterior femora.

"*N. liturata* has the disc of the abdomen black haired, while the whole of the abdomen is pale haired in *N. spinigera*.

"With regard to Continental specimens, *N. striolata* though like *spinimana* in having five pairs of dorso-central bristles, is however much larger and darker, with longer, more slender, and more pubescent legs, and fewer (generally only one) stout bristles or spines underneath at the tip of the posterior femora. *N. alpestris*, a quite distinct species, is hardly likely to occur in Britain."—J. W. Y.]

The late Dr. Meade (Ent. Mo. Mag., August, 1899, p. 173) quotes seven species of the genus as British or reputed British, viz., *spinimana*, *flavicauda*, *nervosa*, *striolata*, *armipes*, *spinipes* and *liturata*. Of these I consider the British specimens of the first four to be forms of one species; according to Becker's remarks (*l.c.* p. 127) the fifth species, *armipes*, appears to be a doubtful one; the next, *spinipes*, has been transferred by Rondani and Becker to the genus *Achantholena*, and as it has not been met with within our limits during recent years it had better be relegated to the reputed list: this will only leave two British species, viz., *spinimana* and *liturata*, and to these a third species, *spinigera* (requiring further confirmation) has to be added.

Following the table given by Becker (*l.c.*) the following seems a key to our British species of the genus:—



hottest and driest part of the summer (end of July and August). Some of those from Kent and Sussex agree well with the description of *N. flava* and represent a bright reddish insect with the marking on the thorax reduced to a pair of fine black lines—the line looking as if drawn with a fine drawing pen. Two bright though not extreme forms were, however, taken far north in Scotland (Thurso and Brora) near sea level in August. The darker forms either appear early in the season (April and May at Tarrington and Hay), or else come from places of considerable altitude, or higher latitude, e.g., Rannoch, Aviemore, Forres, &c. This phenomenon may be similar to that known to exist in the genus *Dryomyza* (belonging to the *Sciomyzidae*) in which genus *D. flaveola* and \**D. Zawadskii* have been shown by Girschner and Mik to be seasonal forms of one species. In England *D. flaveola* appears to occur in the summer months while *D. Zawadskii* is on the wing in the late autumn (October and November). In the B. M. Collection are several specimens of the latter form taken by Mr. Piffard during the months of October and November, 1894.

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*ANCHOMENUS QUADRIPUNCTATUS*, DE GEER, CONFIRMED AS  
BRITISH.

BY G. C. CHAMPION, F.Z.S.

This species, included in our fauna on the authority of a single specimen taken by the late T. J. Bold, at Long Benton, Newcastle-on-Tyne, in his "Catalogue of the Insects of Northumberland and Durham (1848)," has long since been relegated to the list of doubtful British *Coloptera*. It must, however, be reinstated, as I captured an example of it on August 11th, from under loose pine-bark, in a shady place, in a wood near here.† Dawson (*Geodephaga Britannica*, p. 90, t. 1, fig. E.) describes and figures Bold's specimen, and states that it is the only one he has seen. No reliance can be placed upon Stephens's earlier records of it: the *Anchomenus* (*Agonum*) *quadrivinctatus* of the "Illustrations" (Mand. i, p. 90, t. 5, fig. 1), is probably a variety of *A. mæstus*, Duft, and that of the "Manual," *A. fuliginosus*, Panz.

In its small size and extreme agility, *A. quadrivinctatus* has,

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\* Dr. Meade was apparently unaware of the existence of these specimens or of the writings of Girschner and Mik on the identity of the two forms when he wrote his paper (*Ent. Mo. Mag.*, May, 1899, p. 102) on unrecorded British *Diptera*.

† Since these remarks have been in type I have found many specimens of the insect in the same spot, beneath the fallen pine-needles on the ground, in a comparatively dry place, where there was an abundance of *Thysanura*, upon which the *Anchomenus* probably feeds. It may be noted that a heath fire had passed over the place a year or two ago, and the ground was much charred.—G. C. C.

perhaps, more the facies, in the field, of *Badister peltatus* than of an *Anchomenus*, from all our other species of which it may be at once distinguished by the four exceedingly deep foveæ on the third interstice of each elytron. It is of a brassy colour above, and rather dull. The thorax has two long, erect setæ arising from each lateral margin, and there are two similar setæ arising from the inner margin of the eyes. The hind angles of the thorax are obtuse and considerably raised. The legs are very slender. *A. quadripunctatus* appears to be widely distributed in Northern Europe, occurring in N.E. Germany, Saxony, Westphalia, the Rhine Provinces, Austria, Sweden, Russia, &c., but I can find no record of it from France or Switzerland. There are several nearly allied American forms, one of which I have taken at a high elevation in Guatemala.

Horsell, Woking :

August 13th, 1900.

#### RE-OCCURRENCE OF *HERIADES TRUNCORUM*, L., IN ENGLAND.

BY THE REV. F. D. MORICE, M.A., F.E.S.

There has been, so far as I know, no fresh record of *Heriades truncorum*, Linn., as a British species, since Smith wrote of it in 1846, in the *Zoologist*, iv, p. 1448, as follows:—

“This species has hitherto been rare in cabinets; there is a specimen of each sex in the Kirbyan cabinet taken by Mr. Trimmer near Hammersmith, where I have myself frequently searched for it, but without success; it no doubt, like its congener, nidificates in decaying posts and rails, and, therefore, whole colonies will be destroyed occasionally when such are replaced by sound timber. I detected three specimens of the female amongst a mass of unarranged bees in the possession of Mr. Ingall, and one I obtained from a collector, captured in Hainault Forest; I have not met with the species myself.”

According to Kirby's *Monographia*, the real locality from which his specimens came was Brentford, and so Smith gives it in his *Cat. Brit. Hym.*, 1st edition, 1855, and 2nd edition, 1875. He makes no mention in the *Catalogue* of his Hainault Forest specimen, so that I suppose he must have come to feel doubts as to its identification or authenticity. Of Mr. Ingall's specimens he says in 1855, that the captor had forgotten where he took them, but in 1876, that they came from Dulwich—a discrepancy which, as Mr. Saunders has pointed out (*Hym. Acul.*, p. 311), throws some doubt on the latter locality. No

fresh records of the species are given by Mr. Saunders either in his Synopsis (1884) or his Hymenoptera Aculeata, &c. (1896).

I was, therefore, naturally much surprised and pleased to capture a ♂ of the species on July 10th of this year visiting thistles within a few hundred yards of Weybridge Railway Station. The day was dull and windy, with few bees about, and though I have twice since revisited the place, the weather has been so bad on both occasions as to destroy all chance of my repeating the capture or discovering the nidus of the insect. As *H. truncorum* nests in wood, there is of course a possibility that my specimen may have been introduced accidentally in timber from abroad. But I do not think this very likely, as I have always found it abroad inhabiting old rotten posts and rails, never fresh or sound timber; and, considering the general distribution of the species throughout Europe, it is really less strange that it should occur in England, than that it should be so rare here as it undoubtedly is.

At any rate, I hope that this capture—certainly the first in England for 50 and perhaps for 100 years (Kirby's specimens were recorded in 1802)—may be considered as renewing the almost expired right of *Heriades truncorum*, L., to figure in the British List.

Mr. Saunders has called my attention to the singular circumstance that Weybridge is also the assigned locality for two other species of aculeates, which no one has found in England since Smith recorded them thence, viz., *Megachile ericetorum*, Lep. (*pyrina*, Smith), and *Crabro clypeatus*, Linn. Both these insects, like *H. truncorum*, are common abroad, and it is hard to see why they should refuse so persistently to turn up in this country.

Brunswick, Woking:  
August 8th, 1900.

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*NOMADA ATRATA*, SMITH, = *BREVICORNIS*, SCHMIED., RE-ADMITTED  
INTO THE BRITISH LIST.

BY EDWARD SAUNDERS, F.L.S.

On the 4th inst., whilst collecting on the hills near West Clandon, I took a curious-looking very dark brown ♂ *Nomada* on *Scabiosa* (*Knautia*) *arvensis*, Linn., in company with a few examples of *Andrena Cetti*, Schr., and one or two of *Nomada jacobææ*. At first I thought it might be a very dark *ferruginata*, but as soon as I compared it with my specimens of that species I saw it was quite distinct. On turning to my Continental collection I found a ♀ of *brevicornis*, Schmied.,



which at once reminded me of my capture, and on consulting Schmiedeknecht's description (Apid. Eur., vol. i, p. 241) it was quite clear that my ♂ belonged to that species. He also gives *Andrena Cetii* as its host, which further dispelled any doubt I had. Mr. Morice visited the same locality on the 13th, and captured another ♂; on the following day he secured 1 ♂ and 4 ♀ in quite a different locality, viz., on the high road to Chobham, these occurred also with *A. Cetii* but on *Scabiosa succisa*.

While Mr. Morice and I were examining these, he suggested the possibility of their being the same as F. Smith's *atrata*, and on reference to his descriptions I have no doubt whatever that they are. Smith described the ♂ in his Catalogue of the Bees of Great Britain, 1855, p. 135, and the ♀ in Entomologists' Annual, 1858, p. 44; his name being the older must stand, but he himself sunk this species as a variety of *germanica* (= *ferruginata*) in his Cat. Brit. Hym. Acul. (Ent. Soc. Lond.), 1871, p. 34, and in the 2nd Ed. of his Catalogue of British Bees, and so it got lost sight of.

It is not impossible that *atrata* will have to sink in favour of *argentata*, H.-Sch. (Germ. Zeitsch. für Ent., I, 1839, p. 276), indicated by Dalla Torre as a synonym of *ferruginata*; it is clearly distinct from the latter by the patches of silvery hairs on the pleuræ and propodeum, but the margins of the abdominal segments are described as brown, which is not the case in our specimens of *atrata*.

The characteristic features of the species are the following:—

♂. Antennæ unusually short, black, with only the apical five joints paler beneath, 3rd joint much shorter on its lower margin than the 4th, basal joints of the *flagellum* not swollen as in *ferruginata*, the following joints with a somewhat rounded tubercle near the apex of each beneath, not with a sharp acute one as in that species; labrum black, with a sharp central tooth and two rather indefinite tubercles nearer the base. The head and thorax are coal-black, very coarsely punctured, the mandibles and cheeks between the eyes and mandibles testaceous, tegulæ and tubercles piceous, scutellum bituberculate, very largely punctured, the tubercles more or less ferruginous. Wings smoky, with a clearer region beyond the submarginal cells, nervures dark, propodeum with a very distinct patch of silvery hairs on each side. Abdomen piceous-brown, 2nd and 3rd segments rather lighter in colour, and clothed at the sides with silvery hairs, apical segment very slightly emarginate at the apex. Anterior legs ferruginous, intermediate and posterior pairs dark piceous, nearly black, knees and tibiæ in front paler, calcaria pale, posterior tibiæ with four pale spines at the apex.

♀ rather paler than the ♂; the mandibles, cheeks, a spot on the side of the vertex above each eye, a spot on each side of the pronotum, the tubercles, tegulæ, a spot on the mesopleuræ, the tubercles of the scutellum, and sometimes a spot on the postscutellum, the abdomen, and the legs, more or less ferruginous, the former

black at the extreme base, and darkened towards the apex. Antennæ picous, paler beneath, with the 3rd joint beneath shorter than the 4th as in the ♂, and the propodeum densely clothed at the sides with silvery hairs, mesothorax almost glabrous, being clothed with only very short hairs, posterior tibiæ at the apex armed with four or five dark spines. Abdomen with the 5th ventral segment longitudinally impressed towards the apex and carinated down the middle, much as in *ferruginata*.

Long., 7—8 mm.

This species is closely allied to *ferruginata*, but its rather smaller size, the form of its antennæ with their shorter 3rd joint, its darker colour, the less hairy mesonotum, and the silvery haired sides of the propodeum, will easily distinguish it.

St. Ann's, Woking:  
August, 1900.

*POMPILUS (WESMAELINIUS) SANGUIOLENTUS*, F.: AN  
ADDITION TO THE BRITISH LIST.

BY EDWARD SAUNDERS, F.L.S.

A ♀ of this beautiful little species was taken by Dr. Sharp on a forest path between Holiday Hill and Emery Down, New Forest, on July 18th of this year, in company with other Fossores, *Mimesa bicolor*, *Cerceris arenaria*, *Astata boops*, &c. More were looked for without success. This is one of the most interesting additions to our fauna that has been made for many years. It is a very rare species everywhere, although it has been recorded from North and Mid-Sweden, Belgium, France, Germany, Saxony, Italy, Spain, and Russia, and a variety named *nasutus*, Morav., occurs in Central Asia.

It has been the cause of considerable confusion in nomenclature. Dahlbom described it in his "Dispositio" under *Isonotus*; this name he withdrew as being pre-occupied in *Coleoptera*; and in his "Hymenoptera Europæa" he still suggested the possibility of its forming a new genus, in which case he proposed for it the name of *Homonotus*; but in his Synoptical Tables at the end of the work he puts *sanguinolentus* into *Salus*, and distinguishes *Homonotus* from that genus by characters not existing in the species before us. Costa, therefore, in his "Prospetto" in 1887 rejected the name *Homonotus*, and described it under a new genus, *Wesmaelinus*. As, however, Kohl has united the several allied groups under the one well-known name of *Pompilus*, I have followed him as treating it as only a subgenus.

It is abundantly distinct from any other British species, and Dr. Sharp at once realized that he had captured something that would not agree with anything in our lists.

In form it is elongate and almost parallel-sided. The head is black, scarcely wider than the thorax, very much produced between the antennæ, so as to appear almost rostrate from a dorsal view, its sides behind the eyes parallel, posterior margin excavated and closely applied to the thorax; pronotum red; mesonotum and metanotum black; propodeum red, the red portion and the black subequal in length; sides of the thorax parallel; pronotum posteriorly scarcely concave, propodeum strongly so and closely applied to the base of the abdomen, its lateral angles produced and dentate. Wings rather short, slightly dusky, with three submarginal cells, 2nd and 3rd each wider than high, the 3rd wider than the 2nd; posterior vein of the hind-wing united to the median by a transverse nervure at a point some distance before the latter branches (this is the chief character of the subgenus). Legs black, tibiae and tarsi very slightly spinose, anterior pair of the latter with no metatarsal comb; calcaria white or nearly so. Abdomen aciculate, with a narrow band of grey pubescence covering the apex of the 1st and the base of the 2nd segments, and a second covering the apex of the 2nd. Long., 8 mm.

The ♂ is very like the ♀ in shape, but quite black; its white calcaria, like those of *Calicurgus hyalinatus*, being a very marked character.

St. Ann's, Woking:

August 18th, 1900.

*Callicera ænea*, F., in *Lincolnshire*.—I had the great pleasure of taking a fine example of this beautiful Syrphid near Little Bytham, a village about 12 miles south of Grantham, on the occasion of an outing with the Lincolnshire Naturalists' Union. One of our members also picked up an example of the curious little bug, *Podops inunctus*. This would seem to be the most northerly record for this species.—ALFRED THORNLEY, South Leverton Vicarage, Lincoln: July 19th, 1900.

*Acherontia Atropos* in *Notts*.—I received a short time ago a fine specimen *alive* of this insect, taken on June 23rd, not far from here. This would seem to be a very early date for the appearance of this species, but I have no doubt it represents the normal course of its life history. The method of forcing out the imago about the end of August or September by those who rear the moth from the larva, making it appear to be a much later insect than it really is: I would mention also that *Amphidasis betularia* var. *Doubledayaria* has been unusually common here this year. I have taken fine fresh looking females almost up to date of writing. It is a rare thing to get the typical form now, at all events about here.—ID.

*Fruit damaged by Moths in South Africa*.—In the interesting field notes on S. African *Lepidoptera*, published by Mr. Barrett in a recent number of this Magazine (p. 142, *ante*), I observe that his correspondent has, after careful observation, arrived at the conclusion that various moths of the genera *Sphingomorpha*, *Achæa*, *Serrodes*, &c., are the cause of the fruit-rot which is unfortunately so frequent in many parts of S. Africa, especially among peaches. This used to be a

very prevalent opinion among fruit growers in Natal, and as I could not help feeling somewhat sceptical, I endeavoured to satisfy myself on the subject during the summer of 1892-93, when moths of all kinds were visiting the damaged fruit in very large numbers. My investigations, which were carried out in close proximity to the now historic hamlet of Frere, led me to an entirely opposite conclusion, namely, that the moths had nothing whatever to do with the damage, but merely visited the fruit to regale themselves on the fermenting juices resulting from injuries done by weather, birds, and especially other insects. Mr. Barrett's sister remarks that "The peaches especially get a little rotten spot, and drop off at the slightest touch. I have often wondered that the moth could pierce the rough rind of a not very ripe St. Helena peach, but they spoil them when they are quite green." From this it seems at least probable that she cannot be aware of that unmitigated little pest, the "Peach Fly" (a species of *Trypeta*, if my memory serves), which, I think, is now generally acknowledged to be the cause of all the trouble. The ♀ of this small fly perforates the skin of the half-ripe peach with her ovipositor, and the resulting maggots are the cause of the "rotten spot." On several occasions I specially marked recently punctured peaches during the day, and on visiting them with a lantern at night, found various moths sucking the punctures. Any one who had thus observed them, and who was, at the same time, unaware of the habits of *Trypeta*, might readily believe that the moth was actually boring into the fruit. It is further difficult to believe that the proboscis of a moth is capable of piercing the skin of an unripe peach, and even were it possible, there is no obvious reason why decay should set in. I have seen peaches punctured by small *Hemiptera*, but beyond the exudation of a little gum, or perhaps a slight puckering and induration, no great evil has resulted.—GUY A. K. MARSHALL, Salisbury, Mashonaland: July, 1900.

*An apparent hermaphrodite specimen of Lycæna Adonis.*—On June 9th *L. Adonis* was flying in great numbers near Reigate. I boxed, what at first sight appeared to be a pair *in copulâ*, but a further inspection proved the supposed pair to be one insect only, with the left wings of a female and the right wings of a male.

In my experience amongst the "Blues" specimens combining the colours and markings of both sexes are not uncommon. Not having examined the sexual organs of the specimen referred to, I express no opinion as to whether it is a true hermaphrodite.—H. Goss, Surbiton Hill: July 20th, 1900.

*Colias Edusa and C. Hyale in Surrey.*—Several specimens of *Colias Edusa* and *C. Hyale* have been caught here and in the Malden fields last month, and also in the Isle of Wight, so these species will probably appear on the south coast this autumn. *Lycæna argiolus* has occurred here in thousands, and *Brephos parthenias*, *Platypteryx falcula*, *Scodiona belgiaria*, *Saturnia carpinii*, *Ephyra pendularia*, *Eupisteria heparata*, and many other species have been abundant.—ID.

*Unusual abundance of Acidalia inornata at Huddersfield.*—During the fourth week in July last this species occurred here in great profusion. In one particular

wood almost any number might have been secured, and it is no exaggeration to say there were thousands in that wood. At that date, however, the great majority of the specimens were more or less worn, and evidently the very hot previous week, when I was away from home, was the time to have got them in fine condition. Only in one previous season, and that probably towards thirty years ago, have I seen the species in anything approaching such numbers.—GEO. T. PORRITT, Crosland Hall, Huddersfield: *August 10th, 1900.*

*Stenophylax alpestris*, &c., at Huddersfield.—On the occasion of the visit of the Yorkshire Naturalists' Union to this district on June 28th last, a specimen of *Stenophylax alpestris* was captured by one of the members in Henley Wood, not far from my residence, and brought to me. Long and careful subsequent searches by Mr. W. Tunstall and myself, not only on the same spot, but also on the near reservoir and streams, both during the daytime and evening, failed to produce another example: though the effort turned up another species not previously known to occur here in *Limnophilus fuscicornis* on the Meltham Mills reservoir, where also several of a rather small form of *Molanna angustata* were secured.—ID.

*An unusual variety of Sympetrum flaveolum, L., ♀, from the island of Alderney.*—Amongst a very large number of *S. flaveolum* taken by the Rev. Dr. Walker in Alderney in July of this year, there is one female that deserves special mention. Dr. Walker thought it might be *striolatum*. At first sight I thought it might be *Fonscolombii*. But it is really *flaveolum*, with the yellow on the wings reduced to a minimum. On the anterior wings there is no yellow at the base, but there is, perhaps, just an obsolescent trace of yellow at the nodus (where there is a yellow clouding in ordinary females); on the posterior wings the ordinary large yellow basal portion is reduced to a small space at the extreme base (less than in some examples of *Fonscolombii*). Parallel varieties of *flaveolum*, ♀, are not unknown, but are certainly rare (or confused with other species); on this point see De Selys' "Revue des Odonates," where (at pp. 34—35) allusion is made to similar individuals from Belgium and Prussia. Possibly the best *prima facie* characters whereby to separate such varieties from *Fonscolombii* are the shorter pterostigma and the for the most part blackish (instead of reddish) longitudinal nervures. Naturally in such cases one looks to the vulvar scale for confirmatory evidence. Such evidence is present, but the form of the scale is somewhat similar in both, and I have not seen any published comparative notes. In both it is very short, not prominent, and deeply excised in the middle. There is this difference: in *flaveolum* the excision is small, nearly circular, with the angles at the open part slightly convergent; in *Fonscolombii* the excision is much wider, occupying more of the whole scale, and the angles recede or are divergent.

It is but natural, under the circumstances, that I should again allude to the ♀ of *S. Fonscolombii*, from Alderney, named by me for Mr. Luff—published in the present volume at p. 43, *ante*. I have not again seen this specimen, but from information furnished by Mr. Luff, in answer to my enquiries, there does not seem the slightest reason to doubt that it is a genuine *Fonscolombii*.—R. McLACHLAN, Lewisham, London: *August 16th, 1900.*

*Rare Hymenoptera near Cobham (Surrey).*—The following more or less rare, or at any rate local, species of *Hymenoptera*, occurred to me this July within the compass of a few yards of broken sandy ground beside the Portsmouth road, just half-way between Cobham and Ripley (Surrey).

*Methoca ichneumonides*, Latr., ♂ and ♀.—(The ♂ resisted capture violently, and unluckily lost part of an antenna in his struggles. Otherwise the specimen is a very fine one, and the first I have ever seen alive. The ♀ was taken nearly on the same spot a day later). *Ammophila (Miscus) campestris*, Latr. (both sexes very abundant). *Mimesa unicolor*, v. d. L. *Tachysphex unicolor*, Pz. *Crabro scutellatus*, Schv. (females only). *Odynerus gracilis*, Brullé (one ♀ sitting on the sand; hitherto I have only taken this species near hedges visiting *Rubus* or *Scrophularia*, neither of which plants could I find anywhere near on this occasion). *Sphcodes reticulatus*, Thoms. *Halictus prasinus*, Smith, ♀, and *Andrena argentata*, Smith. (The ♂♂ were pretty common on July 14th, but I saw no ♀♀ till a later visit to the place in August).

The beautiful little Chrysid *Notozus Panzeri*, F., was surprisingly abundant on this spot, flying about isolated tufts of ling not yet in full bloom, so that once I actually caught above twenty (mostly ♂♂) with a single sweep of the net. As they danced in the bright sunshine they looked like little green sparks—a truly beautiful sight. I have only taken this species before in isolated specimens resting on plants or grass. Nothing, I believe, is known as to the “host” of this pretty parasite; but I have certain reasons for suspecting that it may be attached to the *Mimesidæ*, and especially to *M. bicolor*, F., which I invariably find common wherever *N. Panzeri* occurs.

Not far from this spot runs another less frequented road connecting Cobham and Ripley by way of Ockham. Beside this road also, on a spot abounding in long grass and wild flowers near the village of Downside, I have this year (in June and July), found several interesting *Hymenoptera*. These include several ♂♂ of *Pemphredon (Ceratophorus) morio*, v. d. L., a species which has very seldom been found in England, and never before to my knowledge in this neighbourhood, also four specimens (all males) of *Crabro pubescens*, Shuck., and one of each sex of *Crabro gonager*, Lep.—F. D. MORICE, Bruiswick, Woking: August 7th, 1900.

## Reviews.

PROCEEDINGS OF THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY, 1899. Pp. 120 8vo, with one plate. Published at the Society's Rooms (Hibernia Chambers, London Bridge, S.E.). 1900.

This Annual Report contains, in addition to the extended account of the business at the Meetings, some valuable papers. First and foremost is that by Dr. Chapman on “Some points in the Evolution of the Lepidopterous Antenna” (illustrated by one plate), a highly speculative paper, and in part a running commentary on the published views of Bodine and K. Jordan. Speculative as it is, its utility, like that of all Dr. Chapman's memoirs, is great, and lies in the certainty that no theories are put forward without being based on facts, and his accumulation

of facts may probably prove of more lasting interest than the theories deduced from them. This paper must be studied by all workers on the subject. It will be startling to some to read the theoretical assertion (p. 6) that "*Micropteryx* is more Neuropterous than the *Trichoptera* are," even if "*Trichoptera* and *Eriocrania* are on about the same horizon." Dr. Chapman's paper is followed by another equally or more speculative, by Mr. Tutt, on "The Nature of Metamorphosis." Then comes a short paper by Mr. Scourfield on "Fresh-Water Entomostraea," followed by one on "*Orthoptera*: with special reference to the British species," by Mr. Malcolm Burr, a well written and useful article. The papers end with one by Mr. R. Adkin, being a continuation of his notes on the *Lepidoptera*, &c., of Enstbourne, in which are included valuable direct observations on an immigration of *Pieris rapæ*. The Address by the President (Mr. A. Harrison, F.L.S., &c.) may be read with both pleasure and profit; it shows that the writer of it can reason soundly on what he has read. It may be divided into two parts: the first treating on the somewhat obscure subject "Telegony," the other on the transmission of malarial fevers by *Culicidæ*, in which the results of the latest experiments are detailed in a succinct and intelligible manner.

The accounts show that the Society's financial position is sound; but there is the usual lament that some Members will not satisfy their engagements by paying up—a lament shared by many Societies.

Although the papers published *in extenso* are somewhat fewer than is usual, we consider the value of these "Proceedings" as a whole fully equal to the publications of the Society for any former years. We are reminded that this is its 27th Annual Report, and that its numerical strength is 166.

#### A LIST OF THE COLEOPTERA OF THE ROCHESTER DISTRICT: by J. J. WALKER, R.N., F.L.S.

This list, published at intervals in vol. ii of the "Rochester Naturalist," was commenced in July, 1897, and concluded in July, 1900. 1615 species are enumerated, nearly half of the total number known as British, and with few exceptions all captured by the indefatigable compiler. Copious notes on localities, habits, &c., are given, as well as general remarks on each of the families. The district comprises an area of about 113 square miles, contained within a circle of six miles radius of the L.C.D.R. station at Chatham, in which "we find some of the most charming scenery in Kent, with an endless variety of soil, aspect, and condition of country, as well as a flora of exceptional richness. It includes sand, clay, gravel, and chalk, the latter soil occupying a large portion of its surface; old and young woods of great extent, dry open flowery hill-sides, pasture, hedgerow, water-meadow, salt-marsh, and river-bank." The total number of species recorded from Norfolk by Mr. Edwards is 1729, and from Suffolk by Mr. Morley 1763, as against 1615 from the Rochester district alone, which thus appears to be particularly rich in *Coleoptera*. The counties of Kent and Surrey together would probably furnish fully 2400 species, about 2200 having been noted by me in a list compiled about 25 years ago, and never finished.—G. C. C.

## Obituary.

*Ottmar Hofmann* (Sept. 20th, 1835—Feb. 22nd, 1900).—Our April number contained a brief notice of the death of Dr. Ottmar Hofmann: some additional particulars of a life devoted to special study may be interesting to many of our readers, his name having been long familiar to English entomologists through the writings of the late Mr. H. T. Stainton, to whom he rendered much valuable assistance, and whose high appreciation was testified by the dedication of the eighth volume of the *Entomologist's Weekly Intelligencer* in the following words:—"To Doctor Ottmar Hofmann, in return for the pleasure we experienced on beholding the long-sought larva of *Nemotois scabiosellus*, this volume is dedicated as an encouragement to persevere in his path of discovery."

Born at Frankfurt a/M on September 20th, 1835, he went with his parents to Regensburg in 1846, where his acquaintance with Herrich-Schäffer led to the publication of their collaborated work, "*Die Lepidopteren-Fauna der Regensburger Umgegend*" (*Regensburg*, 1854—8), and probably contributed to engage his interest and attention in the pursuit of Entomological research, for which he and his brother Ernst (who predeceased him) must have inherited some inclination. When studying for the medical profession at Erlangen he was selected by Professor Will as Assistant for Comparative Anatomy, and throughout his life exhibited the effects of this early training in his endeavours to correlate homologous structures and to illustrate his special studies by comparisons extending over a far wider field of research. In Medical practice he was no less distinguished than in Entomology, being at the time of his death "Kgl. Regierungs- und Kreismedicinalrath," but although obliged to rely upon the former as a profession, his preference appears to have been given to the latter, and especially to the study of critical differences of structure and obscure life-histories of European *Micro-Lepidoptera*. He was no mere collector of specimens, his object, as exemplified by his collections and by the numerous microscopic preparations which accompany them, was obviously to clear up doubts and fill up deficiencies in recorded knowledge, and in the pursuit of this object no time or careful industry was grudged—an example may be quoted in the case of his new genus *Colopteryx* (published in 1897), the unique type of which has been neatly bisected, the wings of one half denuded for structural examination, and mounted in a microscopic slide.

A long series of publications was the natural result of untiring devotion to study—among his more important papers, "*Ueber die Naturgeschichte der Psychiden*" (*Berlin*, 1860), had procured him the degree of Doctor of Medicine in the previous year. "*Beiträge zur Naturgeschichte der Tineinen*" (*Stettin*, 1868), and "*Beiträge zur Naturgeschichte der Coleophoren*" (*Stettin*, 1869), were notable papers, and "*Beiträge zur Kenntniss der Coleophoren*" (*Regensburg*, 1877), may be mentioned as another specially useful contribution.

In his "*Untersuchungen über Sciaphila Wahlbomiana, Linn., und verwandte Arten*" (*Stettin*, 1872) [translated by Stainton, *Ent. Ann.*, 1873, 50—67] he made a bold and well-considered effort to correct the synonymy of Staudinger and Wocke's Catalog—a task which had not been seriously attempted by any other entomologist. The genitalia of both sexes, and the larvæ of the various forms, were carefully studied, attention being called to newly discovered structural differences in both stages.



"Die deutschen Pterophorinen. Systematisch und biologisch bearbeitet" (*Regensburg*, 1896) is a most valuable addition to the knowledge of the subject, containing as it does the first attempt ever made to differentiate by comparison of structure the numerous closely allied and obscure species comprised in this family, his system and example having been followed in America by Dr. Fernald.

The conclusion of his work is to be found in "Die Lepidopterenfauna des Bismarck-Arehipels," by Dr. Pagenstecher (*Stuttgart*, 1900), where the descriptions of the *Pterophoridae* are from the pen of Ottmar Hofmann, although the names and dates of capture must be attributed to Dr. Pagenstecher. In this connection it is to be regretted that the editor did not inform the author that he proposed to create the generic name "*Hofmannia*, A. Pagenst.," which name is generally known to have been pre-occupied since 1876, in the concluding volume of von Heinemann's work "Die Schmetterlinge Deutschlands und der Schweiz" (p. 644), edited posthumously by Dr. Wocke.

Dr. Hofmann's last paper, entitled, "Zur Naturgeschichte der Micropterygiden," with a structural drawing, was published in the *Illustrierten Zeitschrift für Entomologie*, V (*Neudamm*, 1900).

Dr. Ottmar Hofmann died on February 22nd, 1900, leaving a widow and two daughters to lament his loss; all who knew him testify to the exceptional charm and amiability of his personal character.

We need not refer at length to his distinguished career in the Medical Profession, but entomologists throughout the world will lament the loss to science of an indefatigable worker, a careful and conscientious observer, and a faithful recorder of a mass of useful information, which has added greatly to our knowledge. It will be some consolation to our readers that the cabinets containing the *Pterophoridae*, *Psychidae*, *Sesiidae*, *Tortricidae*, and *Tineina*, his very numerous microscopic slides and preserved larvæ, together with his MS. notes and catalogues, have been safely conveyed to Merton by Mr. Durrant and are now in my Museum.

I regard it as a high privilege to have been permitted to acquire these objects that they may ultimately be associated in the National Collection, with the specimens which illustrate the work of Fabricius, Haworth, Stephens, Zeller, Stainton, Frey, and Christoph. It was the expressed wish of their late possessor that they should not be presented to any local museum where they would be in danger of falling into disuse, but that they should be offered for purchase to some working specialist, who might be likely to turn them to the best advantage in the interest of science. A special value attaches to Hofmann's series through the possession of numerous examples from Herrich-Schäffer's collection which were used to illustrate his great work on the *Lepidoptera* of Europe.—WALSINGHAM: August 7th, 1900.

*Christopher Ward, F.L.S.*—The death is announced at Barbon, Kirkby Lonsdale, of Mr. Ward (formerly of Halifax, Yorks.), on July 20th, in his 64th year. More than 25 years ago he commenced forming a collection of African *Rhopalocera* with great ardour, and sent out special collectors. The new species were described by him in vols. vi to ix of the first series of this Magazine, and he also commenced a 4to illustrated publication under the title "*African Lepidoptera*," but it did not extend beyond two parts, which appeared in 1873 and 1874 respectively. Circumstances induced him to abandon Entomology, and we had heard nothing of him for many years.

## Society.

ENTOMOLOGICAL SOCIETY OF LONDON: *June 6th, 1900.*—Mr. GEORGE HENRY VERRALL, President, in the Chair.

Mr. Hedworth Foulkes, B.Sc., of The College, Reading; and the Rev. H. C. Lang, M.D., of All Saints' Vicarage, Southend-on-Sea; were elected Fellows of the Society.

Mr. G. H. Verrall exhibited a species of the genus *Ceratitis*, Macleay, apparently identical with Bigot's *C. frenicillatus* from the Gold Coast (W. Africa). Mr. Claude Fuller, State Entomologist for the Department of Agriculture, Natal writes of this as "one of our greatest local pests which is responsible for the destruction of tons of fruit; the larvæ infest apples, apricots, peaches, plums, oranges, mangos, guavas, and I have reared them from the berries of *Solanum giganteum*." Mr. Verrall also exhibited a very handsome *Trypetid* reared from the fruit of *Mimusops caffra* by Mr. Fuller, at Durban. Mr. C. Waterhouse, specimens of a Hemipteron, *Aspongopus nepalensis*, from Capt. Gorman, I.M.S., who states that they are found under stones in the dry river-beds of Assam; they are much sought after by the natives, who use them for food pounded up and mixed with rice. Mr. Merrifield exhibited a number of pupæ of *Aporia cratægi*, and called attention to the want of correspondence between the markings on the pupal and those on the imaginal wing. On the latter, as is well known, there are no spots, only darkened nervures, the darkness spreading out a little on the outer margin, but on the former there are black spots, some of them forming an oblique black row across the wing, a series of black marginal spots and no darkened nervure. As might be expected of an insect whose larva pupates by preference on stems screened by foliage, its colour is not very greatly affected by its surroundings. Mr. Merrifield, some enlarged coloured photographs of the green and dark forms of *Papilio Machaon*, obtained by causing the larvæ to pupate on green, yellow, or orange surfaces, and on dark ones respectively. Whether the pupa was to be green or dark was to be determined by the surroundings to which it had been exposed before it had cast off the larval skin, and if it was going to be a dark one, the dark colouring came on exactly the same in complete darkness as in light. Sir G. F. Hampson exhibited specimens of a moth belonging to the sub-family *Hydrocampinæ* of the *Pyralidæ*, *Oligostigma aræalis*, Hampson, from Ceylon, where his correspondent, Mr. J. Pole, had met with a swarm on an island in a river, which he estimated at 20,000. When disturbed the buzz made by their wings was quite audible, and after three waves of the net 236 specimens were bottled from round its edges, the net still appearing quite full; as in the some thirty specimens sent the sexes were in almost even proportions, this was not a case of male assemblage. Also cleared wings, showing the neuration of *Diacrisia russula*, *Tyria jacobææ*, *Callimorpha Hera*, and *C. dominula*; he contended that the genus *Callimorpha* should be removed from the *Arctiadae* and placed in the *Hypsidæ*, where it is closely allied to *Nyctemera callarctia* and other genera, and that the fully developed proboscis, the non-pectinate antennæ, the smoother scaling, the more diurnal habit, and the larvæ being scantily clothed with hair, all bore out the correctness of this association. Dr. Chapman, a portion of a stem of *Ferula communis* from Ile St. Marguerite, near Cannes, showing pupa cases

of *Lozopera Francillonana*; the larva feeds in the flower-heads and seeds, and burrows into the stem for hibernation, in the majority of cases under the protection of the great sheathing petioles at the lower joints. These burrows proceed in all directions, but most frequently upwards, for several inches, often as much as eight or ten inches, and then approach the surface, and the burrowing appears to go on all winter. In February and March larvæ may be found that have not completed their burrows. On completion the burrow approaches the surface, and the opening is of full calibre, but a delicate film of tissue is left to be ruptured by the emerging pupa, and a number of vacant holes are also visible, being the exit of an ichneumon, which affects a large majority of the *Tortrix* larvæ. The species was believed to be *Chelonus inanitus*, Nees. The heads of several dead ones that failed to emerge successfully were to be seen at some of the holes. He said he had placed a black circle round four holes as prepared by the larva of the *Tortrix* for emergence, that were still intact, and in two of these it was to be noted that the diaphragm was, as he had described, the cuticular tissue of the plant; in the two others, however, this had been damaged, and here the larva had made a silken diaphragm fortified with chips of the stem tissue. In the neighbourhood of the node especially the holes of entry were to be seen packed tightly with frass, which appeared to be uncaten material. At the extremities of the specimen, which was too short to contain the whole of the individuals that entered at this node, the larvæ had burrowed in the stem. Mr. F. Enock exhibited living specimens of male and female *Ranatra linearis*, Linn., from Epping, together with the peculiar forked eggs, which he had observed laid by the *Ranatra*, as it rested upon the upper surface of the leaf grasping the edges with its claws. The short anterior legs are held well up close together, in a line with the body, the head raised about an inch from the leaf, while the tip of the abdomen and ovipositor is pressed against the leaf—a downward and forward movement being given. The ovipositor is thus forced through the leaf, then partially withdrawn and the egg extruded and forced into the hole as far as the forked filaments, which prevent it from going right through the leaf. The eggs are frequently laid in the half-decayed stems of aquatic plants. The peculiar *Prestwichia aquatica*, Lubbock, has been bred from the eggs of *Ranatra*. Mr. H. K. Donisthorpe, a larval case of *Clythra quadripunctata* from the nest of *Formica rufa*, and a case fastened to a piece of wood in the nest containing pupæ; larva and pupa cases in spirit, removed from cases, and an empty case fastened to a twig showing how the beetle escapes, and the perfect insect; also *Lomechusa strumosa*, with its host *Formica sanguinea*, sent by Father Wasmann from Holland, the insects mounted in the position assumed by the guest and host when the former is being fed by the latter; and *Cossyphodes Bewickii*, Woll., a beetle from Cape Colony, with ants with which it is found—*Pheidole megacephala*, var. *punctulata*, Mayr. The beetle is a good example of the protected guests. Mr. C. G. Barrett, two females of *Spilosoma mendica*, reared by Mr. J. E. Robson, of Hartlepool, tinged with purplish-pink, and ordinary specimens of the same for contrast. A paper was communicated on "Life-histories of the Hepialid group of *Lepidoptera*," by Mr. Ambrose Quail; and "A note on the habits and structure of *Acanthopsyche opacella*, H.-Sch.," by Dr. A. Chapman.—C. J. GAHAN and H. ROWLAND-BROWN, *Hon. Secretaries*.

## NEW CORSICAN AND FRENCH MICRO-LEPIDOPTERA.

BY THE RT. HON. LORD WALSLINGHAM, M.A., LL.D., F.R.S., &amp;c.

(Continued from Vol. XXXVI, p. 153).

## GELECHIA, Hb.

1846 (1). GELECHIA APOLECTELLA, *sp. n.*

*Antennæ* brownish fuscous. *Palpi* whitish, with an ochreous tinge, the median joint shaded with fuscous at the base externally, the terminal joint with two diffused brownish shades around it—sometimes blended on the outer side. *Head* whitish, with a slight ochreous tinge. *Thorax* brownish, mottled with fuscous. *Fore-wings* whitish, with a slight ochreous tinge, shaded with pale brownish along the dorsum, about the middle of the costa and around the end of the cell; with strong brownish fuscous spots and blotches, one at the base of the costa, broken into smaller spots which project outward upon the middle, a smaller spot lying on the dorsum below them; at about one-fourth a more or less broken fuscous shade extends obliquely downward, slightly crossing the fold, with a projection on its outer side upon the cell, its lower extremity appears to indicate the position of a plical spot, its outer projection corresponding to the position of a discal spot beyond the plical; a strong fuscous spot at the end of the cell is clearly indicated, although forming part of a diffused, inverted, transverse shade, originating from a strong fuscous costal blotch at two-thirds from the base; around the apex and termen a line of fuscous shading is more or less broken into diffused spots, and is preceded by a somewhat less intensely fuscous blotch occupying the terminal area, its outer edge running parallel with the margin; cilia brownish grey, much speckled on their base and along their middle with brownish fuscous. *Under-side* dull brownish grey, with a strong pale costal spot at the commencement of the cilia, preceded by a fainter pale costal streak before the middle, a slender pale line runs along the base of the cilia. *Exp. al.*, 18 mm. *Hind-wings* rather shining, bluish grey; cilia brownish grey. *Under-side* shining, greyish. *Abdomen*, towards the base, pale brownish ochreous, greyish posteriorly. *Legs* pale brownish ochreous, strongly banded externally with brownish fuscous, the last joints of the tarsi faintly annulate with the same.

*Type*, ♂ (84035), Mus. Wlsm.

*Hab.*: CORSICA, Vizzavona, 11, VI, 1899. Fifteen specimens, flying early in the morning above *Juniperus sabina*.

This species may be regarded as intermediate between *interalbicella*, H.-S., and *electella*, Z., from the former it differs in the more broken appearance of the dark markings, in which the plical and discal spots are more plainly indicated, moreover, the transverse band of the pale ground-colour before the apex, which in both species tends to be divided in the middle, is slightly straighter than in *interalbicella*, where its dorsal extremity has the appearance of a spot distinctly nearer to the base than the costal spot above it. The two species can be at once distinguished on the under-side by the absence in *interalbicella* of the pale costal spot; this appears in *electella*, but

is diffused outward and downward, sometimes following the whole contour of the terminal margin. *G. electella* is a smaller species, and of lighter colouring (*i. e.*, less suffused with dark fuscous shading), moreover, it has the antennæ distinctly annulated instead of uniformly coloured, as in *aplectella*. Another point of distinction is that in *electella* there is no distinct pale line along the cilia of the fore-wings on the under-side.

1916 (2). GELECHIA LYCIELLA, *sp. n.*

*Antennæ* fawn-brown, with pale fuscous annulations. *Palpi* pale cinereous on their inner sides, fawn-brown and fuscous externally. *Head* and *thorax* fawn-brown. *Fore-wings* fawn-brown, speckled with pale fawn-ochreous, an ill-defined transverse streak of the latter indicated beyond the end of the cell; at about one-third from the base is an obscure patch of blackish scales, narrowly connected with a small spot of the same on the costa nearer to the base; beyond this, and again about the end of the cell the fawn-brown scaling shows strongly in small patches, unmixed with paler speckling, assuming an almost chestnut-brown tinge, one spot at the upper angle of the cell being nucleated with black; beyond the pale transverse bar, which is angulated a little outward beyond the costa, the apical and terminal area with the basal third of the cilia is rather distinctly black-speckled; cilia fawn-ochreous, without parallel shade-lines. *Exp. al.*, ♂, 12; ♀, 10 mm. *Hind-wings* shining, pale grey, with fawn-ochreous cilia. *Abdomen* pale greyish fuscous. *Legs* pale fawn-ochreous, tarsi faintly speckled.

*Type*, ♂ (84427); ♀ (84428), Mus. Wlsm.

*Hab.*: S. FRANCE, Perpignan (Pyr. Or.). Larva, *Lycium europæum*, 22, V, excl. 14—17, VI, 1899. Four specimens.

The larva feeds on the leading shoots of *Lycium europæum* in the latter half of May in roadside hedges near Perpignan. It spins together the young leaves among which its presence is easily noticeable. Mr. Stainton received and had figured (D. 88) a larva from M. Millière, from Hyères, having the same habits, and although I omitted at the time to make any note of the larva I have little doubt that this is the same species. It must not be confused with *Gelechia micradelpha*, a closely allied species feeding at the same time on the same plant, but of which the larval habits are widely different.

1916 (3). GELECHIA MICRADELPHA, *sp. n.*

*Antennæ* whitish ochreous. *Palpi* whitish, with a fuscous shade externally along the middle of each joint. *Head* and *thorax* whitish ochreous. *Fore-wings* pale brownish ochreous, with scattered blackish speckling; this appears in a very faintly indicated oblique transverse band, leaving the costa at about one-fourth and crossing the fold between two minute spots of raised blackish scales—the first below the fold, slightly anterior to that on the cell; another pair of minute raised spots is situated one at the end of the cell, the other a little beyond it, above the outer

extremity of the fold; beyond and above these the costal and terminal margins are studded with groups of blackish scales at the base of the pale fawn-ochreous cilia, through which a slender dark line is traceable around the apex, but not toward the tornus. *Exp. al.*, ♂, 9; ♀, 8 mm. *Hind-wings* very pale bluish grey; cilia pale fawn-ochreous. *Abdomen* rather shining, brownish ochreous. *Legs* very pale fawn-ochreous.

*Type*, ♂ (84424); ♀ (84421), Mus. Wlsm.

*Hab.*: S. FRANCE, Perpignan (Pyr. Or.). Larva *Lycium europæum*, 22, V, excl. 7—9, VI, 1899. Six specimens.

The larva of this species makes small but somewhat noticeable mines in leaves of *Lycium europæum* at the latter end of May and is as common in the neighbourhood of Perpignan as is *Gelechia lyciella*.

The larva leaves the mines to pupate and does not, so far as I have observed, attach the leaves or leading shoots to each other. It appears to be full-fed slightly earlier than the larger species which accompanies it.

1973 (2). GELECHIA (?) OCYMOIDELLA, *sp. n.*

*Antennæ* black, with very narrow ochreous annulations. *Palpi* with the median joint black, narrowly tipped with pale ochreous, a whitish line running along the inner side; the terminal joint whitish, slightly speckled and tipped with black. *Head* pale brownish ochreous. *Thorax* black. *Fore-wings* black, speckled with whitish; with three pale brownish ochreous patches along the cell; the first near the base, almost connected with a less conspicuous patch of the same colour at the flexus; the second about the middle, produced downward at the fold on its inner edge; the third smaller, at the end of the cell, touching a narrow transverse streak of the same colour which cuts off the apical portion of the wing beyond the cell, this streak is directed inward from the costa to the tornus; cilia smoky grey, with a few black scales scattered along their base. *Exp. al.*, 10—15 mm. *Hind-wings* pale bluish grey; cilia smoky grey. *Abdomen* blackish at the base and on the anal segments; assuming a brownish tinge across the middle, with the posterior edges of the segments marked with whitish lines; under-side silvery whitish. *Legs* whitish ochreous, much shaded externally with black speckling.

*Type*, ♂ (84489); ♀ (84486), Mus. Wlsm.

*Hab.*: S. FRANCE, Vernet (Pyr. Or.). Larva, *Saponaria ocyroides*, 26, V, excl. 2—22, VII, 1899. Seventeen specimens.

Allied to *gypsophilæ*, Stn., but differing in the possession of stiff bristles projecting outwards along the lower edge of the median joint of the palpi.

233 (1). CYRNIA, *gn. n.*

(Κύρνος = Corsica).

*Type*, ♂ ♀, *Cyrnia barbata*, Wlsm.

*Antennæ* about two-thirds, simple. *Labial palpi* with a porrect tuft on the

median joint, at least as long as the joint itself, from which the smooth shorter terminal joint stands up erect. *Head* with strongly developed side-tufts meeting above the vertex. *Thorax* smooth. *Fore-wings* narrow, elongate, apex scarcely pointed. *Neuration*: 12 veins; 7 and 8 stalked, 7 to costa. *Hind-wings* as broad as the fore-wings, but tapering more rapidly to a rather pointed apex. *Neuration*: 8 veins; 3 and 4 connate; 6 and 7 stalked close to the apex; the cell divided throughout its length by a vein from immediately above 5. *Abdomen* flattened above. *Legs*: hind tibiae hairy, tarsi smooth.

The palpi agree with those of *Megacraspedus*, Z., but the shape of the hind-wings at once serves to distinguish *Cyrnia* from that genus. It more nearly resembles *Apiletria*, Ld., and *Pterolonche*, Z., but in these the palpi are distinctly different.

2177 (2). *CYRNIA BARBATA*, *sp. n.*

*Antennæ* whitish ochreous. *Palpi* whitish ochreous, dusted with fuscous externally. *Head* and *thorax* whitish ochreous, the tegulae dusted with fuscous. *Fore-wings* whitish ochreous, with an indication of more strongly ochreous lines along the lower half of the cell, beneath the costa, and along the upper edge of the cell beyond the middle; along the fold runs a streak of black scales and another along the disc, commencing at one-third from the base and terminating in a black spot at its outer extremity; a slight spot is also indicated at the commencement of this streak, and the thickening of black scales at the outer end of the plical streak indicates the possibility of a third spot in some varieties; narrower streaks of scattered black scales follow the lines of the principal veins even to the apex, where also a slight group of blackish scales occurs with a few others scattered through the basal half of the pale ochreous terminal cilia. *Exp. al.*, ♂, 16; ♀, 18 mm. *Hind-wings* tawny grey; cilia whitish ochreous. *Abdomen* pale ochreous. *Legs* whitish ochreous.

*Type*, ♂ (84333); ♀ (84201), Mus. Wlsm.

*Hab.*: CORSICA, Punta Parata, 7, VI, 1899; Ajaccio, 9, VI, 1899. Two specimens.

A single pair of this very distinct genus and species; the ♂ taken at Punta Parata, opposite to the Iles Sanguinaires, and the ♀ on an uncultivated field within two miles of the town of Ajaccio. Persistent collecting with a view to secure further specimens proved quite fruitless.

*APATEMA*, *gn. n.*

(ἀπάτημα = a deceit).

*Type*, *Apatema mediopallidum*, Wlsm.

*Antennæ* ( $\frac{3}{4}$ ) stout, simple, slightly serrate towards the apex, basal joint with a pecten (fugitive). *Maxillary palpi* short, convergent. *Labial palpi* moderately recurved, divergent, smooth; the terminal joint about as long as the median, but more slender and acute. *Haustellum* scaled. *Head* moderately

smooth. *Thorax* smooth. *Fore-wings* rather narrow, lanceolate. *Neuration*: 12 veins; 7 and 8 stalked out of 6, 7 to costa. *Hind-wings* not broader than the fore-wings, evenly tapering from a broad base to an acute apex, cilia about as broad as the wing. *Neuration*: 8 veins; 6 and 7 stalked; 3 from before angle of cell, but almost connate with 4; 5 somewhat bent over towards base. *Abdomen* slightly flattened; ♂ genital segments conspicuous. *Legs*: hind tibiae hairy.

This genus is allied to *Symmoca*, Hb., but differs in the neuration of the fore-wings.

2223 (1). *APATEMA MEDIOPALLIDUM*, *sp. n.*

*Antennae* very pale ochreous, delicately annulated with brownish fuscous. *Palpi* recurved to above the vertex, apical joint two-thirds the length of the second; second joint pale ochreous, barred at the base and before the apex with fuscous externally; terminal joint pale ochreous, clouded with fuscous nearly to the apex externally. *Head* and *face* shining cinereous. *Thorax* pale cinereous, shaded with greyish fuscous. *Fore-wings* very pale ochreous, much mottled and shaded with fuscous, leaving an ill-defined pale central band and a small costal spot running through the apical cilia (this is visible on the under-side); no dark spots are clearly defined, but the fuscous scales are somewhat concentrated on the cell at one-third from the base, and again about the end of the cell where a dark spot appears to be reduplicated, or dilated, downward and outward towards the outer extremity of the fold; cilia pale greyish fuscous, with an ill-defined pale ochreous line along their base, not reaching above the apex; on the under-side a pale spot is visible in the costal cilia, *Exp. al.*, 12 mm. *Hind-wings* (1), pointed, apex slightly depressed; shining pale grey; cilia pale brownish. *Abdomen* shining, pale cinereous. *Hind legs* pale cinereous.

*Type*, ♂ (83035), Mus. Wlsm.

*Hab.*: CORSICA, Ajaccio, 6, V, 1896; Ile Rousse, 5, VI, 1898. Two specimens.

An inconspicuous species reminding one very much of *Oecogenia quadripuncta*, Hw., but smaller.

(To be continued).

*BERTKAUIA PRISCA*, KOLBE, A GENUS AND SPECIES OF *PSOCIDÆ*  
NEW TO BRITAIN.

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

In July last Mr. C. A. Briggs, so successful in his quest after *Psocidæ*, sent me an example of a somewhat large apterous species just found by him on a mossy boulder in the vicinity of Lynmouth. At that time I could not examine it closely, so suggested to Mr. Briggs that it looked much like *Bertkauia prisca*, and that he should obtain more. He has done so, and I find my suggestion as to name quite justified, and Mr. Morton tells me he also has verified the insects with Kolbe's description. The bibliography is as follows:—



*BERTKAUIA PRISCA*, Kolbe, Ent. Nachr., viii, p. 208 (1882); Id., Rostock's Netzfl. Deutschl., p. 188 (1888); Tetens, Ent. Nachr., xvii, pp. 377—378 (1891).

The following is a translation of part of Kolbe's later description (1888):—

Body brown. Head dark brown, vertex paler. Contrary to other *Psocidæ*, the vertex is distinctly swollen forwardly, the front shallowly swollen. Upper lip extraordinarily large, under lip excessively small. Palpi thin and slender, last joint five times so long as thick, and three and half times so long as the penultimate joint, it is acute as in no other *Psocid*. Second joint long, slightly clavate, and curved. The slender antennæ, as well as the palpi and legs, are unicolorous brown. The hemispherical eyes, on the somewhat long head, are large and laterally prominent. Prothorax almost as broad as the mesothorax, and of the same length. The abdomen with very distinct genital apparatus; brown above and at the sides, whitish beneath. Length, 2½ mm.

The above are mostly specific characters: to them may be added the facts that the ♀ is entirely apterous, the antennæ 13-jointed, the legs very long, with 2-jointed tarsi.

When fresh the abdomen above shows traces of fine paler annulations at the sutures; the long legs give the creature a spider-like aspect; and the extremely prominent and ciliated sub-genital plate is enough in itself to convince any one who might still have any lingering suspicion of the maturity of the creature.

Originally discovered by Dr. Bertkau under a stone on the peak of the Wolkenburg in the Siebengebirge in the spring of 1881. Later on Herr Tetens (*l. c.*) found numerous females under stones in the Nassau Rheingau, and on October 2nd, in the early morning, under a stone in the same district he found *one winged male*, which he refers to the same species, about the size of *Cæcilius flavidus*, the body colour paler than in the ♀, the antennæ with long and fine pubescence, the wings strongly pubescent, the neuration abnormal and differing in the opposing wings, where normal probably as in the fossil genus *Epipsocus*. Of this supposed male *Bertkauia* nothing further has been said, and I know not if any further examples have been found.

That the apterous examples of *B. prisca* hitherto found appear to be all ♀ is certain, and that the ♂ should be winged is almost a natural sequence. *Bertkauia* is a genus much higher in the scale than *Atropos*, *Clothilla*, *Hyperetes*, &c., as evidenced by the few jointed antennæ, and the 2-jointed tarsi, and it is possible that when the winged ♂ is fully known, the necessity for placing the genus in a special group may not be apparent.

ABSTRACT OF AN ARTICLE BY MONS. A. LANCASTER ON  
MIGRATIONS OF *LIBELLULA QUADRIMACULATA* IN BELGIUM  
IN JUNE, 1900.

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

[In June last Belgium was visited by extraordinary migratory swarms of *L. quadrimaculata*. I had intimation of such having been the case in a letter from my veteran friend Baron E. de Selys-Longchamps, and his son, Baron Raphael de Selys-Longchamps, most obligingly sent me his own copy of the Belgian Magazine, "Ciel et Terre" for August 1st, which is mainly occupied by a carefully compiled paper (illustrated by a map) on the event by the editor, Mons. A. Lancaster, Meteorological Director of the Belgian Observatory at Uccle, and Member of the Belgian Academy. A translated abstract of that paper cannot fail to prove interesting to English readers, and the more so because M. Lancaster was enabled to obtain from his observers information which it would have been difficult to collect otherwise; I would remark that the translation has been made freely, and that portions have been omitted where they seemed of widely general or locally special interest.—R. McLACHLAN].

"A phenomenon very rare in Belgium, and exceptional this time by the extent of country embraced, and by intensity, was observed on two occasions at the commencement of June last, the 5th and 10th. It concerned the migration of compact swarms of the Dragon-fly known as *Libellula quadrimaculata*."

"The migration of the 5th was noticed over a wide band occupying all the central part of our territory, from the northern extremity of the Province of Antwerp to a little over the French frontier in the direction of Mons, limited in the west by Escaut, in the south-east by the Province of Namur, to the east by the western part of the Province of Liège, and to the north-east by Limbourg. The region in which the insects were seen on June 5th extends from S.W. to N.E. in a length of about 170 kilomètres (106 miles), and from S.E. to N.W. in a distance of 100 kilomètres (62½ miles)."

"The migration of June 10th, partially continued on the 11th and 12th, was entirely localized and confined to the coast. It was not noticed inland. To the north it was noticed up to Helder, at the northern extremity of Holland."

"In both cases the migrations took place in the morning, and each time in a direction *opposed* to that of the prevailing wind. This seems of importance, because it has been already remarked with regard

to a migration observed near Ghent about June 21st, 1860, when the insects flew from S.W. to N.E., the weathercock indicating N.E."

"During the migration of June 5th last the direction of the wind in the western part of the kingdom was N.W. to N.N.W.; but according to the great majority of the accounts collected the Dragon-flies flew in an average direction of S.E. to N.W., thus contrary to the wind, which blew at the force of about 4 to 5 mètres per second."

"On June 10th the creatures came from the sea, and, as on the 5th, went against the wind, which was S.S.E. to S.E., with a force of 4 mètres."

"All the observers agree in stating that the insects flew rather low, with astonishing regularity, and without resting; that they kept close to the earth where there were no obstacles, but that they mounted to a height of 10 to 12 mètres when houses and trees were in their way; they did not go round obstacles in their line of route, but surmounted them and descended on the other side."

"According to some observers their flight was rather slow; others again asserting that it was very swift. At Uccle and Wetteren, localities placed on a line from S.E. to N.W., one could estimate the velocity of flight at 5 mètres per second, or 18 kilomètres (11½ miles) per hour."

"In general they went in groups more or less isolated and more or less dense. At Uccle, according to Messrs. Vincent and Vander Linden, of the Observatory, some were constantly in sight, and sometimes 10 together; but in other localities, such as Antwerp or in the Borinage, the groups were extremely compact at certain moments."

"On June 5th the first individuals appear to have been seen at 7 a.m. The time of maximum frequency was from 10 a.m. to noon according to locality, and the latest hour was in general 2 to 2½ p.m. On the Escaut, however, according to an observation of M. Van Heurck, Director of the Botanical Gardens at Antwerp, belated individuals were seen up to 4 and 5 p.m. He says that the captain of his yacht, moored midway between Antwerp and Burght, reported that between 2 and 3 p.m. the insects were in such numbers that the air appeared black; towards 4 to 5 p.m. there were still isolated individuals. More than that, M. F. Jacobs, President of the Belgian Astronomical Society, at his chateau to the north of Termonde, witnessed the migration as late as 7 p.m. He says he is certain that at that hour the flight was less regular, the insects flew in masses slightly separated, frequently touching the hay, and appearing as if they wished to stop for the night. But they did not fix themselves definitely, and

flew from plant to plant from S.S.E. to N.N.W. Next day they had disappeared; but a few apparently remained, for since that time several have been seen, where there were none formerly."

"The temperature was very high during the two migrations, and especially on the 11th and 12th. In the interval a fall of the thermometer took place. Here are the maxima and minima observed at Uccle on the 4th, 5th, 10th, 11th and 12th June."

	Max		Min.
4th .....	26·9 Cent. = 80·6 F.	.....	14·3 Cent. = 57·7 F.
5th .....	26·0 " = 78·8 "	.....	13·4 " = 56·1 "
10th .....	27·0 " = 80·6 "	.....	12·0 " = 53·6 "
11th .....	30·6 " = 87·1 "	.....	16·3 " = 61·3 "
12th .....	31·0 " = 87·8 "	.....	15·7 " = 60·2 "

"It is noticeable that the nights were very warm. On the 5th the heat was already great at 7 a.m. when the first Dragon-flies were seen, and it increased rapidly."

"After having given particulars of the circumstances in which these migrations were accomplished, and some of their principal peculiarities, we find ourselves confronted by a mark of interrogation, a veritable enigma and difficult to solve. Whence came these swarms observed in Belgium at the commencement of June? Where did they originate?"

"So far as concerns the migration of the 10th to 12th the reply does not appear doubtful: they came from the sea. But did they come from England or the open sea? In England no mention has been made of migrations, and their presence in our country (Belgium) remains unexplained."

"It is not to us doubtful that the swarm observed in Belgium on June 5th, after having voyaged over the open sea to the North, and at several hundreds of kilomètres from the continent, not finding any issue to its long journey northwards, turned tail, and followed the same route by which it went, the most vigorous of the survivors regaining the earth on the 10th, the weaker three days afterwards."

[There are indications that part of this same swarm reached England, not that it originated in England.—R. McLACHLAN].

"All the facts tend to arrive at the following conclusion. The Dragon-flies observed in Belgium on the 5th came from regions situated to the east of the country, which they entered in several columns flying at a great altitude; between 7 and 8 a.m. they descended towards the earth, continuing their route towards the west. But we remain in ignorance of their point of departure, for from Germany we have not been able to collect the slightest information; in fact,

nowhere there were any of the Dragon-flies observed, that which induces one to believe that the migratory swarm quitted its usual habitation early in the morning, and immediately flew to a great height. It was only on arriving near the earth that they flew against the wind."

[The rest of the paper is occupied by notes on former migrations, in which the swarm of *Vanessa cardui* of 1879 is incidentally alluded to, and in connection with which it is remarked that they came to Belgium from England (!), an opinion that will meet with but little favour here, in view of the carefully worked out history of that migration.

Then follow details, most carefully drawn up and collected together, of the swarms as observed at about thirty different localities, almost each having some point of special interest, but which scarcely seem of sufficient general importance to be reproduced here. But we would remark on one point: several of the observers go out of their way to say that the insects *bit nobody!*; and in one or two cases they are accused of having bitten children and caused swellings, &c., thus proving that the old superstition concerning these harmless insects is not yet extinct.

It is to be regretted that nowhere amongst the details are there any data as to the proportions of the sexes in the migratory swarms.

As to the causes of migration it seems to me that nothing certain is known, perhaps never will be known. As a rule the multitudes are so vast as to make it difficult to believe that all can have been bred within a very limited area. On the contrary, it rather looks as if the individuals in a certain initial locality being seized with an uncontrollable migratory impulse were progressively joined by others till the accumulations formed the ultimate swarm. And in this case it is not necessary to suppose an ascent to any great altitude and subsequent descent therefrom. But this is pure speculation.

Dragon-flies are notoriously sun-loving insects. But there is reason to believe that when seized with the migratory impulse they will fly by night and during heavy rain. On this point consult a note published in the No. of this Magazine for November, 1896, in which it is stated that examples of *Pantala flavescens*, F., entered the cabin of a steamer in the Indian Ocean, nearly 300 miles from the nearest land, at 11 p.m., during heavy rain. Such an occurrence as this is pregnant with significance in connection with the whole subject of migration, and tends to lend support to M. Lancaster's theory that

the migration of June 10th was composed of survivors of that of the 5th, which had passed the intervening days and nights at sea.—  
R. McLACHLAN].

*AGRION HASTULATUM*, CHARP., A NEW BRITISH DRAGON-FLY.

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

Amongst some *Odonata* taken in the north of Scotland this year by Col. Yerbury, and kindly given to me by him, I find one ♂ *Agrion* from Aviemore, June 28th, that I identify with *A. hastulatum*, Chp., a species which, from its known distribution, should certainly occur here. As the appendages have become rather obscured in drying, and also in order to obtain the benefit of a younger and keener eyesight, I submitted the specimen to Mr. Morton for his opinion, having moreover in mind the fact that this summer he made extensive personal acquaintance with the species in Norway: he is unhesitatingly of opinion that the individual is *hastulatum*. It is not my intention here to go extensively into the characters that separate the ♂ of *A. hastulatum* from that of *Enallagma cyathigerum* (the only case in which confusion is possible), but I note briefly a few:—

On the head the "post-ocular" spots are more elongate in *hastulatum*, and are connected with the occipital line. On the prothorax there are not the two blue spots (one on each side) seen in *cyathigerum*; the posterior margin forms an obtuse angle in the middle (very important), instead of being nearly semicircular as in *cyathigerum*. On the sides of the thorax the infra-humeral bronzy-black band is practically of the same width throughout; whereas in *cyathigerum* there is an obtuse tooth-like projection on its lower edge anteriorly. The spot on the second abdominal segment is distinctly hastate (of a form I have never quite seen paralleled in the numerous varieties of *cyathigerum*), with a narrow tail or pedicel, and usually with a detached isolated black line on either side (but these lines are wanting on the Scotch example before me). Finally, the inferior appendages are very much shorter and blunter, and differently formed (in *cyathigerum* they are long, sub-conical, and sub-forcipate).

I have stated that the black lateral lines on the second segment are wanting in my native example. In looking over the small amount of material I possess for the species, I find these lines are equally absent in a ♂ from Königsberg given me many years ago by Dr. Hagen: Mr. Morton says they are frequently absent in individuals from Norway. Let us hope another year will furnish abundant confirmatory evidence of the occurrence of this interesting species in Scotland. The name has been already included in our lists, having been introduced by Stephens, but in error.

Lewisham, London :

September 15th, 1900.

*CRABRO CARBONARIUS*, DAHLB.: AN ADDITION TO THE BRITISH LIST.

BY EDWARD SAUNDERS, F.L.S.

Colonel Yerbury, who has been very kindly collecting *Hymenoptera* for me in Scotland during the past season, was fortunate enough to secure a ♂ of the above species at Avicmore, it belongs to the subgenus *Cælocrabro*, and may be easily distinguished from any of our other species by the following characters:—

Entirely coal-black, shining, with the exception of the 2nd, and sometimes 3rd and 4th joints, of the front tarsi, and the calcaria of the intermediate and hind tibiæ, which are pale whitish, the terminal joint of the antennæ is also in the ♂ diagonally truncate. Thorax shining, clearly punctured, and clothed with very short black hairs, the propodeum very rugose, its area in both sexes well defined and shining, but somewhat rugose, the crenatures surrounding it very strong; the mesopleuræ each bear a very small tubercle, but this is less developed than in *palmipes* and *varius*; the intermediate and posterior legs are practically black, although they may be more or less piceous about the tibiæ and tarsi, and the intermediate tarsi are often pale whitish. Long., 5½—6 mm.

A single ♂ captured at Avicmore, June 28th, 1900.

The only other British species which have practically black legs, and without yellow bases to the tibiæ, are *leucostomus* and *cestratus*, both of these, however, have the propodeum without a distinct area, and so can be distinguished at a glance.

Colonel Yerbury has found several other interesting species, but I reserve a notice of these for a future number.

St. Ann's, Woking:  
September 1st, 1900.

*NABIS BREVIS*, SCHOLTZ: AN ADDITION TO THE BRITISH HEMIPTERA.

BY EDWARD SAUNDERS, F.L.S.

I took a specimen of this species, originally described by Scholtz, Ueb. Arb. Schles. Ges., f. Vaterl. Cultur., 1846, p. 112, last Saturday, August 25th, by sweeping on low lying, somewhat marshy, ground, along the canal between Byfleet and Weybridge. I have been on the look out for it for many years, but it is so closely allied to our other two small species that it might be easily, and possibly has been, mistaken for one or other of them. Its general characters agree so closely with theirs, that I shall only point out the differences which may be looked for to distinguish them apart.

*Brevis* may be distinguished in both sexes from *dorsalis*, Léon Duf., and *erice-*

*torum*, Scholtz, by its smaller size, and shorter anterior femora, these are much shorter than in *dorsalis*, but only a trifle shorter than in *ericetorum*; in colour it differs from both species, it is a darker greyer insect than *dorsalis*, having all the nerves of the elytra widely margined with fuscous-grey, the under-side also darker, and often nearly black, and the transverse black bars on the anterior femora beneath much more pronounced, and often coalescing; in these respects it resembles *ericetorum*, but there is no tendency to become rufescent, as there is in that species; and it is an inhabitant of marshy districts, whereas *ericetorum*, as its name implies, is a heath-loving form; besides the above characters, all the species differ in the form of the genital styles of the ♂ (outline figures of these are given by Reuter, Öfv. af Kongl. Vet.-Akad. Förh., Stockholm, 1872, No. 6, pl. viii, and agree exactly with those I have extracted from our British specimens), in *brevis*, the blade of the style is wider in proportion to its length, with a more convex upper margin, which rises from the stipes in a nearly straight line; in *ericetorum* there is a shoulder just above the stipes, which is followed by a slight sinuation; in both the apex is mucronate; in *dorsalis* there is no shoulder or subsequent sinuation, but the blade is narrower than in either of the others, and the mucro at the apex scarcely developed.

I regard these species very much in the same light as those of *Scolopostethus*, *Peritrechus*, &c., in *Hemiptera*, and those of certain groups of *Andrena* in *Hymenoptera*; they are certainly distinguishable by structural characters, at the same time the characters are not so strongly indicated as those usually considered to be of specific value.

St. Ann's, Woking:  
September 1st, 1900.

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#### A SPECIAL STRUCTURE IN THE LARVA OF *ERIOCAMPA* *LIMACINA*.

BY T. A. CHAPMAN, M.D., F.Z.S.

In looking at some larvæ of this common "slugworm" of our fruit trees, and noting their method of feeding, a very peculiar appearance manifested itself. The larva bends its head well under the thorax in feeding, and this fact was obvious, but what was not only strange, but apparently unaccountable, was that though the larva was feeding voraciously, the mouth appeared to be buried in the first thoracic segment, or more paradoxically but more in accordance with appearances, the mouth parts were thrust through the first thoracic segment to reach the food, *i. e.*, a roll of the yellow, transparent tissue of the front of the prothorax lay across the front of the head above the mouth, and behind this the jaws were actively at work on the leaf surface. A closer scrutiny showed that this was actually the case, except that the roll of tissue was formed by a process advancing from either side and meeting the other in front. So soon as this was



appreciated, the arrangement reminded me very much of individuals one occasionally meets with, who encircle their plate with the left arm. The object of the manœuvre is probably similar in the two cases. In that before us, to prevent the escape of exuding sap from the bitten parts on to those just cleared, and also its rapid loss by evaporation.

These processes are long, broad at the base, and narrowing to a blunt point. They seem to have two lines across them, making them like true legs with three joints, and they have a dark corneous tip. They have, however, no other corneous plates or appendages, the corneous point has a few very minute terminal hairs.

On first trying to see what these processes really were, the conclusion was almost irresistible that the prothoracic leg was double, as this process arises in front of and to the inner side of the true leg, and at first glance from the same base, and the true leg is very short and stumpy, and apparently with only one or two joints; as regards segmentation, &c., this process seemed the better leg of the two. This, however, being scouted as an absurdity, the next point was, whether it was a form of chin gland. This idea was suggested by the fact that the process is retractile, or rather erectile, when the larva is not eating, it is not visible, and is quite flattened down. Its situation, however, is too far from the middle line for this, the two processes (of either side) being very far apart at their bases.

Lines of muscular tissue may be seen traversing the length of the process for its retraction. Similar strands run into projections of the 2nd and 3rd thoracic segments, which project in similar positions in relation to the legs of these segments to that held by this process on the 1st; the projection on the 2nd is a large rounded boss when erect, that on the 3rd is similar but smaller.

On watching a larva feeding, one now sees that these processes or bosses of the 2nd and 3rd thoracic segments are erected or swollen out, and with the legs and that of the 1st thoracic, form, by pressure against the leaf surface, a closed cavity surrounding the jaws and other mouth parts, where at work on the leaf. Their use is doubtless that I have suggested, to prevent the escape of sap from the bitten surface, either by evaporation or soaking along the surface; whether they act also as the margins of a sucker promoting the flow of sap to the part must be a matter of conjecture. They also form a support by way of cushion and fulcrum, to maintain the head in proper position relative to the leaf.

*Betula*, Reigate :

*August*, 1900.

SOME UNDESCRIBED SPECIES OF *TROGOPHILÆUS*, WITH A NEW GENUS.

BY D. SHARP, M.A., F.R.S.

A species of *Trogophilæus* was discovered by Mr. J. H. Keys at Plymouth early this year, and as it was very distinct from any of our British forms, it was sent to M. Fauvel for his opinion. M. Fauvel replied that he considered it to be an introduced insect, and the same as a New Zealand species, *T. unicolor* (Fauvel, in litt.). Subsequently, additional specimens have been secured by Mr. Keys and Dr. Cameron, and as Mr. Keys could not, on account of the circumstances under which the insect was found and the freedom of the spot from foreign intercourse, believe the insect to be a foreign one, he has consulted me about it.

M. Fauvel obtained examples of New Zealand *Trogophilæus* from me, and as I have a small series of forms from the region I have submitted them to an examination as careful as the limited extent of the series and the condition of the specimens permitted, and herewith submit the results.

It will be seen that the New Zealand and English insects in question belong to a new subgenus of *Trogophilæus*, and that this subgenus is represented by more than one form in New Zealand; also that one of the New Zealand species is extremely similar to the insect found at Plymouth by Mr. Keys—pronounced, indeed, by so competent an authority as M. Fauvel as not merely similar but specifically identical. Hence there is a strong presumption that the Plymouth insect is really a form foreign to this country.

I incline, however, to the opposite opinion, and to the conclusion that we have here to do with two species almost identical in structure and general characters, produced independently in the two Antipodes of the world, but under very similar conditions.

We have, however, at present such imperfect information that it is impossible to pronounce a final opinion on so interesting a point. I have, indeed, no positive knowledge that the New Zealand species are of maritime habit, but conclude that they are so, merely because their sculpture and the pubescence of their surface is such as we find to exist in several other maritime *Staphylinidæ*, *Cafus* and *Polystoma*, *e. g.*, even when found in widely different parts of the world.

It is fairly certain that *T. anglicanus* (as I propose to call the Plymouth insect) is now a native of this country, and as a possible solution of its relationship with the New Zealand forms, it may be

suggested that it was introduced many years ago and has become naturalized at Plymouth. Should this species not be found elsewhere in Europe we shall perhaps have to adopt this view. As, however, *T. anglicanus* belongs to one of the most neglected and unattractive groups of *Coleoptera*, I shall not be surprised to hear of its discovery elsewhere on the coasts of Western Europe. *Cathormiocerus maritimus*, Rye, is only known from two or three very distant points of the shores of Europe, and *Trogophlæus* is very much more neglected by entomologists than *Cathormiocerus* is.

The New Zealand fauna of *Staphylinidæ* is extensive and very difficult to work out. After M. Fauvel published his papers on the *Staphylinidæ* of Australia, I sent to him such New Zealand species of the family as I then possessed, which he named, but never described. I have now examined these *Trogophlæi* in connection with Mr. Keys's discovery, and drawn up brief descriptions of them. New Zealand has but few species of *Oxytelus* proper—perhaps none are truly autochthonous there—and in this respect differs strongly from Australia. Other forms of *Oxytelinæ* will apparently prove to be numerous in New Zealand, if the study of its fauna is carried out in a proper manner before the peculiar forms have disappeared—a consummation which Prof. Hutton tells us is only too rapidly approaching.

#### TROGOPHLÆUS, *auct., subg. n.* TROGOLINUS.

*Antennæ articulis nullis transversis; caput posterius fortiter constrictum; pronotum æquale, haud distincte impressum; abdomen haud acuminatum, segmento 5° latitudine 2° æquali.*

This subgenus will include *T. luniger*, Fauvel, from Chili, in addition to the three species described below.

#### TROGOPHLEUS COLORATUS (Fauvel, not described), *sp. n.*

*Robustus, subdepressus, dense punctatus, subopacus, colore variabilis, rufo-testaceus, plus minus late fuscescens, elytris prothorace eviderter longioribus.* Long., 4—5 mm.

Antennæ nearly  $1\frac{1}{2}$  mm. long, rather slender, 3rd joint slightly shorter than 2nd, 4th to 9th each longer than broad, 10th almost as broad as long. Head broad, antennal tubercles widely separated, surface between them only very slightly convex, densely punctured. Thorax not quite so long as broad, front margin very much rounded, so that it is evidently longer in the middle than at the sides, the front angles very broadly rounded, greatly narrowed behind, the surface very densely and evenly punctured, with only the faintest traces of depressions. Elytra one and a fourth the length of the thorax, very finely and densely punctured.

*Hab.:* NEW ZEALAND, Auckland (*Lawson*).

This species is larger and less depressed in form than the others,

and is brighter in colour. In this latter respect it is, however, variable. Sometimes it is red with the abdomen infusate; sometimes the dark colour predominates, but the apical portion, at least, of the elytra is always yellow. The legs are usually red or yellow, but they also are subject to be darker in parts; the antennæ are but little infusate.

*TROGOPHLEUS UNICOLOR* (Fauvel, not described), *sp. n.*

*Nigricans, antennis pedibusque fusco-rufis, depressus, subtilissime densissime punctatus, opacus; elytris thorace multo longioribus.*

*Long.*, 3—3½ mm.

This differs from *T. coloratus* by its smaller size, more depressed shape, by the uniformly dark colour, and by the fact that the punctuation is even denser and finer. The thorax is rather smaller, and the elytra a little longer, so that they are quite one and a half times the length of the thorax.

*Hab.*: NEW ZEALAND, Auckland (*Lawson*).

*TROGOPHLEUS ANGLICANUS, sp. n.*

*Nigricans, antennis pedibusque fusco-rufis, depressus, subtilissime densissime punctatus, opacus; elytris thorace multo longioribus et latioribus.*

*Long.*, 3 mm.

This insect is about the size of *T. arcuatus*, but in nearly all other respects differs greatly from that species; the form is depressed, the surface densely and very finely punctate, and dull on account of this sculpture and the minute pubescence; in these respects *T. anglicanus* reminds one of *Cafius sericeus* and other maritime species. The antennæ are not much thicker towards the apex, the angles of the joints are more rounded than they are in the other species of *Trogophleus*; they are dark in colour but not black, the basal joint being rather darker than those following it. The head is narrower than the thorax, very finely punctured, a little depressed near the antennal tubercle, but the surface between the two tubercles is but little convex: the eyes are rather small, and do not extend to the back of the head, from which, indeed, they are separated by a considerable interval. The thorax is much narrower than the elytra, a good deal narrowed behind; the front angles are remarkably rounded and broad, in fact, quite indistinct: there is no transverse impression on the surface, but there is a distinct, though very slight, longitudinal elevation at the base in the middle. The elytra are one and a half times the length of the thorax, very flat, completely dull. The abdomen is remarkable for the extremely dense and fine punctuation and pubescence.

*Hab.* : S. W. ENGLAND, Plymouth (*J. H. Keys* and *Dr. Cameron*).

This species is not only very similar in appearance to the New Zealand *T. unicolor*, but so far as I can see is also structurally very near thereto. The English insect is slightly smaller and narrower, and the thorax is smaller, especially in width, and its surface is less even, the basal longitudinal elevation being quite distinct. The sixth abdominal segment is not so broad, and this gives rise to a difference in the peculiar ciliary membrane of its hind margin; this is more distinct than I have observed it to be in any other species of the *Staphylinidæ*. The true hind margin of the dorsal plate is much emarginate, and the ciliary membrane is therefore conspicuously longer in the middle than it is at the sides: in the English insect this emargination is slightly greater and more abrupt in the middle than it is in the New Zealand species.

Mr. Keys discovered a specimen of this insect near Plymouth on April 27th in a tidal creek, and as the result of much searching secured a second example on the other side of the stream about 500 yards away, on a spot that at low tide is only a mud flat. This second specimen was found on June 2nd. In July Dr. Cameron met with two specimens at another spot on this creek by shaking seaweed, and a visit to the locality on August 11th by Mr. Keys and Dr. Cameron resulted in the capture of about a dozen examples. The locality is more inland than Plymouth Sound, and there is no foreign shipping at it, neither is any ballast allowed to be put out in the neighbourhood. One of the spots is near a brick-works, and the manager thereof says that no foreign vessel has been in the creek for a period of at any rate 40 years, and it is not believed that there is any mode of communication between this place and New Zealand.

TROGOPHILÆUS ZEALANDICUS (Fauvel, not described), *sp. n.*

*Angustus, haud depressus, nigricans, thorace plus minus piceo, clytris rufis, pedibus testaceis; thorace, pone medium, basin versus fortiter angustato, omnium subtilissime punctato, medio postice angustius longitudinaliter elevato, prope elevationem utrinque obsolete bi-impresso; clytris thorace evidenter longioribus, subtiliter crebre punctatis.* *Long., 2½ mm.*

This species belongs to the subgenus *Troginus*, in which the head is comparatively long and narrow, and without an abrupt neck behind. It is the largest insect of the subgenus known to me, being twice the size of *T. exiguus*, the type of the subgenus; besides this the punctuation is coarser, the surface more shining, and the inequality of the

surface of the pronotum is conspicuous: the thorax is, too, much longer. The colour varies somewhat in the same manner as it does in *T. exiguus*.

*Hab.*: NEW ZEALAND, Greymouth (*Helms*).

A single specimen from Otago, differs slightly in so many details that it very likely belongs to another species.

#### BLEDIOTROGUS, *gen. n.*

*A Trogophlæo tibiis quatuor anterioribus externe spinulosis, corporisque sculptura fere ut in genere Bledio discedit.*

The little *Trogophlæus*-form for which I establish this genus makes a decided approach to *Bledius*. The palpi are formed as in *Trogophlæus*, and the scutellum is quite concealed. The prosternum and mesosternum form each a sharp angle in front of the coxæ: the front coxæ are elongate and vertical. The antennæ are not geniculate, but the front and middle tibiæ are armed externally with distinct spines.

#### BLEDIOTROGUS GUTTIGER, *sp. n.*

*Trogophlæus guttiger* (Fauvel, not described).

*Niger, antennis pedibusque fuscis, clytro singulo ad apicem macula magna testacea; prothorace fortiter punctato, medio lavigato; abdomine dense subtilissime punctato et pubescente, opaco.* Long., 3 mm.

Antennæ infusate red, paler towards the base; 3rd joint a good deal longer than the 2nd, but shorter than the 4th, 9th and 10th joints broader than the 8th, slightly transverse. Head rather small, the eyes prominent, behind scarcely separated from the neck; antennal tubercles strongly prominent; clypeus and a small space along the middle behind it smooth and shining, with rather deep punctures on each side. Thorax a good deal narrower than the elytra, not much shorter than broad, considerably narrowed behind, black, along the middle polished, on each side with numerous fine, somewhat distinct punctures, each bearing a fine, depressed hair. Elytra much longer than the thorax, shining, finely and not densely punctured, with an extremely fine pubescence, blackish, with a large yellow mark behind, divided into two by an angular prolongation of the dark colour along the suture to the tip. Legs infusate red, the tibiæ darker, tarsi pale. Metasternum shining in the middle and biserially punctate.

*Hab.*: NEW ZEALAND, Auckland (*Lawson*).

I have now only one specimen of this very distinct and interesting little species.

Cambridge: September 6th, 1900.

*PACHYTA SEXMACULATA*, LINN., &c., AT NETHY BRIDGE,  
INVERNESS-SHIRE.

BY G. C. CHAMPION, F. Z. S.

My friend Col. Yerbury has been kind enough to collect a few *Colcoptera* and *Hemiptera* for me during the past summer in the north of Scotland. The three places visited were Nethy Bridge, Inverness-shire, June 11th to July 11th; Invershin, Sutherlandshire, July 13th to July 20th; and Golspie, Sutherlandshire, July 20th to August 26th. His captures include several rarities, and as I do not remember having seen any records from these localities, a list of the species obtained is given below, omitting only the commonest forms. The most interesting find is *Pachyta sexmaculata*, Linn., of which he caught a single female specimen at Nethy Bridge; it will be remembered that this species was introduced as British by myself in 1877 (*Ent. Mo. Mag.*, xiv, p. 92), upon the authority of two examples from Aviemore, a few miles higher up the Spey Valley. The other species are:—

NETHY BRIDGE.

<i>Carabus glabratus.</i>	<i>Coccinella hieroglyphica.</i>	<i>Telephorus figuratus.</i>
„ <i>catenulatus.</i>	„ <i>14-guttata.</i>	<i>Rhagonycha elongata.</i>
<i>Pterostichus nigrita.</i>	<i>Byrrhus fasciatus.</i>	„ <i>limbata.</i>
<i>Harpalus latus.</i>	<i>Aphodius lapponum.</i>	<i>Malthodes flavoguttatus.</i>
<i>Bembidium atroæruleum.</i>	<i>Elater balteatus.</i>	<i>Thanasimus formicarius.</i>
„ <i>paludosum.</i>	<i>Cryptohypnus riparius.</i>	<i>Ernobius mollis.</i>
<i>Helophorus rugosus.</i>	<i>Corymbites cupreus.</i>	<i>Erirrhinus æthiops.</i>
<i>Homalota pavens.</i>	„ <i>impresus.</i>	<i>Limnobaris T-album.</i>
<i>Tachinus elongatus.</i>	„ <i>quercus.</i>	<i>Rhinoncus castor.</i>
<i>Staphylinus erythropterus.</i>	<i>Limonius cylindricus.</i>	<i>Hylastes ater.</i>
„ <i>latebricola.</i>	<i>Campylus linearis.</i>	<i>Strangalia quadrifasciata.</i>
<i>Ocyopus brunnipes.</i>	<i>Helodes minuta.</i>	<i>Strangalia bifasciatum.</i>
<i>Philonthus laminatus.</i>	<i>Microcara livida.</i>	<i>Chrysomela staphylea.</i>
<i>Anthobium minutum.</i>	„ „ <i>v. Bohemani.</i>	<i>Phyllotreta tetrastigma.</i>
<i>Pityophagus ferrugineus.</i>	<i>Eros aurora.</i>	<i>Adimonia suturalis.</i>
	<i>Nepa cinerea.</i>	

INVERSHIN.

<i>Cicindela campestris.</i>	<i>Sinodendron cylindricum.</i>	<i>Strangalia quadrifasciata.</i>
<i>Pterostichus lepidus.</i>	<i>Serica brunnea.</i>	<i>Rhagium bifasciatum.</i>
<i>Staphylinus erythropterus.</i>	<i>Saperda scalaris</i> (several on birch).	<i>Clythra 4-punctata.</i>
		<i>Luperus betulinus.</i>

GOLSPIE.

<i>Carabus arvensis.</i>	<i>Quedius fuliginosus.</i>	<i>Pityophagus ferrugineus.</i>
<i>Pterostichus niger.</i>	<i>Staphylinus erythropterus.</i>	<i>Antherophagus pallens.</i>
„ <i>nigrita.</i>	<i>Tachinus elongatus.</i>	<i>Microcara livida.</i>
<i>Elaphrus cupreus.</i>	<i>Othius fulvipennis.</i>	<i>Rhagium bifasciatum.</i>
<i>Anchomenus piceus.</i>	<i>Silpha atrata.</i>	„ <i>inquisitor.</i>
<i>Heterothops binotata.</i>		

Horsell, Woking:  
September 5th, 1900.

*Coleoptera in the Chesham district.*—In the little spare time at my disposal during the past few months I have met with a few species of *Coleoptera* which had not been noticed, or very infrequently seen previously, in this district. Early in April I had a day's collecting at Tring. At the reservoir there a considerable quantity of refuse, consisting of dead reeds, &c., had been washed up on the banks by high winds just previous to my visit, and this was found to harbour large numbers of beetles, among them being *Acupalpus dorsalis*, F., *A. consputus*, Duft., *Bradycellus placidus*, Gyll., *Ilyobates nigricollis*, Payk., *Calodera riparia*, Er., *Aianta iwana*, Er., *Homalota fuliæx*, Kr., and *H. nigella*, Er. Two specimens of that distinct little insect *Gyrophæna lucidula*, Er., were also found; all the members of this genus having now occurred in this district, except *G. pulchella*, Heer, and it is not unreasonable to suppose that the latter will ultimately be met with hereabouts.

The following were also taken in the same situation: *Falagria sulcatula*, Grav., *Heterothops quadripunctula*, Gyll., *Stenus incrassatus*, Er., *S. carbonarius*, Gyll., *Platystethus nitens*, Sahlb., *Trogophlæus pusillus*, Grav., *Choleva morio*, F., *Cryptophagus distinguendus*, Sturm, *Bagous limosus*, Gyll., and *Poophagus nasturtii*, Germ.

*Amara lunicollis*, Schiödte, and a single example of *Homalota deformis*, Kr., were found crawling on the sides of a sandpit near Chesham; also *Homalota pagana*, Er., and a fine ♂ *Callicerus rigidicornis*, Er. The tubercle on the hind body of the male of this species is, by the way, situated on the 1st segment, and not the 7th, as stated in Fowler's Brit. Coleoptera, vol. ii.

At the roots of *Helianthemum vulgare* several specimens of *Homalota scapularis*, Sahlb., and *Trachyphlæus squamulatus*, Ol., were taken in June.

Whilst at Tring again on August 6th, I took single specimens of *Miarus graminis*, Gyll., and *M. plantarum*, Dej., both apparently on the flowers of *Campanula glomerata*.—E. GEO. ELLIMAN, Chesham, Bucks: September 12th, 1900.

*Supplementary note on the distribution, &c., of Anchomenus quadripunctatus, De Geer.*—Apropos of my record of the capture of this insect in numbers at Woking (*antea*, p. 202), M. Fauvel has sent me the following note:—"In my Catalogue Col. Gallo-Rhôneane, p. 15, I have cited it from Alsace (taken by Linder, near Jadis) and from the Hautes Pyrénées: Barousse and Aragnouet (taken by Pandellé), in the ravines of beech forests, especially under small pieces of charcoal left on the platforms of the charcoal burners, in August. It is a curious coincidence with your observation that you took this species in a wood that had recently been injured by fire." Dr. Hamilton, in his "Catalogue of the *Coleoptera* common to North America, Northern Asia and Europe" (Trans. Am. Ent. Soc., xvi, p. 97), states that *A. quadripunctatus* is a common North American insect, ranging from Alaska to New Mexico, and (following v. Heyden) also quotes it from E. and W. Siberia. M. Fauvel (Rev. d'Ent., 1889, p. 89), in reviewing Dr. Hamilton's "Catalogue," quotes the same localities, and adds Japan to its distribution. I purposely omitted quoting any ultra-European localities myself, as I did not feel quite sure that the insects from all these places belonged to one species. If this is really the case, however, it is quite possible (as M. Fauvel suggests to me) that *A. quadripunctatus* is really of American origin, its nearest allies apparently belonging to the New World, the general facies of the insect being very suggestive of that of



*Loricera pilicornis*. *Anchomenus Bogemanni*, Gyll., appears to have a similar holarctic distribution, though it has not yet been detected in Britain.—G. C. CHAMPION, Horsell, Woking: September 6th, 1900.

*Oxyptoda longipes*, Muls., in *Morayshire*.—I find among the specimens of *Oxyptoda* taken by me near Forres in September, 1892, in flood rubbish, a single example of the rare *O. longipes*, Muls. It has been standing in my collection as *O. opaca*, Grav., of which I took an enormous series in hopes of securing its rare ally, and with which (although recognised at the time) it appears to have got mixed on the home journey; unfortunately it has lost an antenna. The insect recorded by me from Forres in the Ent. Mo. Mag. for 1893, p. 259, as *O. rapicola*, Rye, is I find *O. edinensis*, Sharp. Mr. Champion kindly identified a specimen for me, and so I discovered my mistake.—A. J. CHITTY, 27, Hereford Square, S.W.: Aug., 1900.

*Emus hirtus* in *Alderney*.—I have pleasure in recording the capture of a specimen of this rare beetle in Alderney by Mr. E. D. Marquand. He was walking on the Blaye in company with Rev. F. A. Walker, D.D., on July 9th, when he saw a large golden-yellow insect flying towards some fresh cow dung, having a net with him he was able to secure it, and it turned out to be the above fine species. Rye says it resembles a humble-bee in flight, but Mr. Marquand says it looked more like a wasp, only with the peculiar flight of a beetle. Another specimen was seen shortly afterwards by Dr. Walker, but not captured.—W. A. LUFF, Guernsey: September 11th, 1900.

*Coleoptera* at *Crickhowell, South Wales*.—While staying at Crickhowell during the latter part of July, I managed to pick up a few *Coleoptera*, which may be deemed worthy of notice. Chief among these were the following:—*Bembidium decorum*, *tibiale*, *prasinum*, and *punctulatum*, on the banks of the Usk; *Agabus nitidus*, in a little pool near the summit of the Darran, about 1800 feet up; *A. maculatus* and *Orectochilus villosus*, in numbers under large stones close to the edge of the river; *Hydroporus septentrionalis*, crawling on the wet mud in the hot sun; *Ochthebius exsculptus* and *Hydræna gracilis*, beneath submerged stones; *Philonthus fulvipes* (plentifully), *Myllæna Kraatzi*, *Philonthus prolixus*, *Bledius pallipes*, and *Trogophleus arcuatus*, on the river bank; *Anisotoma ovalis* and *Hydrocyphon*, by sweeping; *Lesteva pubescens* and *Elmis Volkmani*, from moss-covered stones in a small waterfall; *Rhizophagus dispar* and *parallelocollis*, under bark; and *Lathridius testaceus*, in some numbers, with a single example of *Conipora*, from dusty fungus on a felled elm. A little earlier or later in the season I imagine that the district would well repay working.—THEODORE WOOD, 157, Trinity Road, Upper Tooting, S.W.: August 27th, 1900.

*Vanessa Antiopa* in *Suffolk*.—Perhaps your readers may be interested in knowing that I captured *Vanessa Antiopa* on August 30th in the neighbourhood of Lowestoft.—E. J. SINGLETON SMITH, St. Margaret's College, Lowestoft: September 1st, 1900.

*Vanessa Antiopa* at Huntingdon.—It may interest your readers to know that a specimen of *V. Antiopa* (Camberwell Beauty) was taken here on the 19th inst.—W. F. BEAUFORD, Alconbury House, Huntingdon: August 21st, 1900.

*Vanessa Antiopa* near Crawley.—On August 25th a fine specimen of *Vanessa Antiopa* (Camberwell Beauty) was caught at Newlands, Crawley Down, on the borders of Sussex and Surrey. The butterfly was attracted by the sweet mixture in a glass trap placed on a table to catch wasps and other objectionable insects. It sidled itself under the glass containing the bait, and was then secured before it had done itself much damage.—R. H. BROWN, Park Cottage, Crawley Down, Sussex: August 30th, 1900.

*Colias Hyale*, L., and *Edusa*, Fb., and other *Rhopalocera* in East Kent.—On August 11th, the first fine day after the recent bad weather, and on the two following days, I had the pleasure of seeing and taking close here both these species, including one splendid var. *Helice*, Hb. They were particularly partial to the flowers of *Centaurea nigra* in a deserted garden. *Hyale* had occurred singly since July 30th, when I swept a specimen, and I noticed one late last year in September. On the 12th, besides the above, *Gonopteryx rhamni*, L., was abundant; there were also five of the *Fanessidæ*—*Atalanta*, L., *Io*, L., *polychloros*, L., *urticae*, L., and *cardui*, L.; the three common whites; four of the *Lycenidæ*—*T. quercus*, L., *L. Astrarche*, Bgstr., *Icarus*, Rott., and *P. Phleas*, L.; and the four common *Satyridæ*; also a skipper, I think *H. linea*, Fb.; twenty species in all, within a quarter of a mile from the house. *N. Lucina*, L., *T. rubi*, L., *L. argiolus*, L., and the three other common skippers were about in the spring, also *E. hyperanthus*, L., in the summer. *L. minima*, Fues., *Corydon*, Fb., and *Bellargus*, Rott., occur in the neighbourhood, but I have not seen them for the last year or two.—ARTHUR J. CHITTY, Huntingfield, Faversham: August, 1900.

P.S.—Since writing the above I have found *C. Edusa* at Wicken, Cambridge-shire; it appeared to be somewhat scarce there, and was outside the Fen.—A. J. C.

*Colias Hyale* and *Edusa* near Croydon.—On August 18th I took a good specimen of ♀ *C. Edusa*, and on the 21st I again took two ♂ *C. Edusa* and also ten *C. Hyale*, in fact the clover field I was in was simply alive with them; but latterly the specimens seemed to have suffered somewhat from the heavy rains that took place during August 18th and 21st.—HARRY D. GOWER, 55, Benson Road, Croydon: August 30th, 1900.

*Colias Hyale* and *Edusa* in Kent and South Essex.—I have observed *Colias Edusa* and *Hyale* at Blackheath, Chattenden, and Pitsea, the former far outnumbering the latter.—C. E. PARTRIDGE, 72, St. John's Park, Blackheath: September 1st, 1900.

*Colias Hyale* and *Edusa* in Suffolk.—These have both this year occurred in Suffolk at Battisford, Wherstead, Copdock, Rushmere, Tuddenham, St. Martin, Framlingham, Stonham, and Gosbeck (recorded in "East Anglian Daily Times,"

August 17th, 18th, 21st and 24th). Mr. Frank Norgate had seen them both in the vicinity of Bury St. Edmund's and Saxham, and took a peculiarly pale, though apparently unworn, example of *Hyale* at the latter locality. I have seen the latter at Rushford, Suffolk, on August 28th.—CLAUDE MORLEY, Ipswich: *September, 1900.*

*Colias Hyale and Edusa near Dover.*—*Colias Hyale* and *Edusa* are common in our red clover and lucerne fields this autumn; the former species being in some places quite abundant.—F. W. L. SLADEN, Ripple Court, near Dover: *Sept. 1st, 1900.*

*Colias Hyale and Edusa in Somersetshire.*—I spent the first three weeks of August at Bridgwater, and in a clover field near there we found *C. Edusa* in fair numbers and very fine. Of ten females that we captured three were the var. *Helice*. We took only one *Hyale*, and another was seen in the neighbourhood. *Edusa* was also seen on the sand hills near Brean.—ARTHUR COTTAM, Eldereroft, Watford: *September, 1900.*

*Colias Hyale and Edusa in Hertfordshire.*—Both species have been abundant. Here at Watford, near Boxmoor, and at Tring (on the Aldbury side of the railway), I have taken both species, but *Hyale* has been the commoner of the two, except at Tring. In a clover field here I took one *Helice*.—ID.

*Colias Edusa in Shropshire.*—As you are probably having notices of the capture of *Colias Edusa* from various parts of the country, it may interest you to know that I saw a male specimen near to Cleobury Mortimer on Saturday last, the 18th inst.; not having a net with me I was unable to capture it.—GEO. H. KENRICK, Whetstone, Somerset Road, Edgbaston: *August 21st, 1900.*

*Colias Edusa, &c., at Totnes.*—I have noticed several *Colias Edusa* here, but there are no clover fields to attract them. *Lucanus cervus* appears here replaced by *Dorcus parallelipedus*, of which I have four examples living on rotten wood.—A. H. SWINTON, Vineyard, Totnes, Devonshire: *September 1st, 1900.*

*Colias Hyale, C. Edusa, Papilio Machaon, and Lampides batica in Guernsey.*—*Colias Edusa* has been very abundant all over the island during August, and a number of the variety *Helice* have been taken. *C. Hyale* also occurred, but not in any great numbers. The Rev. F. E. Lowe saw a specimen of *Papilio Machaon* at Icart Point on August 13th. Others were seen on August 17th, and on August 21st Dr. Bishop actually captured one, with his straw hat, on Delancey Hill. This specimen was given to the Rev. F. E. Lowe, who kindly presented it to me for my Guernsey Collection.

I took a specimen of *Lampides batica* in my garden to-day; I had observed numbers flying swiftly across for some days past. Mr. Baker has bred some beautiful specimens of this species from larvæ collected on its food plant, *Colutea arborescens* in Guernsey.—W. A. LUFF, Guernsey: *September 11th, 1900.*

*Lampides batika* bred in Guernsey.—I have succeeded in discovering the larva of *Lampides batika* this summer on *Colutea arborescens*, and as I am now breeding some fine specimens, I send this notice, thinking it would be interesting to some of your readers.—GEO. BAKER, 11, Sanmaraz Street, Guernsey: September 11th, 1900.

*Lycæna Bellargus (Adonis)* in Hertfordshire.—I have this month (September), for the first time, found this butterfly on the chalk downs at Aldbury, where I have often looked for it, as *Hippocrepis comosa*, its food plant, grows there abundantly, and I thought it ought to be found there. There is no record that I can find of this insect having been previously taken in this county. *L. Corydon* occurs every year on these hills in the greatest profusion.—ARTHUR COTTAM, Eldercroft, Watford: September, 1900.

[The extension, year by year, of the range of this pretty butterfly on the chalk hills north of the Thames Valley is well worthy of notice.—EDS.]

*Deilephila livornica* near Croydon.—On the evening of June 22nd, 1900, while walking about the garden I observed a large moth hovering about the flowers of the red Valerian; the insect I easily netted, and upon casually looking at it was uncertain what it was, but upon careful examination it proved to be the Striped Hawk Moth, *Deilephila livornica*. It is in very good condition.—HARRY D. GOWER, 55, Benson Road, Croydon: August 30th, 1900.

*Hermaphrodite Argynnis Paphia-Valezina*.—The following var. of *A. Paphia* captured in the New Forest on July 28th seems worth recording. Right wings, ♀, var. *Valezina*; left wings, ♂, ordinary type, with the exception of a splash of *Valezina* colouring on the fore-wing. I should be glad to know if this var. has ever occurred before. As it is now in my cabinet I should be very pleased to show it to any one whom it might interest.—W. F. URWICK, 34, Great Tower Street, London, E.C.: August 27th, 1900.

[Hermaphrodite examples of *A. Paphia*, in which the ♀ side is represented by the dimorphic form *Valezina*, are not unknown, but are certainly rare. Examples in this condition must be very conspicuous on the wing, that which renders their rarity more evident.—EDS.]

The "Schill Collection" of *Lepidoptera*.—We take the following from the Report of the Manchester Museum, Owens College, for the year 1899-1900.—EDS.

"During the past year the Museum has had the privilege of receiving another collection of first-rate importance, Mr. C. H. Schill having handed over to it his collection of Butterflies and Moths. This has long been well known to specialists for its extent and the perfection of its specimens. It includes, among other items, the collection of Butterflies formerly in the possession of Mr. J. Cosmo Melvill, acquired in 1893, and since then has been the subject of much assiduous attention and many additions. It comprises over 6000 species of Butterflies, and several thousand species of Moths, this portion being exceptionally fine. Mr. Schill also

most generously presented the cabinets containing the collection to the Museum, which has thus been saved the very considerable expense which would have otherwise been incurred in housing the collection."

*Dragon-flies in Inverness-shire and Sutherlandshire.*—During his long stay in the north of Scotland this year Col. Yerbury collected the following; it seems desirable to place them on record for reasons of locality:—

*Leucorrhinia dubia*, V. d. L., Nethy Bridge, June 13th.—*Libellula quadrimaculata*, L., Nethy Bridge, July 4th.—*Sympetrum scoticum*, Donov., The Mound, August 4th and 8th, Golspie, August 14th.

*Cordulegaster annulatus*, Latr., Nethy Bridge, June 13th, Invershin, July 6th and 17th.

*Æschna juncea*, L., Nethy Bridge, July 4th, Golspie, August 5th and 14th, The Mound, August 10th and 24th (also a newly emerged ♂ with its nymph skin from half way up Cairngorm on July 5th).—*Æ. cærulea*, Ström (*borealis*, Zett.), Invershin, July 15th, probably the most northerly record in Scotland.

*Pyrrhosoma nymphula*, Sulz. (*minium*, Harr.), Aviemore, June 28th, Nethy Bridge, June 13th and 27th.—*Agrion hastulatum*, Chp. (*vide ante*, p. 226), Aviemore, June 28th.

Of the localities noticed above, Nethy Bridge and Aviemore are in Inverness-shire; Golspie, The Mound, and Invershin, are in Sutherlandshire.—R. McLACHLAN, Lewisham, London: *September 15th*, 1900.

*Cordulegaster annulatus*, Latr., in *North-West London.*—Last month I caught a fine female specimen of this beautiful Dragon-fly in my back garden; it was resting on a clothes line. I believe this species is said to be uncommon in the metropolitan area, and hence I think the catch worthy of record. A fortnight after this capture Mr. Greensill, a chemist of Stourport, in Worcestershire, forwarded me a male specimen which had been caught in the town. *C. annulatus* is, however, fairly common in Wyre Forest, which is about six miles distant from Stourport.—J. W. WILLIAMS, 128, Mansfield Road, Haverstock Hill, N.W.: *August*, 1900.

*A locality for Oxygastra Curtisii.*—On the 13th inst. I again visited the spot where this Dragon-fly occurred early in July, 1878, in 1882 and 1890, and prepared a plan of it, showing the approaches and boundaries.

With the exception of the specimens captured and recorded by me, I am not aware that the occurrence of this species, in the United Kingdom, has been noted for nearly 70 years, so probably some details as to the locality may be of interest to collectors of the *Odonata*. The place where I first found *O. Curtisii* in 1878 is at the eastern end of a common, locally known as "Poor Heath," about a quarter or half a mile to the north-east of Pokesdown Railway Station, and nearly half way between Christchurch and Bournemouth, Hants.

The following particulars should enable any one to find the locality:—on leaving Pokesdown Railway Station follow the Christchurch road eastwards for a few yards, then proceed in a northerly direction up the Clarence Park Road until the Common is reached, and strike across the heath for a few hundred yards to a Fir Wood (part

of Mr. Cooper Dean's estate) on the north-east. The locality is on the Heath amongst scattered fir trees close to the *western* side of this Wood. There is another Fir Wood due north of this spot, and probably the range of the species extends thereto, and also in a westerly direction to the north of Boseombe.

If any one who is interested in the re-discovery of this species in the United Kingdom cares to write to me at Surbiton, I shall be happy to furnish him with a copy of the plan before referred to.—H. Goss, Hinton Admiral, Hants: *August 29th*, 1900.

*Two species of Psocus allied to Ps. bifasciatus, Latr., likely to occur in Britain.*—These two species are very likely to be overlooked and confused with *bifasciatus*:—

PS. INTERMEDIUS, Tetens, Ent. Nachr., xvii, p. 374 (1891).

The first dark fascia ordinarily very faint or absent. The middle lobe of the mesonotum shining and polished (opaque in *bifasciatus*). Discoidal cell of anterior wing rather narrow as in *bifasciatus*, but the vein forming its outer edge is straight or slightly concave outwardly, hence not convergent at its lower end as in *bifasciatus*. Taken by Herr Tetens near Berlin, and by myself in the Vosges. Cited for Finland by Reuter with a note of interrogation.

PS. CONTRARIUS, Reuter, Act. Soc. Fenn., ix, No. 4, p. 42 (1893).

Differs mainly from *bifasciatus* in the form of the discoidal cell of the anterior wings, which is broader, subquadrate, its outer edge regularly concave. Thoracic lobes opaque. Tammerfors and Teisko in Finland. I have a type which I owe to the kindness of Dr. Reuter.

I have at various times examined large numbers of *Ps. bifasciatus* in the hope of detecting one or both of these species, but so far without success. There can be little doubt that they occur here.—R. McLACHLAN, Lewisham, London: *September 2nd*, 1900.

*Astata stigma, Pz., in North Wales.*—I recently took a ♀ of this species near Criccieth, N. Wales, sitting on bare sand in hot sun, close to burrows of *Pompilus plumbeus*. I find, on reference to my diary, that my only previous capture of this insect (*vide* Ent. Mo. Mag., 1891) was also beside the burrows of *P. plumbeus*. The proximity to the *Pompilus* on both occasions may be only a coincidence, and no evidence of parasitism; but, as little is known of the life-history of *A. stigma*, perhaps the fact may be worth recording.—WILLOUGHBY GARDNER, Reform Club, Liverpool: *August*, 1900.

*Sirex gigas in Dumbartonshire.*—A ♀ specimen of *Sirex gigas* was taken at Bonhill, Dumbartonshire, on August 15th. In "The Handbook of the Flora and Fauna of Clydesdale," published in 1876, Mr. Cameron mentions that this species and also *S. juvenus* have been taken in the district, but in such situations as to lead their being suspected of foreign origin. In this case, however, the specimen must have emerged from wood grown in the locality, as there is no imported timber used in the district in which the insect was captured. It was on the wing when first seen, and when it rested was boxed. It had apparently but recently emerged, and was in

tolerable condition, although handled somewhat roughly at first, being suspected of stinging abilities of a high order.—J. R. MALLOCH, Bonhill, Dumbartonshire : *September, 1900.*

*Occurrence of Stilbum splendidum, F., v. amethystinum, F., in England.*—A ♀ of this insect was captured by the Rev. H. Matthews on the window of his study at Foxton Vicarage, Leicestershire, in March, 1868. How it got there is a puzzle, as Mr. Morice informs me that this variety is Asiatic, and not European at all.—PHILIP B. MASON, Burton-on-Trent : *September 10th, 1900.*

*Vespa austriaca, Panz., in Scotland.*—I have this year taken this rare wasp on two occasions in this district, namely—near Drumshoreland, West Lothian, June 4th, a “queen;” and near Tynehead, Mid-Lothian, August 18th, three males (along with many of *V. sylvestris*) on flowers of *Angelica sylvestris*. Mr. E. Saunders has confirmed my identification. I am not aware of any previous record of the occurrence of this interesting inquiline form in Scotland. I may add that I found an underground nest of *V. sylvestris* near Dunbar in July.—WILLIAM EVANS, 38, Morningside Park, Edinburgh : *September 13th, 1900.*

*Andrena lapponica, Zett., in Scotland.*—On 26th May last I discovered a colony of this bee (Mr. Saunders has kindly identified specimens for me) in a bank by the side of a moorland road, near Balerno, in this county. Both sexes were common about the burrows, and a few females were taken at the yellow blossoms of some Whin bushes close by. On the 29th and 30th females were met with plentifully at flowers of *Vaccinium myrtillus* (blaeberry) in a wood a few hundred yards off; and subsequently, on July 10th, one was captured near Kirknewton, a few miles farther west. The true *A. lapponica* of Zetterstedt was added to the British list (from Kent) so recently as November last (*Ent. Mo. Mag.*, 1899, p. 262), and it has since been reported from Cumberland, but the present is believed to be the first record of its occurrence in Scotland. The *A. lapponica* of Smith's Catalogue has proved to be a distinct species now known as *A. apicata*, and the *A. lapponica?* of R. Service's Dumfries list (*Scot. Nat.*, vol. 7, p. 63), for the loan of a specimen of which I have to thank Mr. Service, turns out to be *A. fucata*.—ID.

*Chortophila buccata parasitic? on Andrena.*—Mr. A. Piffard's interesting note on this subject in the August number of this Magazine (*ante* p. 190), prompts me to mention the following facts:—On 12th June last, while watching a colony of *Andrena fucata* on the side of an old quarry near here, I noticed that the bees, on approaching their burrows, were almost invariably attacked by a small greyish fly of which there were numbers about the bank. Thinking that the life-history of the fly might in some way be mixed up with that of the bee, I caught one of the flies and took it to my friend, Mr. P. H. Grimshaw, who, prior to seeing Mr. Piffard's note, identified it for me as *Chortophila buccata*. When passing the quarry a short time afterwards I broke down a couple of feet of the bank and found in holes in it a number of empty Dipterous pupa cases.—ID.

*Tachinidæ*, &c., on oak trunks.—It is my firm conviction that Dipterists do not pay sufficient attention to the "basking flies," *i. e.*, those which love to sun themselves upon the tree trunks. It was in this way that I took *Phorocera incerta*, Meade, a species new to science, in April, 1897 (*vide Ent. Mo. Mag.*, xxxiii, 223, 258; xxxiv, 35). Contrary to my expectations, it had not again occurred to me in Bentley Woods, though that it is there to be found is more than possible. While searching for it on May 4th, 1898 (to cite a single instance), I took upon oak trunks, with the exception perhaps of the last mentioned, in the space of about half an hour:—*Bibio reticulatus*, Lw., which was just then abundant throughout the woods; *Macquartia grisea*, Fln.; *Exorista dubia*, Fln., commonly; *E. vetula*, Mgn., on April 26th; *E. perturbans*, Zett., two or three; *Masicera juvenilis*, Rnd., several; *Degeeria ? pulchella*, Mgn.; *D. ? grandicornis*, Zett.; *Phorocera cæsifrons*, Mcq., ♂; *Hyetodesia scutellaris*, Fln.; *Hylemyia variata*, Fln., ♂; *H. puella*, Mgn.; *Anthomyia pluvialis*, L.; *A. ? radicum*, L.; *Phorbia ignota*, Rnd.; *P. ? sp.*, ♀, unnamed by Dr. Meade; *Lonchæa vaginalis*, Fln., two or three.—CLAUDE MORLEY, Ipswich: *September, 1900.*

*Catabomba pyrastri* bred from *Lepidopterous pupæ*.—In the *Ent. Mo. Mag.* for 1896, p. 256, Mr. R. C. Bradley records the supposed breeding of *Baccha elongata* from a larva of *Mamestra persicariæ*, and expresses his doubts because he was "under the impression that no Syrphid has yet proved to be parasitic on Lepidopterous larvæ."

I have, however, lately met with three examples of the handsome, but common, *Catabomba pyrastri*, L., thus parasitic. Last autumn I received from Mr. Claude Morley a crippled specimen which a friend had bred from a pupa of *Plusia iota*; and this summer he sent me, from Southwold, several larvæ of different species, asking if I could tell him what they were. Two or three at once spun up, and became pupæ, and to my surprise in about a fortnight two specimens of *C. pyrastri* were disclosed; the empty pupæ cases giving indubitable proofs that they had proceeded from them.

The larvæ were most probably *Plusia gamma*, and were at that time very abundant at the foot of the cliffs at Southwold.—E. N. BLOOMFIELD, Guestling Rectory: *September 10th, 1900.*

Fürnröhr's "*Naturhistorische Topographie von Regensburg*," a hint to students of *Collenbola*.—There exists a work in three small volumes (a copy of which I have long had), by Dr. A. L. Fürnröhr, with the assistance of specialists, published at Regensburg in 1838 (vol. i), 1839 (vol. ii), and 1840 (vol. iii). The first vol. may be considered historical, meteorological and geological; the second is botanical, and bears a second title in Latin, "*Flora Ratisbonensis*;" the third is zoological, and bears the Latin title, "*Fauna Ratisbonensis*." In this third volume the Insects are catalogued by Herrich-Schäffer, who enumerates all Orders. In several Orders, and especially *Hymenoptera* and *Diptera*, many species are indicated *by name only*, but with the indication that they are *new*. If these names have been overlooked no harm has been done: *they are names only*. But in the *Thysanura* (divided into *Lepismatidæ* and *Poduridæ*) the position is more serious. I find enumerated 50 species, of which 37 appear to be new, each characterized by a more or less ex-



tended diagnosis, to which is appended the word "Koch," thus indicating pretty clearly that these diagnoses were written by C. L. Koch, and not by Herrich-Schäffer. Two new genera are also indicated, viz., *Paidium*, Koch (p. 356), and *Blax*, Koch (p. 359); the former is in "Seudder" but dated 1845, the latter is not to be found there.

I have not paid much special attention to *Collenbola*, but I do not remember to have seen this little work by Fürurohr quoted in connection with them, and this is my excuse for calling attention to it, for it seems practically unknown in this country.—R. MCLACHLAN, Lewisham, London: *July 4th*, 1900.

*A Supplementary Catalogue of the Library of the Entomological Society of London.*—This supplementary Catalogue is now in the press, and is likely to appear shortly. The chief Catalogue was published in 1893. Since then the additions in the ordinary course of events have been large, and there have been what may be termed extraordinary additions, by far the chief of which is the valuable and extensive collection of books and pamphlets bequeathed to the Society by the late Mrs. Stainton, each item of which will be distinguished by an appended letter S. The main Catalogue of 1893 carried an appendix of 20 pages, on which are detailed the additions which came in too late for incorporation in the body of the book. In the supplementary Catalogue these titles will be intercalated amongst the more recent additions, so as to avoid the necessity of multiple reference. A certain number of copies of the chief Catalogue remain in sheets unbound. It is proposed to bind these up with the supplementary Catalogue, so as to form one volume, which will be appreciated by those who do not already possess the principal Catalogue. The price to Fellows will be very low, the cost being principally defrayed from certain Life Compositions that have been allowed to accumulate for that purpose. All information concerning the Catalogue can be obtained from Mr. Hall, the Resident Librarian.—Eds.

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## Reviews.

THE INJURIOUS SCALE INSECTS AND MEALY BUGS OF THE BRITISH ISLES: by R. NEWSTEAD, F.E.S. Pp. 44, royal 8vo, with many half-tone blocks in text. Forming pp. 219—262 of vol. xxiii of the *Journal of the Royal Horticultural Society*. August, 1900.

The subject matter of this very useful article in a condensed form was delivered by the author as a lecture at one of the Meetings of the R. H. S. about a year ago. He was the right man in the right place. His knowledge of his subject is undisputed, and his early training enabled him to combine the professed horticulturist and the skilled entomologist in a manner that has rarely been done in this country. The various divisions and genera of British *Coccidæ* are passed in review, almost everything of importance being illustrated by photographic figures from life, which mostly come out very well considering the difficulty of the subject. By "British" species is intended those species now known to be injurious in these islands: what the origin of some of the worst of these pests was can only be conjectured. Several of them came to the fore during the present generation. In describing their habits the author's language is clear and unequivocal, and it is rare that any statement is

made that is not based on personal experience. We think the question of preventives and remedies will be treated at length in a second lecture; but they are touched upon somewhat at length in the present paper, hydrocyanic gas and kerosine emulsion taking first place. It is gratifying to find that the state of beech trees badly attacked by *Cryptococcus fagi* is not so hopeless as was formerly considered. We understand that copies of this most excellent article can be obtained from the author, Grosvenor Museum, Chester.

TRICHOPTERYGIA ILLUSTRATA ET DESCRIPTA, A MONOGRAPH OF THE TRICHOPTERYGIA, Supplement: by the late Rev. A. MATTHEWS; edited by P. B. MASON: pp. 1—114, with seven plates. London: O. E. Janson and Son, 1900.

In reviewing the Monograph of the *Corylophidæ* and *Sphæriidæ* by the same author (*antea*, p. 66), we ventured to express a hope that the Supplement to the *Trichopterygia* would soon be published. This has now been issued. It contains full descriptions of all the new genera and species known to Mr. Matthews that have been brought to light since the publication of the previous volume, in 1872, two species only being added in the present work. Brief translations of the descriptions of the species recorded by other authors since that date are given on pp. 2—7, and a systematic list of all the *Trichopterygia* (under which Mr. Matthews includes *Hydroscapha*, as the type of a separate family) known to him is given on pp. 8—11. The structural characters of eight genera are fully shown on the plates (Mr. Matthews' original drawings having been successfully transferred to zinc by Mr. J. Collin, of Newmarket, as before), *Hydroscapha* being illustrated by a photographic reproduction of the plate previously published in Mr. Matthews' "Essay on *Hydroscapha*" (1876); this genus is regarded by him as a connecting link between the *Trichopterygidæ* and *Staphylinidæ*. Mr. Mason is to be congratulated at having successfully concluded the task of seeing his late friend's unpublished work through the press.—G. C. C.

## Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: *July 16th*, 1900. — Mr. G. T. BETHUNE-BAKER, President, in the Chair.

The Rev. C. F. Thornewill was elected a Member of the Society.

A letter was read from Mr. G. H. Kenrick, announcing his purchase of the late Mr. W. G. Blatch's special collection of Midland *Coleoptera* for the City of Birmingham, and his intention of placing it in the charge of this Society until Birmingham had a Museum to receive it.

Mr. R. C. Bradley exhibited a series of *Libellula depressa* taken at various places this year, Selsby, Glos., Moseley, London, &c., and remarked that it appeared to have been exceptionally abundant and widely distributed this year. Mr. C. J. Wainwright, short series of *Trypeta onotrophes* from St. Ives, Cornwall, and *T. tussilaginis* from West Hide, Hereford.—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: *June 23th*, 1900.—Mr. W. J. LUCAS, B.A., F.E.S., President, in the Chair.

Mr. Kemp exhibited (1) a var. of *Bombyx rubi*, in which the bands on the

fore-wings were bifurcated; (2) a var. of *Polyommatus Icarus*, having a large bleached blotch on the fore-wing; (3) several specimens of *Notonecta glauca* and of var. *maculata*. Mr. Main, the nest of *Polistes gallica*, a solitary wasp, and a living example, from Switzerland, where it was common on rocks. Mr. Lucas, specimens of the very rare Dragon-fly, *Ischnura pumilio*, and var. *aurantiaca*, from the New Forest, where Mr. Carr and himself had re-discovered it, it not having been recorded for many years. Mr. West, specimens of *Monanthia ampliata* and *M. cardui* from Lewisham.

July 12th, 1900.—The President in the Chair.

Mr. Adkin, pupa cases *in situ* of the four *Sesiæ*, *S. scoliceformis*, *S. asiliformis* (*cynipiformis*), *S. culiciformis*, and *S. ichneumoniformis*; and a long discussion ensued as to the economy of the various species in the genus. Mr. Hall gave his experience with *S. sphegiformis*. Mr. Tutt remarked how little was known of the egg stage or even where the ova were laid. It was suggested that some were laid on the leaves. Mr. West, the uncommon Homopteron, *Graphocrærus ventralis*, taken in Lee by sweeping. Mr. Carr, (1) specimens of the Dragon-fly, *Pyrrhosoma nymphula*, and vars. taken in the New Forest; (2) a very varied series of *Angerona prunaria* from Hailsham; (3) a series of *Melitæa Athalia* also from Hailsham, where it was fairly common round the flowers of cow-wheat. Mr. Lucas, the rare Dragon-fly, *Orthetrum cancellatum*; and a discussion ensued on the nature of the blue colour. Mr. Turner, a short series of a rare Hemipteron, *Eysarcoris melanocephalus*, taken by beating and sweeping at Horsley on July 7th.

July 26th, 1900.—Mr. A. HARRISON, F.C.S., F.L.S., Vice-President, in the Chair.

Mr. F. M. B. Carr, a specimen of *Cosmia pyralina*, taken at Oxshott. Mr. Harrison, a series of *Nyssia zonaria*, taken on the golf links at Wallasey where it was common. Mr. West, the Heteropteron, *Mecomma ambulaus*, from Lewisham. Mr. Ashby, a series and a living example of *Aromia moschata* from Tottenham, where it was locally common. Several members recorded *Colias Edusa*, *Plusia gamma*, *Pyrameis cardui*, and one *C. Hyale*.—HY. J. TURNER, Hon. Sec.

## OBSERVATIONS ON COCCIDÆ (No. 18).

BY R. NEWSTEAD, F.E.S.,

CURATOR OF THE GROSVENOR MUSEUM, CHESTER.

(Continued from 2nd series, vol. ix, page 99, April and May, 1898).

This note deals exclusively with *Coccidæ* found associated with ants, by Mr. Brockton Tomlin, in Italy, the Rev. E. Wasmann, S.J., in the Netherlands, and Mr. R. C. Wroughton, in India. I should add, however, that Mr. Wroughton's captures are from the collection of Father Wasmann, who very liberally placed specimens in my hands for identification. I take this opportunity of expressing my thanks to these gentlemen, both for their generosity, and for the interest they have taken in this important branch of the study of the *Coccidæ*.

*DACTYLOPIUS GLACIALIS*, *n. sp.*

♀. Adult covered with very long, slender, white, wavy filaments, when denuded of these it is short, ovate, somewhat clypeate in front, and has the segmentation very pronounced. Dorsum with large isolated groups of tubular spinneretts, with a large central pore; and there are many long slender hairs scattered over the body.

Antennæ (fig. 1), remarkably long for the size of the insect, are of 9 joints, very slender, and present a few fine hairs, formula (2, 3) (4, 5) 1, 6, 7, 8, 9).

Legs longer than antennæ; tarsus scarcely one-third the length of the tibiæ; digitules to claw very faintly dilate, tarsal pair represented by a bristle. Anal ring of six hairs. Anal lobes normal, setiferous, and spiny. Long., 2.50—3.50 mm.

Larva. Antennæ of 6 joints, slightly claviform, 6 nearly as long as 2, 3, 4, and 5 together, formula (1, 4, 5) (2, 3) 6.

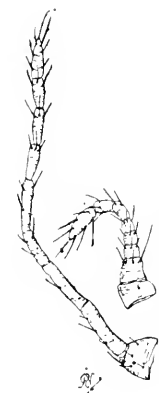


Fig. 1. Fig. 2. long as 2, 3, 4, and 5 together, formula (1, 4, 5) (2, 3) 6.

*Hab.*: Courmayeur, Italy, associated with ants (*sp. non det.*), under granite blocks forming the moraine of the glacier. Collected by Mr. B. Tomlin, September, 1899.

This is altogether a most interesting species. Mr. Tomlin informs me he was particularly attracted by the long white filaments which clothed the insect's body, which he says waved in the air like delicate silken threads. Such a character as this is exceptional among subterranean *Coccids*. Other striking features are the compound groups of spinneretts, and the unusually long antennæ and legs.

When the specimens reached me they were still living, but unfortunately were denuded of their wavy coats. With the *Coccids* were found a very remarkable Hymenopterous parasite, which exhibited such extraordinary jumping powers that it was by the merest bit of good luck it was recaptured. The insect had hatched out during transit, and noting its peculiar form I submitted it to Dr. L. O. Howard, who has kindly sent me the following interesting particulars:—"I am especially interested in the single specimen which you bred from *Dactylopius glacialis*, and I do wish you had succeeded in rearing other specimens, for so far as I can see this is the hitherto unknown winged form of the genus *Dinocarsis*, and is a striking and beautiful insect. \* \* \* Your note on the extraordinary jumping powers of *Dinocarsis* is a verification of what I have frequently observed in other *Encyrtines*. They are all great jumpers, and while there is no great enlargement of the hind femora there is a striking modification of the middle tibiæ and tarsi. At the top of the tibiæ is a strong spur, which is movable upon its basal articulation, and may

be opposed to the tarsus as one's thumb is opposed to one's fingers. The tip of the tibia is enlarged, and the jumping, I think, is done in the effort in bringing the tibial spur and the tarsus together. At all events, there is no other modification of leg structure which would seem to account for the superior jumping powers of the members of this group."

*DACTYLOPIUS FORMICARIUS, n. sp.*

♀ adult viviparous, very short ovate, convex above, and flat beneath. Colour whitish, thoracic and abdominal area with several distinct, narrow, transverse yellow-brown bars, which are confluent in the middle, forming a strong median line. Antennæ (fig. 2) of 8 joints, the width of the first almost equal to the length of the last, formula 8 (1, 2) (6, 7), 3 (4, 5). Derm thickly set with short stiff hairs, forming tufts at the margin of each segment; there are also numerous circular spinnerets, and near the anal opening two large eye-like glands. Legs short, and very stout, equal in length to the antennæ, tibio-tarsal joint central or nearly so. Anal ring of six long hairs. Anal lobes abnormally large, placed closely together, and thickly set with long stiff hairs and spines. Long., 2—3 mm.

Larva elongate. Anal lobes very faintly indicated, and furnished with very long hairs. Antennæ of 6 joints, formula 6, 1 (2, 3, 4, 5). Legs very long; tarsi longer than the tibiæ; digitules to claw and tarsi simple.

*Hab.*: Matheran Hill, N. Konkan, 2000' alt, with *Cremastogaster*, sp. Wroughton collector. Ex Coll. Wasmann.

*RIPERSIA MONTANA.*

*Ripersia montana*, Newstead, Ent. Mo. Mag., 2nd ser., vol. ix p. 97, 1898.

Several specimens were collected by Mr. B. Tomlin at Courmayeur Italy, circa 4000 ft. alt. Sept., 1899, in ants' nests (sp. *non det.*).

In my description of this species (*l. c.*) I described the adult ♀ as possessing antennæ of six or seven joints. In the examples before me I find a female possessing both characters. Mr. Tomlin says the ants struggled to carry the *Coccids* away into their burrows.

*RIPERSIA WASMANNI, n. sp.*

♀ adult sub-ovate, rather flat, with the cephalic extremity slightly produced, colour red. Legs well developed, anterior pair extending beyond margin of the body. Antennæ (fig. 3) a little longer than the tibia and tarsus together, of six joints, the articulation of 3rd and 4th faint, and not constricted at the margin. Mentum biarticulate, and rather long; loop of rostral filaments extending a little beyond its apex. Anal ring with six stout hairs. Anal lobes indicated by single long hairs, which are placed well within the margin.



Fig. 3.

Long., 1 mm.

*Hab.*: "With *Lasius alienus*, F. (without *R. europæa*); Linz a/Rh., 10, '98; once together with *R. europæa* in nests of *L. alienus* at

Luxemburg; and once with *L. flavus* (without *R. europæa*), Linz (Rhineland)." Wasmann Coll.

Although Father Wasmann has found this species associated with *Ripersia europæa*, Newst. [Ent. Mo. Mag. (2), vol. viii, p. 167, 1897], it is quite distinct from the latter in the form of the antennæ, and the position of the anal lobes; furthermore, Father Wasmann informs me the colour of *R. europæa* is yellow.

#### LECIANIUM, sp. ?

*Hab.*: "Matheran, N. Konkan, sent without ants—probably with same *Cremastogaster* as *Dactylopius formicarius*" (Wasmann). Wroughton Coll.

A number of specimens were sent attached to the roots (?) of an unknown plant. In all probability the species is a new one, but the specimens are very small, and probably immature. In the absence of more reliable information I must withhold the description of the species; meanwhile trusting Mr. Wroughton will give the matter his further attention.

#### PERISSOPNEUMON, n. gen.

♀ adult possessing both marginal and ventral spiracles; anal, dorsal, and ventral openings, and above the latter a pouch-shaped cavity. Antennæ, legs, and rostrum present.

#### PERISSOPNEUMON FEROX, n. sp.

♀ adult elongate, longitudinally and transversely convex; segmentation distinct; legs, antennæ, rostrum, and ventral orifice piceous. Antennæ strong, and highly chitinised, of 8 joints (fig. 4), tapering from base to tip, basal and terminal joints longest, formula (1, 8) (2, 3) (4, 5, 6, 7), all with numerous fine hairs. Eyes ventral and near the insertion of the antennæ. Legs much stouter and longer than the antennæ, sparsely clad with hairs; claws stout and simple; digitules to claw fine simple hairs. Mentum biarticulate; filaments short. Dermis (fig. 5) almost covered with short stiff hairs, interspersed with large, irregular, ovate glands (*a*), with an opening towards the widest end.

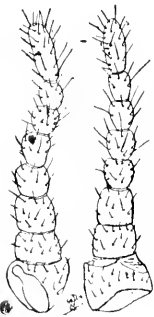


Fig. 4.

Spiracles on the ventral surface (fig. 7) four in number; those at the margin on the dorsal surface fourteen in number, seven on either side of the abdomen, and are of the form shown at fig. 5*b*, figs. 6 and 8; the exterior portion cylindrical, with the sides covered with circular spinnerets. Between the spiracles are large, clear, roughly crescent-shaped, valve-like organs (fig. 5*c*), and grouped glands (fig. 5*d*). Anal ring (fig. 9) without hairs, but a double series of circular spinnerets.

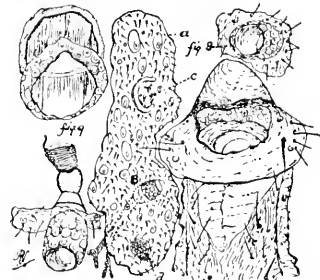


Fig. 6.

Fig. 5.

Fig. 7.

The spiracles shown at figs. 5 and 6 are drawn to the same scale, and show the marked difference in size between the dorsal and ventral sets.

Long., 7—10 mm. Lat., 4—5 mm.

*Hab.* : N. Konkan, India. "Kept in special nests, built for the purpose, by *Æcophylla smaragdina*" (Wasmann). Collected by Mr. Wroughton. Ex Coll. Wasmann, 1899.

It is much to be regretted that Mr. Wroughton has not furnished further particulars with regard to the economy of this species. To have known something of the nature and extent of the "special nests," which the ants are said to construct for the express purpose of housing the captive *Coccids*, would have been a valuable contribution to our knowledge of this exceedingly interesting branch of natural science.

The general character of the ♀ is strictly Monophlebid, but does not agree with anything known to me, and seems worthy of generic rank. Moreover, the marginal spiracles do not, I believe, exist in any other known species.

The description is from specimens preserved in spirits, and I can add nothing with regard to external characters.

Chester: *September, 1900.*

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*DROSOPHILA MACULATA*, DUFOUR, A NEW BRITISH DIPTERON.

BY D. SHARP, M.A., M.D., F.R.S.

On June 1st last I captured a fly in the New Forest that I had not seen before, and on submitting it to Mr. Verrall and Mr. Collin, they both pronounced it to be something not in the British list. By searching in Mr. Verrall's continental collection it was soon discovered to be *Drosophila maculata*, Duf. The species is an Acalyptrate Muscid intermediate in size between a *Musca domestica* and a *Chlorops*, and is highly remarkable from its coloration; the head between the eyes is pure white. The thorax varies in colour according to the light; in some positions it appears to be brilliant white, and in others of a leaden hue; there is a pure white stripe on each side between the wing and the eye. The abdomen is pallid, but each segment is marked with large black spots. The legs are pale yellow.

Dufour says that the species is connected with *Boletus*. I think I found my specimen among old wood near Lyndhurst.

Cambridge: *October 6th, 1900.*

## A NEW BRITISH ANTHOMYID.

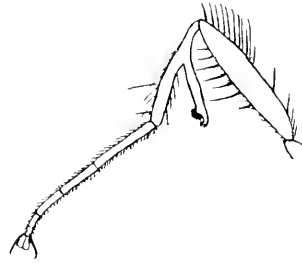
BY PERCY H. GRIMSHAW, F.E.S.

In a collection of *Diptera* made by the late George W. Ord in the Clyde district, and sent to me for identification, is an interesting species of *Anthomyiidae* not hitherto, so far as I am aware, recorded as British. This is *Hyetodesia aculeipes*, Zett., a small blackish species belonging to the group with black legs and short-haired arista, but easily distinguished from all other British forms by the remarkable appendage with which the hind tibia of the male is furnished. Only a single specimen, a male, of this singular insect was obtained by Mr. Ord, who captured it along with *H. incana*, Wied., and *H. longipes*, Zett., at Strathblane, on June 19th, 1899. In the key given by Meade ("Descriptive List," p. 4), *Hyetodesia aculeipes*, Zett., works out alongside *H. hirsutula*, Zett., and in Schiner's "Fauna Austriaca," vol. i, p. 618, it also comes next to that species, under the genus *Lasiops*, Mg.

The following description may be useful, in case this very interesting species should be met with elsewhere:—

HYETODESIA ACULEIPES, Zett.—Ins. Lapp., p. 674, n. 58 (1840); Dipt. Scand., iv, p. 1487, n. 96 (1845)—[*Aricia id.*]; Schiner, Fauna Austriaca, vol. i, p. 618 (1860)—[*Lasiops id.*].

Eyes sub-contiguous, with long hairs; antennæ short, black, with pubescent arista; epistome dark, with grey reflections, and very prominent, almost rostrate oral margin, pulpi black. Thorax shining black, with glistening whitish shoulders, scutellum blackish, calyptera whitish, halteres black (*not* testaceous, as Zetterstedt states). Abdomen greyish, very hairy, with broad, but not very distinct, black dorsal stripe; wings clear, outer cross vein straight, 3rd and 4th longitudinal veins very slightly divergent at the tip. Legs entirely black; fore and intermediate femora strongly and regularly ciliate, fore tibiæ with a single strong bristle on the outer side near the tip; intermediate tibiæ with three or four strong bristles; hind femora with strong bristles on the inner apical half, hind tibiæ slightly curved, with a double row of bristles on the outer surface; and two long bristles behind, one beyond the middle, and the other (the shorter) near the tip, inner surface quite bare, but furnished at one-third from the base with a strong and peculiar appendage pointing obliquely inwards at an angle of 45°, and as long as the remaining two-thirds of the tibia. This appendage is furnished with a blunt hook at the tip, turned towards the tibia, and below the tip on the side next the tibia with a short stiff brush of lighter-coloured hairs.



Hind-leg of *Hyetodesia aculeipes*, Zett. ♂

Length, 6–7 mm.

Edinburgh: September, 1900.



COLEOPTERA FROM ICELAND AND THE FAROE ISLANDS,  
COLLECTED BY N. ANNANDALE, ESQ., IN 1900.

BY D. SHARP, M.A., M.D., F.R.S.

The fauna of Iceland has a considerable interest on account of the isolated and almost arctic position of the island. Its entomology is, however, far from completely known. In 1856 it was visited by Dr. Staudinger, who published lists of the Insects in the Stettin. Ent. Zeit., 1857. He procured altogether 312 species. Since then singularly little has been added to his list. It included 81 species of *Coleoptera*. In vol. xxvi of this Magazine, Mr. P. B. Mason gave a list of the Insects he met with during a visit to the Island. He mentions sixteen species of *Coleoptera*, three of which, viz., *Aphodius foetidus*, *Otiorhynchus scabrosus*, and *Coccinella 11-punctata*, may be considered as additions to the list published by Staudinger, though it is possible that Staudinger's *O. rugifrons* may be the same as Mason's *O. scabrosus*.

In 1890 Dr. F. A. Walker published the names of some species of *Coleoptera* (Entomologist, 1890, pp. 374 and 376) he met with, but I think they make no addition to the Iceland Catalogue. Neither is any addition made in the paper by the same gentleman in J. Victoria Inst., xxiv, 1890.

In Bull. Soc. ent. France, 1892, p. xxviii, Dr. H. Sénae mentions fourteen species, three of which are not in Staudinger's list, viz., *Otiorhynchus atroapterus*, *O. ligneus* var., *Adalia* sp. n. near *hyperborea*. It is probable that the two *Otiorhynchus* were wrongly determined, but the *Adalia* apparently is an additional and interesting form; unfortunately we have had no further particulars about it.

Mr. N. Annandale was so good as to make small collections of *Coleoptera* for me in Iceland and the Faroë Islands last summer. He was at Reykjavik from July 1st to 14th, and all his *Coleoptera* were found there. They are 46 specimens and 15 species, viz. :—

*Notiophilus biguttatus* (8), *Nebria gyllenhali* (6), *Calathus melanocephalus* (8), *Amara quenseli* (2), *Patrobus septentrionis* (1), *Bembidium bipunctatum* (1), *B. islandicum*, n. sp. (3), *Agabus bipustulatus* (7), *Hydroporus nigrita* (1), *Creophilus maxillosus* (1), *Stenus carbonarius* (2), *Cryptohypnus riparius* (1), *Barynotus Schonherri* (1), *Otiorhynchus blandus* (3), *Erihrinus acridulus* (1).

It is probable that all these species are really included in Staudinger's list, though if so, one or two were erroneously named. Staudinger's *Notiophilus semipunctatus* is probably *N. biguttatus*. My *Bembidium islandicum* is almost certainly his "*B. nigricorne*, Gyll.?" Staudinger's *Stenus opacus* is a synonym of *S. carbonarius*; and his

"*Otiorynchus monticola*???" is no doubt *O. blandus*. All the specimens brought back by Mr. Annandale can be perfectly matched by Scotch specimens, with the exception of the new *Bembidium*, which is a very interesting form, being allied to species found in Central and Southern Europe on the edges of snowfields at a great elevation.

BEMBIDIUM ISLANDICUM, *n. sp.*

*Nigrum, superne subaeneum, antennarum basi pedibusque sordide testaceis, femoribus basi pieco; elytris subtiliter seriatim punctatis, versus latera et apicem punctatura obsoleta.* Long.,  $4\frac{1}{4}$  mm.

An *Bembidium nigricorne*, Gyll.?, Staudinger, Ent. Zeit. Stett., 1857, p. 282?.

Resembles *B. glaciale*, but readily distinguished by the colour of the legs and base of the antennæ, and by the longer terminal joints of the labial and maxillary palpi. Antennæ rather slender, the 1st joint and the bases of the three or four following joints yellow. Thorax cordate, much narrowed behind and sinuate at the sides, the posterior angles rectangular, very sharply marked, the base broadly and deeply impressed on each side, but with little punctation. The sculpture of the elytra is entirely that of the *B. glaciale* group, there being six regular series of punctures, well marked at the base, but becoming quite indistinct on the apical half. The legs are dusky yellow; the tarsi darker, and also the base of the femora. Three individuals, one male.

This species belongs to the subgenus *Testediolum*, Gangl. Although Ganglbauer makes entirely black legs and antennæ a chief character of the subgenus, it is evidently an unimportant point. If we trusted to it this species would come into the subgenus *Peryphus*, with which, however, it has little in common.

The species has some resemblance to *B. nigricorne*, but belongs to a quite different division of the genus, there being no trace of an angle on the shoulder of the margin of the elytra. Staudinger, in recording with doubt *B. nigricorne* as amongst his Iceland *Coleoptera*, says "so determined by Dr. Schaum. Only a few examples; two of them from the north, found with *B. bipunctatum*. Certainly not common." Since then the species has apparently not been met with till it was found this year by Mr. Annandale.

Very little appears to be known as to the Fauna of the Faroë Islands. In *Coleoptera* I have been able to find only ten recorded species. They were found by Mr. Walker in 1890, and mentioned in the Entomologist for that year, pp. 374 and 375. Mr. Annandale spent several days there in the last half of June, and found 29 species of *Coleoptera*. His captures were mostly made near Thorshavn:—

They are *Carabus catenulatus*, *Loricera pilicornis*, *Notiophilus biguttatus*, *Nebria brevicollis* and *N. gyllenhali*, *Calathus cisteloides*, *Amara aulica*, *Pterostichus*

*strenuus*, *Patrobus septentrionis* and *excavatus* and *assimilis*, *Trechus obtusus*, *Bembidium tibiale*, *Agabus bipustulatus*, *Hydroporus griseostriatus*, *Cercyon flavipes*, *Tachinus rufipes*, *Quedius fuliginosus*, *Philonthus æneus* and *marginatus* and *finetarius*, *Othius melanocephalus*, *Lesteva sharpi*, *Dermestes lardarius*, *Aphodius lapponum*, *Cryptohypnus riparius*, *Otiorynchus blandus*, *Tropiphorus obtusus*, *Chrysomela staphylea*.

These species are all found in Scotland, and the specimens seem to be quite similar to Scotch individuals. Nearly all the examples were found under stones.

Cambridge: October 13th, 1900.

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A SPECIES OF *SCAPTOCORIS*, PERTY, FOUND AT THE ROOTS OF SUGAR-CANE.

BY G. C. CHAMPION, F.Z.S.

My friend Señor Don Juan Rodriguez has recently sent Mr. Godman many specimens of a species of this remarkable American genus from his estate in Guatemala, a locality well known to me, and where I have had the pleasure of collecting in his company. They are labelled as having been found underground, at the roots of sugar cane and other plants. The genus is an interesting addition to the Central-American fauna, nothing being known of it from that region when Mr. Distant concluded his enumeration of the *Cydnides* in the "Biologia Centrali-Americana" in 1889. The Guatemalan insect cannot be certainly referred to either *S. castaneus*, Perty, the type of the genus, or to *S. terginus*, Schiödte, both from Brazil (which were re-described by Signoret from specimens from Venezuela and Cuba respectively, and perhaps not correctly identified), and I have therefore ventured to name it.\* The *Scaptocoris* in question, moreover, differs from the two species standing under the name *S. castaneus*, Perty, in the British Museum, one of them, from South America, being, no doubt, correctly named. It is therefore certain that there are several nearly allied Tropical American forms. Perty's diagnosis of the genus is so complete that there is little to add, beyond calling attention to the complete adaptability of the general structure of the insect for burrowing purposes, a fact not noted by him or by Signoret, and if the Guatemalan species really attacks the roots of the sugar cane, it may do a great deal of mischief. Signoret states that the hind legs have very small tarsi, but this is a mistake, no trace of them being

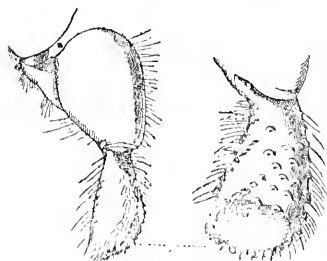
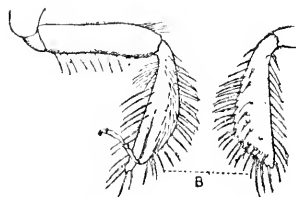
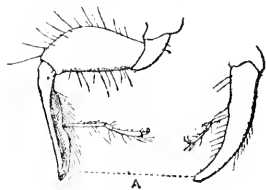
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\* The more recently described *S. minor*, Berg [An. Mus. Montev., i, p. 14 (1894)], also from Brazil, is a much smaller insect.

visible in any of the specimens before me, nor in those in the British Museum. In the allied Eastern genus *Stibaropus*, Dallas, they are present.

The following points of structure of *Scaptocoris*, as exhibited in the Guatemalan insect described below, are worth noting:—

The anterior legs (fig. A) have the tibiæ produced into a very long, stout, curved



claw; the tarsi are elongate, quite slender, semi-retractile, inserted at about the middle of the tibia beneath, their basal joint a little longer than the second and third united. The intermediate legs (fig. B) have the tibiæ stout and curved, and set on their outer face with scattered setigerous tubercles; the tarsi are short, slender, and retractile. The posterior legs (fig. C) have the trochanters long and greatly developed; the femora and tibiæ are enormously incrassate; the femora smooth, and rounded on their anterior face; the tibiæ (viewed in profile) subtriangular, obliquely truncated and flattened at the apex, their outer face being set with scattered tubercles, the flattened apical portion nearly encircled by a row of blunt teeth. The second joint of the rostrum is arcuately dilated beneath, forming a flattened plate, which fits into a deep groove between the anterior portion of the front coxæ. On the lateral portions of the metasternum, close to the intermediate coxæ and the inner portion of the long odoriferous orifice, there is a conspicuous transverse

ridge, which is slightly notched at the outer end, and behind and exterior to this there is a large, densely rugulose, opaque space.

#### SCAPTOCORIS TALPA, *n. sp.*

Very robust, castaneous, the under surface, the two apical joints of the antennæ, and the legs fulvous, the head and knees often stained with piceous, the apices of the anterior tibiæ and the teeth surrounding the apex of the hind tibiæ black, the eyes red; the lateral margins of the pronotum, the under surface of the body, the rostrum, and legs set with very long bristly hairs. Head rounded at the sides, transversely wrinkled, shortly trilobate in front, the lobes rounded and about prominent; antennæ with joints 1 and 2 equal in length, 3 much shorter than 2, 4 fully one-half longer than 3. Pronotum slightly constricted at the sides; the anterior lobe almost smooth; the posterior lobe strongly, transversely wrinkled, and with a few scattered punctures. Scutellum sculptured like the adjoining portion of the pronotum; the apex smoother, rounded and moderately dilated. Elytra with scattered, shallow, distinct punctures; membrane hyaline. Legs very robust; hind

femora enormously incrassate; hind tibiæ short, exceedingly stout, thickening outwards, their outer face set with scattered tubercles, the flattened apical portion smooth and nearly encircled by a row of blunt, stout teeth.

*Nymph.*—Head sculptured and shaped very much as in the adult, but without ocelli; pronotum short, and, like the scutellum, without transverse wrinkles; legs as in the adult, except that the anterior and intermediate tarsi are only 2-jointed.

Length (to apex of the membrane), 9—11; breadth of the pronotum,  $4\frac{3}{4}$ —6, of the elytra,  $5\frac{1}{2}$ —6 $\frac{1}{2}$  mm.

*Hab.*: GUATEMALA, Capetillo (*Rodriguez*).

Apparently a common insect where it occurs in Guatemala. Larger and more robust than *S. castaneus*, the elytra distinctly punctured; the posterior tibiæ with stouter and blunter teeth (Perty says "denticulis coronata") encircling the flattened apical portion. I am unable to distinguish the sexes by external characters.

Horsell, Woking:  
October, 1900.

#### NEW HAWAIIAN LEPIDOPTERA.

BY E. MEYRICK, B.A., F.Z.S.

Amongst some Hawaiian *Lepidoptera* recently sent me for determination by the Städtisches Museum für Naturkunde of Bremen were examples of the three following new species, which I have been requested to describe; the types are in the Museum. They were collected by Professor Schanisland. Two of these species are very interesting, being the only *Lepidoptera* obtained from the little island of Laysan. This is a coral island, crowning a submerged volcanic peak, and lies 800 miles W.N.W. of Kauai, the northernmost island of the main Hawaiian group, but is connected with it by a series of several similar little islets or reefs, showing the former existence of a more considerable development of land in this direction. Herr Alfken, of the Bremen Museum, informs me that six birds are endemic in the island, but three reptiles are identical with Hawaiian forms; two endemic plants are nearly related to Hawaiian species, the rest identical. The two *Lepidoptera* are of undoubted Hawaiian affinity, but apparently not very close to any described species.

#### AGROTIS EREMIOIDES, *n. sp.*

♂ ♀. 36—48 mm. Head and thorax brownish-ochreous, neck often yellowish tinged. Antennæ in ♂ bidentate, with triangular teeth. Abdomen in ♂ rather elongate. Fore-wings varying from dull light brownish-ochreous to fuscous; first and second lines sometimes faintly darker, slender, usually obsolete; orbicular rather

small, suboval, indistinctly dark-outlined or obsolete; reniform generally indicated by an undefined darker suffusion, sometimes obsolete. Hind-wings in ♂ pale whitish-fuscous, in ♀ rather darker.

Laysan; 26 specimens. Characterized by the uniform colouring and almost entire obsolescence of markings.

*AGROTIS PROCELLARIS, n. sp.*

♂ ♀. 41—45 mm. Head and thorax brown, collar with a blackish bar. Antennæ in ♂ bidentate, with triangular teeth. Abdomen in ♂ rather elongate. Fore-wings greyish-ochreous, mixed with fuscous and dark fuscous; first and second lines pale, edged with dark fuscous, dentate; spots fuscous, outlined with dark fuscous, orbicular round, connected with reniform on lower half by a spot of dark suffusion edged above with dark fuscous, claviform elongate, resting on first line, reniform transverse-oblong; subterminal line pale, edged with darker suffusion. Hind-wings in ♂ whitish-fuscous, suffused posteriorly with rather dark fuscous, in ♀ rather light fuscous, darker posteriorly.

Laysan; 2 specimens (♀ very poor).

*SCOTORYTHRA DICERAUNIA, n. sp.*

♂ ♀. 39—50 mm. Head and thorax brown. Antennæ whitish-ochreous, pectinations 6-, laterally black-lined. Abdomen pale ochreous, mixed with pale brownish, in ♂ 1½. Legs whitish-ochreous, spotted with fuscous, posterior tibiæ in ♂ dilated, enclosing a whitish-ochreous hair pencil, posterior tarsi in ♂ ¾. Fore-wings elongate-triangular, apex slightly prominent, termen bowed, waved, oblique; rather dark brown or fuscous, with a few indistinct darker strigulæ, in one specimen with undefined bands of lighter suffusion before first and beyond second lines; veins in ♂ tending to be marked with whitish lines, in ♀ sharply ochreous-whitish throughout; costal edge in ♀ sharply ochreous-whitish; first and second lines slender, waved, ochreous-whitish; first obtusely angulated above middle, second sinuate inwards above middle and more widely towards dorsum; discal spot narrow, crescentic, ochreous-whitish; cilia fuscous, basal half ochreous-whitish. Hind-wings with termen unevenly rounded, slightly waved; rather light fuscous, in ♂ becoming whitish-fuscous towards base; an indistinct post-median series of darker dots.

Molokai; 4 specimens. To this species also I now refer without doubt the specimen (of unknown locality) formerly assigned by me as the ♀ of *S. goniastis*; it is entirely similar to the ♀ now obtained. The present species is allied to *S. goniastis*, but is distinctly marked and easily recognised from all others by the white lines and discal spot.

*Scotorythra triscia*, Meyr., and *Phlyctænia synastra*, Meyr., were also obtained from Molokai, from which island they have not previously been recorded.

Elmswood, Marlborough:

September, 1900.

*Vanessa Antiopa* at Merton, Norfolk.—I saw a specimen of *V. Antiopa* in my garden at Merton on September 6th last, but not having a net was unable to take it.—J. HARTLEY DURRANT, Merton, Thetford: October 12th, 1900.

*Colias Hyale* and *Edusa* in Dorsetshire, Hampshire, and Surrey, 1900.—During the first ten days in August I saw specimens of *Colias Edusa* about Swanage, Studland, Corfe, Langton-Matravers, and elsewhere in South Dorsetshire. From the 11th to the 23rd August *C. Edusa* was abundant in clover fields and on the cliffs between Christchurch and Lymington, Hants; but after the latter date it gradually disappeared. I also saw specimens of it on the heaths and in the woods about Pokesdown, Hinton-Admiral, and in the south of the New Forest near Holmsley, Wootton, and Sway. The variety *Helice*, in every shade of colour, from pure white to light buff, was not uncommon, for I caught four specimens in two hours on the 14th August, and five others in the course of the next three days.

*Colias Hyale* was rare, and only nine specimens were seen and captured by me on the Hampshire Coast in ten or twelve days. It was said to be commoner inland at Old Sarum and elsewhere in Wilts. and North Hants.

On returning home on the 1st September I found *C. Edusa* and *C. Hyale* in the clover fields close to Surbiton, and about Hook, Chessington, and other places in the neighbourhood. Neither of these species was abundant, but *Hyale* was at least as common as, if not commoner than, *Edusa*, and it was quite possible to take three or four specimens of it in a few hours. It seems strange that *C. Hyale* should have been commoner far from the sea, in the suburbs of London, than on the coast of Hampshire.—II. Goss, Surbiton Hill: October 3rd, 1900.

*Colias Hyale* and *Edusa*, and other Lepidoptera at Greenhithe, &c.—During August both *Colias Edusa* and *C. Hyale* were not uncommon in this neighbourhood, the latter the more frequent of the two. In South Devon *C. Edusa* occurred in great numbers with its variety *Helice*, but I saw no *C. Hyale*. Both species were still appearing at Broadstairs during September. One or two *Vanessa Antiopa* near here have been reported. On September 20th I took in my moth-trap a fair specimen of *Tortrix semialbana*, a most unusual date for the appearance of the species I should think. Three worn specimens of *Spilodes palealis* on July 20th to 27th—the first time this species has visited my trap. *Camptogramma fluviana* was again taken there, and *Mamestra abjecta* occurred in unusual numbers.—A. B. FAEN, Mount Nod, Greenhithe: October 1st, 1900.

*Colias Hyale* and *Edusa* at various localities, 1900.—I send you the following records for *C. Hyale* and *Edusa*:—2nd week in June at Beachy Head, both *Edusa* and *Hyale*, worn, and no doubt the parents of those occurring now. July 30th, *C. Hyale* at Worcester Park, Surrey. August 29th, *C. Edusa* on railway banks at Whitstable; *C. Hyale* plentiful in field of lucerne at Margate, fresh out. August 31st, *C. Hyale* and *Edusa* in lucerne fields and on railway banks, Folkestone, rather worn. September 6th, *C. Hyale* and *Edusa* on railway banks at Sidcup and Crayford. September 7th, *C. Edusa* at Eltham. September 17th, *C. Hyale* at Herne Bay, rather worn.—C. W. COLTHURP, 127, Barry Road, East Dulwich, S.E.: September 17th, 1900.

*Chærocampa nerii*, *Acherontia Atropos* and *Sphinx convolvuli*, near Weymouth.—An Oleander Hawk-moth (*Chærocampa nerii*) was brought to me alive in a card box on September 24th last by a little boy, and, strange to say, was almost uninjured. It was caught at rest by Mrs. New, a resident in the village of Chickereil, about half a mile distant from my house, who, knowing my tastes, kindly sent it to me. It is a beautiful specimen, a female, and  $4\frac{3}{4}$  inches across the wings. This is the first hawk-moth rarer than *A. Atropos* or *S. convolvuli* (both of which species have, as usual, occurred here this year) that I have either caught or had brought to me during 30 years' collecting.—NELSON M. RICHARDSON, Montevideo, near Weymouth: October 10th, 1900.

*Heliothis scutosa*, Schiff., in South Devon.—On September 4th, whilst I was looking for *Colias Edusa*, var. *Helice*, in a clover field near Dartmouth, accompanied by my son, F. Capel Hanbury, a very pale looking moth flew up from under his feet. He made several unsuccessful attempts to catch it, and we both watched the moth fly into a hedge, marking the exact spot. On reaching it we found there was a rabbit-run into the next field, and after fruitlessly searching and beating the hedge presumed the moth had flown through the hole. Climbing over, we paced up and down in the grass for nearly half an hour, then abandoned the search and returned home to lunch, discussing what the moth could be, and arriving at the conclusion that it was probably a specimen of *Deiopeia pulchella*. After lunch my son said he would return to the clover field, "in case the moth is back again." His perseverance was rewarded. On reaching the field, and after a short search near the same spot, he saw his friend start up again, fly a few yards, and then commence buzzing like a *Plusia gamma* among the heads of the clover. Not to be beaten this time he crept up and put the net straight down over it. Great was his disappointment at finding that it was not *D. pulchella*, but only a much worn *Noctua* that he did not recognise. Returning, he brought his capture to Mr. Eustace R. Banks (who was staying with us) and me, for identification. We soon saw what a prize had been captured. The specimen is a male, but unfortunately its condition leaves much to be desired, and our only regret was that we had not visited the field a week or two earlier, when, if bred there, it was probably in fine plumage. Mr. Banks points out (1) that *Artemisia vulgaris*, a common food-plant of *H. scutosa*, is plentiful in the hedge beside which the moth was taken, and (2) that it is remarkable that although with us *H. scutosa* is generally, and probably with reason, regarded as a casual immigrant from the continent, not a single one of the ten British specimens recorded in Barrett's "British Lepidoptera" was captured near the south coast of England, Weston-super-Mare being the southernmost station from which it has heretofore been reported.—FREDERICK J. HANBURY, Stainforth House, Upper Clapton, N.E.: September 24th, 1900.

*Retinia sylvestrana* and *Stathmopoda pedella* at Guestling.—Both these rare or local species have occurred here this season. A single specimen of *Retinia sylvestrana*, Curt., was taken in the Rectory, having doubtless come from some species of *Pinus* growing near the house, while several specimens of *Stathmopoda pedella*, L., were taken among alders in Broomham Park on July 13th.



*Acherontia Atropos* seems to be abundant this year, as I have had sixteen, either as larvæ or pupæ, brought to me, and I have heard of others found in the parish.—E. N. BLOOMFIELD, Guestling: *October, 1900.*

*Re-occurrence of Actocharis Readingi at Plymouth.*—It may be of interest to Coleopterists to record the capture of *Actocharis Readingi*, Sharp, in the Plymouth district, on October 7th, at the spot where Mr. Keys and I obtained *Trogophlæus anglicanus*, recently described by Dr. Sharp. Having failed to find the latter insect in the seaweed at the high-water mark, I proceeded to search in the shingle subjacent, and captured in a very short time seven specimens of *A. Readingi* (but no *T. anglicanus* were seen). On the 15th, in company with my friend Mr. Keys, about three dozen of this interesting beetle were taken in the same habitat, except three, which were found beneath stones below high-water mark. It is a fairly active insect, but easily overlooked, as it does not run about when the shingle is spread on the sheet, but remains beneath or between the particles, so that every little heap has to be minutely examined.\* Although Mr. Keys and myself have frequently searched in the same spot during the earlier part of the year with a view to finding it, until now we have met with no success.

In conclusion, I may mention that *Sipalia testacea*, Bris., was found on the 7th in the cove, this being a new locality in this district for it. Amongst the other maritime beetles occurring commonly are *Aëpus marinus*, Ström, and *Robini*, Lab., *Cillenus lateralis*, Sam., *Trogophlæus halophilus*, Kies., and *Micralymna brevipenne*, Gyll.—M. CAMERON, H.M.S. "Cleopatra," Particular Service: *October 16th, 1900.*

*Zabrus gibbus*, Linn., in the Lea Valley.—I have recently been fortunate enough to add this fine and local insect to our scanty list of Lea Valley *Carabidæ*. Its habitat is at the sides of the road between Edmonton and Chingford, where it skirts for a short distance some open grass land of a marshy character. I found my first specimen on August 25th, running on the road, and by searching at the roots of grass adjacent thereto I got three or four more, but I found it easier to get a series by walking slowly along the road and picking up running individuals. Owing to the close proximity of a well-frequented public house, to and from which numbers of "pilgrims" (principally employés at a large linoleum factory near by) were journeying, my proceedings attracted a certain amount of attention, some of which I could well have dispensed with! This new habitat for *Zabrus* is in fact as painfully "public" as that in which Mr. J. J. Walker† found it at Sheerness, but my experience of its habits differed from his in that I found it (and have found it since) quite a diurnal insect.

I am not aware whether *Zabrus* is known to hibernate, but I may mention that I found no trace of it in a moderate quantity of flood refuse in the same spot last winter. Prior to this refuse being deposited, the whole of the above-mentioned grass land had been entirely under water for several days.—F. B. JENNINGS, 152, Silver Street, Upper Edmonton, N.: *September 20th, 1900.*

\* This insect is much more lively in hot weather, according to my own experience, at Falmouth, a few years ago—G. C. C.

† Ent. Mo. Mag., ser. 2, vol. 5, page 209 (1894).

*Hydrothassa hannoverana*, F., in Cumberland.—I met with this species on June 2nd last, on *Caltha palustris*, near Little Salkeld, in the valley of Eden. Though it occurred in tolerable abundance, I only set a limited number of specimens, and on a return visit to the locality three weeks later, the species was not to be seen. Previously it appears to have only been found in Britain, in Yorkshire, but not, I believe, for some years.—F. H. DAY, 6, Currock Terrace, Carlisle : *Sept. 22nd*, 1900.

*Bembidium varium*, Ol., in Cumberland.—In Canon Fowler's work on the *Coleoptera* of the British Isles, the most northern locality of this species is given as Spurn Head, in Yorkshire. It may, therefore, be of interest to note that I took it freely last May on muddy places on Skinburness Marsh, at the Estuary of the Eden.—ID.

*Philonthus punctus*, Gr., &c., at Gravesend.—During the afternoon of September 18th I had the opportunity of doing a little collecting on the marshes below Gravesend, and under clods and dried up weeds in a perfectly dry pond, I was lucky enough to turn up a few nice insects. Single specimens of *P. punctus*, Gr., and of *Anisodactylus pæciloides*, Steph., were found (this is a locality in which both these insects were found by Dr. Power and other collectors in the old days) accompanied by immense numbers of *Agabus conspersus*, Marsh., and *Cœlambus parallelogrammus*, Ahr., and a specimen of *Copelatus agilis*, F. The soil was only faintly damp under this refuse; everywhere else the marshes were too dry and parched to make collecting of any use, the only other insects seen being both species of *Dichrotrichus* under stones on the river bank.—T. HUDSON BEARE, King's Road, Richmond, Surrey : *October 4th*, 1900.

*Coleoptera and Hemiptera in the New Forest*.—Among the insects taken during the last fortnight of August near Holmsley, New Forest, the following seem worthy of record:—*Felleius dilatatus*, F., under a stone, probably near a hornet's nest, as I saw several hornets in the immediate vicinity. *Nanophyes gracilis*, Redt. *Agrilus laticornis*, Ill., fairly common on oak. *Helops ceruleus*, L., in numbers in fallen oak. *Halyzia 16-guttata*, L. *Coranus subapterus*, De G. (developed form). *Monanthia 4-maculata*, Wolff. *Calocoris infusus*, H.-Sch., numerous on oak.—WILLIAM E. RYLES, 11, Waverley Mount, Nottingham : *October 9th*, 1900.

*Coreus denticulatus*, Scop., at Lincoln.—A few days ago I found a specimen of *Coreus denticulatus*, Scop. (*hirticornis*, D. and S.), on my doorstep at Lincoln. I have never seen the species in the district before, and it has not yet been recorded from any place so far north. It has mostly occurred in the South of England, but has been taken near Birmingham by the late Mr. Blatch, and on Mousehold Heath, Norfolk, by Mr. Edwards.—W. W. FOWLER, Lincoln : *October 17th*, 1900.

*Odonata of East Sussex*.—Since the publication of my paper, *ante* p. 150, Mr. E. Connold has taken the following species:—*Sympetrum sanguineum*, Müll., Guestling. *Anax imperator*, Leach, several at Guestling. *Calopteryx splendens*, Harr., Ashburnham. *Enallagma cyathigerum*, Charp., Ashburnham.—E. N. BLOOMFIELD, Guestling Rectory : *October*, 1900.

*Aberdeenshire Odonata*.—Mr. J. Mearns finds the following: *Leucorrhinia dubia*, Van d. Lind., Invercanny Moor, scarce; *Sympetrum scoticum*, Don., on most moors, abundant; *Libellula quadrimaculata*, L., Scotston Moor, Banchory, common; *Cordulegaster annulatus*, Latr., Invercanny Moor, common; *Æschna juncea*, L., Scotston Moor, Banchory and Nigg, common; *Lestes sponsa*, Hans., one specimen sent me, others have been taken by Mr. Mearns; *Pyrrhosoma nymphula*, Sulz., Banchory and Whitestripes, common; *Ischnura elegans*, Lind., Scotston and Invercanny, common; *Enallagma cyathigerum*, Charp., Bishop's Loch, common. Professor Trail tells Mr. Mearns that *Culopteryx splendens*, Harr., has occurred at Fyvie in abundance (I do not know how long ago)—ID.

*The exact locality for the Aviemore example of Agrion hastulatum*.—In answer to my query Col. Yerbury has obligingly stated the locality as the "backwaters of the Spey between the bridge at Aviemore and the mouth of the stream which runs down from Loch an Eilan."

As an additional good distinguishing character between *A. hastulatum*, ♂, and *Enallagma cyathigerum*, ♂, it may be stated that in the former, on the sides of the thorax, there is a short black line in the suture below both anterior and posterior wings, whereas in the latter it exists only below the posterior. Since my remarks at p. 226 were written I have examined the appendages of the Aviemore example under a very favourable light; there is no doubt about the identification.—R. McLACHLAN, Lewisham, London: October 2nd, 1900.

*Halsus guttatipennis*, McLach., and *Eclisopteryx guttulata*, Pict., in Gloucestershire.—Both of these have been taken at Colesborne by Mr. James Edwards, the former on 26th September, 1896, the latter on 24th May and 25th June, 1898. I am not aware that either has been previously recorded from so far south in England.—ID.

*A recent British example of Rhabdida cognata*, Rbr.—This insect figures in the Stephensian collection, and in others contemporaneous therewith, but until now I had never seen a native example less than 60 or more years old. The other day, when going over some Norfolk *Neuroptera* for Mr. J. Edwards, I found a very large carded female specimen indicated as having been received from Mr. H. J. Thouless, and from the number on the card Mr. Thouless is able to say that he took the insect at Foxley Wood, Norfolk, on June 14th, 1886. Mr. Edwards has kindly allowed me to retain it.—ID.: October 11th, 1900.

*A few "Neuroptera" from Sutherlandshire*.—As a complement to the notes on Dragon-flies that appeared in our last No. (*ante*, p. 241), I give a few items towards a knowledge of local distribution. The insects were collected by Col. Yerbury in July and August, 1900.

*Psocus fasciatus*, F., Golspie. *Stenopsocus immaculatus*, Steph., The Mound.

*Panorpa germanica*, L., var. *borealis*, Steph.? One ♂ from Golspie, not quite of so pronounced a character as the examples taken further north at Tongue, by Mr. King, in 1883.

*Hemerobius nitidulus*, F., and *H. orotypus*, Wallengr., Golspie. *Sisyra fuscata*, F., Golspie.

*Phryganea obsoleta*, McLach., Golspie. *Colpotauius incisus*, Curt., The Mound, a pair of a somewhat short-winged form. *Limnophilus marmoratus*, Curt., Golspie, one ♀ of a peculiar yellow-winged variety, with no trace of darker markings. *L. centralis*, Curt., *L. vittatus*, F., and *L. sparsus*, Curt., Golspie; *L. affinis*, Curt., The Mound. *Leptocerus cinereus*, Curt., Golspie. *Mystacides azurea*, L., Golspie, and *Philopotamus montanus*, Donov., Golspie.—ID.: September 18th, 1900.

*Some Trichoptera from the vicinity of Seaton, South Devon.*—The Rev. A. E. Eaton has handed to me his captures during the present year. They are not numerous, but to a certain extent select. I notice the more important, but have thought it scarcely necessary to go so minutely into precise local conditions as Mr. Eaton would have done had he written this note: *Crunaccia irrorata*, Curt.; *Bereia pullata*, Curt.; *B. mourus*, Curt., abundant; *B. articularis*, Pict. (cf. ante, p. 180), 3 ♂, 1 ♀, only; *Diplectrona felix*, McLach.; *Wormaldia occipitalis*, Pict.; *Plectrocnemia brevis*, McLach. (cf. ante, pp. 149 and 180), 5 ♂, 1 ♀, not so common as in 1898; *Tinodes unicolor*, Pict., somewhat common, and a good "find," for I think only two old localities in this country were known for the species, and in one of these it is possible it no longer exists; *Hydroptila Macleodiani*, Klap.; *Oxyethira falcata*, Morton. As already remarked, this small list is somewhat select, and it concerns only a small corner of the coast of south-east Devon.—ID.: Oct. 14th, 1900.

*Crabro signatus in the New Forest.*—I brought back from a visit to the New Forest in July last about 24 specimens of the genus *Crabro* with variegate black and yellow abdomen. Among them are three females of the rare *C. signatus*. Most of these *Crabros* were found flying about dead trees, but, if my memory is not at fault, this was not the case with *C. signatus*. I believe I found them flying along a bank covered with heather. I may add that Mr. E. Saunders has been so kind as to confirm my determination of the species.—D. SHARP, Cambridge: Oct. 6th, 1900.

*Crabro 5-signatus, Jurine, carrying off Ants in Corsica.*—This little *Crabro* I captured at Bonifacio on June 7th in the act of taking small ants, which might have been *Lasius niger* from their size and habit, but as I unfortunately omitted to box any I cannot say for certain that they belong to that particular species. These ants were journeying to and from their feeding ground and nest, their path crossing the road; they were in a continuous stream, as often seen in England. The *Crabro* alighted close to their path, and at once seized one and bore it off. I watched this being done several times, but after waiting and watching for an hour I only succeeded in capturing four. Has this storing of ants for their future young been previously recorded?—G. C. BIGNELL, Saltash: September 10th, 1900.

*Vespa austriaca in Scotland.*—Re the record of the occurrence of *Vespa austriaca (arborea)* in Scotland by Mr. Evans in the Ent. Mo. Mag. for October. The species has been taken and recorded many years ago near Glasgow. In the Proc. Nat. Hist. Soc. of Glasgow, vol. ii, 1869-74, it is recorded by Mr. P. Cameron as occurring in the vicinity of Glasgow. The same gentleman, in his introduction to the list of *Hymenoptera*, published in the Handbook to the Natural History of Clydesdale, 1876, mentions its occurrence in the district. *V. austriaca* also occurs near Bonhill and at Linwood.—J. R. MALLOCH, Bonhill, Dumbartonshire: October, 1900.

*Aculeate Hymenoptera on the coast of Kent.*—On July 19th I took my breakfast and went down to the nesting spot of a colony of *Dasygaster hirtipes* on the Deal sandhills. I arrived at about 7 a.m., just in time to secure a good many specimens of each sex in magnificent condition, as they emerged from their burrows. At the same time I took several specimens of *Mutilla rufipes*, male, on a sandy patch close by. I also took another specimen of *Astata stigma* on the sandhills. At Kingsdown this year I took *Saropoda bimaculata* for the first time. It appeared at *Echium vulgare*. *Andrena Hattorfiana* was very scarce on *Knautia arvensis*; I have, however, discovered a new locality for this fine insect at Tilmanstone, near Sandwich (about six miles inland from Kingsdown), where it was far from rare this year. *Andrena Celi* also occurred pretty freely at Tilmanstone, on *Scabious*. This locality also produced *Cerceris labiata* on late mignonette, together with a few specimens of the rare *C. quadricincta*, all of these, however, being females. At St. Margaret's Bay I took *Pompilus (Aporus) unicolor* more freely than in any previous year. At first it appeared on wild carrot; but when the sea samphire came into bloom it went to that plant, in company with swarms of *Crabro cribrarius*, and one or two stray specimens of *Pompilus minutulus*, *Salix parvulus*, and *Diodontus minutus*. I noticed several females of *Pompilus unicolor* very busy licking the carpels of the sea samphire. This appeared to be their sole occupation during the ten minutes or so that they were under observation. *Andrena similima* appeared again at the foot of the cliff, first on marjoram and bramble, afterwards on *Eupatorium*. The males of *Cilissa melanura* were also found again hovering over the flowers of Red *Bartsia*. As usual, the females were very difficult to find, but I took one or two by working very early one morning. *Cilissa hamorrhoidalis* were by no means rare in harebells. *Nomada jacobæ* has turned up this year more freely than usual, and I have reason to think that it may possibly associate with *C. leporina*. Late mignonette at St. Margaret's Bay produced *Cerceris ornata*, and one female of *C. quadricincta*. A female of *Crabro interruptus* was taken at Ripple, near Walmer. Some males were taken here last year. *Prosopis Masoni* was much less common all along the coast than usual. A female of *Chrysis neglecta* was taken around the burrows of *Odynerus spinipes* at St. Margaret's Bay.—F. W. L. SLADEN, Ripple Court, near Dover: September 1st, 1900.

*Scottish Aculeate Hymenoptera: additions to the list.*—The following Aculeates, all taken by me in Scotland during the last six or seven years, have not, so far as I can make out, been previously recorded from north of the Border. In every case the determination has either been made or confirmed by Mr. Edward Saunders.

*Lasius umbratus*, Nyl., near Gullane (E. Lothian), ♀. *Pompilus spissus*, Schiödtte, near Kirknewton (Midlothian). *Agenia variegata*, Linn., Dunbar (E. Lothian). *Tachytes pectinipes*, Linn., Cromdale (Strathspesey), and near Perth. *Pemphredon Shuckardi*, Moraw., Edinburgh, Inverkeithing (Fife), &c.; perhaps this is the *P. unicolor* of McGregor's Perth list. *Passalæcus gracilis*, Curt., Aberfoyle (S.W. Perth). *Gorytes tumidus*, Panz., North Queensferry (Fife). *Crabro chrystomus*, Lep., Luffness (E. Lothian). *Crabro vagus*, Linn., near Edinburgh and at Aberfoyle. *Sphæcodes hyalinatus*, Schenek, Aberfoyle, ♂. *Andrena cingulata*, Fab., Dunbar. *Nomada flavoguttata*, Kby., near Midcalder (Midlothian). *Osmia rufa*, Linn., Dunbar.

A few other additions to the Scottish list, namely, *Tespa austriaca* (Midlothian), *Andrena fuscipes* (near Kingussie, and this year at Aberfoyle), *Andrena lapponica* (Midlothian), *Nomada borealis* (Dollar) and *Bombus soroënsis* (Elvanfoot, Lanarkshire), and one addition to the British list, namely, *Andrena rufierus* (from Aberfoyle), have already been recorded by me either in this Magazine or in the Annals Scot. Nat. Hist.

Altogether I have taken close on one hundred species of Aculeates in Scotland; besides those named above, the following, though already on the Scottish list, are perhaps also worthy of mention:—*Ceropales maculata* (Callander and near Thornton in Fife), *Pemphredon lethifer* (Aberlady, Kinghorn), *Nysson spinosus* (Arviemore), *Crabro clavipes* (Aberfoyle), *Crabro varius* (Aberlady, North Queensferry, &c.), *Colletes succincta* (Cromdale), *C. Daviesana* (Musselburgh), *Halictus leucopus* (St. David's in Fife, Blair Atholl), *Andrena nigriceps* (Luffness), *A. Wilkella* (Kinghorn), *A. analis* (near Midealder, Thornton, &c.), *Cilissa hæmorrhoidalis* (North Queensferry, Aberdour, &c., in Fife), *Nomada obtusifrons* (near Thornton in Fife), *Nomada bifida* (♂ Callander, ♀♀ Philipstoun in Linlithgowshire, about the burrows of *Andrena albicans*), *Megachile Willughbiella* (Dunbar), *M. circumcincta* (Kinghorn, Gullane, &c.), *Bombus Latreillellus* race *distinguendus* (Dunbar, Linlithgow, Aberfoyle, &c.), *B. Jonellus* (Balerno, near Edinburgh, Callander, Elvanfoot, etc.), *B. lapponicus* (Kingussie, Callander, Lomond Hills, Balerno, &c.; and also on the Isle of May and the Bass Rock, at the mouth of the Firth of Forth).

The commonest *Psithyrus* in the Edinburgh district is a form of *P. vestalis*, believed by Mr. Saunders to be the *P. distinctus* of Pérez. I have not yet ascertained which *Bombus* it lives with, but from what I have observed, I have no doubt *B. terrestris* is its host.

The *Osmia* from near Blair Atholl, recorded by me in 1899 under the name of *O. parietina*, is, Mr. Saunders now tells me, *O. inermis*, Zett.—WILLIAM EVANS, 38, Morningside Park, Edinburgh: October 12th, 1900.

*Aculeate Hymenoptera in Scotland.*—Besides *Crabro carbonarius*, Dhlb., which was described in our last number, Col. Yerbury met with the following Aculeates during his stay in Scotland which are worth recording, either on account of their rarity or for the localities in which they were found.

*Myrmica rubra* v. *lobicornis*, ♂ and ♀, Nethy Bridge, August 11th, 1900. *Pompilus spissus*, Schiödte, ♂, Nethy Bridge; *unguicularis*, Thoms., ♀, Golspie; *pectinipes*, v. d. L., ♀, Golspie. *Passalacus monilicornis*, Dhlb., ♀, Invershin; 2 examples with the labrum black, otherwise exactly agreeing with the ordinary form with white labrum. *Crabro peltarius*, Schreb., Nethy Bridge; *clavipes*, Linn., Nethy Bridge, Golspie, The Mound, Invershin; *palmipes*, L., Nethy Bridge; *varius*, Lep., Golspie. *Odynerus trimarginatus*, Zett., Nethy Bridge, Golspie; *pictus*, Curt., Golspie, Invershin. *Sphecodes ferruginatus*, Schk., ♀, Nethy Bridge. *Halictus leucopus*, ♀, Invershin. *Andrena lapponica*, Zett., ♀, Nethy Bridge, June 16, 1900; Craigenlochie, June 23rd, 1900. *Osmia inermis*, Gerst., one ♀ of this rarity at Nethy Bridge, July 1st, 1900. *Megachile circumcincta*, Lep., ♂ and ♀, Nethy Bridge, Golspie; one ♀ has a patch of white hairs on one side of the clypeus of the same colour as in the ♂, and doubtless due to a touch of gynandromorphism. *Colioxys acuminata*, Nyl., 3 ♂, Nethy Bridge. *Psithyrus*

*vestalis* v. *distinctus*, ♀, Nethy Bridge. *Bombus Latreillellus* v. *distinguendus*, ♀, Golspie; *lapponicus*, Fab., Craigellochie. The variety of *Passalacus monilicornis* is particularly interesting, as the white labrum has been generally considered to be the chief distinguishing character of the species, the unconstricted base of the 2nd abdominal segment, however, will always distinguish *monilicornis* from the other British species.—EDWARD SAUNDERS, St. Ann's, Woking: October 13th, 1900.

*The Entomology of the new Victoria History of the Counties of England.*—This "Victoria History" (published by Messrs. A. Constable and Co.) is a gigantic matter, under distinguished patronage, and careful editorship. Each vol. will be an *ouvrage de luxe* on large paper, in large type and with no expense spared. We are concerned only with the Entomology, which is edited by Mr. Goss. To ensure uniformity in nomenclature, &c., a list of books recommended has been distributed amongst the workers. The first County is "out," and Hampshire has the honour of leading off. The *Orthoptera* are very fully treated on by Mr. Burr; in the *Neuroptera* the *Odonata* are done in a general manner by Mr. McLachlan, and the rest in list form chiefly by Messrs. Morton and King; *Aculeate Hymenoptera* by Mr. Saunders, *Phytophaga* by Miss Chawner; *Coleoptera* by Canon Fowler and Mr. J. J. Walker; *Lepidoptera*, the *Macros* by Mr. Goss, assisted by Mr. W. H. B. Fletcher and Captain Savile Reid (this is by far the most exhaustive, and each division has a capital readable introduction), the *Micros* by Mr. Percy Bright, assisted by Messrs. E. R. Banks, C. G. Barrett, and W. H. B. Fletcher; *Diptera* are supplied by Mr. F. C. Adams; *Hemiptera-Heteroptera* by Mr. Saunders, and *Homoptera* by Mr. J. Edwards. Thus it will be seen that the list of coadjutors is fairly representative. Of course this portion is very unequal; in *Lepidoptera* nearly complete, in nearly all others very incomplete, and often rudimentary. It cannot be otherwise, and the only way to have partially avoided it would have been to have given notice of intention to bring out such a work some years beforehand. The uncorrected misprints are few, but there are some.—EDS.

## Obituary.

*Dr. Otto Staudinger.*—With much regret we announce the death of Dr. Staudinger, which occurred at Lucerne, when on a visit, on October 13th, in his 71st year.

## Review.

CATALOGUE OF EASTERN AND AUSTRALIAN LEPIDOPTERA-HETEROCERA IN THE COLLECTION OF THE OXFORD UNIVERSITY MUSEUM. Part ii, Noctuidae, Geometridae, and Pyralidinae: by Col. C. SWINHOE, F.L.S. (Pterophoridae and Tineinae, by the Right Hon. LORD WALSINGHAM, M.A., LL.D., &c., and JOHN HARTLEY DURRANT, F.E.S.); large 8vo, pp. 630, with eight chromo-litho. plates. Oxford: Clarendon Press, 1900.

The appearance of the concluding vol. of this useful work has been greatly delayed, but is none the less welcome. The grand total of species is brought up to over 3400. Of these scarcely 100 belong to the *Pterophoridae* and *Tineinae*, so Col.

Swinhoe is virtually responsible for the entire work. In several ways the delay has been of service, and notably in harmonizing the views of Sir G. F. Hampson with those of the author. To all students of Indo-Australian *Lepidoptera* the work is of enormous value on account of the great care bestowed upon the synonymy and the large number of species figured, the latter largely consisting of those "described" by F. Walker, the search for whose types has been rewarded with success, save in a few instances. We notice here, as in other present-day works on exotic *Lepidoptera*, a tendency to avoid magnification of the figures of small species: this evil seems to be increasing, and should be put a stop to. A natural size figure of a small species is often useless, on account of the impossibility to bring out the details; the smaller the insect the larger the figure should be. So we think.

In our notice of Part i of this work (*cf.* Ent. Mo. Mag. (2), iii, p. 312) we had occasion to notice several curious consistent "misprints." These have disappeared in Part ii, save "*Hearsay*," which we still think should be "*Hearsey*." If the former be right, then the gallant old Indian general, who used occasionally to attend the meetings of the Entom. Soc. Lond., was, we think, a participator in the faulty rendering.

A few new species are described by Col. Swinhoe; that there are not more is probably owing to the delay. The book is mainly a synonymic Catalogue, and it is only those who have gone through the mill that have any idea of the enormous labour involved in compiling such a Catalogue.

## Societies.

BIRMINGHAM ENTOMOLOGICAL SOCIETY: August 20th, 1900.—Mr. G. T. BETHUNE-BAKER, President, in the Chair.

Mr. R. C. Bradley exhibited *Cucullia chamomillæ* from his garden at Moseley, and living larvæ of *Acronycta aceris* from North London. Mr. G. W. Wynn, a very beautiful and varied series of *Triphæna fimbria*, bred from larvæ found at Marston Green last April and May. The upper wings varied from a light creamy-brown to a dark brown, nearly black, and one specimen was of the rarer mahogany colour; he also showed *Cucullia chamomillæ* from Solihull. Mr. G. T. Bethune-Baker mentioned that a friend had taken fifteen *Plusia moneta* in a garden in Surrey this year, an increase on the number of any former year, tending to show that the species is becoming well established in England. All members remarked on the unusual abundance of *Plusia gamma* this year; the President and Mr. Bradley specially mentioned its numbers locally, and Mr. Wainwright had seen it swarming on the north coast of Norfolk in clover fields; they all seemed to think, however, that the specimens were fresh, and in good condition, scarcely suggesting immigration. Mr. Bethune-Baker, a drawerful of Palæarctic *Pararge* and *Epinephele*.

September 17th, 1900.—The President in the Chair.

Mr. R. C. Bradley mentioned the occurrence of *Colias Edusa* (two specimens) in his garden at Moseley this year. A discussion followed on its occurrence this summer. Mr. H. Willoughby Ellis had seen it on the railway bank near Wednesbury, and had heard of it at Bromsgrove. Mr. P. A. Jackson had met with it in great abundance in Normandy, and wondered whether it usually occurred there in great numbers, or if it were specially common there this year as well as here. Mr.



G. T. Bethune-Baker asked if members had noticed the *Vanessida* in unusual abundance this year; he had seen many more than usual at Edgbaston. Mr. W. Harrison thought that they were more abundant than usual, and noted the occurrence of *Grapta c-album* at Harborne. Mr. H. W. Ellis mentioned the finding of twenty-eight larvæ of *Acherontia Atropos* in Bedfordshire; he also had it from Knowle, Warwickshire, and asked if other members had heard of it this year. Several intimated hearing of its occurrence locally, and Mr. Wainwright had received a larva from Cromer, Norfolk. Mr. R. C. Bradley showed a series of *Dioctria atricapilla* from the Stroud district, and a few *Leptogaster guttiventris* from the same place, also *L. cylindrica* from Haywood, Warwickshire. Mr. W. Harrison, living pupæ of *Nemeobius Lucina* from Witherslack, and remarked on its probable extermination there, as he had counted thirty-two entomologists hunting specially for that species and *Lycæna minima*. Mr. H. W. Ellis, a nice series of *Coleoptera* collected in the Stroud district of Glos. during the Society's visit there at Whitsuntide this year: in five days he had taken ninety-four species, including *Oodes heloptoides*, *Phytæcia cylindrica*, *Cryptocephalus bipunctatus*, *Chrysomela varians*, a pair *in cop.* of the green var., *Lochmæa cratagi*, *Cistela luperus*, *Magdalis armigera* and *M. pruni*. Mr. Bethune-Baker, a pair of *Plusia moneta* taken by a friend in his garden in Surrey this year; also a drawer containing the genus *Pararge*, specially to point out how continental *P. Aegeria* differs from our var. *ægerides*, and runs through it into *xiphioides* from the Canary Islands, and *Xiphia* from the Madeiras.—COLBRAN J. WAINWRIGHT, *Hon. Sec.*

LANCASHIRE AND CHESHIRE ENTOMOLOGICAL SOCIETY: *October 8th, 1900.*—

Mr. B. H. CRABTREE, Vice-President, in the Chair.

Dr. J. Cotton exhibited captures made on Simonswood Moss and at Llandudno during 1900. The former included a specimen of *Acronycta alni*. Mr. B. H. Crabtree, *Colias Edusa* and a series of *Agrotis cursoria* from St. Annes-on-Sea; likewise a wonderful variety of *Arctia Caja*, in which the upper wings were almost unicolorous dark brown, and the under wings yellow, with a dark brown mark at the base of each; also, on behalf of Mr. Harold Milne, two varieties of *Arctia plantaginis*, in which the black markings were replaced by a yellowish-orange tint, thus causing them to appear almost unicolorous: these specimens were male and female. In Mr. Day's beautiful exhibit were the following:—a fine dark form of *Smerinthus tilia*, a series of *Charocampa porcellus*, long and fine series of *Eulepia cribrum*, *N. cucullina*, *A. ripæ*, and *Anticlea sinuata*, the latter from Cambridgeshire larvæ. Mr. Mason, a magnificent series of *Pyrameis cardui*, *Argynnis Aglaia*, *Bombyx trifolii* (bred), *Agrotis ripæ*, *cursoria*, and other coast species; amongst his odd captures were *A. pyrophila* and *C. Edusa*, taken at Lytham. Mr. Massey, long series of the beautiful and rare *Pachnobia alpina*, *Tenioampa gothica*, and its mountain form *gothicina*. Mr. Tait, fine series of *Aelitæa Cinxia*, *Agrotis corticea* and *lunigera*, *Acidalia humiliata* and *Anticlea rubidata* from the Isle of Wight; also the living larvæ and imago of *Agrotis Ashworthii*. Mr. Thompson recorded *C. Edusa*, *A. Atropos*, and *M. stellatarum* from St. Helens, the latter abundant in the larval state in suburban gardens. Mr. Pierce brought for exhibition a living *A. Atropos*, which stridulated loudly on being disturbed. Mr. Johnson, bred series of *Nola cucullina* and *Geometra smaragdaria*; also a specimen of *S. populi*, in which the pink of the under-wings was suffused all over the insect; also *Zygana Mimos*,

*Sesia philanthiformis*, and *Carsia imbutata*. Mr. Prince, series of *Erebia blandina* and *Cassiope*, *S. hyperanthus*, *G. rhamnii*, *L. sinapis*, *T. quercus*, and *L. agon*; Besides these north country captures, he showed long series of coast species. Mr. Collins, a part of his collection of *Geometrina*: it included specimens of a large number of the British *Eupithecia*, whilst *Melanthia* and *Melanippe* were also well represented.—FREDERICK BIRCH, *Hon. Secretary*.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY:  
August 9th, 1900.—Mr. A. HARRISON, F.L.S., Vice-President, in the Chair.

Mr. H. Moore exhibited a specimen of *Sirex gigas*, taken in Rotherhithe, and three species of *Orthoptera*, taken by himself in Folkestone Warren, viz.: *Lep-  
tophyes punctatissima*, *Thamnotrizon cinereus*, and *Platyceis grisea*. Mr. Adkin, a series of *Melanippe fluctuata*, taken this year, and commented on the three main types of variation in the central band. Mr. Carpenter, two nests of a leaf-cutter bee found in the folds of an old sack; it was remarked that all the bees emerged about the same time, the inmates of the last made cells first. Mr. Blenkarn, a very fine smoky variety of *Cosmotriche (Odonestis) potatoaria*, bred from Eastbourne. Mr. F. M. B. Carr, a long bred series of *Lymantria (Psilura) monacha*, and contributed notes; the larvæ were from the New Forest.

August 23rd, 1900.—The Vice-President in the Chair.

Mr. R. Adkin sent for exhibition flower-heads of ivy from Eastbourne, and contributed notes on the eggs of *Cyauris argiolus*. Mr. West, the following *Hemi-  
ptera*, all taken at Lee: *Oliarus Panzeri*, willows; *Idiocerus tremulæ*, on aspens; *I. vitreus*, on poplars; *I. albicans*, white poplar; *I. confusus*, on sallows; *I. lami-  
natus*, on Lombardy poplars; and *I. populi*, on aspens; together with a larva of *Dicranura bifida* from W. Wickham. Dr. Chapman, series of specimens of *Melanippe fluctuata*, from Red Hill and from the Southern Alps; they were almost identical. Mr. Blenkarn, specimens of *Cosmotriche (Odonestis) potatoaria* and *Lasiocampa (Bombyx) quercus*, var. *callunæ*, from Eastbourne, *Spilosoma lubrici-  
peda*, var. *radiata*, from Yorkshire; *Mesotype virgata (lineolata)* from Margate; and *Triphosa dubitata* from E. Dulwich.

September 13th, 1900.—Mr. W. J. LUCAS, F.E.S., President, in the Chair.

Mr. F. Noad Clarke exhibited a specimen of *Locusta viridissima*, taken at Deal. Mr. South, a bred series of *Zygæna trifolii*, from near Oxshott. The cocoons were found well up the stems, as well as near the base of the grass in marshy ground. The specimens were identical with those taken on high and dry ground near Northwood. Mr. Lucas, several specimens of *Thamnotrizon cinereus*, an Orthopteron he had taken in the New Forest. Mr. Colthrup, a short series of *Lasiocampa (Bombyx) quercus* from Margate. Mr. Kemp, a specimen of *Aplecta occulta*, taken at sugar near Cromer. Mr. Turner, series of the following *Coleoptera* taken this year: *Crioceris asparagi*, from Petersfield; *Liopus nebulosus* and *Strangalia armata*, from the New Forest; and *Clytus arctis* from Abbot's Wood. Mr. West, the Hemipteron, *Derephysia foliacea*, beaten from ivy at Blackheath. Mr. Barnett, a specimen of *Polyommatus Corydon* of a curious brown coloration. Mr. Buckstone, a female specimen of *Æschna mixta*, taken at Shoreham, in Kent, where he had met with a number. Mr. H. Moore, the following species of *Lepidoptera* taken at Le Portel, near Boulogne: *Colias Edusa*, *C. Hyale*, *Pyrameis cardui*, *P. Atalanta*, *Vanessa Io*, *Aglais urticae*, *Polyommatus Icarus*, and *Papilio Machaon*, and read notes. Mr. Bishop read the Report of the Field Meeting held at Horsley on July 7th.—H. J. TURNER, *Hon. Secretary*.

## BUTTERFLIES IN THE AUSTRIAN TYROL IN JULY.

BY A. HUGH JONES, F.E.S.

I left London on July 14th, accompanied by my friend Mr. Alfred Halse, and after a somewhat hot and wearisome journey by way of Cologne and Munich, arrived at Innsbruck. The mountains round Innsbruck looked tempting enough for a few days' collecting, but our destination was Cortina, for which place we hastened on by an early train the following morning. The railway crosses the Brenner; although a low Pass, it is interesting, the scenery for the greater part of the route being very beautiful. I could see from the carriage windows that the railway banks and wood-sides were teeming with butterfly life, *Melanargia Galatea* and *Argynnis Paphia* being conspicuously abundant. At Toblach we left the railway, and after a drive of a few hours arrived at Cortina. I had been informed that Cortina (3970 feet) lay in a broad, highly cultivated, valley, which was not very suggestive of "happy hunting grounds," that its elevation was too low for "high up" species, too high for "low down" species, and not far enough east for Eastern species. All these statements proved to be more or less correct; yet apart from the Entomological side of the question, the Dolomites—or, to speak accurately, the "Ampezzo Dolomites"—proved a delightful excursion, and one that I shall never regret having made.

My first day's collecting was not very encouraging: where the grass was uncut produced but little, and the fir-woods still less—the grass being so closely fed down by cattle, only a few *Erebia ligea* were seen, yet where uncultivated ground could be found, there was a fair sprinkling of butterfly and moth life.

If we only ascend a few thousand feet, all will be changed we thought, so on July 19th, we started full of hope for the Paso Tre Croci (5955 feet), a walk from Cortina of about an hour and a half. On a grassy slope, soon after leaving Cortina, we found an abundance of *Melitæa didyma*, but the rest of the road to the top of the Pass was conspicuously devoid of insect life. Our destination was Lago Misurina (5890 feet); on the left of the Pass rose Monte Cristallo. We worked down the Val Buona, a very beautiful valley, at the base of the Sorapiss. The collecting ground appeared to be a great improvement upon that of the previous day; although there was an absence of flowering plants to attract butterflies, for *Erebiæ* it seemed an ideal spot, the grass not being "fed down," however, only one species, *E. Pharte*, was to be found, and that sparingly.

As often happens on collecting expeditions, I here became separated from my friend, Mr. Halse, and I saw him no more until night time. I retraced my steps, and eventually found the road to Lago Misurina. I was now in another valley, and I met with a fresh species, *E. Æme*, but, like the other *Erebia*, it was by no means common.

Mr. Rowland-Brown, who had been collecting in the neighbourhood of the Stelvio Pass, arrived at the Hotel (Aquila Nera) in the evening, to our great pleasure. The following days were spent in collecting in different localities, but the results were the same. It is quite evident that Cortina is not a land of butterflies, as, although we had perfect weather, only about 40 species were observed over an area varying in altitude from, say, 4000 to 6000 feet.

After remaining ten days at Cortina, we were of opinion that the collecting ground should be changed, and so selected Brenner, being the highest point on the Brenner Pass (4485 feet). The village consists only of a few scattered houses, but the Hotel makes up for the deficiency, being, with its "dépendance," capable of holding probably one hundred persons; notwithstanding this we had some difficulty in obtaining accommodation. English there were none, and I think we were looked upon with suspicion, certainly, to say the least, we were not cordially welcomed.

Our first day's experience, July 27th, disclosed the fact that we were in far better collecting ground than at Cortina, at all events for *Erebiæ* and *Argynnides*. Between the Hotel and the little Brenner See, a distance not much over a mile, we met with six species of *Erebia*. *E. Manto* and *E. Melampus* being in the greatest abundance. The wood which slopes down to the Brenner See was a delightful spot, and rich in butterfly life. Here I met for the first time with *Argynnis Thore*; it had, however, been out some time, the specimens being much battered. *A. Amathusia*, *Niobe*, *Aglaia*, and *Euphrosyne* were all plentiful.

July 28th, a hot and cloudless day, we walked up to the top of the Post Alp, a little mountain on the north side of the Pass, the railway station being at its base. For the first hour the zigzag path through the wood was in the shade, and although pleasant for climbing, was not conducive to insect life. After leaving the fir trees behind, we found one butterfly particularly abundant, *Lycæna Pheretes*, of which we secured several females, usually so difficult to obtain. A grassy slope leads up to the summit (about 6500 feet). It was on this slope that we saw such an abundance of *Lepidoptera*—owing in a measure, perhaps, to the perfect day. At the summit *Pieris Callidice*

was common. Lower down, *Erebia Epiphron* and *Argynnis Pales* were plentiful, but the most interesting species was *Melitæa Asteria*, which Mr. Rowland-Brown was the first to detect; so inconspicuous was this little butterfly and quick its flight among the herbage, resembling a moth, particularly *Psodos alpinata*, that on going up the mountain we completely passed it over. However, on our returning, by dint of perseverance, we secured a good series, but the bulk of the specimens were worn.

On July 30th, Mr. Rowland-Brown bid adieu to us, and it was with feelings of regret that he could not accompany us on a trip we proposed to make to Riva, on Lago di Garda. We left about the same time, but in opposite directions. After a journey of many hours in the train, we arrived by way of Botzen, at Mori, and thence by the little mountain railway to Riva. We had but two days to spend at Riva, and the little lake, Lago di Loppio (666 feet), which I had seen from the railway, appeared to be a good locality. So Mr. Halse and I started early from Riva, and arrived before the heat was very excessive at the lake, which proved to be a delightful spot, surrounded by low mountains. Along the road sides at the top of the Pass (1050 feet) *Erebia Nerine* and *æthiops* were common. By the side of the lake hemp agrimony grew in abundance, the blossoms of which attracted countless butterflies, principally *Argynnis Paphia*; *Papilio Podalirius* and *Colias Hyale* were also very common; *Satyrus Hermione* (♀, a striking butterfly on the wing) rested in clusters of five or six on the stems of some little willows.

Riva itself is very picturesque, and the comparatively lofty mountains which surround it present an imposing appearance, but it is too much in the shade after midday to afford good collecting. On August 1st we took the steamer to Gardone, beautifully situated on the western bank of Lago di Garda, about twenty miles south of Riva. Here the mountains become much reduced in elevation, and looking south we could see were soon entirely lost in the great plain of Upper Italy. We found the hill sides round Gardone under a high state of cultivation, and it was only after a considerable amount of toiling in a grilling sun that we discovered any collecting ground. We met with a fine form of *Lycæna Argus*, and one interesting moth, *Catocala puerpera*.

The following day we returned to Brenner, thence to Munich and London.

I noticed the following species of butterflies. I had little oppor-

tunity for collecting the moths, excepting the day-flying species, and the electric light at Cortina, in consequence probably of the cool nights, failed to attract.

*Papilio Podalirius*, common, but mostly worn, at blossoms of hemp agrimony.—*P. Machaon*, fine, Lago di Loppio, July 31st.

*Parnassius Apollo*, fairly common, Cortina.

*Pieris brassicae*, *rapae*, and *napi*, Cortina.—*P. Dapidice*, a few along the dusty roads at Gardone, August 1st.—*P. Callidice*, Post Alp.

*Euchloë cardamines*, ♂, fine, Cortina.

*Leucophasia sinapis*, Cortina and Brenner, fairly common.

*Colias Pateno*, several fine, Post Alp, July 28th and 29th.—*C. Phicomone*, Cortina, Brenner, Post Alp, common.—*C. Edusa*, Cortina, Gardone, Lago di Loppio, scarce.—*C. Hyale*, in the same localities as the preceding, but much commoner.

*Gonopteryx rhamnii*, occasional specimens, Cortina.

*Thecla spini*, fairly common and fine, Cortina.

*Polyommatus Hippothoë*, var. *Eurybia*, meadows, Brenner lake, ♂ only.—*P. Phleas*, var. *eleus*, Gardone.

*Lycæna argiades*, ♀, Lago di Loppio.—*L. Argus*, Gardone, a fine large form, common.—*L. optilete*, one or two, Post Alp, July 28th.—*L. Pheretes*, a very abundant blue, in the meadows by the side of the Falzarego road, Cortina, also common on the Post Alp.—*L. Astrarche*, ab *allous*, Brenner.—*L. Iearus*, rather scarce everywhere.—*L. Amandus*, one fine, Cortina.—*L. Escheri*, Gardone.—*L. bel-laryus*, Cortina and Brenner.—*L. Hylus*, Gardone.—*L. Corydon*, Cortina and Lago di Loppio, common; at this latter locality the females had a tendency to blue coloration, one specimen I took is a beautiful variety, being brown on the upper, and blue on the lower wings, and the under-sides are nearly devoid of spots, with the exception of a large central one on each hind-wing. *L. argiolus*, Lago di Loppio.—*L. semiargus*, a very abundant blue at Cortina, flying in company with *Pheretes*.—*L. minima*, fairly common, Cortina and Brenner.—*L. Arion*, var. *obscura*, very generally distributed at Cortina, also at Brenner.

*Limnitis Camilla*, not uncommon at Cortina, close to the village, and fine.

*Vanessa c-album*, *urticae*, *Io*, *Antiopa*, *Atalanta*, and *cardui*, occasionally seen at Cortina.

*Melitæa Cythia*, very worn, Post Alp.—*M. didyma*, a common butterfly at Cortina.—*M. dietynna*, worn, Cortina.—*M. Athalia*, very worn, Lago di Loppio.—*M. Asteria*, locally common, Post Alp, but worn, ♀s mostly in fine condition, July 28th.

*Argynnis Euphrosyne*, Cortina and Brenner.—*A. Pales*, common, Post Alp.—*A. Amathusia*, common, Brenner.—*A. Latonia*, Gardone.—*A. Aglaia*, common, Cortina.—*A. Niobe* and var. *Eris*, Brenner.—*A. Paphia*, most abundant, Lago di Loppio.—*A. Thore*, in the wood sloping down to the Brenner See, two or three specimens, worn.

*Melanargia Galatea*, Franzensfeste.

*Erebia epiphron*, Post Alp, very abundant.—*E. Melampus*, very plentiful in the meadows between the hotel and the Brenner See.—*E. Pharte*, Val Buona, Cor-

tina, not common.—*E. Æme*, on the road to Lago Mesurina, not common.—*E. Nerine*, common, Lago di Loppio.—*E. Manto*, very abundant, Brenner.—*E. lappona*, one specimen, Cortina.—*E. Tyndarus* and *E. Gorge*, not very common, Post Alp.—*E. Pronoë*, var. *Pitho*, Cortina and Brenner.—*E. aethiops*, Lago di Loppio (a fine form) and Brenner.—*E. ligea*, Cortina.

*Æneis Aëlle*, Post Alp.

*Satyris Hermione* and *S. Dryas*, very common, Lago di Loppio, the latter worn.

*Pararge Mæra*, Cortina; I captured a beautiful series, all males, which I believed at first, from the general appearance, to be *Hiera*, but upon examination I take them to be a dark form of the first-named species.

*Epinephile Janira*, Cortina.—*E. Tithonus*, Lago di Loppio, very abundant.

*Cænonympha Pamphilus* and *C. arcania*, var. *Satyrion*, Cortina.

*Spilothyrus alceæ* and *althææ*, Gardone.

*Syrichthus alveus* and *S. Sao*, Gardone.

*Nisoniades Tuges*, Lago di Loppio.

*Hesperia lineola*, Cortina.

Also the following *Heterocera* :—

*Chærocampa nerii*, a larva (brown form, an unusual one) brought me at Riva, found feeding on Oleander in the grounds of the Hotel Sole D'Oro.

*Macroglossa stellatarum*, generally common.

*Callinorpha Hiera*, among hemp agrimony, Lago di Loppio.

*Psodos alpinata* and *quadrifaria*, common, Post Alp.

*Agrotis cuprea*, Post Alp.

*Catocala puerpera*, Gardone.

Shrublands, Eltham :

September 27th, 1900.

## NOTES ON REARING *STAUROPUS FAGI*.

BY MRS. E. C. BAZETT

As I had not in my previous attempts to breed this moth been very successful, perhaps a short account of the method I adopted this year may be of interest, as I have now been most fortunate.

Of the larvæ which I transferred to the pots to go down only two per cent. failed to turn properly to pupa, and up to that stage the mortality, as shown by dead larvæ in the sleeves, was small. Of those which were put into the pots sixty-five per cent. have emerged in perfect condition, and I have twenty-five per cent. of sound heavy cocoons which I fully expect will produce moths in the spring. Eight per cent., however, failed; having broken through the top of the chrysalis, they were for some reason or other unable to leave the cocoon, and their struggles to do so could be heard, at least I conclude so, as on several occasions while sitting beside the case in the evening I heard a continued rustling amongst the leaves, and though

I carefully turned over leaves and hunted about I could find nothing, and I did not at that stage care to disturb the surroundings too much. No *fagi* came up, and I am satisfied that the noises were due to the movements of the imprisoned imagines. I found them when I turned out the boxes after the emergence had ceased; the cocoons were distinctly lighter in weight than those of the live pupæ, but slightly heavier than the empty cases. The weight is the clue to the state of the cocoon, as the hole by which the moth emerged can rarely be found, the fibre of the cocoon appearing to close over it. These failures had entirely emerged from the chrysalis, and laid with their heads against the cocoon, forming prolongations of the chrysalis; none had made any sideway movement, but they had evidently struggled, as in every case the thorax and the wings, which were well developed, were perfectly bald. Why they failed to break through I cannot say, nor can I lay claim to having even a theory on the subject. The females from which the eggs were obtained were of both grey and black varieties taken on May 19th; the grey and black broods were kept separate, some of each being fed on copper-beech and some on oak. Apple was tried, but none of them would touch it.

As a whole I am certain that the larvæ from the black moths were darker than those from the grey upon the same food-plant, though many from the grey were very dark, darker than some of those from the black, still, generally the black broods were darker, and the darkest individual larvæ were without doubt in the black broods on the copper-beech. I regret much that pressure of other work prevented me from giving the time necessary to look after the broods, so as to be certain that in the various changes of sleeves they did not get a little mixed, but I was fairly careful, and am of the opinion that the black emergences were all from the black females, many of those from the grey were dark, but none genuinely black. I noted, however, that, with two exceptions (both males), all my bred grey moths are without the reddish tinge which shows on the inner margin of the fore-wings of the wild specimens. Whether this is a distinction of the second brood, and whether those which stand over to the spring will be reddish, I cannot say, though I expect so—it was most certainly present in the parents. As to the relative rareness of the grey and black in nature, my experience from working the beech woods round Reading is, that one pure black to twenty-five grey is about the proportion, which means that a collector may get one in about two or three years; I myself had not seen one for three years till this spring.

To return to the females and their eggs after this long digression. Captured on May 19th and put into large boxes, the females at once proceeded to lay, and on May 21st two larvæ of the grey hatched out, to be followed the next day by the black. They continued coming out daily, or sometimes with an interval of a day, till June 11th, when my last entry is "three black." As soon as hatched they were carefully transferred with a soft brush to large muslin sleeves on copper-beech or oak; here they continued to feed, merely being changed as required, and as little handled as possible, especially when small.

When nearly full fed they were transferred to pots 9" to 12"; the pots were half filled with moist earth, and a bottle containing water sunk in the centre, into which the food-plant was stuck, the remainder of the pot was filled with dead leaves, four sticks were stuck at the sides of the pots and muslin thrown over the top and tied round; afterwards I improved upon this by taking a one dozen brandy



case, and screwing four uprights about  $18 \times 2 \times \frac{1}{2}$  inches on at the corners, and sewing on a square roof of muslin, with four walls, taking care all the joins should be outside. Three sides were fastened down, the fourth was held by a wooden strip which could be easily removed, the three nails only fitting in loosely. The great advantage is that it forms an excellent place for the moths to emerge and dry their wings in, and in which, with a little watching, they can be secured in perfect condition; not such an easy thing with *fagi* as many imagine.

Into these four-post boxes I began to move the larvæ when full fed; the first were moved on July 12th, and a few went down the next day. I continued to move them in till July 29th, and by the end of the month all had gone down. I then removed the sticks from the pots and tied the muslin down, leaving them standing on the gravel walk in the shade; these pots contained the first of the *fagi* which have appeared. On August 5th happening to look at the pots as I walked past, I was surprised to find some had emerged; on examination I found eight, of which two were black, utterly spoilt, there were quantities of ova, which proved infertile, nor did I succeed in getting fertile eggs, though I sacrificed several moths in the hope of obtaining some. Now the disadvantage of the pots and the advantage of the four-post system became apparent. Having brought them into the house, to overcome the difficulty, I placed all the pots in a box and fastened muslin over it by means of moveable strips of wood, so that I could lift any side and take out the moths, which invariably travelled out in the roof to dry. Now my real troubles began, for there is only one thing certain about *fagi*, that is, that it will emerge when you are not present and spoil itself when it can. As soon as the wings are dry the moth will begin to quiver them as if in great excitement, then you must take it quickly, for the next stage is whir-r-r-r—bang, and you know that part of the down from head and thorax is sticking to the muslin on the other side of the cage. The males are the worse, though the females are by no means angels.

Now as to emergence. I should say any time from 9.30 p.m. to 4.30 a.m., but they appear to come up in two flights, 9.30 being the beginning of the early one, and about 1 a.m. the second. Some sample extracts from my diary will show the sort of thing. "August 13th, went to bed at 12, having taken out two *fagi*; up again at 3.30, took out another. August 14th, went to bed at 11.30, no *fagi*; up at quarter to 3, found three in various stages, waited till 4.30 to take three. August 19th, up at 2 a.m., and again at 3 a.m., to take *fagi*." And so on.

I value my breed of *fagi* highly, as they not only cost me the loss of much sleep, but from August 8th to the 28th I never stayed out a single night after 10.30, so that I lost three weeks' sugaring.

The last *fagi* emerged on August 28th, and after waiting a few days I carefully removed all the leaves and sorted out the full cocoons, thus arriving at the data given at the beginning of these notes. All the full cocoons have been put into the four-post boxes, from which the posts and muslin have been removed for a time, and the boxes, covered with fine wire netting, are standing outside for the winter. I omitted to say that from the time the boxes came into the house I gave them a good sprinkling of water every few days.

Springfield, Reading :

September 15th, 1900.

ON THE DISTRIBUTION OF *NONAGRIA BREVILINEA*, FENN.

BY F. D. WHEELER, M.A., LL.D., F.E.S.

We have so often to notice the diminution or disappearance of local species, sometimes perhaps from the injudicious attentions of collectors, though far more frequently, I think, from the gradual change of climatic conditions, &c., that it is refreshing to place on record an instance of the contrary tendency.

*N. brevilinea* is in no sense a mere local variety, being abundantly distinct both as imago and larva, in its appearance and habits. It may claim to be one of the most local of moths, being apparently unknown on the continent, save for a recent capture in Belgium, while in this country it is (so far) absolutely confined to the Norfolk Fens.

I may mention that these Fens, roughly speaking, are divided into three parts: (1) a long strip eight or ten miles long, following the course of the Bure from Wroxham to South Walsham, and varying in width from half a mile to, perhaps, two miles; (2) a detached portion of considerable extent, including Barton, Sutton, and Irstead, of very similar character to the first, but separated from it by some four miles of drained marshes bordering the lower course of the river Ant; and (3) a still larger portion surrounding Hickling Broad, Whitesley and Heigham Sounds, and at Horsey and Waxham coming quite close to the sea, separated from the Bure fens by an interval of several miles of drained land, but at Catfield coming within about two miles in a direct line of the second section. These Hickling fens differ to some extent in appearance and flora from the others, being less wooded, and consisting chiefly of vast reed beds and drier tracts covered with *Cladium mariscus*, amongst which the very local *Lastrea cristata* still grows in some plenty on mossy hillocks rising above the general level.

*N. brevilinea* was first discovered in 1864 at Ranworth, in the heart of the first named section of fens. In 1871 Mr. Barrett and I took the second recorded specimen, though we afterwards found that Mr. King captured three or four specimens the same year at Horning, the next parish. From that time onward the locality was worked more or less every season, and *N. brevilinea* occurred in most years—at first as a great rarity, though in 1874 Messrs. Farn and Jenkinson, by persistent work, secured a nice series. The first capture in any quantity, however, was by Mr. W. H. B. Fletcher in 1878, all these being on the original spot. From that year onward I have found the species in numbers fluctuating, but on the whole increasing, and it is

now very generally distributed over the whole of the first section of the Fens.

Having for many years spent a part of the summer at Irstead Shoals, I have frequently worked the Barton Fens (the second section mentioned), taking very much the same species as at Ranworth, though with some differences—*e. g.*, *N. cannae*, which seems very rare in the Bure fens, occurs regularly, though sparingly, at Barton. I think it was in 1890 (but cannot find any record of the date) that I was startled by the capture of four or five *N. brevilinea* on the very spot which for years past I had regularly worked for *cannae* without previously seeing the other species. Since then *N. brevilinea* has occurred there regularly every season that I have been able to work the place in August.

The Hickling Fens are more difficult of access from Norwich, and it is only at long intervals that I have been able to collect there, so that I have no right to assume that *N. brevilinea* has not been a regular inhabitant of the district all along. It is, however, a little strange that in perhaps a dozen nights' collecting in August scattered, as to time, over nearly 30 years, and, as to place, over a considerable part of the district, I should never have met with it there till this year, and then have taken seven specimens in one night.

The above facts certainly seem to suggest the theory that this insect has for some reason or other gradually strengthened its position during the last thirty years, first increasing in number, and then enlarging the area of its distribution.

On a good night in 1879, at Ranworth, four *N. brevilinea* occurred among 250 captures, of which over 100 were *Noctuae* of various species. In 1899 and 1900, in two places in the same district on a similar night in each case, the commonest species of *Noctua* occurring at light was *L. phragmitidis*, and the next commonest *N. brevilinea*. *L. pallens* is not common in the fens, and *L. impura*, though abundant, is not strongly attracted by light.

It is interesting to note that during the same period *Liparis salicis*, which in 1871 was in countless profusion in the Hickling Fens, has gradually become almost a rarity.

Paragon House School, Norwich :  
October, 1900.

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TWO SPECIES OF *TYPHLOCYBA* NOT HITHERTO RECORDED  
AS BRITISH.

BY JAMES EDWARDS, F. E. S.

*TYPHLOCYBA CRUENTA.*

*Typhlocyba cruenta*, H.-Sch., Deuts. Ins., 164. 15 (1836); Kirschb.,

Cicad., 187, 25 (1868) ; Fieb., Cicad. d'Eur. (*Typhlocybini*), 57, 1 ; Then, Cat. Öst. Cicad., 42 (1886) ; Melichar, Cicad. Mittel-Europa, 343, 2 (1896).

Face yellow. Crown pale yellow-brown, with the front margin narrowly, and a middle line, yellow. Pronotum yellow-brown, broadly paler down the middle, the sides rather broadly yellow. Scutellum pale brown, with a middle line and the apex yellow. Elytra brownish blood-red or yellow-brown, the costal area whitish-hyaline, the membrane, a subquadrate spot in the apex of the brachial area, and an oblong spot in the apex of the suprabrachial area, fusco-hyaline ; veins of the corium, in highly coloured examples, blood-red, those of the membrane yellowish. Abdomen yellow, more or less tinged with red, breast and legs yellow, the claws and the spines on the inner side of the front tibiae blackish. Male genitalia precisely similar to those of *T. Douglasi*, mihi. Length, 4 mm.

A few specimens of this interesting insect were taken in August last by Mr. Edward Saunders on an old paling under sycamore trees at Clandon, a place about five miles south of Woking. Its continental distribution appears to be France, Germany, Switzerland, and Austria ; and its food-plant beech.

Both Prof. Then and Dr. Melichar speak of entirely yellow examples of this species, and the former has been good enough to send me specimens of this form taken in company with normally-coloured *cruenta* ; these are certainly *T. Douglasi*, mihi ; neither of these authors mentions specimens which intergrade in point of colour between that proper to *T. Douglasi* and normally-coloured examples of *cruenta*.

#### TYPHLOCYBA CANDIDULA.

*Typhlocyba candidula*, Kirschb., *op. cit.*, 185, 18 ; Fieb., *op. cit.*, 67 ; Then, *l. c.* ; Melichar, *op. cit.*, 345, 5.

Entirely white, dull, the membrane faintly tinged with fuscous. Front pairs of tarsi more or less fuscous, all the claws blackish. Appendages of the ædeagus all subterete and pointed, the upper (posterior) pair sinuate and divergent, like a pair of ox-horns directed cephalad ; each of the lower (anterior) pair is divided at the base into two narrow incurved arms, of which the inner is the shorter, the appearance of the lower set might, in fact, be equally well described as four narrow pointed convergent arms, of which the two inner are the shorter. Length, 3 $\frac{3}{4}$ —4 mm.

This species has recently been found by Mr. W. West on white poplars at Blackheath, Lewisham, Lee and, Brockley. Its continental distribution appears to be France, Germany and Austria, and it is recorded as found on *Populus alba* and *canescens* and *Salix incana*.

In his original description Kirschbaum says "*♂ letztes Bauchsegment und genitalklappen wie bei \* \* rosæ* ;" this is correct with regard to our insect, but it not unfrequently happens that the armature of

the œdeagus furnishes distinctive characters when the form of the genital plates and last abdominal segment fail to do so. Dr. Melichar (*l. c.*) says, “♂ genitalien wie bei *rosæ*;” but whether this is an extension of Kirschbaum’s original statement, or the result of an examination of the male genitalia of the white *Typhlocyba* which he finds on white and grey poplars, does not appear. He quotes *Anomia lactea*, Leth. (Cat. Hem. Nord., ed. ii, 74), and *Typhlocyba lactea*, Dougl. (Ent. Mo. Mag., xii, 77), as synonyms of *candidula*, Kbn. That *lactea*, Leth., and *lactea*, Dougl., belong to the same species there can be little doubt; both were found on rosaceous plants, and M. Lethierry was of opinion that they were identical. My good friend Mr. Douglas, however, long since sent me some of the original specimens of his *lactea*, and in these the armature of the œdeagus is similar to that of *T. rosæ*, L. *T. lactea*, Dougl., is, therefore, clearly not the same as our poplar-frequenting species now under consideration, which latter, it appears reasonable to assume, is the *T. candidula* of Kirschbaum.

Colesborne: September 26th, 1900.

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NOTICE ON THE SYNONYMY OF *ANOPHELES MACULIPENNIS*,  
MEIGEN.

BY BARON C. R. V. D. OSTEN SACKEN, Hon. F.E.S.

The frequent occurrence in recent publications of the name *Anopheles claviger*, Fab., as the earlier synonym for *Anopheles maculipennis*, Meigen, hitherto accepted as the name of the malaria-bearer in Italy and elsewhere, induces me to publish this notice. The originator of this change is Dr. E. Ficalbi in Messina, who, with praiseworthy diligence, has investigated this intricate question of synonymy in his two works, *Revis. Syst. etc. delle Culicide Europee* (1896, p. 81), and *Venti sp. di Zanzare etc.* (1899, p. 89). A pardonable want of experience made him overlook an important fact: that *Culex (Anoph.) claviger*, Fab. (Syst. Antl., 1805, p. 35), has in reality *never existed*, neither as a type-specimen, nor as a scientific concept of a species. Fabricius says about his *C. claviger*: “6. *C. fuscus*, alis albis, punctis duobus fuscis. *Syn.*, *Culex claviger*, Meigen, Dipt., 1, 4, 7, Tab. I, f. 8. Habitat in pratis sylvaticis Dom. Meigen. Statura et magnitudo præcedentium. Thorax sublineatus.”

The statement of the *habitat* is a literal translation of Meigen’s: “in einem sumpfigen Walde gefangen” (Meig. Klassif., 1804, p. 5), and proves that Fabricius had no specimen of his own to refer to.

At the same time the short diagnosis he gives, "alis albis, punctis duobus fuscis," is in contradiction with Meigen's statement (*l. c.* p. 5, line 4 from top), "Die Flügel sind ungefleckt." It is in vain that Dr. Ficalbi attempts to explain this disagreement by supposing that Fabricius had but "rubbed" specimens ("Fabricius avessi in mano exemplari scadenti, in quali le macchie piccole non si scorgevano;" *l. c.*, 1899, p. 93, at bottom). I repeat that Fabricius had *no specimens at all*, because, if he had any, he would have mentioned where they came from. He borrowed his data from Meigen (1804), and, in doing it, committed the blunder of giving a wrong description of the wings.

Dr. Ficalbi was not aware that Fabricius' *Systema Antliatorum* (1805) is nothing but a very careless compilation, and therefore entirely untrustworthy. What Fabricius did in preparing it was merely to copy specific names from publications of other authors, and to compose short diagnoses from the data he found in them, without any further verification. Such at least is the case with the *Diptera Nemocera*, which I have had occasion to examine critically. In my *Synonymica about Tipulidae* (Berl. Ent. Z., 1894, p. 263), in which I have attempted to clear up the various interpretations by different authors of *Tipula ocellaris*, Linné, I said: "In a list of synonymies like this, Fabricius's successive references to *Tip. ocellaris*, Linn., must be entirely ignored, \* \* \* as they are merely copied from earlier publications, and do not represent any scientific concept whatever." Three such successive references to European *Tipulidae* with ocellate spots (Fab., Syst. Antl., p. 29, Nos. 26, 27, 28) belong to this category. I have stated in the same paper that the same criticism is applicable to Fabricius's references to *Tipula annulata*, Linn. (O. S. in Berl. E. Z., 1894, pp. 256, 257).

The correct name, therefore, of the common *Anopheles* of Northern and Central Europe is *Anopheles maculipennis*, Meigen, adopted by Loew in his paper on this genus in *Dipt. Beitr.*, I, p. 4 (1845). But in the *synonymy* adduced by Loew in the same paper (p. 3, line 3 from bottom) the reference to *Culex claviger*, Fab. (1805) should be omitted, because Loew was not aware of the absolute untrustworthiness of Fabricius's *Syst. Antl.* (1805), upon which I have passed censure above.

In connection with the part played by *A. maculipennis* as a malarial propagator, it may not be amiss to reproduce here an observation on the pernicious effect of its bite, which has been described seventy years ago, in an out-of-the-way publication, by the now almost forgotten, but meritorious dipterologist, Ruthe.

"*Anopheles maculipennis*, M., is not uncommon in the Mark Brandenburg, in localities where water is abundant; for instance, it is quite common about Freienwalde in midsummer. Its sting is more painful than that of any gnat I know, and has a much more pernicious effect. During a botanical excursion of several days which I made with some of my pupils, I noticed that the sting produced deep purulent wounds, which it took several weeks of careful medical treatment to heal" (Ruthe, Oken's *Isis*, 1831, p. 1203).

Heidelberg: November 5th, 1900.

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#### OUTLINE OF COURSE IN ENTOMOLOGY AT THE MASSACHUSETTS AGRICULTURAL COLLEGE, AMHERST, MASS.

[We reprint the following as a sample of the thoroughness of a course in entomology, and especially its economic side, as taught in one of the principal Agricultural Colleges in the United States. The Professor in this case is Dr. H. T. Fernald, a relative of Dr. C. H. Fernald, who is Professor of Zoology in the same College.—Eds.].

A course of six hours a week is offered in entomology during the summer term, its aim being to give a general knowledge of insect anatomy and physiology, and a systematic review of the entire group, taking as types, as far as possible, those forms of economic interest to man, and at the same time giving an idea of the life-history of each species so taken and the means of combating it. A knowledge of insecticides and insecticide machinery and their use is given. An interesting feature of the course is the collection which each student makes and arranges of the more common species which may be found on the college grounds and the near-by region. A very full museum collection serves as an aid to identification and arrangement.

#### SENIOR ENTOMOLOGY.

During the senior year such members of this class as elect advanced entomology take a course of lectures on the external and internal anatomy of insects, and on the various methods by which the injurious forms are destroyed or held in check. The laboratory work consists of a critical study of the external and internal anatomy of members of the different groups, followed by the determination of insects of each group. In connection with this work a careful study of the literature is made, and familiarity with the analytical keys and the more important articles on injurious species is obtained. During the spring term much of the time is spent in the field, where the student is taught how to look for and find injuries caused by insects, to recognise the species by the nature of the injuries, and

how best to deal with each case, either by the use of insecticides or other methods. Finally, each student is required to prepare a thesis on some insect or group of insects pertaining to the business in which he intends to engage. He is asked at the beginning of the year what occupation he intends to follow after graduation, and is then advised to prepare his thesis on those insects with which he will have most to deal in the business he has selected. In the preparation of this thesis the work is carried on in the most approved methods, so that he may obtain the most scientific and at the same time practical knowledge of the subject; in fact, he is taught such methods of investigation that, if new insect pests appear on his crops, he will know how to properly investigate them and discover the best and cheapest methods for their destruction. If this thesis when completed contains information of public interest, whether of an economic character or otherwise, it is published with whatever illustrations are necessary.

This course is primarily for the student of agriculture or horticulture, but, when taken in connection with botany and chemistry, is especially adapted to one wishing to fit himself as a teacher of science in our public schools, or to one intending to study medicine—but in this case his laboratory work would be devoted mainly to histology.

#### GRADUATE ENTOMOLOGY.

This department is now prepared for, and is receiving graduates from this and other colleges who wish to continue the study of entomology beyond what they were able to do in their undergraduate course. These advanced studies will fit them for positions in the experiment stations, or as State Entomologists, and also give them most excellent training as teachers in our high schools and colleges.

A three years' course leading to the degree of Doctor of Philosophy, is in active operation, three subjects—botany, chemistry and entomology, arranged as a major and two minors—being required. In those cases where entomology is chosen as the major subject, the course consists of lectures and laboratory work, some of the topics treated being the following:—

General morphology of insects: embryology; life history and transformations; histology; phylogeny and relation to other arthropods; hermaphroditism; hybrids; parthenogenesis; paedogenesis; and heterogamy; colours—chemistry of colours in insects; luminosity; deformities of insects; variation; duration of life.

Geology of insects: dimorphisms; polymorphisms; mimicry; warning coloration; insect architecture; fertilization of plants



through the agency of insects ; instincts of insects ; insect products of value to man ; geographical distribution in the different faunal regions ; methods of distribution ; insect migrations ; geological history of insects ; insects as disseminators of disease ; enemies of insects, vegetable and animal, including parasitism.

Economic entomology : general principles ; insecticides ; apparatus ; special cases (borers, &c.) ; photography of insects and their work ; methods of drawing for illustrations ; field work on insects ; insect legislation.

Systematic entomology : history of entomology, including classifications and the principles of classification ; laws governing nomenclature ; literature—how to find and use it ; indexing literature ; number of insects in collections and in existence (estimated) ; lives of prominent entomologists ; methods of collecting, preparing, preserving, and shipping insects ; important collections of insects.

In connection with these topics, corresponding laboratory work is given as far as possible, and, in addition, investigations on subjects not previously stated are made, and the results published in the form of graduation theses.

#### ENTOMOLOGICAL LABORATORY.

The equipment for work in entomology during the senior year and for graduate students is unusually good. The laboratory building contains a large room for laboratory work, provided with tables, dissecting and compound microscopes, microtomes, reagents and glassware, and one portion is fitted up as a lecture room. Another room is devoted to library purposes, and contains a card catalogue of over forty thousand cards devoted to the literature of insects. In addition to a well selected list of entomological works in this room, the college library has an unusual number of rare and valuable books on this subject, and this is supplemented by the library of Amherst College and by the private entomological library of the professor in charge, which contains over 2500 volumes, many of which cannot be found elsewhere in the United States. In another room in the laboratory is a large and growing collection of insects, both adult and in the early stages, which is of much assistance to the students. The laboratory being directly connected with the insectary of the Hatch Experiment Station, the facilities of the latter are directly available. The apparatus room of the insectary, with its samples of spray pumps, nozzles and other articles for the practical treatment of insects ; the chemical room, fitted up for the analysis of insecticides and other chemic-

entomological work; and the greenhouse, where plants infested by injurious insects are under continual observation, and the subject of experimental treatment—are all available to the student, and in addition several private laboratory rooms and a photographing room and outfit are provided. The large hothouses, grounds, gardens and orchards of the college are also to be mentioned under this head, providing as they do a wide range of subjects for the study of the attacks of injurious insects, under natural conditions.

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*OROCHARES ANGUSTATUS*, ER.: A GENUS AND SPECIES NEW  
TO THE BRITISH LIST.

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

I have received a specimen of this insect from Mr. Albert Piffard of Felden, Boxmoor, Herts; it was taken by him about twelve years ago, in November, hibernating at the roots of rushes in a disused clay pit which had belonged to a brick field at Bennett's End, Leverstock Green, Herts. Mr. Piffard informs me that it was verified by Mr. O. E. Janson, but was not recorded.

The genus *Orochares* was founded by Kraatz (*Naturgeschichte der Ins. Deutschl.*, ii, 958) for the reception of this species, which is the *Deliphrum angustatum* of Erichson (*Gen. et Spec. Staphyl.*, 874). The genus is certainly very closely allied to *Deliphrum*, Er., from which it differs in having one of the mandibles toothed in the centre, and in the general shape of the head and thorax; it also bears a close affinity to *Arpedium*, Er., in one or two points, but it has quite a different facies. The following is a description of the insect:—

Of rather slender build, black, shining, with the elytra fuscous or fusco-testaceous; head long, produced before the eyes, with two distinct and deep roundish impressions between the eyes, and a transverse furrow in front of these; antennæ long and slender, gradually but not strongly thickened towards apex, blunt, with the base reddish-testaceous; thorax not much broader than the head, but much narrower than the elytra, about as broad as or a little broader than long, truncate before and behind, with the sides slightly rounded and all the angles obtuse and subrotundate, sparingly and very finely punctured; scutellum distinctly impressed; elytra more than double as long as thorax, somewhat depressed, rather thickly and finely but distinctly punctured, the punctures being more or less plainly arranged in rows, at all events in certain parts, extreme apical margin light testaceous; legs testaceous or reddish-testaceous; abdomen very shiny, smooth, and scarcely visibly punctured, with the apex acuminate.

Long.,  $3\frac{1}{2}$  mm.

The species appears to be very rare, and has been recorded from Germany and France; it is said to be found on flowers in mountainous

places. The occurrence of the insect, therefore, in the locality above given seems strange. In the last European Catalogue the genus is placed between *Coryphium* and *Olophrum*.\*

Lineoln : *November 6th*, 1900.

*Pachyta sexmaculata*, Linn., in Scotland: another record.—Mr. W. Evans, of Edinburgh, has called my attention to a record of the capture of a specimen of this species by himself at Loch Morlieh, near Aviemore, in June, 1893 (Ann. Seott. Nat. Hist., 1893, p. 249; 1900, p. 98). This will make the fourth recorded British example.—G. C. CHAMPION, Horsell, Woking: *November 8th*, 1900.

*Stray notes on a few Southport Coleoptera*.—*Pseudopsis sulcata*, Newm.—This species is apparently very generally distributed in the district, occurring in garden refuse, &c.; but, in my experience, it is never common. Only once have I taken more than one or two at a time; on that occasion I secured eleven examples by searching a very large quantity of rotting haystack refuse. Owing to its habit of coming to a standstill after a few steps, its dull surface renders it quite inconspicuous. *Trogophlaeus tenellus*, Erichs.—A single specimen was obtained from a heap of cut *Salix repens*. *Hydrobius punctatissimus*, Steph.—A very large ♂ specimen was found during October on the sandhills. The margins of the elytra are furnished with hairs, a characteristic that Canon Fowler assigns to *H. Perrisi*, as distinguishing the latter from *H. punctatissimus*. *Antherophagus silaceus*, Herbst.—A male was taken just outside the town last year by roadside sweeping. *Mantura chrysanthemi*, Koch, is apparently quite confined to the ditches skirting a road near Scarisbrick, and only occurs along a stretch of some 100 yards. This year a single specimen was taken that affords a good example of melanism; the entire insect—antennae and legs, as well as the body—being wholly black, the thorax having a slight bluish-metallic reflection. *Anthicus bimaculatus*, Ill.—Of this rare species two specimens were found under a dead dog on the Birkdale sandhills. Its re-discovery in the original British locality is interesting.—GEORGE W. CHASTER, 42, Talbot Street, Southport: *November 2nd*, 1900.

*Ceuthorrhynchidius mixtus*, Muls. and Rey. in Britain: an additional record.—On May 10th last, about 3 p.m., I swept a ♀ of this extremely rare species from low herbs of various descriptions in the middle of tangled undergrowth in a damp wood at Wherstead, Suffolk. The soil there is decidedly heavy, and the afternoon was warm, vegetation being scarcely dried after preceding showers. Mr. Champion (Ent. Mo. Mag., xxxi, 194, and xxxii, 31) gives us the distinctions between *C. nigroterminatus*, Woll. (alone described by Cox), and the present species, from which it is evident that the characters given by Fowler require slight modification. *C. mixtus*, of which Bedel's description is, perhaps, the best, is scantily and evenly covered on the upper surface with white scales, which are not thicker around the scutellum; thorax with obvious, though very obtuse and not prominent, lateral tubercles; legs black, tarsi ferruginous, with apical half of last joint black.

\* Fauvel (Faune Gallo-Rhénane, Staph., p. 100) says that it is found in dung and in rotten vegetation, and also on flowers, on plains and on mountains, from November to early spring. Ganglbauer also records it from N. America.—G. C. C.

There appear to be but two previous British records of this species, both emanating from Wollaston. Crotch (Entom., ii, 260) records it from Gainsborough, Lincoln, taken by Wollaston; and Champion (*l. c.*), from Newton Abbot, Devon, ex. coll. Wollaston. There is a specimen, without data, of which nothing is known, in the Power Collection. The above localities give no clue to its local distribution, but, judging by the present instance, I should certainly expect it to affect moist woods in Britain.

I failed to identify the specimen, and am much indebted to Mr. E. A. Newbery for the determination.—CLAUDE MORLEY, Ipswich: *November, 1900.*

*Heliothis armigera* bred at Tavistock.—It may be worth recording that on August 4th, 1898, I took six larvæ, of which four fed up on restharrow, which I judged to be *H. marginata*. One of these emerged on July 17th, 1899: then to my surprise this year, on July 30th, one *H. armigera* emerged, to be followed by two others on August 3rd and 17th. I believe this is a new locality for the latter insect.—F. F. SOUTHBY, Hazeldon, Tavistock: *October 30th, 1900.*

*Psectra diptera*, Burm., in Ireland.—Among some insects handed over to me by the Fauna Committee of the Royal Irish Academy, for the purpose of working out, I find a male of this very scarce species. It was taken near Wexford during the present year. The specimen is a very good one, although a portion of the left antenna has been broken off.—JAMES J. F. X. KING, 1, Athol Gardens Terrace, Kelvinside, Glasgow: *November, 1900.*

[The only other native example was taken by the late Mr. J. C. Dale "off a hazel bush at Breach Wood, near Langport, Somersetshire, on June 26th, 1843:" cf. Curtis, Trans. Ent. Soc. Lond. (2), iii, p. 56.—R. McLACHLAN].

*Halesus guttatipennis*, McLach., in Wiltshire.—Seeing a note (*ante*, p. 263) on the capture of this species at Colesborne, I think it may be worth recording that I found it abundantly here (some forty miles further south) during the first half of October, amongst tall herbage by the sides of streams in the water-meadows. It was then much the commonest Trichopteron.—E. MEYRICK, Elmswood, Marlborough: *November 9th, 1900.*

*Eschna mixta*, Latr., near Rye.—A female of this species was taken by Mr. E. Connold on the Camber sandhills, October 22nd. This is a good addition to the list of East Sussex Odonata.—E. N. BLOOMFIELD, Guesling: *November 1st, 1900.*

Occurrence in Kent of *Blacus armatulus*, Ruthe, a Braconid new to Britain.—Amongst some *Braconidæ* taken this year at Appledore, Kent, the Rev. T. A. Marshall informs me there is *Blacus armatulus*, not previously recorded from Britain. Also *Agathis malvacearum*, Latr., a very rare species here.—A. BEAUMONT, The Red Cottage, Pond Road, Blackheath, S.E.: *November 4th, 1900.*

A quarter of an hour on the Breck.—So strong was the wind on August 27th last that I was compelled to dismount my bicycle in the centre of Lakenheath Warren, Suffolk. By turning over stones of never more than two inches diameter, I discovered in fifteen minutes on the bare, bleak Breck:—*Coranus subapterus*,

which instantly gave off the powerful, defensive odour of ripe pears noticed by Douglas and Scott, demolishing *Trapezonotus agrestis*; *Orthostira parrula* was common. *Gomphocerus maculatus* (*in cop.*), commonly. *Harpalus anxius* and *H. picipennis*, of which the former has never been taken inland elsewhere in Britain, and the latter but once; *Orthocerus muticus* was common, but it is generally rare in the country; Stephens records it from Lowestoft, on Hewitson's authority, and Mr. Walker took four at Felixstowe in June, 1879. *Byrrhus murinus*, which was not uncommon, has not been found with us since Sheppard (at whose records we are too prone to scoff) took it upon Martlesham Heath. Such common things as *Amara trivialis*, *Oxytelus inustus*, and *Apion frumentarium* also occurred, as did a single small variety of *Agrotis velligera* beneath a stone.—CLAUDE MORLEY, Ipswich: November, 1900.

*The generic position of Drosophila maculata, Duf.*—When Mr. Collin examined this insect, he said to me that it was so different from the other *Drosophilæ*, that he thought it should be a new genus. He has now kindly informed me that the late Prof. J. Mik has established (*Wiener Ent. Zeit.*, v, p. 317) the genus *Leucophenga* for it. The insect, therefore, adds a genus to our lists as well as a species, viz., *Leucophenga*, Mik, with the one species, *L. maculata*, Duf.—D. SHARP, Cambridge: November 1st, 1900.

## Review.

THE GEOLOGICAL ANTIQUITY OF INSECTS: twelve papers on Fossil Entomology: by HERBERT GOSS, F.L.S., F.G.S., &c. 2nd Edition. 8vo, pp. iv and 52. London: Gurney and Jackson. 1900.

The first edition of this useful pamphlet was a reprint, "with some alterations and additions," of a series of papers published in Vols. xv and xvi of the first series of this Magazine. This first edition has been long exhausted, and the author has been urged to produce a second, up-to-date, edition. In the Preface he gives his reasons for not being able to satisfy such a demand so far as concerns the whole of the enormous amount of material (especially Tertiary) made known latterly, but he has modified the chapters in the first edition dealing with the Silurian, Devonian, and Carboniferous rocks. The rest remains practically the same.

## Obituary.

*Josef Mik*, of the Vienna Museum, the well known Austrian Dipterist, died on October 13th, in his 62nd year, after a short illness. We make this announcement with much regret, and may probably have occasion to enlarge upon it later on.

## Societies.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY: September 27th, 1900.—Mr. W. J. LUCAS, B.A., F.E.S., President, in the Chair.

Mr. Ashby exhibited a fine var. of *Rhagium bifasciatum*, taken at Rickmansworth, having a large yellow patch across the elytra in place of the usual spots; a series of *Sinodendron cylindricum* from a beech stump at the same place; a very

small specimen of *Pieris rapæ*; and a var. of *Abraxas grossulariata* having the right wings typical, but the left wings much radiated with black lines. Mr. Adkin, short series of *Moma Orion* from Essex and the New Forest. Mr. Carpenter, series of *Colias Hyale* from Sheerness, including the pale form, and gave particulars as to the habits of the larvæ of both *C. Hyale* and *C. Edusa*. Mr. Montgomery, living larvæ of *C. Edusa*, and commented on the long time taken in feeding up this year, owing doubtless to the want of sunshine. Mr. Lucas, the Orthopteron, *Platycleis grisea*, from Lulworth, and *Tettix subulatus* from Milford. Mr. Main, specimens of *Myriapoda* and *Arachnids* from West Africa. Mr. F. M. B. Carr, series of Dragonflies taken this year:—*Sympetrum striolatum*, *S. sanguineum*, and *S. scoticum*, from Ockham, *Libellula depressa*, *L. quadrimaculata*, *Orthetrum cærulescens*, *Gomphus vulgatissimus*, *Cordulegaster annulatus*, and *Brachytron pratense*, from the New Forest, *Æschna grandis* from Wisley, and *Æ. mixta* from Loughton. Mr. Hy. J. Turner, *C. Edusa* taken at Dawlish, including var. *Helice* and a small female with a pale yellow costa. He also showed a pair of *Æ. mixta* taken with two others at Pitsea. Mr. Chittenden, a pale yellow var. of *Chrysophanus Phlæas* from Ashford, two very dark *Gnophos obscuraria* from Shirley, a specimen of *Bupalus piniaria* from W. Wickham, having the right wings and antenna male, and the left wings and antenna female, and a dark form of *Agrotis aquilina* from Shirley. Mr. Colthrup, on behalf of Mr. Hills, of Folkestone, a long series of *C. Hyale*, showing pale forms of both male and female, and one specimen with dark hind-wings, closely resembling *C. Edusa*, var. *Helice*. Mr. R. Adkin read the Report of the Field Meeting held at Paul's Cray Common on September 22nd.

October 11th, 1900.—The President in the Chair.

Mr. R. Adkin exhibited series of the spring and summer broods of *Zonosoma porata* and *Z. punctaria*, bred from Sussex ova, and pointed out their resemblances and differences. Mr. Lucas, on behalf of Mr. Jennings, the Hemipteron, *Pilophorus perplexus*, from oak at Edmonton, and the rare *Monanthia ciliata* from near Dorking, together with a very dark form of the common earwig, *Forficula auricularia*. Mr. B. Adkin, fine bred specimens of *Boarmia repandata* from the New Forest, bred *Cleora glabraria*, including a fine suffused variety, and various forms of *Noctua castanea* (*neglecta*). Rev. H. Wood, a specimen of the rare Longicorn, *Astynomus adilis*, taken at Northampton. Mr. Jäger, short series of *Stilbia anomala*, *Lithosia caniola*, *Noctua castanea*, *Laphygma exigua*, and *Leucania putrescens*, with specimens of *Epanda lichenea*, *L. albipuncta*, *L. vitellina*, *Heliothis armigera*, and *Colias Edusa*, var. *Helice*, all taken in South Devon in August and September this year. Mr. Lucas, varieties of *Pyrrhosoma tenellum*, (1) a female with bronze abdomen, (2) a female with abdomen crimson, except black eirelets at the junctions of the segments, both from the New Forest. Mr. Kaye, series of British *Lycænids*, and closely allied species of *Lycænids* from Japan, including *Chrysophanus Phlæas*, British and Japanese; *Polyommatus argea*, Japan, to compare with *P. Icarus*; *Plebius Ægon*, British and Japanese; *Cyaniris argiolus*, British and Japanese; and Japanese *Everes argiades*, and contributed notes on the variations. Mr. Main, a *Phasmid* from Borneo. Mr. McArthur, a long series of brilliant specimens of *Argynnis Aglaia*, taken near Brighton. Mr. West, a series of a Homopteron new to Britain, *Typhlocyba candidula* beaten from white poplar on Blackheath. Mr. Turner, on behalf of Mr. Edwards, a long series of *Saturnia pavonia* bred from ova

laid by a female captured in April, 1898, at Digne. The first portion, twenty-one males, emerged in 1899, the second portion, two males and seven females, emerged in 1900, and two pupæ remained over, but had since died. Mr. Blenkarn reported that he had taken the rare *Ischnura pumilio* in Abbot's Wood. Dr. Chapman, specimens of *Cnethocampa pityocampa*, prepared to show the frontal apparatus for forcing an exit from the tough cocoon, which process he explained was also assisted by the special development of the first pair of imaginal legs.—HY. J. TURNER, *Hon. Secretary.*

ENTOMOLOGICAL SOCIETY OF LONDON: *October 3rd, 1900.*—Mr. G. H. VERRALL, President, in the Chair.

Mr. E. A. C. Studd, Oxton, Exeter; Mr. H. Maxwell Lefroy, B.A., Economic Entomologist to the Imperial Agricultural Department for the West Indies, Barbadoes; Mr. W. F. Urwick, 34, Great Tower Street, London, E.C.; were elected Fellows of the Society.

Mr. G. C. Champion exhibited specimens of *Trogophlæus anglicanus*, Sharp, found by Mr. Keys at Plymouth; *Pachyta sexmaculata*, L., found by Col. Yerbury at Nethy Bridge, and *Anchomenus quadripunctatus*, De Geer, found by himself at Woking. Mr. M. Jacoby, an ichneumon, *Rhyssa persuasoria*, taken by him at Blandford, parasitic on *Sirex*, and Col. Yerbury said that he had met with the same species in some numbers in Scotland. One female observed in the act of oviposition had thrust her ovipositor through an inch of fir trunk. Col. Yerbury, (1) a rare sawfly, *Xyphidria camelus*, taken in Scotland this year at Nethy Bridge. The species is mentioned in the old books as extinct in the United Kingdom, and Mr. Waterhouse said there were no modern specimens in the South Kensington Museum collection; (2) rare *Diptera* from Scotland, including (a) *Laphria flava*, two males from Nethy Bridge; (b) *Chamaesyphus scæoides*, new to Britain, from the Mound, Sutherland, where it was common on *Umbelliferae*, one female also being taken on the path up Cairngorm; (c) *Microndon devius*; (d) *Chilosia chrysocoma* at mountain-ash blossom, Nethy Bridge; and (e) *Stomphastica flava*, two males from Golspie, September, 1900. Mr. H. K. Donisthorpe, (1) a *Drusilla canaliculata*, with the dead body of a *Myrmica* in its mouth, captured at Chiddingfold on July 17th; (2) *Myrmedonia collaris* and its larva taken in Wicken Fen, with *M. lævinodis*, in August, 1900. The Rev. F. D. Morice, a remarkable hermaphrodite of the bee *Podalirius* (= *Anthophora*) *retusus*, in which the male characters were confined to the left side of the head and genitalia, the right side of the thorax and the abdominal segments. The antennæ and hind (pollinigerous) legs were those of a female, and the genitalia half of each sex. Dr. Chapman, beetles of the genus *Orina*, some of them alive, and remarked on the fact that while some were viviparous others were oviparous, in some cases of the former the larvæ being developed in the ovarian tubes. Mr. H. J. Elwes, a collection of *Lepidoptera* from Greece, taken this season in conjunction with Miss Fountaine, in the Morea, and in the Parnassus region. He remarked that the country about Athens was much dried up, and therefore the Lepidopterous fauna was poor. On the south side of the Gulf of Corinth, however, the *Pieridæ* were well represented, and out of eight European species seven were taken in three weeks. The spring and summer broods of *Pieris Krueperi* this year were flying together—an unusual occurrence, possibly due to the rainy spring.

Among other notable species albinos of *Colias Heldreichi* (female) were taken, *G. rhamni*, var. *farinosa*, and *Lycæna ottomanus*, while Mr. Elwes further expressed his opinion that a *Lycæna* taken as a var. of *L. semiargus* was a distinct species. Miss Fountaine mentioned in connection with these exhibits that *Colias Heldreichi* swarmed on Mount Kelmos, from 4000 to 7000 feet; and Mr. Elwes remarked that Miss Fountaine was the first British collector known to have captured this insect. Mr. H. H. May, a variety of *Strenia clathrata*, taken on the Southdowns, in which the ground colour of the wings was of a uniform dark chocolate-brown. Mr. F. Enoch, a male bee, *Stelis aterrima*, parasitic in the nests of *Osmia fulviventris*, and usually considered a rare insect. The specimen was taken on August 14th, 1900, in a garden at Holloway. Papers were communicated on "Descriptions of new species and a new genus of South American *Eumolpidae*, with remarks on some of the genera," by Mr. M. Jacoby; and on "*Lepidoptera-Heterocera* from Northern China, Japan, and Corea" (Part IV), by Mr. J. H. Leech, B.A., F.Z.S., &c.

October 17th, 1900.—The President in the Chair.

Mr. J. Digby Firth, The Grammar School, Chorlton-cum-Hardy, near Manchester, was elected a Fellow of the Society.

Mr. A. H. Jones exhibited a series of *Pararge Mæra*, a light form resembling *P. Megæra* from the Basses Alpes and the Cévennes; a dark form approaching *P. Hiera* from Cortina; and an intermediate form from the Italian Lakes; also a variety of *Lycæna Corydon*, female, in which the under-wing showed a decided blue coloration, taken at Lago di Loppio, near Riva. Dr. Chapman suggested that the union between the three named species of *Pararge* was very near, if the species were not indeed identical. Mr. A. J. Scolliek, a specimen of *Cethosia cyane*, a species confined to India and the Malayan region, which had been taken this year on the wing near Norwich. It was suggested by Mr. Distant that this was a case of accidental importation, probably in the pupal condition. Mr. H. Rowland-Brown, specimens of *Erebia glacialis*, taken this year on the Stelvio Pass, showing transitional forms of the var. *Alecto*. He said that the typical form and the variety were not found flying together, but on opposite sides of the valley. Dr. Chapman observed that the darker specimens approached the form of *E. melas*, found in the neighbourhood of Cortina-di-Ampezzo. Specimens of *E. glacialis* also exhibited from Saas Fée and Evolena showed marked inferiority in size and brilliancy of colour. Mr. W. L. Distant, a piece of Hawkesbury sandstone from Australia, showing the borings of *Termites*, and in connection with the same communicated a note from the Proceedings of the Linnæan Society of New South Wales (Pt. III, 1899, p. 418), as follows:—"Mr. D. G. Stead exhibited specimens of Hawkesbury sandstone (1) from the sea-shore between tide marks showing the tunnelling of Marine Isopods (*Sphaeroma*) with the living animals *in situ*; and (2) from the hill-tops overlooking Port Jackson, offering examples of the borings which so often attract notice, and the production of which has been attributed to *Hymenoptera*, and also to the *Termites*. Since last meeting Mr. Stead reported that he had investigated the matter, and that, after breaking up a quantity of stone, he had come upon *Termites*, of a species at present undetermined, actually at work, specimens of which he exhibited. Mr. M. Burr, a male and female specimen of *Anisolabis colosseæ*, Dohrn, from New South Wales—the largest known earwig in the world.—C. J. GAHAN and H. ROWLAND BROWN, *Hon. Secs.*

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ERRATUM.

Page 124, line 6 from bottom, for "*Specophaga*," read "*Sphecophaga*."





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There seems to be no reason to doubt that the present season is favourable to the appearance, often in considerable numbers, and often wide spread, of certain species (of which *Colias Edusa* and *Hyale* may be cited for *Lepidoptera*) ordinarily more or less uncertain or sporadic in their nature. It is highly desirable that these occurrences should be placed on record, and our correspondents are requested to send us notes on any exceptional captures in any Order, from direct experience or trustworthy information.—EDITORS.

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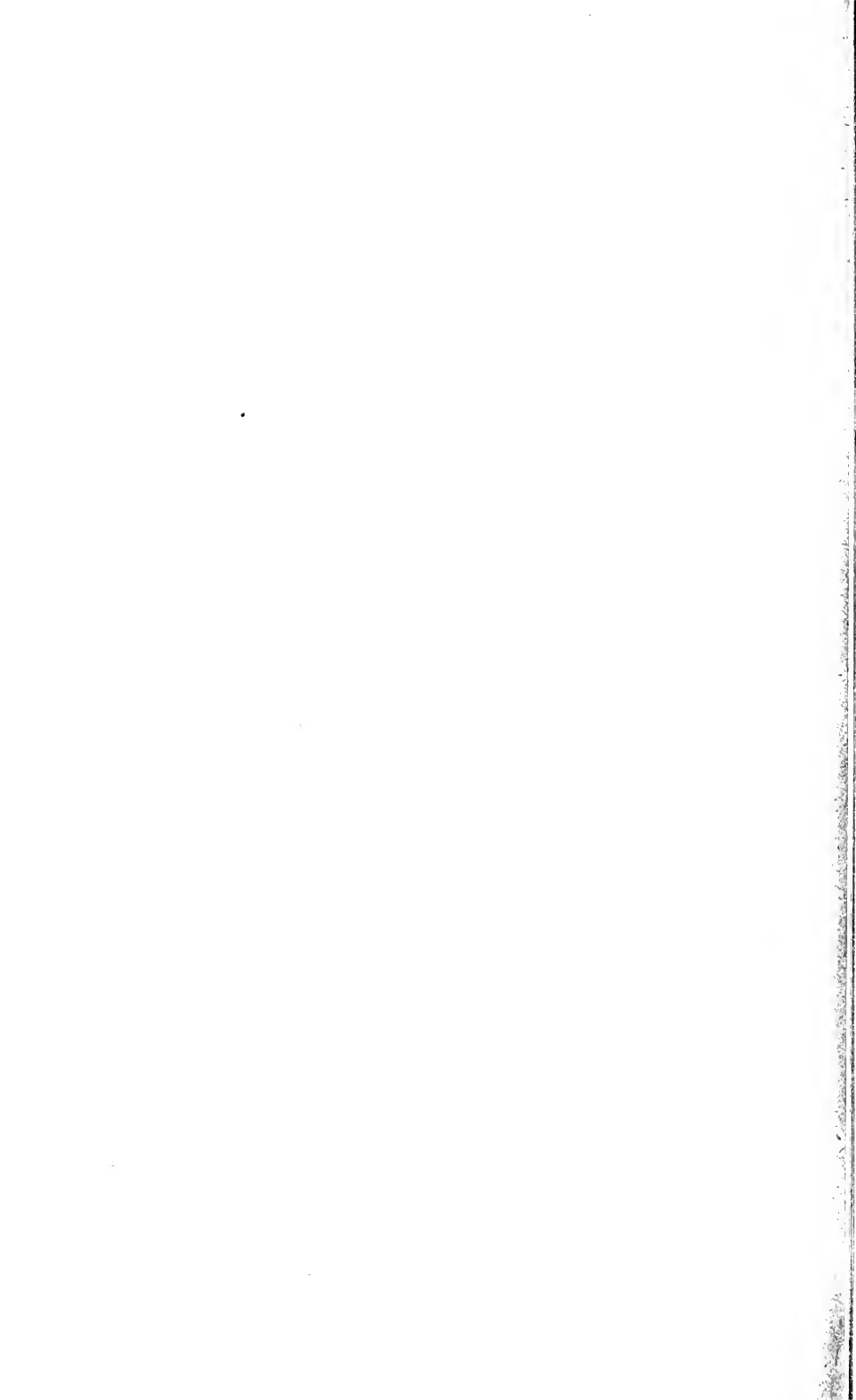
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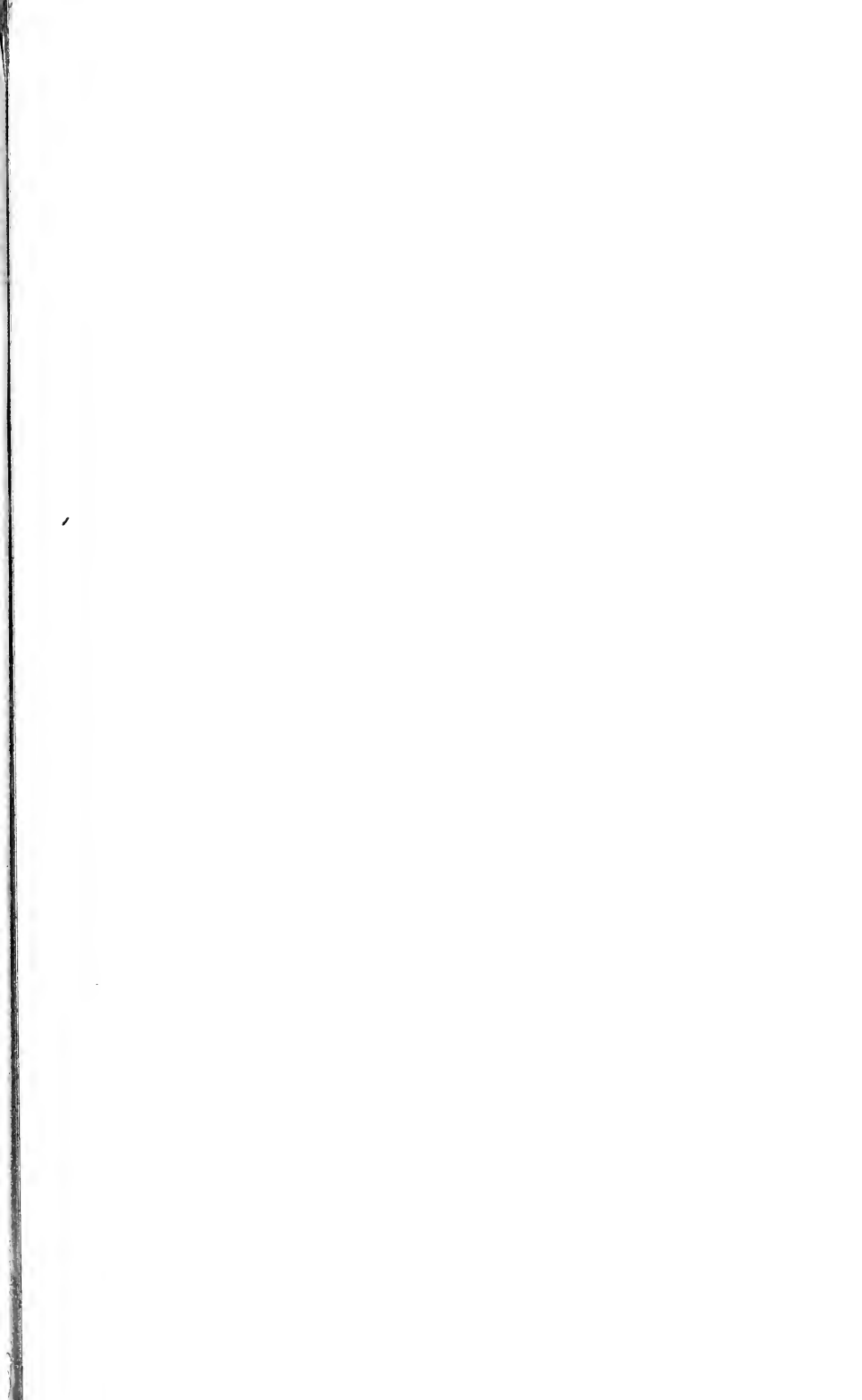
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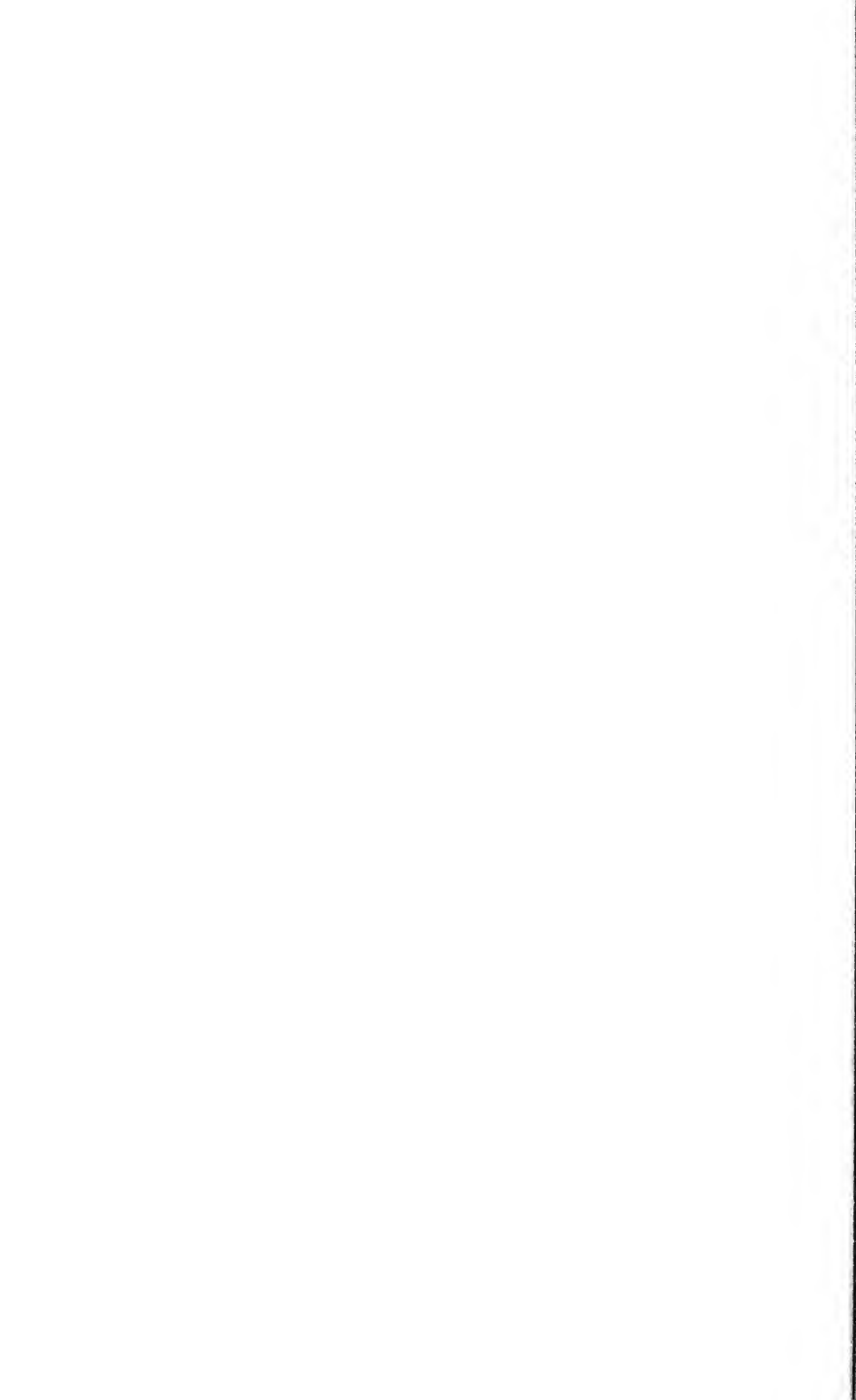
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